The mediating role of Organisational Culture in the relationship between Region-Based Firm Ownership Type (RBFOT) and Manufacturing Performance:

A test on the Apparel Industry in Sri Lanka

A thesis submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy at Massey University, New Zealand

Marlon Anthony Marius Gunasekera

(2022)

This thesis is dedicated to my loving

Wife, Mignnone

Son, Dulith

&

Daughter, Mahima

Heavenly Father, I praise and thank you for everything.

“God is my strength and power and He maketh my way perfect”

2 Samuel 22:33

ACKNOWLEDGEMENT

To the many among you who spared your precious time to assist me in completing this thesis successfully, without whose indulgence my efforts would have been in vain, please allow me to express my sincere gratitude and a "BIG THANK YOU" from the bottom of my heart.

Words fail me on how best I should lend my inner thoughts of thanksgiving to my dear research supervisors, Dr Nihal Jayamaha and Dr Jeffrey Kennedy, who despite many and varied duties and responsibilities as senior academics of Massey University, ungrudgingly gave their valuable time, experience and expertise throughout the study. Their continuous academic and moral support was of immense motivation in completing the study successfully.

May I also express my gratitude and indebtedness to Professor Paul Childerhouse who was my research methods teacher and mentor during the first year of my studies and Professor Nigel Grigg who was the former Head of the Department of Operations and Engineering Innovations to which I was attached as a doctoral researcher throughout my studies. Moreover, I would like to extend my deep appreciation to Dr Ishani Soysa (Former Statistics Tutor – SF&AT), Karen Pickering (Postgraduate Administrator – SF&AT), Ruth Brooks (Administrator, Albany Campus – SF&AT), Dilantha Punchihewa (Administrator, Finance – SF&AT), Bridget Cambell (Team Leader, Graduate Admissions and Scholarships), Nicola Duffin (Advisor, Graduate Candidacy Management) at Massey for assisting my studies in numerous ways.

My special thanks also go to Professor Rohana Kuruppu, Professor Wathsala Wickramasinghe, Professor GLD Wickramasinghe, and Dr AKL Jayawardana who extended their support as expert researchers in the apparel industry of Sri Lanka. I must acknowledge the academic support given to me by Prof. Rohana Ulluwishewa, Prof. Henarath Opatha, Prof. Disna Pushpakumari, Dr U. Anura Kumara from the University of Sri Jayewardenepura, Sri Lanka.

I will fail my duty if I don't mention Mr. Madapatha Lawrance (Executive Director, Zones), Ms. Himali Urugodawatte (Director, Legal & Industrial Relations), Mr. Upatissa Sirigampala (Former Executive Director, Zones), and Ms. Priyanka Samaraweera (Director, Research & Policy Advocacy) from the Board of Investment of Sri Lanka who graciously assisted me in collecting the qualitative and quantitative data for the study.

Last but not least, I am very much grateful to my loving Wife, Son, and Daughter for being with me and looking after me. The sacrifice they made on my behalf would fall short of mere thank. MAY GOD BLESS YOU ALL!

ABSTRACT

In today's globalised context, manufacturing firms belonging to various regions of the world expand their businesses beyond borders and gradually become international, multinational, and global companies investing in various countries and regions of the world. Most of these firms establish foreign affiliates and compete with the local (domestic) firms in host countries. In this context, international and cross-cultural operations management studies have high theoretical and practical value in understanding how management practices, systems, techniques, and norms account for the manufacturing performance differences between foreign and local firms.

Understanding and explaining the reasons for differences in the manufacturing performance of local and foreign-owned firms is an underexplored research area, especially in the developing regions of the world. This study adopts a cross-cultural operations management perspective and hypothesises that differences in organisational culture traits (related management practice orientations) of firms belonging to different regions of the world account for manufacturing performance differences. The study examines the relationship between Region-Based Firm Ownership Type (RBFOT) and manufacturing performance, and the mediating role of the organisational culture (an important influence on manufacturing practices) in this relationship.

The study was based in Sri Lanka (South Asia) with the apparel industry as the context, and local firms are compared with foreign firms from two other regions: Western and East Asian. Semi-structured interviews were used to clarify the research context and to understand how foreign-owned firms set up, operate and establish organisational cultures in Sri Lanka. The subsequent quantitative study covered 93 firms with data aggregated to the firm level to test the mediation model. To test the model, ANOVA and parallel multiple mediation analysis using regression-based SPSS PROCESS macro were adopted.

The findings revealed that organisational culture (measured using Denison's culture traits and related management practice orientations) is a significant mediator in explaining the difference in the manufacturing performance of RBFOTs. Moreover, significant differences in culture traits and related management practice orientations were evident between Western, East Asian, and South Asian firms generating different levels of manufacturing performance. Other contributions include developing a new scale to measure the manufacturing performance of apparel firms and validating Denison's Organisational Culture Survey (DOCS) in Sri Lanka. Overall, the study contributes to the theory and practice of international and cross-cultural operations management in general and apparel industrial management in particular.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

ANOVA – Analysis of Variance
AVE – Average Variance Extracted
BOI – Board of Investment
BOISL – Board of Investments of Sri Lanka
CBSL – Central Bank of Sri Lanka
CR – Composite Reliability
CFA – Confirmatory Factor Analysis
CVCAS – Competing Values Culture Assessment Survey
CVF – Competing Values Framework
DCM – Denison's Culture Model
DOCS – Denison's Organisational Culture Survey
EFA – Exploratory Factor Analysis
FDI – Foreign Direct Investment
GDP – Gross Domestic Product
GLOBE – Global Leadership and Organisational Behavior Effectiveness
HSD – Honest Significant Difference
HTMT – Heterotrait-Monotrait Ratio of Correlations
ICC – Intraclass Correlation Coefficient
JAAFSL – Joint Apparel Association Forum of Sri Lanka
KEPZ – Katunayaka Export Promotion Zone
KMO – Kaiser-Meyer-Olkin Measure of Sample Adequacy
MNE – Multinational Enterprises
MP – Manufacturing Performance
MPS – Manufacturing Performance Scale/Survey
OCTs – Organisational Culture Traits
OLS – Ordinary Least Squares
PA – Parallel Analysis
RBFOT – Region-Based Firm Ownership Type
SEM – Structural Equation Modelling
SLAEA – Sri Lanka Apparel Exporters Association
SLEDB – Sri Lanka Export Development Board
SPSS – Statistical Package for Social Science
TVE – Total Variance Explained
VIF – Variance Inflation Factor

CHAPTER 1

INTRODUCTION

1.1 Background

In an era of globalisation, manufacturing firms belonging to various regions of the world expand their businesses beyond borders and gradually become international, multinational, and global companies investing in various countries and regions of the world. Many of these firms establish foreign affiliates and compete with the local (domestic) firms in host countries. In this context, cross-cultural operations management studies have high theoretical and practical value in understanding how management practices, systems, techniques, and norms account for the manufacturing performance differences between foreign and local firms.

Manufacturing performance[1] is one of the critical success factors for the survival and growth of foreign and local firms operating in various industries, countries, and regions of the world. Thus, it is crucial to gain and retain firms' competitiveness and excellence in overseas markets (Devkumar *et al.*, 2014; Wickramasinghe & Perera, 2016). Understanding the manufacturing performance differences between foreign and locally owned firms operating, especially in developing countries/regions of the world, has been identified as an underexplored research area requiring further research (Mihai, 2014; Miller Stewart & Eden, 2006; Pasali & Chaudhary, 2020).

Several studies have been carried out to investigate the relationship between firm ownership type (fully foreign-owned vs fully locally owned) and manufacturing performance in similar industries of developing, emerging, and developed countries/regions of the world. These studies have reported mixed results on the relationship between foreign-local ownership type and manufacturing performance (Mihai, 2014; Miller Stewart & Eden, 2006; Pasali & Chaudhary, 2020) compared with matching samples using control variables. For example, studies carried out by Doms and Jenson (1995); Liu (2000); Machek (2016); McGregor *et al.* (2015); Pasali and Chaudhary (2020); Willmore (1986); Yudaeva *et al.* (2003) found that the performance of foreign-owned manufacturing firms is significantly higher than locally-owned manufacturing firms. On the contrary, studies carried out by Ebersberger and Lööf (2005); Kim and Lyn (1990); Munday *et al.* (2003); Temouri *et al.* (2008) found that the performance of

[1] Manufacturing performance is considered in this study as the overall operational capability of transforming input resources into valuable product/s as expected by the targeted customers, which consists of five main operational performance dimensions, namely, cost-efficiency, delivery, product quality, flexibility and innovativeness.

locally-owned manufacturing firms is significantly higher than foreign-owned manufacturing firms. On the other hand, studies carried out by (Mata & Portugal, 2002; Sjoholm, 2004) found no significant difference in manufacturing performance between foreign and local firms. Because of these conflicting results, further investigation is required to understand and explain the relationship between firm ownership type and manufacturing performance.

The literature search further revealed that studies examining the manufacturing performance differences between the fully foreign and locally owned manufacturing firms operating in developing countries in the South Asian region had not received much attention, despite substantial Foreign Direct Investment (FDI) in these regions. Previous studies have focused on examining the performance differences between foreign and locally owned manufacturing firms operating in American, European, African, and East Asian regions of the world (Mihai, 2014; Miller Stewart & Eden, 2006; Pasali & Chaudhary, 2020).

The comparison of the performance of fully foreign and locally owned manufacturing firms by previous studies has been mainly analysed and examined in terms of various econometric-oriented performance metrics such as value added per worker, labour-capital ratio, and total factor productivity (Temouri *et al.*, 2008; Willmore, 1986; Yudaeva *et al.*, 2003). However, these studies also found conflicting results. Hence, there is a need to incorporate manufacturing performance dimensions such as cost-efficiency, delivery, product quality, flexibility, innovativeness, and related metrics that are useful to the operations management fraternity to measure and compare manufacturing performance differences accurately (Gomes *et al.*, 2004).

Part of the reason for these discrepancies seems to be related to the operationalisation of manufacturing performance (many different dimensions and metrics have been used to measure manufacturing performance). The other reason seems to be in the theorisation (many different causal antecedents account for manufacturing performance differences).

Some studies have suggested proprietary technology, economies of scale, country, industry, and firm-specific advantages, mutinationality, and crowding out effects as the reasons for the superior performance of foreign-owned manufacturing firms (Aydin *et al.*, 2007; Caves, 2007; De Carvalho *et al.*, 2012; Dunning, 2008; Jennifer, 2008; Yudaeva *et al.*, 2003). Conversely, some other studies have suggested knowledge about the local operating environment, acquaintance with the local business setting, laws and work practices, spillover effects, inherent industry knowledge, and the liabilities of foreignness confronted by foreign firms as the reasons for the superior performance of locally owned manufacturing firms (Aitken & Harrison, 1999; Blomtrom & Sjoholm, 1998; Denk *et al.*, 2012; Huang & Shiu, 2009).

The studies mentioned in the preceding paragraph attribute potential causes for manufacturing performance differences from international economics and finance perspectives. However, the researcher postulates the manufacturing performance of foreign and local firms results from operations management practices (details in section 2.3). Hence, it is important to understand how these practices differ and account for performance differences of the firms that are influenced by the national cultures to which they belong. Hence, the literature reveals a lack of studies attributing causes from a cross-cultural operations management perspective[2]. The researcher perceives the organisational culture in this study as a managerial-oriented social phenomenon that is best characterised by their management practice orientations. Therefore, this study takes the position that the organisational culture of foreign and locally owned firms belonging to different regions of the world could play a significant interceding role in explaining the manufacturing performance difference of these firms.

When foreign and local firms belong to diverse regions of the world, the reasons for the manufacturing performance differences of firms could be more region-specific. In support of this view, organisational anthropologists argue that an organisation's culture represents the unique identity and character of the firms owned by corresponding regions of the world (Dunning, 2008; Hofstede, 1980; House *et al.*, 2002; Trompenaars & Hampden-Turner, 1998). This idea represents a regionalistic and culture-specific view. However, some extant cross-cultural researchers have found results contrary to this view, arguing that the organisational cultures of firms operating in various regions are not representing the characteristics of the regional cultures but are driven by universally accepted management principles (Adler & Jelinek, 1986; Dastmalchian *et al.*, 2000; Naor *et al.*, 2010). This idea represents a universalistic and culture-neutral view.

The researcher postulates that the differences in the manufacturing performance of firms that originates in various regions could be explained through the difference in their firm cultures. It is this unexplored niche area that this study attempts to exploit in both theory formulation and theory testing. For theory formulation and theory testing, this study focuses on three Region-Based Firm Ownership Types (RBFOTs)[3]: Western, South-East Asian, and South Asian.

[2] Cross-cultural operations management perspective reperesents the unique management practices, systems, techniques and norms adopted by the firms belong to various regions of the world influenced by the national cultural values of the regions (regional cultures) for which these firms belong to.

[3] Region-Based Firm Ownership Types (RBFOTs) operating in the BOI-approved apparel manufacturing sector - Sri Lanka
Foreign-owned firms belong to the Western region - Firms fully owned & controlled by Western investors.
Foreign-owned firms belong to the East Asian region - Firms fully owned & controlled by the East Asian region investors.
Locally owned firms belong to the South Asian region - Firms fully owned and controlled by Sri Lankan investors.

1.2 Scope of the study

The scope of this study is limited to apparel manufacturing in South Asia, more specifically, Sri Lanka. The study considered only the firms approved by the Board of Investment of Sri Lanka (BOISL) to ensure that all firms operate on a level playing field (same FDI benefits). Moreover, to ensure comparability of these firms in terms of the extent of influence on the firm's culture, the study considered the fully owned firms with more than five years of operations in Sri Lanka.

The study focuses on RBFOTs belonging to three regional clusters, namely, Western, East Asian, and South Asian, considering the regional country cluster clarification of the GLOBE study (House *et al.*, 2002). The Western region cluster represents firms belonging to North American and Western European regions. The East Asian region cluster represents firms belonging to the East Asian and South-East Asian regions. Finally, the South Asian region cluster represents Sri Lankan-owned firms operating in Sri Lanka (see limitations of the study).

A new comprehensive manufacturing performance measurement scale was developed for the apparel manufacturing industry to address the operationalisation of performance measurement discrepancies identified in the literature review. The organisational culture[4] has been operationalised and measured using many frameworks and scales by scholars (details in section 2.5.1). This study used the organisational culture operationalisation framework (DCM) developed by Denison and his associates (Denison & Mishra, 1995; Denison & Neale, 1996), and its measurement scale known as Denison's Organisational Culture Survey (DOCS)[5].

1.3 Research question under investigation

If RBFOTs influence organisational culture and the latter affects manufacturing performance, it follows that organisational culture acts as an intervening (mediating) phenomenon in the relationship between RBFOT and manufacturing performance. Based on this premise, the question that the researcher attempts to investigate in this study is:

"*What is the role being played by the organisational culture as a mediator in the relationship between RBFOT and manufacturing performance?"*

[4] Organisational culture in this study is defined as the unique ways of managing the firm/business represented by the firms cultural traits and management practice orientations.

[5] Denison's Organisational Culture Survey (DOCS):
This is the survey instrument used to measure the construct of the organisational culture of this study. According to Denison and Neale (1996), organisational culture is collectively characterised by four culture traits: involvement, consistency, adaptability and mission and twelve related management practice orientations representing each culture trait.

This research question covers both the theory formulation component (what is the theoretical relationship among RBFOTs, organisational culture, and manufacturing performance?) and the theory-testing component (whether organisation culture mediates the relationship between RBFOT and manufacturing performance in the first instance, and if so how and to what extent does it mediate?). An organisational culture-based mediation model was conceptualised to answer these research questions. The model was tested using data collected from the apparel industry of Sri Lanka.

1.4 Aims and objectives

Therefore, the primary aim of this study is to examine the mediating role played by the organisational culture in the relationship between RBFOT and manufacturing performance in the apparel industry of Sri Lanka.

1.4.1 Objective – 1

To determine whether organisational culture mediates the relationship between RBFOT and manufacturing performance. If so, then identify how and to what extent it mediates.

This objective intends to address a new theorisation leading to manufacturing performance differences across RBFOTs.

1.4.2 Objective – 2

To develop a comprehensive scale to operationalise and measure manufacturing performance for the apparel industry.

This objective intends to provide a new operational definition unique to the manufacturing performance of apparel firms, and comprehensively measure and accurately compare the manufacturing performance differences across RBFOTs.

1.4.3 Objective – 3

To validate Denison's Organisational Culture Survey (DOCS) in a developing economy, taking the apparel industry of Sri Lanka as a context.

This objective intends to further validate the DOCS in a new industrial and regional context.

1.5 Importance and novelty of the study

1.5.1 Importance to academia

This study is vital to academia for several reasons. Firstly, prior research, for the most part, has studied the relationship between foreign-local ownership type and firm performance using econometric approaches (based on international economic and finance perspectives). These studies have returned conflicting evidence. One reason for conflicting evidence comes from deficiencies in the theory. Most findings from prior studies provide limited insight into international and cross-cultural operations management practice orientations. Justifiably, this study takes the position that manufacturing performance differences of RBFOTs result from different operations management practices, systems, techniques, and norms that are best characterised by the firm's culture. Hence, the study posits that RBFOTs influence the firm's organisational culture, and the organisational culture, in turn, influences manufacturing performance. This mediational relationship provides a (novel) theoretical underpinning better grounded in international and cross-cultural operations management literature.

Secondly, prior research has studied the relationship between foreign-local ownership type and firm performance using different metrics to capture manufacturing performance (the dependent variable in the cause-and-effect relationship). However, this operationalisation has also led to conflicting evidence. Therefore, a new performance scale was designed, developed, and validated to operationalise manufacturing performance in the apparel industry, considering the unique nature of the operations management processes and outcomes. The new validated scale can be used by researchers in apparel and other related industries (i.e. textiles, footwear, leather products, soft toys) for scientific purposes (e.g., hypothesis testing).

1.5.2 Importance to practitioners and policymakers

This study is important to practitioners in the apparel industry on two counts. Firstly, to improve the performance (in this study, the manufacturing performance), practitioners need to know how to measure performance reliably and accurately in the first place. This scale helps them to reliably and accurately compare the manufacturing performance differences among the competing firms in the industry (i.e. competitive benchmarking). Since this study developed (and tested) a comprehensive measurement scale to operationalise and measure manufacturing performance for the apparel industry, it can be used by practitioners in the apparel industry for performance monitoring and improvement purposes. Secondly, the study's findings stemming from theory testing can be used to understand whether RBFOTs matter in manufacturing

performance in the apparel industry. From a policymaker's point of view, FDI is critically important to a developing economy, irrespective of how well foreign firms perform (or otherwise) relative to local firms. However, the study findings (especially the extent of manufacturing performance difference among the RBFOTs) could be helpful to policymakers (the government) in decision-making. For example, if local firms perform equally well (or better) than foreign firms, the policymakers can develop strategies to consolidate or sustain this position through incentivisation and other strategic initiatives (i.e. industry advisory service). On the other hand, if local firms perform poorer than foreign firms, the policymakers can take necessary policy decisions in collaboration with industry associations (i.e. facilitating industry consultancy services) to improve the performance of the local firms.

1.6 Research methods overview

This study adopts a dominant quantitative methodology based on the positivist research paradigm. A preliminary field study was conducted (through semi-structured interviews) in the initial phase of the study to clarify and understand the operational context of the BOI-approved apparel sector of Sri Lanka. A quantitative study using the survey strategy (the major part of the research design) was conducted to collect data to test the theoretical model containing related hypotheses. The study also provides an avenue to validate DOCS in the apparel industry in Sri Lanka. CFA was used for this purpose. ANOVA and parallel multiple mediation analysis via ordinary least squares multiple regression analysis was applied as the main inferential statistical techniques. For the latter, a tool known as PROCESS macro[6] was used.

1.7 Limitations and delimitations

This research is carried out in the export-oriented apparel sector approved by the BOISL focusing on fully owned firms belonging to Western, East Asian, and South Asian regions. The Western and East Asian regional clusters were identified based on culture distance scores used by the GLOBE study to classify the regional clusters (House *et al.*, 2002). However, the study considered only Sri Lankan firms representing the South Asian region due to practical data collection limitations. Hence, the considered scope of the study restricted the ability to generalise its findings to these three regions.

The prevalence of a limited number of fully owned foreign-owned firms belonging to Western (N=43) and East Asian regions (N=41) in comparison to fully locally owned Sri Lankan firms

[6] PROCESS macro is a path analysis tool that facilitates regression analysis using observed variables (Hayes, 2018).

(N=141) operating in Sri Lanka posed a barrier in obtaining probabilistic samples of reasonable size for statistical inferencing purpose. Therefore, the results of this study should be interpreted with some caution.

The Covid-19 pandemic significantly impacted data collection and subsequent analysis. The study commenced before the Covid-19 pandemic, but the quantitative data collection occurred when the global apparel industry in developing economies in general and the apparel industry in Sri Lanka, in particular, were the worst hit. The earlier plan was to visit Sri Lanka for main data collection because this enables the screening of the respondents more closely. However, this plan had to be changed entirely in favour of online data collection due to travel restrictions imposed by the New Zealand government. The online data collection was conducted in two phases over four months with several reminders to obtain an adequate number of responses to meet the minimum sample size indicated via power analysis. The study received responses from 93 firms, of which 33 represented foreign firms belonging to the Western region, 32 represented foreign firms belonging to the East Asian region, and 28 represented locally owned (Sri Lankan) firms belonging to the South Asian region.

1.8 Structure of the report

This thesis is organised into *eight chapters*. The *first chapter* provides an overview of the study in terms of background, scope, investigative question, objectives, and importance, along with its limitations. *Chapter 2* presents the literature review under three relationships: 1) RBFOTs and manufacturing performance, 2) organisational culture and manufacturing performance and 3) RBFOTs and organisational culture. This review led to the formulation of hypotheses and the building of the study's conceptual model. *Chapter 3* describes the research philosophy and approach, the methodological choice, data collection strategies, and methods of data collection and analysis. *Chapter 4* describes the details of the preliminary field study carried out to clarify the research context and understand the operational dynamics of the RBFOTs. *Chapter 5* elaborates on designing, developing, and validating a new scale to measure the manufacturing performance of an apparel firm. *Chapter 6* presents the details of the data analysis and results of the quantitative study, including the validation of DOCS and manufacturing performance scales and hypothesis testing. *Chapter 7* discusses the findings from theoretical and practical perspectives, interpreting the results within the context of existing literature and their implications for the practice of cross-cultural operations management and apparel manufacturing management. The *final chapter* summarises the key findings, the study's contribution to theory and practice, and suggested future research directions.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter reviews the literature on themes relevant to the research, and the industry (Sri Lankan apparel industry) used to test the theory developed by the researcher. In Sri Lanka, foreign direct investments, including investments in the apparel industry, are facilitated and regulated by the BOISL, a government-owned statutory organisation. BOI Law No. 4 of 1978 and its subsequent amendments facilitate local investment in the industry. A local or foreign firm can invest in a permitted business activity under Section 17 of the BOI Law.

This chapter initially provides an overview of the apparel industry in Sri Lanka, which includes a review of the significance and contribution of the industry to the national economy. After that, a literature review of the study's three theme-based relationships (Figure 2.1) is presented. The first block of review (section 2.3) analyses the relationships between RBFOT and manufacturing performance. The second block (section 2.6) analyses the relationships between organisational culture and manufacturing performance, and the third block (section 2.7) analyses the relationship between RBFOT and organisational culture. Hypotheses were then formulated based on the review findings and research gaps identified under each block, enabling to synthesise the domain exploited for theory development and testing. The final section explains how and why the parallel multiple mediation model was conceptualised to formulate and test the theory.

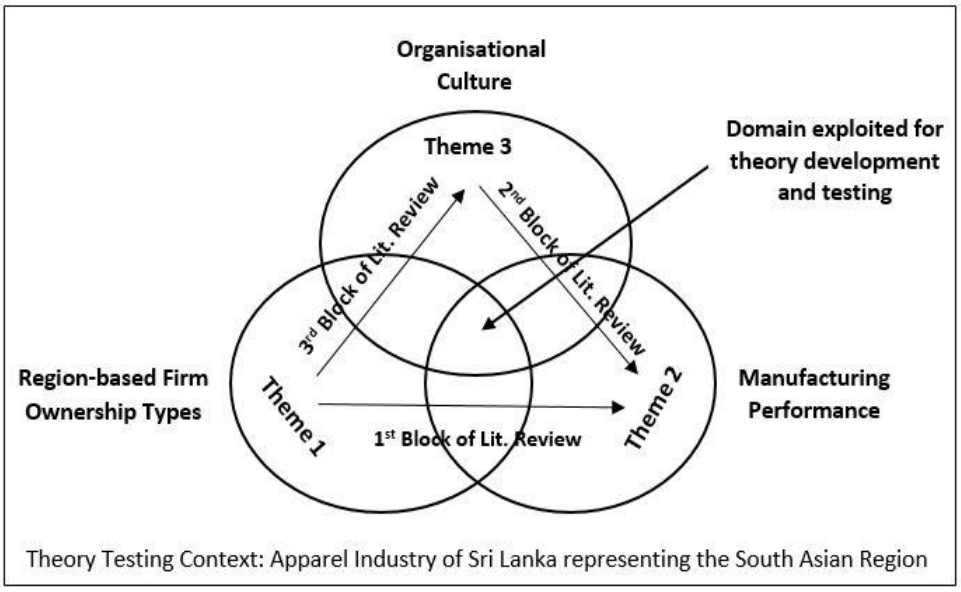


Figure 2.1 *Overall Literature Review Venn Diagram*

2.2 The apparel industry of Sri Lanka

Sri Lanka is one of the countries having the lowest-cost apparel manufacturing facilities in South Asia (Lakmali *et al.*, 2020). India, Bangladesh, and Pakistan are the other leading competitive apparel manufacturing countries in the region.

Currently, the main buyer markets in the world are dominated by apparel manufacturing firms belonging to the Western and East Asian regions. However, South Asia is emerging as a hub for apparel manufacturing due to low wages, the mass availability of skilled operatives, and labour-intensive technologies (International Labour Organisation, 2018). In addition, the comparatively low-cost regional manufacturing potential and conducive infrastructure facilities encouraged many Western and East Asian firms to shift apparel manufacturing to South Asian countries, including Sri Lanka, especially during the last decade.

The apparel industry[7] is the leading foreign exchange-generating manufacturing industry in Sri Lanka. It contributes an average of US$ 5,000 million annually to the Gross Domestic Product (GDP) as one of the largest employment-providing sectors of the country (Central Bank of Sri Lanka, 2017-2020). However, most large-scale apparel manufacturing firms ($\geq$ 500 employees) established in Sri Lanka operate under section 17 of the BOI Law, and small & medium-scale firms primarily function as sub-contractors to large-scale BOI-approved firms (Board of Investments of Sri Lanka, 2018).

Despite the adverse effect of the Covid-19 pandemic on the apparel industry globally and regionally, the apparel industry in South Asia began recovering faster than its counterparts in other regions (Castañeda-Navarrete *et al.*, 2020). Sri Lanka has devised a five-year apparel export development plan with an annual export target of US$ 8,000 million by 2025 (Board, 2020). This plan enables Sri Lanka to regain the lost export markets and exploit new emerging business opportunities.

As of the end of 2019, the BOI-approved apparel sector is the highest foreign exchange earner in the country (Central Bank of Sri Lanka, 2020). The contribution to the economy and growth of the apparel industry of Sri Lanka before the Covid-19 outbreak is shown in Table 2.1. By the end of 2019, the apparel industry in Sri Lanka was at its peak performance in terms of contribution to the economy. Sri Lanka had the highest apparel exports per capita of any

[7] Researchers use apparel industry interchangeably as garment or clothing Industry to denote the same industry.

exporting nation in the South Asian region until the Covid-19 outbreak (Board, 2020). Currently, the country is taking all measures to re-emerge as one of the best foreign investment hubs for the apparel business with comparatively lower wages, and an expanding young, adaptive, skilled workforce.

Table 2.1

Growth of the Apparel Industry of Sri Lanka and its Contribution to the Economy

Indicator	2017	2018	2019
Annual export earnings (US$ Millions)	4,800	5,000	5,200
Direct employment (No. of people)	520,000	530,000	550,000
Indirect employment (No. of people)	1,200,000	1.300,000	1,400,000
Contribution to the GDP (Percentage)	5.5	6	6.5
Exports on Total Exports (Percentage)	42%	44%	45%
Employment on Total workforce (Percentage)	18%	19%	20%

Source: (Central Bank of Sri Lanka, 2017-2020)

The influx of foreign firms over the last decade has increased the competitiveness of the apparel manufacturing industry of Sri Lanka (Wickramasinghe & Perera, 2016). Markets have become more dynamic with increasing demand for low-cost, high-quality, and innovative products requiring superior manufacturing performance (Kruger & Ramdass, 2010). Hence, the manufacturing performance of apparel firms has been identified as crucial in gaining and retaining firms' competitiveness and excellence (Devkumar *et al.*, 2014).

2.3 Relationship between RBFOT and manufacturing performance

In this first block, the studies carried out in various countries/regions of the world with different development statuses were reviewed to understand the nature and extent of performance differences between foreign and locally owned manufacturing firms operating in diverse regions of the world.

Over the years, the firm ownership type (foreign vs locally owned) has been identified as a significant factor influencing the manufacturing performance of firms operating in diverse regions, countries, and industries (Mihai, 2014). As a result, several studies have been carried out to investigate the relationship between foreign-local ownership type and manufacturing

performance in developing, emerging, and developed country contexts. These studies confirmed mixed results on the relationship between foreign-local ownership type and manufacturing performance and have shown conflicting evidence (Mihai, 2014).

Seven studies supported the proposition that foreign-owned manufacturing firms outperform locally-owned manufacturing firms (Doms & Jenson, 1995; Liu, 2000; Machek, 2016; McGregor *et al.*, 2015; Pasali & Chaudhary, 2020; Willmore, 1986; Yudaeva *et al.*, 2003). The article databases — Discover, Google Scholar, Scopus, and Web of Science — were used to identify these articles in the search. Table 2.2 presents a summary of these seven studies. These studies were reviewed in terms of theoretical, statistical, and practical aspects to determine how the performance differences between the foreign and local manufacturing firms were established.

When one considers firm ownership type (Foreign vs Local) as the independent variable (X) and manufacturing performance (Y) as the dependent variable, some of the studies hypothesise factors that are attributable to the performance difference. These factors can be treated as *implicit mediators* in the X-Y relationship. They are considered implicit mediators because these studies do not conduct a mediation analysis to determine how each factor mediates the X-Y relationship to explain the performance differences between foreign and local firms.

Table 2.2

Literature Supporting the Superior Manufacturing Performance of Foreign-Owned Firms

Author (Year)	Country /Region	Hypotheses or Purpose and the Methods Summary	Findings and the Candidate's Comments
Doms and Jenson (1995)	United States	**The study hypotheses**: Foreign firms outperform US firms, ceteris paribus. **The basis for the hypothesis**: Foreign firms that establish in the US bring superior product design, production efficiency, and advanced marketing skill. **Implicit mediators:** product design, production efficiency, and marketing skills. **Method**: Regression analysis involving several response variables (e.g., log value added in $ thousands/employment) vs Ownership; the control variables being size (no. of employees), age, industry (4 digit SIC), and plant location. The ownership was presented as a dummy variable (Foreign = 1, local = 0). The response variables were production factors of labour, capital, and materials, as used in the Cobb-Douglas production function. **Sample Size**: Foreign = 4,463 firms; US (local) = 110,676 firms	Dummy variable coefficient when the response is log value added in $ thousands/employment = .211, SE = .009, T = 23.44 (p < .001). For the key response variable shown, the hypothesis is supported by the data. **Comments**: US firms were behind Japanese companies and other Western companies operating in the US up until the 1990s, but a quality revolution took place in the US since then. Today US firms have caught up with Japanese and other foreign firms operating in the US. Also, the study is very econometrics-driven.
McGregor *et al.* (2015)	19 countries of Sub-Saharan Africa (SSA)	**The study hypotheses**: None. Purely exploratory. **Implicit mediators:** Cannot be identified because there is no hypothesis. The study uses capital investment, employment level, and age as control variables. **Method**: Regression analysis involving several response variables (e.g., log value of output per worker) vs Ownership and control variables. The ownership was presented as a dummy variable (Foreign = 1, local = 0). The response variables covered both factors of production as well as business outputs such as profits, sales, and exports. **Sample Size**: Foreign = 1,821 firms; local (Sub-Saharan Africa – SSA) = 110,676 firms	Dummy variable coefficient when the response is the log value of output per worker (labour productivity) = .678, SE = .0532, T = 12.74 (p < .001). Shows that foreign firms operating in SSA outperform local firms in terms of productivity. Dummy variable coefficient when the response is log value of profit = -.0189, SE = .0417, T = - .45 (p > .05). This Shows that foreign firms operating in SSA do not outperform local firms in terms of profitability. **Comments**: The study is econometrics driven.

Author (Year)	Country /Region	Hypotheses or Purpose and the Methods Summary	Findings and the Candidate's Comments
Yudaeva *et al.* (2003)	Russia	**The study hypotheses**: None (exploratory). **Implicit mediators:** Cannot be identified because there is no hypothesis. The study uses capital investment and employment level as control variables. **Method**: Regression analysis involving log value-added of the firm (value-added in US$) as the response and ownership type (Foreign = 1, local = 0) as a dummy variable predictor, labour (log value), capital (log value) as continuous predictors (a control for industry type was also used). The regression equation seems to have been proposed based on the Cobb-Douglas production function. **Sample Size**: Foreign = 1,256 firms; US (local) = 21,787 firms	Dummy variable coefficient = 1.01, SE = .0420, T = 24.00 ($p < .001$). The results show that foreign enterprises outperform local enterprises. **Comments**: The study is econometrics driven.
Willmore (1986)	Brazil	**The study hypotheses**: None (exploratory) **Purpose**: review previous studies in the Brazilian manufacturing sector and change the methodology for more reliable results. **Implicit mediators:** Cannot be identified because there is no hypothesis. The study does not use control variables; instead, the two samples are matched based on sales volume. **Method**: Data on 282 matched pairs (foreign vs local) were chosen and paired t-test was applied for several response variables (e.g., sales, value-added, value-added per employee as an indicator for labour productivity). Brazilian currency (cruzeiros) was used for value and sales. The difference = Foreign - Local. **Sample Size**: Foreign = 282 firms; US (local) = 282 firms	Mean difference for sales = - .6, SE = .2, T = -3.00 ($p < .01$) Mean difference for value-added = 6.2, SE = 2.3, T = 2.69 ($p < .01$) Mean difference for labour productivity = 19.9, SE = 3.8, T = 5.24 ($p < .001$) The conclusion is that foreign firms outperformed local firms in every aspect of performance. **Comments**: No strong theoretical underpinning for the study

Author (Year)	Country /Region	Hypotheses or Purpose and the Methods Summary	Findings and the Candidate's Comments
Machek (2016)	Czech Republic	**The study hypotheses**: Foreign family-owned firms outperform domestic family-owned firms in profitability and labour productivity. **The basis for the hypothesis**: Foreign firms are larger in size and capital intensity. **Implicit mediators:** None. The study uses industry type, size, age, and capital structure (in terms of gearing) as control variables for the regression analysis. **Method**: Two sample t-test (method 1) and regression analysis (method 2) involving eight dummy variables, including a dummy variable for ownership type (Foreign = 1, local = 0). **Sample Size**: Foreign = 154 firms; US (Domestic) = 573 firms	**Two sample T-test results** Domestic – Foreign mean difference for profitability = -.013, T = -1.519 (p = .065) Domestic – Foreign mean difference for labour productivity = -2.213, T = -2.691 (p < .01) **Regression results** Dummy variable coefficient when the response is profitability = .014, T = 1.550 (p = .121). Dummy variable coefficient when the response is labour productivity = 1.293, T = 1.770 (p = .077). The above results mean that the hypothesis was not supported by the data. **Comments**: The author does not mention the unit of measurement of the two response variables (profitability and labour productivity), which means the mean differences and the regression coefficient becomes less practically useful. The study is very much econometrics driven.

Author (Year)	Country /Region	Hypotheses or Purpose and the Methods Summary	Findings and the Candidate's Comments
Liu (2000)	China	**The study hypotheses**: None (exploratory). **Purpose**: To examine whether significant differences in productivity exist between foreign, state-owned, and other locally owned enterprises due to potential differences in production efficiencies, favouring foreign enterprises. **Implicit mediators:** Cannot be identified because there is no hypothesis. The study uses capital intensity, labour quality, and firm size as control variables. **Method**: Regression analysis involving value-added per worker as the response and ownership type (two dummy variables) and control variables as predictors. The First dummy variable isolates foreign enterprises from local enterprises (Foreign = 1, local = 0), while the second dummy variable isolates other local enterprises (= 1) from others (= 0). Two dummy variables are needed because the ownership type has three levels. **Sample Size**: 556 firms for each of the three firm types (i.e., foreign, state-owned, and other local)	Dummy variable coefficient for the first dummy variable, where the response is value-added per worker = .1646, T = 6.50 (p < .001). The results show that foreign enterprises outperform local enterprises (both state-own and others). **Comments**: The unit of measurement of the response variable has not been mentioned although one may assume that the relevant currency for a value-added per worker is US$. Without knowing the scale of the response variable, it is not possible to determine the practical significance of the result. Again, the study is very econometrics driven.
Pasali and Chaudhary (2020)	Both developing and developed countries	**The study hypotheses**: Foreign firms outperform the rest (weakly stated as an expected outcome). **The basis for the hypothesis**: Several previous research in developed and developing economies show the superior performance of foreign-owned firms. **Implicit mediators:** None. The study uses the size, age, exporter status, active credit line, website availability, type of the industry, and the region (Africa; Asia and the Pacific; Europe; Latin America and the Caribbean; Transition Economies) as control variables. **Method**: Regression analysis involving three response variables (% sales growth, % employment growth, % productivity growth) vs ownership and several control variables. The ownership was presented as a dummy variable (Foreign = 1, local = 0). The study also includes a predictor for the two-way interaction between size and ownership. **Sample Size**: 8,000 firms in 47 countries	Dummy variable coefficient when the response is % sales growth = 1.153, SE = 1.729, T = .66 (p > .05). Shows no difference. Dummy variable coefficient when the response is % sales growth = .229, SE = 1.271, T = .18 (p > .05). Shows no difference. Dummy variable coefficient when the response is % productivity growth = .645, SE = 2.369, T = .27 (p > .05). Shows no difference. Above results notwithstanding, some support is shown in favour of the hypothesis for certain firm sizes in certain regions (e.g., microenterprises in developing economies) **Comments**: When data are collected from many different countries, there can be a systematic error in the data, although the source of the secondary data is the World Bank. The study is very econometrics driven.

Four studies supported the proposition that locally-owned manufacturing firms outperform foreign-owned manufacturing firms (Ebersberger & Lööf, 2005; Kim & Lyn, 1990; Munday *et al.*, 2003; Temouri *et al.*, 2008). The article databases — Discover, Google Scholar, Scopus, and Web of Science — were used to identify these articles in the search. Table 2.3 presents a summary of these four studies. These studies were reviewed in terms of theoretical, statistical, and practical aspects to determine how the performance differences between the local and foreign-owned manufacturing firms were established.

Two studies revealed no significant difference in manufacturing performance between foreign and local firms (Mata & Portugal, 2002; Sjoholm, 2004). Accordingly, Sjoholm (2004) found a nonsignificant difference in the manufacturing performance of foreign and local firms of the same scale operating in industries with similar technological intensities.

The literature review reveals that the performance of foreign and locally owned manufacturing firms has been analysed and examined in terms of various econometric-oriented performance metrics leading to conflicting performance measurement results. Regarding manufacturing performance, these studies have chosen arbitrary response variables. Some studies have a theoretical underpinning (e.g., the Cobb-Douglas production function), while others do not. Apart from a lack of theory (in some studies), most of these studies adopt an econometric approach to compare the performance of foreign and local manufacturing firms, which means that the manufacturing performance is measured in economic units such as output per worker, value-added per worker, capital-labour ratio, the ratio of value-added for output, labour productivity. These metrics represented the dimension of cost-efficiency predominantly. However, operational management studies are practice-oriented and are grounded on systems, processes, and multiple outcomes. However, manufacturing performance should best be measured as operational outcomes that reflect multiple dimensions such as cost-efficiency, product quality, delivery, flexibility, and innovativeness (Gomes *et al.*, 2004; Leachman *et al.*, 2005). As such, when comparing the performance of foreign firms against the local firms from an operations management lens, there is a need to incorporate manufacturing performance metrics that are useful to the operations management fraternity.

The previous studies revealed conflicting results on the relationship between RBFOT and manufacturing performance. Because of the conflicting results, further investigation is required to understand and explain the relationship between firm ownership type and manufacturing performance.

Table 2.3

Literature Supporting the Superior Manufacturing Performance of Locally-Owned Firms

Author (Year)	Country /Region	Hypotheses or Purpose and the Methods Summary	Findings and the Candidate's Comments
Ebersberger and Lööf (2005)	Nordic Countries (Denmark, Finland, Norway, and Sweden)	**The study hypotheses**: There are differences in innovation behaviour and labour productivity performance of foreign-owned firms, relative to domestic firms in the Nordic region. **The basis for the hypothesis**: Country, corporate style, and corporate governance differences have a significant effect on innovation behavour and labour productivity performance. **Implicit mediators:** Propensity of engaging in R&D and innovation activities, the extent of embeddedness in the host country. **Purpose**: To examine whether significant differences in R&D and labour productivity exist between locally-owned enterprises and foreign affiliates operating in Scandinavian countries (Denmark, Finland, Norway, and Sweden). **Method**: Two regression-based econometrics models (Heckman selection model and Multistep CDM model) were used to test the hypotheses. Size and market served are used as control variables. **Sample Size**: 5,186 firm-level observations in four countries (Denmark - 844, Finland - 818, Norway - 2377, and Sweden - 1197).	**Regression results** **R&D** - Domestic firms against Denmark B = .331 (SE=.301, p >.05); Finland B=.534 (SE=0.223, p <.05): Norway B=.192 (SE=.144, p >.05): Sweden B=0.923 (SE=.261, p <.05) **Labour Productivity** - Domestic firms against Denmark B = .085 (SE=.304, p >.05); Finland B=.131 (SE=.108, p >.05): Norway B=.059 (SE=.144, P>.05): Sweden B=0.035 (SE=0.131, p >.05) **Conclusion**: Domestic firms outperformed foreign firms in R&D in Finland and Sweden. **Comments**: The study is econometrics oriented
Temouri *et al.* (2008)	Germany	**The study hypotheses**: Domestic MNEs outperform Foreign MNEs operating in the high-tech manufacturing sector, ceteris paribus. **The basis for the hypothesis**: Germany is the most advanced technology-owned country in Europe. **Implicit mediator:** Technology (high tech vs low tech). **Method**: Regression analysis involving several response variables (e.g., log value added in $ thousands/employment) vs ownership and several control variables. The ownership was presented as a dummy variable (Foreign = 1, local = 0). The response variables were production factors of labour, capital, and materials, as used in the Cobb-Douglas production function. The study uses age, size, and the region (16 regions in Germany) as control variables. **Sample Size**: Domestic MNEs = 326; Foreign MNEs = 376	Dummy variable coefficient Total Factor Productivity (TFP) difference = .08, SE = .032, T = 2.53 (p < .05). **Conclusion**: For the key response variable shown, the hypothesis is supported by the data. **Comments**: The results confirm that Germany is the most advanced technology-owned country in Europe and it has technological superiority over its foreign MNEs. However, the productivity comparison between non-domestic MNEs, Low-tech domestic MNEs, & service-sector MNEs shows different results. Since the results were significantly affected by the endogeneity problems, the study has taken steps to control it through semi-parametric techniques. This provides valid and reliable results.

Author (Year)	Country /Region	Hypotheses or Purpose and the Methods Summary	Findings and the Candidate's Comments
Munday *et al.* (2003)	United Kingdom	**The study hypotheses**: None (exploratory). **Implicit mediators:** None. The study uses age, size, and industry group as control variables in the regression analysis. **Purpose**: To examine whether significant differences in productivity & profitability exist between locally-owned enterprises and foreign affiliates (USA, Germany, France, and Japan) operating in the UK. **Method**: Significance testing across the five subsamples to highlight differences between the UK and foreign subsidiaries has been conducted using Regression and one-way ANOVA techniques. **Sample Size**: UK - 1205, USA - 619, Germany - 163, France - 114, Japan – 111. Key: ROCE = Return On Capital Employed PMBT = Profit Margin Before Tax	**One-way ANOVA** UK vs foreign F [1, n] Mean difference for ROCE 47.6% ($p < .01$), UK vs foreign F [1, n] Mean difference for PMBT 20.7% ($p < .01$). **Regression results** Dummy variable coefficient when the response is ROCE = 9.35%, T = 4.18 ($p = .000$). Dummy variable coefficient when the response is PMBT = 5.56%, T = 2.76 ($p = .000$). Conclusion: Domestic firms outperformed foreign firms in ROCE and PBMT. Comments: No strong theoretical underpinning for the study. The study is international economics and finance-oriented.
Kim and Lyn (1990)	United States of America	**The study hypotheses**: None (exploratory). **Implicit mediators:** None. The study does not use control variables, because two sample T-test does not entertain any other variable other than the two-level factors (Foreign vs local). **Purpose**: To examine whether significant differences in efficiency, R&D intensity, and profitability exist between locally-owned enterprises and foreign affiliates (Canada, Japan, Western Europe) operating in the USA. **Method**: Univariate analysis is employed whereby the difference in group means for each of the proxy variables is tested by the unpaired t-test statistics. **Sample Size**: USA - 54, Canada - 18, Japan - 7, Western Europe - 22, Other countries - 7.	**T-test results** Domestic - Foreign mean difference for R&D = .021, T = 1.975 ($p < .05$) Domestic - Foreign mean difference for Profitability = 1.71, T = 3.155 ($p < .01$) Domestic - Foreign mean difference for Efficiency = 1.4, T = -5.122 ($p < .01$) **Conclusion**: Domestic firms outperformed foreign firms in Efficiency, R&D, and Profitability. **Comments**: No strong theoretical underpinning for the study. The study is international economics and finance oriented.

The literature search further revealed that previous studies have focused on examining the performance differences between foreign and locally owned manufacturing firms operating in American, European, African, and East Asian regions. However, studies to examine the performance differences between foreign and locally owned manufacturing firms operating in developing countries in the South Asian regional context have not received much attention, despite substantial FDI in these regions (Mihai, 2014; Miller Stewart & Eden, 2006; Pasali & Chaudhary, 2020).

Overall, the literature review in this block revealed a lack of studies to compare the manufacturing performance of Western, East Asian, and South Asian firms using operations management dimensions and metrics. It further revealed that there is a lack of studies to compare the nature and extent of the manufacturing performance differences among foreign and locally owned manufacturing firms operating in the apparel industry of Sri Lanka.
Based on the review findings and research gaps identified in this block, Hypothesis 1 (H1) was formulated regarding the relationship between RBFOT and manufacturing performance.

HI – There is a difference in manufacturing performance among the RBFOTs operating in the apparel industry of Sri Lanka.

2.3.1 The theoretical gap in manufacturing performance vs RBFOT Relationship

In the previous section (Tables 2.2 and 2.3), 11 empirical studies were reviewed, which included reviewing the theoretical underpinnings explaining the RBFOT → manufacturing performance relationship. Of these 11 studies, only two studies suggested reasons for the relationship, after controlling for the spurious effects. (Doms & Jenson, 1995) posited that the difference is due to product design, production efficiency, and marketing skills. Ebersberger and Lööf (2005) posited that the difference is due to the propensity of engaging in R&D, innovation activities, and the extent of embeddedness. Consequently, these variables become implicit mediators in the RBFOT→ manufacturing performance relationship because the authors argued that the difference in manufacturing performance comes as the result of the influence of these variables, in a multiple regression setting. These variables are treated as *implicit mediators* because these two studies do not statistically analyse the structural relationship RBFOT → Mediator Variables → Manufacturing Performance as a mediation model. Instead, these variables (implicit mediators) are treated as independent variables in the RBFOT → Manufacturing Performance relationship, in addition to other independent variables which have been treated as control variables (Table 2.4 provides the details).

Looking back at the implicit mediators, all of these are manifestations of *management practice orientations*. For example, product design relates to creating change, focusing on customers, and organizational learning (Denison & Neale, 1996). Likewise, production efficiency relates to teamwork, coordination and integration, and reliance on core values (Denison & Neale, 1996) while marketing skills relates to capability development (Denison & Neale, 1996). There is a need to examine what management practice orientations best explain the role of mediators in the RBFOT → Manufacturing Performance relationship. This is covered in sections 2.4-2.9. Moreover, as many as nine studies (Table 2.4) do not provide any theoretical underpinning for the RBFOT → Manufacturing Performance relationship. These studies only use control variables (in some cases matching samples) merely to get an accurate estimate of the differences in performance between local and foreign firms.

Table 2.4

Review of Mediators and Control Variable used in Prior Studies to Test Foreign vs Local Performance Differences

Author (Year)	**Implicit Mediators**	**Method of Controlling**	
		Matching Samples (Foreign vs Local)	**Control Variables**
Doms and Jenson (1995)	Product design; Production efficiency; Marketing skills	None	Size (no of employees); Age; Industry type; Plant Location
McGregor *et al.* (2015)	None	None	Capital; Employment; Age
Yudaeva *et al.* (2003)	None	None	Capital; Employment
Willmore (1986)	None	Matched based on sales volume	None
Machek (2016)	None	None	Industry type (based on SIC); Size; Age; Capital structure
Liu (2000)	None	None	Capital intensity; Labour quality; Firm size
Pasali and Chaudhary (2020)	None	None	Ownership proportion; Size; Age; Exporter status; Active credit line; Website availability; Industry type; Region
Ebersberger and Lööf (2005)	The propensity of engaging in R&D; Innovation activities; Extent of embeddedness	None	Size; Market served
Temouri *et al.* (2008)	Technology	None	Age; Size; Region within Germany
Munday *et al.* (2003)	None	None	Age; Size; Industry group
Kim & Lyn (1990)	None	None	None

2.4 Causes for the difference in manufacturing performance of foreign and locally owned firms belong to various regions of the world

In this section, the studies carried out to understand the causes contributing to the difference in manufacturing performance of foreign and locally owned firms belonging to various regions of the world are reviewed.

Previous studies have identified managerial competencies, proprietary technology, economies of scale, country, industry, and firm-specific advantages, mutinationality[8], and crowding out effects[9] as reasons for the superior performance of foreign-owned manufacturing firms (Aydin *et al.*, 2007; Caves, 2007; De Carvalho *et al.*, 2012; Dunning, 2008; Jennifer, 2008; Yudaeva *et al.*, 2003). Dunning (2015) argues that firm-specific advantages (FSAs) combined with location-specific advantages (LSAs) and host country resources, give foreign firms a superior advantage.

Conversely, some studies have identified knowledge about the local operating environment, acquaintance with the local culture, laws and work practices, spillover effects[10], inherent industry knowledge, and liabilities of foreignness[11] confronted by foreign firms as the possible reasons for the superior performance of locally owned firms over foreign-owned firms (Aitken & Harrison, 1999; Blomtrom & Sjoholm, 1998; Denk *et al.*, 2012; Huang & Shiu, 2009; Konings, 2000).

Studies carried out to analyse the performance of manufacturing firms further revealed that the age & size of the firm, the nature & extent of technology used for operations, research and development investment & commitment, type of markets for which the firm serves are some of the factors that considerably affect the manufacturing performance of firms (Dubey, 2015; Leachman *et al.*, 2005; Raja & Kumar, 2005; Rasiah & Krishnan, 2008; Schroeder *et al.*, 1986; Sjoholm, 2004; Swamidass & Kotha, 1998).

[8] Mutinationality refers to a firm's expansion beyond its domestic market into other countries and regions of the world in terms of foreign-based research and development, production, distribution, sales and investments (Hennart, 2011).

[9] Crowding-out effect is the direct and indirect negative externalities leading to disadvantage local firms operating in the same industry and related industries overtime as a result of the competition from output & inputs brought about by the foreign firms operating in the host countries (Jennifer, 2008).

[10] Spillover effect is the vertical and horizontal positive externalities results in benefiting the local firms operating in the same industry and related industries overtime as a result of the presence and operations of foreign firms in the host countries (Jennifer, 2008).

[11] Liabilities of foreignness describes the additional costs that foreign affiliates have to incur relative to their indigenous competitors when operating in unknown host country environments ((Denk *et al.*, 2012)

However, regarding the causes of the manufacturing performance difference between foreign and local firms (Table 2.2 and Table 2.3), some studies were found to be adopting exploratory approaches (i.e., lack of a convincing research hypothesis on the superior performance of a particular group: foreign or local firms). Most studies attribute the causes from international economics and finance perspective, and some speculate the possible reasons without proper statistical justification.

It was shown in section 2.3.1 that the implicit mediators used in prior studies on the RBFOT→ Manufacturing Performance relationship can be alternatively exemplified as management practice orientations. Besides, in a systems-based discipline such as operations management, manufacturing performance is an outcome of interrelated management practices (Daellenbach et al., 2012). Since RBFOT is the cause (independent variable), in the next section, it is argued that the organisational culture is the relevant descriptor of the operations management practices of these RBFOTs. Therefore, this study takes the position that the organisational culture of foreign and locally owned firms belonging to different regions of the world could play a significant interceding role in explaining the manufacturing performance difference of the RBFOTs. The researcher perceives the organisational culture in this context as characterising the unique ways of managing the firm/business influenced by the national cultural values of the regions to which the firms belong. Hence, the literature search reveals a lack of studies attributing causes from a cross-cultural operations management perspective. The cross-cultural operations management perspective represents the unique management practices, systems, techniques, and norms adopted by firms belonging to various regions of the world.

When the foreign and local firms belong to diverse regions of the world, the reasons for the manufacturing performance differences of firms could turn out to be more region-specific. In support of this view, organisational anthropologists argue that an organisation's culture represents the unique identity and character of the firms owned by corresponding regions of the world (Dunning, 2008; Hofstede, 1980; House *et al.*, 2002; Trompenaars & Hampden-Turner, 1998). Putting it in another way, when foreign firms belonging to a particular country/region establish their affiliates in a host country, the organisational culture of the affiliates is influenced by the organisational culture of parent companies that come from different regions of the world (Ansah & Louw, 2019; Gómez-Mejia & Palich, 1997).

Studies conducted by Ghasem *et al.* (2018); Prajogo and McDermott (2011); Ravindra *et al.* (2014); Sarah (2015) suggest that the performance of manufacturing firms can be effectively explained using organisational culture-based constructs as causal antecedents. Furthermore, the

extant researchers on culture effectiveness (Cameron & Quinn, 1999; Denison *et al.*, 2014) attribute the performance difference of firms to organisational culture represented by management practice orientations.

Overall, these studies suggest that organisational culture can be considered an effective managerial-oriented social phenomenon through which the manufacturing performance differences of RBFOTs could be explained.

2.5 Understanding the concept of organisational culture

This section reviews the studies on the meanings and definitions of the concept of organisational culture. It dissects the core cultural elements of DCM and justifies its selection to operationalise the construct of organisational culture out of many organisational culture operationalisation frameworks available in the literature. The chapter further justifies why Denison's Organisational Culture Survey (DOCS) — the organisation culture measurement scale of DCM — is used for this study compared to other popular culture measurement scales (i.e, CVCAS).

The concept of organisational culture is a complex evolving social phenomenon that comes within the domain of organisational behaviour studies. Hence, organisational culture connotes diverse meanings and definitions according to scholars' perceptions, research approaches, and how they conceptualise and operationalise it. Accordingly, the issue of attaching meaning and definitions to organisational culture has been an ongoing debate in academia (Ashkanasy *et al.*, 2000; Julmi, 2017; Schein, 1990).

Scholars who perceive and operationalise the organisational culture as a covert construct (Figure 2.2) define it as a set of beliefs and basic assumptions that are fundamental to the consistent behaviour among the members of an organisation (Deal & Kennedy, 1982; Kotter & Heskett, 1999; Schein, 1985). These beliefs and underlying assumptions significantly influence the values and attitudes and these, in turn, influence the behaviour of organisational members. The members tend to unconsciously embrace these principles to guide their decisions, accept them without challenge, and consider them an essential part of their work life. According to Hofstede, culture is broadly defined as "the collective programming of the mind which distinguishes the member of one group or category of people from another" (Hofstede, 1980, p. 10). However, Hofstede *et al.* (2010) argue that organisational culture affects almost everything the employees do, see, feel, and believe and informs the workers who they are and

which behaviours are acceptable and unacceptable in the organisation. In support of this view, Schein defines organisational culture as "a pattern of basic assumptions that the organisational members learned as it solved its problems of external adaptation and internal integration, that had worked well enough to be considered valid, and therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems" (Schein, 1985, p. 17). These definitions are more aligned with the organisational anthropologist who uses dominant qualitative methods based on a holistic approach to understanding the concept of organisational culture.

Scholars who perceive and operationalise the organisational culture as an overt construct define it as commonly shared and intensely held values, attitudes, and the manifested organisational practices, systems, and norms (artefacts) that distinguish the organisation and its ways of doing things (Ashkanasy *et al.*, 2000; Denison, 1996; Julmi, 2017; Schein, 1990; Schneider *et al.*, 2013). According to Julmi (2017), an organisation's character or identity reflects the organisational atmosphere. Some scholars attribute this aspect of cultural manifestations to organisational climate (Ashkanasy *et al.*, 2000; Schneider *et al.*, 2013). Denison and Mishra (1995) attribute this to four main culture traits represented by twelve management practice orientations. The definition of organisational culture as an overt construct is more aligned with the organisational culture effectiveness researchers who use dominant quantitative methods to understand the concept of organisational culture.

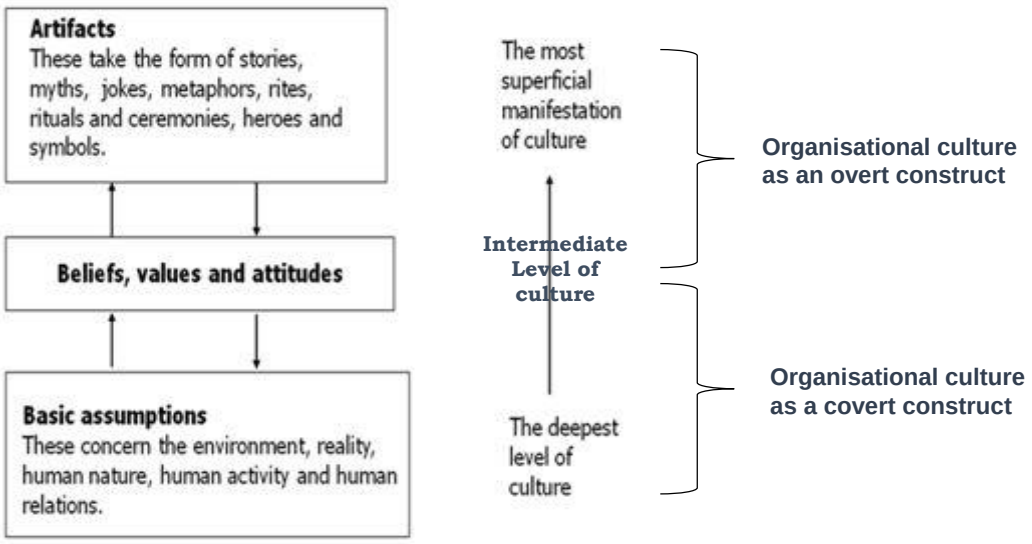


Figure 2.2 *Levels of Culture: Overt and Covert Culture Definitions*
Source: [Adapted from] (Schein, 1985, p. 32)

Figure 2.2 describes the three levels (most superficial, intermediate, and deepest) representing the interrelated elements of the organisational culture. The deepest level of culture represents the cognitively and psychologically constructed collective mindset of the members of an organisation (Schein, 1985). It characterises the invisible covert cultural elements and the most rooted aspects that influence the superficial level of the organisation's culture. Hence, the superficial level of culture represents an organisation's most visible and overt behaviour manifestations. Finally, it represents the physical and socially constructed culture characterised by the organisation's practices, systems, techniques, and norms (Denison, 1996).

The intermediate level of the organisational culture is the link that connects the deepest level of culture and the most superficial manifestation of the culture. According to Luthans *et al.* (2021), this level of culture represents the most significant elements leading to the organisational members' behavioural orientations and manifestations. Figure 2.3 indicates how these cultural elements are interconnected with each other.

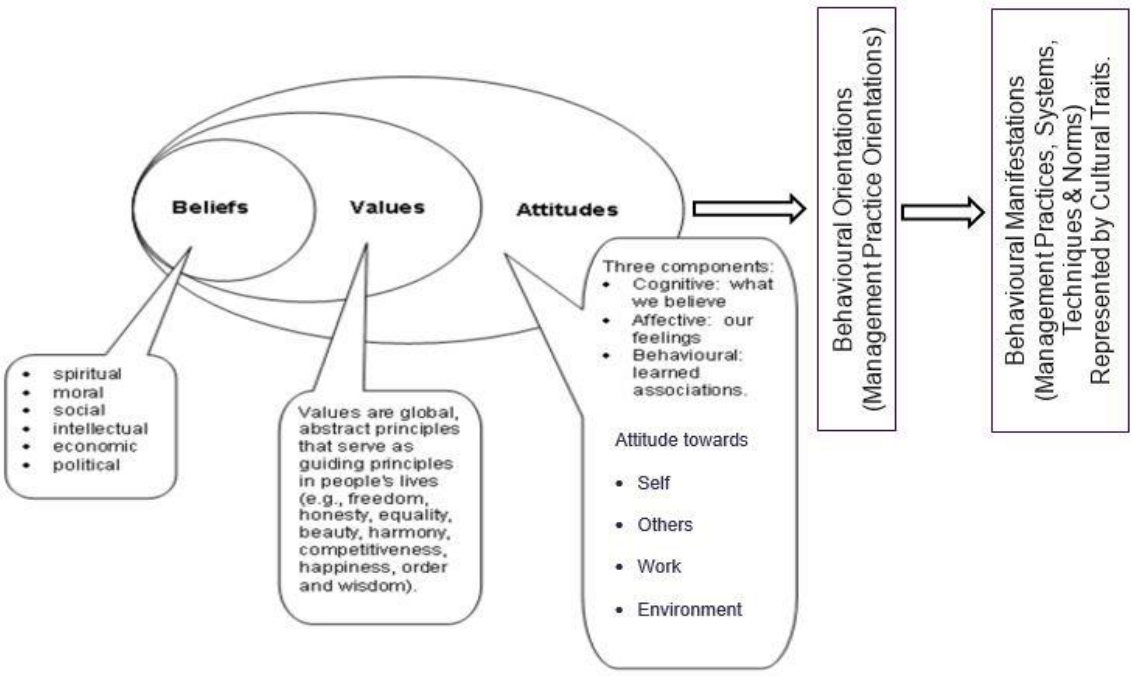


Figure 2.3 *Interrelationship among the Cultural Elements at the Intermediate Level*
Source: [Adapted from] (Luthans *et al.*, 2021, p. 134)

The meaning attached to the concept of organisational culture by previous researchers has been perceived by the extent to which they conceptualise the different levels and interrelated elements and how the qualitative and quantitative research methods are used to understand it in the organisational context (Denison, 1996).

Researchers who have studied the relationship between culture and performance — for this study, these researchers are referred to as *culture-effectiveness researchers* — have perceived, defined, and operationalised organisational culture as an overt construct because the considered elements of the culture at this level are relatively measurable through quantitative approaches (e.g. the survey method). Many dimensional and typological approaches have been used to operationalise the concept of organisational culture (Ashkanasy *et al.*, 2000; Patterson *et al.*, 2005; Scott *et al.*, 2001). Hence, the previous researchers who adopt a quantitative approach have mainly focused on the espoused values and attitudes and the resulting management practices, systems, techniques, and norms to operationalise organisational culture.

The researcher takes the position of the culture-effectiveness researchers in operationally defining organisational culture as *commonly shared and intensely held attitudes and behavioural orientations of the members representing the unique identity and character of the organisation manifested through its culture traits and management practice orientations*.

2.5.1 How organisations create and maintain cultures

Understanding how culture is established in an organisation is important in initiating steps to effectively maintain and change it for the betterment of the organisation. The factors that are most important in creating the culture of an organisation are the founder's values, preferences, and industry demands (Carpenter *et al.*, 2009). Figure 2.4 elaborates on how the organisational culture is created and sustained.

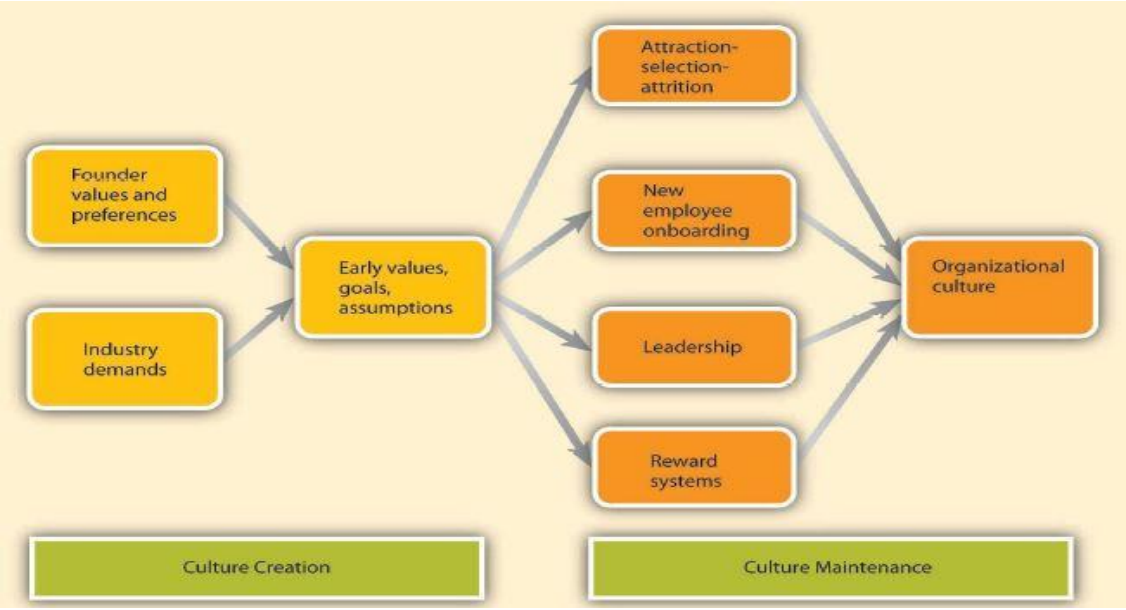


Figure 2.4 *How Organisations Create and Maintain the Culture*

Source: (Carpenter *et al.*, 2009, p. 349)

A firm's culture, particularly in its early establishment years, is inevitably tied to the personality, background, and values of the founders as well as their vision for the future of the organisation. These values gradually become part of the DNA of the firm that distinguishes it from others creating a unique identity and ways of doing things (Schein, 2010). While founders undoubtedly exert a powerful influence in establishing cultures, industry characteristics also play a vital role. However, firms within the same industry can have widely different cultures because the founder's preferences vary from organisation to organisation (Denison *et al.*, 2014; Kane-Urrabasso, 2006; Schein, 2010). At the same time, industry characteristics (e.g. competition, technology, labour, and capital outlays) and demand also act as significant forces to create cultures. The industry's influence over culture is important to know because this shows that it may not be possible to imitate the culture of a firm in a different industry, even though it may seem admirable to outsiders (Carpenter *et al.*, 2009).

Once the organisation culture is established by the founders it is gradually get shaped and reshaped as the organisations faces internal and external problems, and challenges and learns how to deal with them (Carpenter *et al.*, 2009; Schein, 2010). When the organisation's way of doing business provides a successful adaptation to the environmental challenges and ensures success, the core values, practices, systems, and norms get embedded in the organisation as unquestionable guiding principles. The values and ways to manage and do business are taught to new members as the right ways to do things in the organisation (Schein, 1990). As the firm matures, its values get refined and strengthened. The early values exert influence over its future values. The main factors that influence the maintenance of culture include Employee attraction, section and attrition, new employee onboarding, leadership style, and reward system. These factors play an important role in maintaining a sustainable culture in the firm (Carpenter *et al.*, 2009). Figure 2.4 elaborates on the interrelationship of these factors with culture creation.

2.5.2 **Frameworks to operationalise organisational culture**

Earlier researchers on culture-performance studies have used a variety of frameworks to operationalise the construct of organisational culture. The literature identified many different organisational culture operationalisation frameworks (Patterson *et al.*, 2005; Scott *et al.*, 2001). The most appropriate framework of organisational culture depends on the purpose and the context of the study, the extent to which the organisational culture elements are well-characterised and measured, and the validity and reliability of the measurement instrument (Denison, 1996; Hartnell *et al.*, 2011; Patterson *et al.*, 2005; Puppatz *et al.*, 2017; Scott *et al.*, 2001). Table 2.5 presents the frameworks used to operationalise organisational culture.

Table 2.5

Frameworks Used in Operationalising the Organisational Culture

Framework	Founding Author/s
Denison's Culture Model (DCM)	Denison and Mishra (1995)
Competing Values Framework (CVF)	Cameron and Quinn (1999)
Trompenaars's Culture Questionnaire	Trompenaars and Hampden-Turner (1998)
Core Employee Opinion Questionnaire	Buckingham and Coffman (2000)
MacKenzie's Culture Questionnaire	MacKenzie (1995)
Organisational Culture Profile	O'Reilly *et al.* (1991)
Hofstede's Organizational Culture Questionnaire (Hofstede's work practices survey)	Hofstede *et al.* (1990)
Organisational Values Questionnaire	Woodcock and Francis (1989)
Organizational Culture Inventory	Cooke and Lafferty (1987)
Organisational Culture Survey	Glaser *et al.* (1987)
Harrison's Organizational Ideology Questionnaire	Harrison (1975)

Review studies on organisational culture measurement frameworks (details in section 2.5.2) provide strong support for DCM and its measurement scale DOCS (Denison *et al.*, 2014; Hartnell *et al.*, 2011; Puppatz *et al.*, 2017).

2.5.3 Justification for the selection of DCM and DOCS

Compared to other organisational culture operationalisation frameworks, DCM as a typological framework operationalises the overt elements of organisational culture. It uses a well-structured survey measurement scale (DOCS): a 60-item Likert-scale questionnaire aimed at identifying the culture profiles consisting of four cultural traits; the four cultural traits represent twelve management practice orientations (Denison & Neale, 1996). It defines and operationalises the organisational culture as an overt managerial-oriented social phenomenon and facilitates comparisons across regions, countries, and industries using the same cultural traits and management practice orientations (Denison *et al.*, 2014).

Contemporary management researchers have widely used the DOCS and Competing Values Culture Assessment Survey (CVCAS) to measure organisational culture (Denison *et al.*, 2014; Hartnell *et al.*, 2011; Jung *et al.*, 2009). Both of these surveys find close similarities in terms of cultural categories and management practice orientations. Hence, Hartnell *et al.* (2011) suggest that DOCS covers much the same ground as CVCAS (the article shows how Denison's 12 management practice orientations and four culture traits are mapped to CVF culture types). However, CVCAS uses an ipsative measurement scale (fixed sum for the scores) and adopts a "culture typing approach" to interpret the organisational culture types (Clan, Adhocracy, Hierarchy, and Market) as competing values (Cameron & Quinn, 1999). However, DOCS adopts a Likert scale to measure the four culture traits (Involvement, Consistency, Adaptability, and Mission) and adopts a "culture profiling approach" to interpret the organisational culture as complementary values (Denison *et al.*, 2014). The ipsative measurement scale of CVCAS makes it unsuitable for testing the considered multiple parallel mediation model as it limits the multiple regression analysis and regional comparisons. This limitation does not exist with DOCS.

Moreover, DOCS has been empirically validated, and it is a reliable and valid tool for organisational culture-effective studies (Hartnell *et al.*, 2011)[12]. It has been tested in many industrial, educational, and healthcare sectors (Patterson *et al.*, 2005; Scott *et al.*, 2001) as well as in diverse countries and regions of the world (Denison *et al.*, 2004; Denison *et al.*, 2014; Zeng & Luo, 2013). Hence, the selection of the DCM and DOCS to operationalise and measure the organisational culture of RBFOTs well aligns with the operational definition and objectives of the study.

2.5.4 **Denison's Culture Model (DCM)**

DCM comprises twelve management practice orientations (first-order dimensions) nested in four main culture traits (second-order dimensions), namely, Involvement, Consistency, Adaptability, and Mission (Denison *et al.*, 2004; Denison & Neale, 1996). Each trait consists of three management practice orientations. This model is diagrammatically presented in Figure 2.55.

[12] This is not to say that CVCAS has neither been empirically validated nor used in the industry nor academic research.

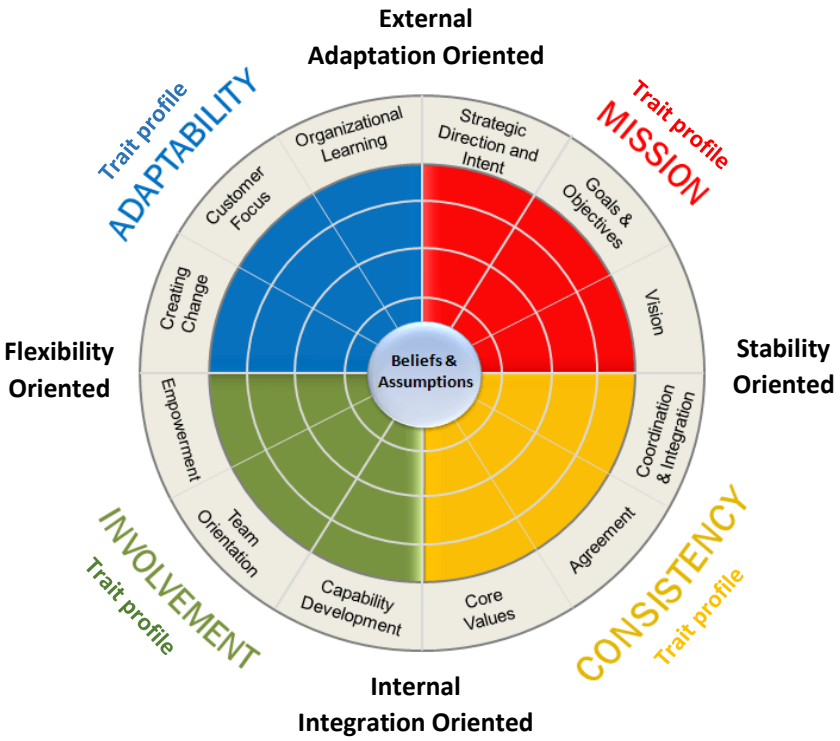


Figure 2.5 *Denison's Culture Model (DCM)*

Source: (Denison & Neale, 1996, p. 21)

According to this framework, Internal Integration Orientation is characterised by Involvement and Consistency traits, while External Adaptation Orientation is characterised by Adaptability and Mission traits. Likewise, Flexibility Orientation is characterised by Involvement and Adaptability traits, while Stability Orientation is characterised by Consistency and Mission traits.

2.5.4.1 **Involvement Trait (IT)**

The involvement trait is characterised based on flexibility and internal integration orientations. It is characterised by three management practice orientations — worker empowerment, team orientation, and employee capacity development. Denison and Neale (1996) found that the Involvement trait can help an organisation increase employees' commitment, trust, loyalty, and sense of ownership. This trait reflects a relaxed, family-oriented culture guided by the employee, team, humane, and informal value orientations.

2.5.4.2 Consistency Trait (CT)

Consistency trait is characterised based on stability and internal integration orientations. It is characterised by three management practice orientations — developing procedures and rules for integration and coordination, common principles, and joint agreement. Denison and Neale (1996) found that the Consistency trait can help an organisation promote standard behaviour norms of leaders and followers. Hence, this trait reflects a rigid bureaucratic culture guided by task, process, inward, and formal value orientations.

2.5.4.3 Adaptability Trait (AT)

Adaptability trait is characterised based on flexibility and external adaptation orientations. It is characterised by three management practice orientations — creating changes to respond to external environments, being customer-focused, and being committed to new learning and risk-taking. Denison and Neale (1996) found that the Adaptability trait can help an organisation increase its capacity to respond to external environments and to become customer-oriented and innovative. This trait reflects a dynamic entrepreneurial culture guided by the customer, risk-taking, change, and creativity-driven value orientations.

2.5.4.4 Mission Trait (MT)

Mission trait is characterised based on stability and external adaptation orientations. It is characterised by three management practice orientations — guiding the actions according to a strategic plan, setting complementary targets, objectives, and goals, and coordinating the actions toward the mission and vision of the organisation. Denison and Neale (1996) found that the Mission trait can help an organisation to execute its actions and decisions according to a pre-planned future direction. Hence, it reflects an ambitious futuristic culture guided by strategy, proactive, long-term results, outward driven value orientations.

2.6 Relationship between organisational culture and manufacturing performance

In this second block, studies carried out to investigate the relationship between organisational culture and manufacturing performance were reviewed.

The relationship between organisational culture and performance is a widely researched domain in the literature. Much of the literature on this area found evidence to confirm that organisational culture has a significant impact on organisational performance (Cameron &

Freeman, 1991; Deal & Kennedy, 1982; Denison & Mishra, 1995; Fey & Denison, 2003; Hartnell *et al.*, 2011; Kotter & Heskett, 1999). Moreover, the relationship between organisational culture and manufacturing performance is also a substantially-researched area in the extant literature. These studies confirm that there is an influential relationship between organisational culture and manufacturing performance dimensions (Corbett & Rastrick, 2000; Dahlgaard-Park, 2011; Ghasem *et al.*, 2018; Naor *et al.*, 2010; Sarah, 2015; Spear & Bowen, 1999; Valmohammadi & Roshanzamir, 2015).

According to the resource-based theory, Barney (1986), suggest that a valuable, unique, and not easily emulated organisational culture could significantly influence performance. Moreover, the culture-performance study carried out by Schneider *et al.* (2002) confirms that the strong positive culture of a firm (characterised by best management practices[13], systems, techniques, and norms) drives superior performance and a strong negative culture leads to inferior performance.

In search of best manufacturing practices in Australia and New Zealand, the "Leading the Way" study conducted by the Australian Manufacturing Council (Australian Manufacturing Council, 1994), found that manufacturing performance outcomes become a shared responsibility of the employees in best-practised manufacturing sites. In addition, the authors found that excellent workplace culture is strongly associated with best practices and confirmed that best manufacturing practices lead to higher manufacturing performance.

A study carried out by Jayamaha *et al.* (2014) developed and tested a model that underpins the 'Toyota Way' using data collected from a global sample of Toyota facilities. They found that Toyota's core values and guiding principles are represented by continuous improvement and people development (Toyota's climate), which are related to operational performance (the researchers called this the Toyota Way deployment). Their model posits that the soft elements of the climate (respect for people and teamwork/employee involvement) drive the hard elements of the climate (long-term perspective on results, small workgroup activities, and being in the thick of action) to achieve performance outcomes. In this study, the hard elements of climate were shown to fully mediate the relationship between soft elements of climate and performance. The authors developed Toyota's Climate Survey Questionnaire (TCSQ) to test the theoretical model underlying the Toyota Way.

[13] Best management practices in this context means the management practices that consistently provide superior performance for the firm as a result of having strong positive organisational culture (Schneider *et al.*, 2002).

Gamage *et al.* (2017) supported the hypothesis that Taguchi's Quality Philosophy and Practice (TQPP) has a significant positive influence on the manufacturing performance of Apparel firms through the mediating effect of Continuous Improvement culture. However, they suggest future research directions to develop this mediation theory further.

Over the years, researchers in operations management have given increasing importance to organisational culture as a critical factor influencing quality performance (Corbett & Rastrick, 2000; Dahlgaard-Park, 2011; Flynn *et al.*, 1995; Nair, 2006; Prajogo & McDermott, 2011). A study conducted by Corbett and Rastrick (2000) among New Zealand manufacturing firms revealed a high correlation between different dimensions of management culture and quality metrics such as defective percentage, warranty claims, on-time delivery, and the ratio of quality inspectors to direct production workers. This study further revealed that the organisational culture of the firms significantly influences the cost of quality and supplier quality. It confirms a negative relationship between excellent quality management practices and cost of quality and a positive relationship between supplier's quality.

Moreover, with the introduction of the concept of Total Quality Management (TQM), organisations began to recognise quality as the all-inclusive core dimension of manufacturing performance that significantly influences cost-efficiency, delivery, flexibility, and innovativeness (Brown, 2013; Dahlgaard-Park, 2011; Ferdows & De Meyer, 1990; Lukman *et al.*, 2014). Therefore, these authors argue that contemporary manufacturing organisations should prioritise quality management practices, systems, techniques, and norms, considering product quality as the all-inclusive core dimension of manufacturing performance. Hence, they found that organisations with quality-driven cultures are more likely to build a unique and lasting manufacturing performance.

Some studies show that TQM practices and manufacturing performance are inseparable. For example, the study by Flynn *et al.* (1995) revealed that quality management practices were positively associated with both cost-efficiency and flexibility, and the relationship between Just-In-Time (JIT) practices with cost-efficiency was found to be nonsignificant. Likewise, James and Scott (1996) showed that TQM was positively related to process flexibility, product flexibility, and cost-efficiency. However, product-process technology development practices were not significantly related to any of the cost-efficiency measures in this study. Nevertheless, Swink *et al.* (2005) found that product-process development, supplier relationship management, workforce development, JIT flow, and process quality management practices significantly impact manufacturing performance dimensions.

2.6.1 Findings of the previous culture effectiveness studies

The culture effectiveness theory advanced by Denison and his colleagues proposes that successful organisations are characterised by an organisational culture profile[14] that reflects a strong mission and high levels of employee involvement, internal consistency, and adaptability (Denison & Mishra, 1995).

According to Denison's theory, effective organisations have all of these culture traits — Mission, Adaptability, Consistency, and Involvement — simultaneously pursuing these traits is critical to organisational effectiveness. According to them, the most effective organisations have high levels of each trait, or a "full profile" (Denison *et al.*, 2014). In support of the theory, positive correlations between the traits and a range of effectiveness criteria have been demonstrated in various organisational, industry, and national contexts (Fey & Denison, 2003). Denison and Mishra (1995) too found that while the mission was generally the strongest predictor, all four traits of the Denison model were positively related to performance.

However, Yilmaz and Ergun (2008) analysed the simultaneous effect of four traits of DOCS on performance and noted the paradoxical nature of different cultural orientations, such as internal integration and external adaptation. These authors pointed out that organisations need to face contradictory challenges at the same time. They are of the view that effective organisations are those that can resolve these contradictions by relying on a proper balance of traits. These authors found that imbalanced combinations of culture traits exert positive or negative effects on performance and emphasise more research to validate the finding of their balanced-culture hypothesis[15].

The culture traits interactive theory suggested by Kotrba *et al.* (2012) found that the relationship between a given culture trait and effectiveness depends on the levels of interaction with other culture traits. The author further suggested that the association between the Consistency trait and organisational effectiveness varies with other traits in many combinations. Accordingly, the authors tested the interactive effect of three traits combined with the performance, namely, 1) Consistency & Mission; 2) Consistency and Adaptability; 3) Consistency and Involvement. The findings of Kotrba *et al.* (2012) further revealed that the

[14] Organisational culture profile is the collective pattern of a firm's culture characterised by Denison's four culture traits: Involvement, Consistency, Adaptability and Mission (Denison & Neale, 1996).

[15] The balanced-culture hypothesis is a tested proposition that a balanced combination of the four culture traits of the DOCS - Involvement, Consistency, Adaptability & Mission - yields superior firm performance than an imbalanced combination (Yilmaz & Ergun, 2008).

level of the Consistency trait is more dependent on the levels of the other three culture traits, and it is negatively associated with performance at low levels of the other traits and positively associated with performance at higher levels of the other traits. The authors also suggest that high levels of the other traits — Involvement, Adaptability, and Mission are not very effective when combined with low levels of Consistency trait.

Based on the review findings and research gaps identified in this block, Hypotheses 2 (H2) was formulated regarding the relationship between organisational culture (characterised by Involvement, Consistency, Adaptability, and Mission traits) and manufacturing performance.

H2 – Organisational culture traits (Involvement, Consistency, Adaptability, and Mission) have a positive effect on the Manufacturing Performance of RBFOTs.

2.7 Relationship between RBFOT and organisational culture

In this third block, studies carried out to investigate the relationship between RBFOT and organisational culture are reviewed. Initially, the studies on the influence of national culture on the organisational culture of the home country firms (parent companies) are reviewed. Then how the parent company culture of multinational firms is transplanted to their affiliates operating in various host countries is reviewed. Finally, the cross-cultural studies which identify the prevailing organisational cultural characteristics of foreign affiliates operating in various regions of the world are reviewed.

Figure 2.66 indicates how the organisational culture of foreign affiliates is influenced. The mainstream way of influencing through culture transplant of the parent company of multinational firms to their affiliates operating in various host countries is shown in thick line arrows. The incidental mode of cultural transference (shown in the dotted line arrow) is the other way of influencing the foreign affiliates' organisational culture, which is not much research in the literature.

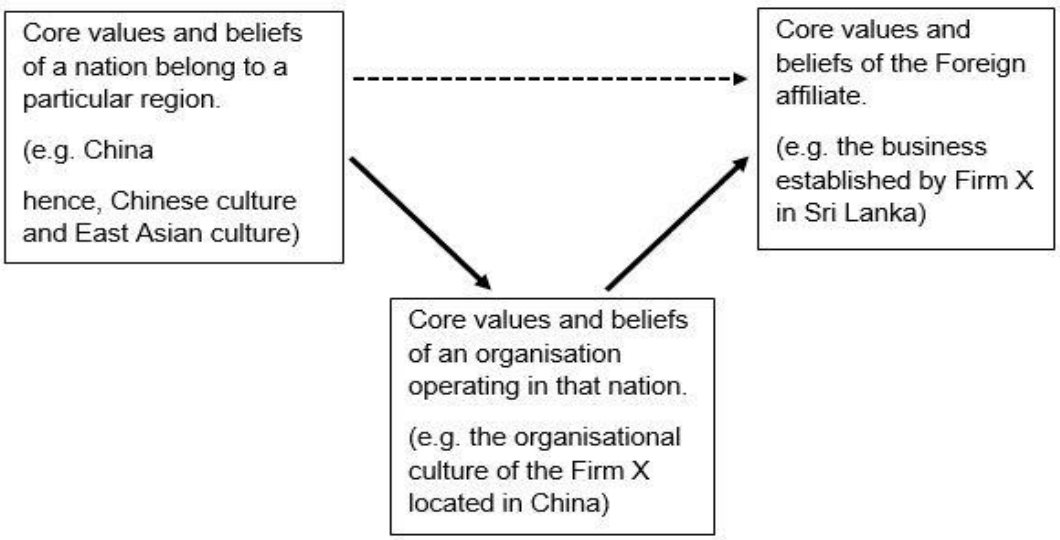


Figure 2.6 *How the Organisational Culture of Foreign Affiliates is Influenced*

2.7.1 Influence of national culture on organisational culture of parent companies

Studies that sought to examine the extent to which the home country's national culture influence the culture of the firm operating in those countries are a well-researched area in the literature. Many studies indicate that the national culture of the country or region to which the firm belongs has a considerable influence on the organisational culture of those firms (Dunning, 2008; Hofstede *et al.*, 1990; House *et al.*, 2002; Schneider, 1988; Trompenaars & Hampden-Turner, 1998). Moreover, Van Muijen and Koopman (1994) investigate the influence of national culture on organisational culture among ten European countries in four industries and found that the national culture values significantly represent the organisational culture in six countries and it does not represent the other four countries. The argument of these scholars represents a regionalistic and culture-specific view.

However, a few researchers have also found that the national culture of the country or region to which the firm belongs has no significant influence on the organisational culture of those firms (Dastmalchian *et al.*, 2000; Naor *et al.*, 2010). Adler and Jelinek (1986) found that founders and corporate leaders could override the national culture influence, and these influential personalities could create and change cultures unique to their organisations. Some scholars are of the view that firms are mainly driven by universally accepted management principles ((Matthew *et al.*, 2016; Peters, 2011; Peters & Waterman, 1984). The argument of these scholars represents a universalistic and culture-neutral view.

Hence, previous studies revealed two different views on the influence of national culture on the organisational culture of the parent firms. However, the third view of a mixed influence is apparently possible and research on this view was found to be lacking in the literature.

2.7.1.1 Regional clusters and national cultural dimensions

Several studies have been conducted to classify the regional culture clusters based on similarities in national culture dimension scores. However, Hofstede's Model of National Culture Study and GLOBE Study is the latest and most accepted (Table 2.66). Hofstede (1980) pioneered the distinctive approach of clustering countries according to four unique cultural dimensions he derived from a factor analysis of survey data from 66 countries. Anglo, Germanic Europe, Nordic Europe, Latin Europe, Latin America, Near East, and the Far East were the seven clusters identified in this study. In addition, power Distance, Uncertainty Avoidance, Individualism-Collectivism, Masculinity-Femininity, and Long-Term versus Short-Term Orientation were the five national cultural dimensions used to classify the regional clusters according to cultural similarities. However, Hofstede's study was criticised for having reliability and validity issues, insufficient dimensions, and having country clusters limited to only a few regions of the world.

The GLOBE study is the latest comprehensive cultural grouping study (House et al., 2004). In this study, 61 countries were grouped into ten different cultural clusters based on the demographic characteristics of the selected countries. These country groupings were validated by applying the discriminant analysis to the cultural dimensions collected from the survey data. The GLOBE study uses Hofstede's dimensions as the baseline, and the researchers extended the original five dimensions in Hofstede's to nine. These dimensions include; Power Distance, Uncertainty Avoidance, Humane Orientation, Institutional Collectivism, In-Group Collectivism, Assertiveness, Gender Egalitarianism, Future Orientation, and Performance Orientation. Moreover, the ten cultural clusters identified in the study were, namely, Anglo, Nordic Europe, Germanic Europe, Latin Europe, Eastern Europe, Latin America, Africa, Middle East, Confucian Asia, and Southern Asia.

In classifying the RBFOTs (Western, East Asian, and South Asian), the researcher considered regional culture clusters and the key findings identified by the GLOBE study. The GLOBE study is the latest comprehensive study available to compare and contrast the regional cultural values and their influence on the organisational cultures of RBFOTs (APPENDIX T & APPENDIX U).

Table 2.6

Summary Findings of Hofstede's National Culture Study and GLOBE Study

Author (year)	Sample details	Regional Country clusters	National cultural dimensions	Key findings of the study
Hofstede (1980) National Culture Study	72 Countries	1. Anglo 2. Germanic Europe 3. Nordic Europe 4. Latin Europe 5. Latin American 6. Near East 7. Far East	1. Power Distance 2. Uncertainty Avoidance 3. Individualism-Collectivism 4. Masculinity-Femininity 5. Long-Term Short-Term Orientation	This study directly identified how the national/regional culture profiles (combinations of five national cultural dimensions) differ among the identified regional country clusters. The culture scores ranged from low to medium to high. It revealed significant cultural differences among the seven clusters. **Note:** This model is criticised for having reliability and validity issues, and insufficient/ambiguous dimensions.
House et al., (2002) GLOBE Study	62 Countries	1. Anglo 2. Nordic Europe 3. Germanic Europe 4. Latin Europe 5. Eastern Europe 6. Latin American 7. Africa 8. Middle East 9. Confucian Asia 10. Southern Asia	1. Power Distance 2. Uncertainty Avoidance 3. Humane Orientation 4. Institutional Collectivism 5. In-Group Collectivism 6. Assertiveness 7. Gender Egalitarianism 8. Future Orientation 9. Performance Orientation	This study revealed how six value-based leadership styles (Charismatic, Team-oriented, Participative, Humane Oriented, Autonomous, and Self-protective) vary across the classified ten regional country clusters. The cultural scores ranged from low to medium to high. The results further indicated significant similarities and differences in cultural scores across ten regional country clusters. However, the study also identified regional culture similarities among Anglo & European clusters and Confucian and Southern Asia clusters based on the nine national cultural dimensions. **Note:** This framework is not a perfect classification to understand the cultural differences of the various regions and does not cover all the regions/countries in the world and is, therefore, not fully representative.

2.7.2 Influence of parent company culture on its affiliates in host countries

Studies carried out by Adler and Gunderson (2008); Ansah and Louw (2019) confirm a significant influence and relationship between the corporate culture of the parent companies on the firm culture of their affiliates operating in various host countries. In support of this view, Adler and Gunderson (2008) further argue that owners of the businesses of the parent companies carry their cultural background and ethnicity to the foreign affiliates they establish in other regions of the world. The author argues that the owners of parent companies naturally tend to transfer their parent company values to the foreign affiliates as the owners are firmly attached to the ethnic-national cultural values.

Parent companies also take deliberate action to transplant their unique business models, core values, associated management practices, systems, techniques, policies, and norms to their affiliates operating in host countries. According to the study by Zhang (2003), Chinese parent companies adopt a systematic approach to transferring their human resource management practices to the affiliates they establish in the UK. Besser (1996) examined in a case study how Toyota company is replicating its style of management and its team culture in its Kentucky plant in the USA. The authors found that after five years of the initial establishment of the plant, the Toyota company has been able to transplant its culture into its USA affiliate fully.

However, a study by Marin *et al.* (2019) found that only about 14% of the Austrian and German parent companies fully transplant their culture to affiliates in Eastern Europe. According to these authors, the extent of the culture transplant is determined by the competitive nature of the host market, the human resource policy of the multinational firm, communication cost, and the nature of the technology to be transferred to the host country.

The literature review also found that studies on this aspect of culture transfer were lacking in developing countries. More specifically, studies on how and to what extent multinational firms transplant or transfer their parent company culture to affiliates operating in the South Asian region were highly lacking.

However, since it is important to understand how fully-owned foreign firms transplant, transfer and establish the parent company culture in their foreign affiliates, this issue was addressed in the preliminary field study the researcher carried out in the BOI-approved apparel sector in Sri

Lanka. Therefore, the interview findings on how foreign apparel firms establish their organisational culture in their Sri Lankan affiliates are elaborated in section 3.4.4 chapter 3.

2.7.3 Influence of national & regional culture on the culture of foreign affiliates

In addition to the mainstream culture transplant or transfer that is taking effect through the parent company, the foreign affiliates could also be influenced by the national culture of the country or region to which the foreign affiliates belong.

The extent to which the foreign affiliates' culture has been influenced by the parent company and its home country/regional culture could be effectively understood by reviewing the cross-cultural studies done in various regions of the world. Therefore, the extent of parent company influence can be reasonably assessed by analysing the cultural characteristics (precisely the DOCS traits) of foreign affiliates belonging to various regions of the world. Furthermore, cross-cultural reviews (section 2.7.4) enable the researcher to identify what kind of cultural characteristics foreign affiliates possess in common, whether they represent the cultural characteristics of the regions to which they belong and whether they are similar or different across various regions of the world.

2.7.4 Cross-cultural studies carried out to understand the cultural characteristics of foreign affiliates belonging to various regions of the world

Cross-cultural researchers who used DOCS for their studies have attempted to examine the differences and similarities of culture traits of firms across different countries and regions of the world. A study comparing US and Russian firms based on Denison's culture traits demonstrated the importance of all four traits for performance in both contexts but indicated that Russian firms are more characterised by Adaptability and Involvement traits than Consistency and Mission traits (Fey & Denison, 2003). Furthermore, Zeng and Luo (2013) in their study in China, found that the Western firms operating in China were more characterised by Mission and Consistency traits while local Chinese firms were more characterised by Involvement and Adaptability traits.

A cross-cultural study by Denison *et al.* (2004) found no significant difference in organisational culture traits among European, North American, East Asian, Middle-East, and South African countries except Japan and Jamaica. The authors contest that the early stream of research (Denison *et al.*, 2003; Denison *et al.*, 2004; Fey & Denison, 2003) illustrates some limitations, which may have resulted in null results. These studies have further demonstrated that while the

culture traits assessed retain similar meanings across national settings, the specific manifestations of these cultural concepts can differ. Denison *et al.* (2004) further discovered that firms from North America and Europe had slightly higher scores on Mission traits than firms from East Asia, the Middle East, and South Africa. In addition, they found that the Adaptability score was marginally higher among East Asian firms. Nevertheless, Brazil had low scores on Mission and Adaptability and relatively high scores on Involvement and Consistency traits. However, Canada showed lower scores on Involvement and Consistency traits and higher scores on Mission and Adaptability traits.

Based on the review findings and research gaps identified in this block, Hypothesis 3 (H3) was formulated regarding the relationship between the RBFOT and organisational culture.

H3 – There are differences in organisational culture traits (Involvement, Consistency, Adaptability, and Mission) among RBFOTs.

2.8 Main research gaps identified from the review of the literature

The previous studies revealed that the performance of foreign and locally owned manufacturing firms had been analysed and examined in terms of various econometric-oriented performance dimensions and metrics. These studies found conflicting results leading to operationalisation and measurement of manufacturing performance. Hence, a gap was identified to incorporate wide-ranging manufacturing performance dimensions and related metrics useful to the operations management fraternity to compare manufacturing performance differences accurately. Because of different and incomplete dimensions and metrics used to measure manufacturing performance in prior studies, there is a need to construct a new comprehensive scale to measure the manufacturing performance of RBFOTs. This gap in the literature calls for a new operationalisation of manufacturing performance.

Previous studies also revealed inconsistent findings on the relationship between the firm ownership types (foreign vs locally owned) and manufacturing performance and a lack of studies attributing causes for manufacturing performance differences from a cross-cultural operations management perspective. A cross-cultural operations management perspective is relevant because, in a systems-based discipline such as operations management, manufacturing performance is an outcome of interrelated management practices and organisational culture is a relevant descriptor of these management practices. The literature lacks a mediation theory to explain the difference in manufacturing performance using the organisational cultures of RBFOTs. This gap in the literature calls for a new theorisation of manufacturing performance.

The literature search revealed a lack of studies comparing the manufacturing performance of local and foreign firms operating in the South Asian region. The review further revealed that firm culture comparative studies using the DOCS were lacking in the South Asian region.

2.9 Development of the conceptual model

The main research gaps identified unveiled an exact domain that can be exploited for theory development and testing. In the first block of the literature review, it was revealed that RBFOT influences manufacturing performance. The second block of the literature review revealed that organisational culture influences manufacturing performance. Finally, the third block of the literature review revealed that RBFOT influences organisational culture. Hence, the three blocks of literature reviews enable the researcher to posit the path relationships to constitute a *mediation model* for theory formulation and testing. The theoretical model conceptualised is diagrammatically illustrated in Figure 2.77.

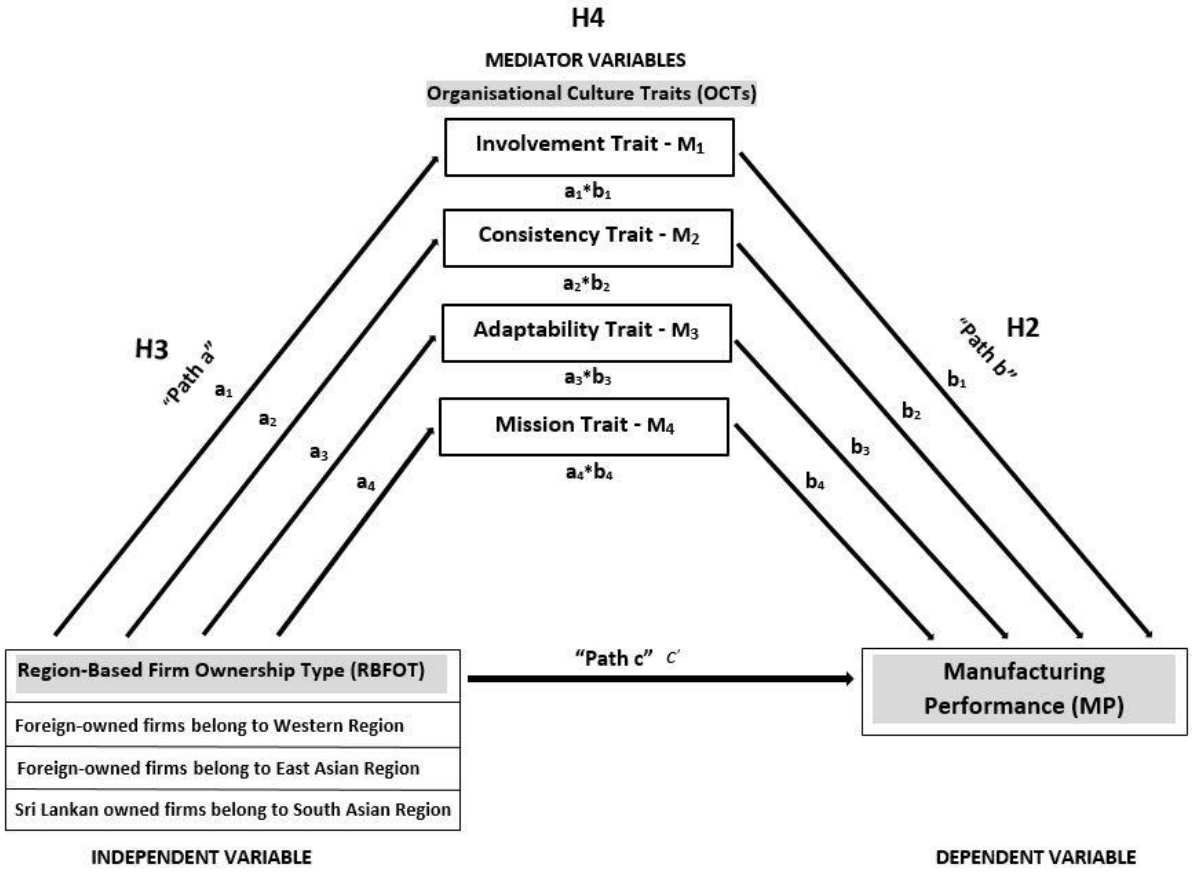


Figure 2.7 *Conceptual Model of the Study*

In the mediation model, the direct relationship between RBFOT and manufacturing performance represents path c. The relationships between organisational culture traits and

manufacturing performance represent path b of the model (the second part of the indirect relationship). The relationship between RBFOT and organisational culture traits represents the path a of the model (the first part of the indirect relationship). Since there is a conflicting relationship between the RBFOT and manufacturing performance, the researcher argues that organisational culture as a third variable explains the differences in manufacturing performance among the RBFOTs. In other words, the research argues that RBFOTs influence organisational culture and, in turn, affect manufacturing performance. This indirect relationship considers the organisational culture acts as an intervening (mediating) variable in the direct relationship between RBFOT and manufacturing performance. Figure 2.77 depicts how these three path relationships were associated with building the model based on the principles of mediation.

2.10 Why parallel multiple mediator model was selected

This study represents the organisational culture by four culture traits as mediators. Therefore, there are four parallel mediation paths involving culture as a mediator (Figure 2.77). Since simple mediation is based on only a single mediator variable, it does not allow the investigator to model multiple mechanisms simultaneously in a single integrated model (Hayes, 2018). A parallel multiple mediation model, thus, allows the RBFOTs effect to be transmitted to manufacturing performance through multiple (four) organisational culture traits simultaneously. In this model, the four organisational culture traits operate as parallel mediators and allow them to correlate but not causally influence one another in the model (Hayes, 2018). The inclusion of organisational culture traits as parallel mediators allows for comparison of the size of the indirect effect of RBFOTs through them, allowing the researcher to determine which indirect effect is the stronger of the four, depending on the complexity of the model (Hayes, 2018). Under this model, the core independent variable of RBFOT is modeled as influencing the dependent variable (manufacturing performance) directly and indirectly through the four mediator variables of organisational culture traits, with the condition that no mediator causally influences another.

In the conceptualised model, one pathway is direct, from RBFOTs to Manufacturing Performance, without passing through any proposed mediators: the four organisational culture traits. The other pathways are indirect, each passing through a single mediator. The indirect effects are "specific indirect effects" that link RBFOTs to manufacturing performance through organisational culture traits. The first of these indirect paths is the effect of RBFOTs on organisational culture traits, the second is the effect of organisational culture traits on manufacturing performance.

2.11 Formulation of the theory – Hypotheses to be tested

The basis of theory building begins from Hypothesis (H1), where it was hypothesised that there is a difference in manufacturing performance among RBFOTs (section 2.3). This is the same as saying that there is a relationship between RBFOT and manufacturing performance. This section hypothesises the causal mechanism through which this relationship manifests (i.e., through mediation).

In order to formulate the theory and test the model, the formulated hypotheses were associated with the theoretical relationships of the model, as explained below. These hypotheses were based on the principles of mediation to test whether organisational culture mediates the relationship between RBFOT and manufacturing performance (Hayes, 2018).

2.11.1 The hypothesis related to path b of the model (H2)

Hypothesis 2 (H2), which was formulated based on the second block of literature review carried out on the theoretical relationship between organisational culture and manufacturing performance, was associated with path b (which is the second part of the indirect path) of the model.

H2 – Organisational culture traits (Involvement, Consistency, Adaptability, and Mission) positively affect the Manufacturing Performance of RBFOTs.

2.11.2 The hypothesis related to path a of the model (H3)

Hypothesis 3 (H3), which was formulated based on the third block of literature review carried out on the theoretical relationship between RBFOT and organisational culture, was associated with path a (which is the first part of the indirect path) of the model.

H3 – There are differences in organisational culture traits (Involvement, Consistency, Adaptability, and Mission) among RBFOTs.

2.11.3 The hypothesis related to path a*b of the model – mediation effect (H4)

Hypothesis 4 (H4), which was formulated based on the overall literature review (the first, second, and third blocks of review) carried out on the theoretical relationships among RBFOTs,

organisational culture, and manufacturing performance was associated with the path a*b (which is the indirect path) of the model.

H4 – The effect of RBFOTs on Manufacturing Performance is mediated by organisational culture traits of Involvement, Consistency, Adaptability, and Mission.

2.12 Chapter Summary

This chapter reviewed the existing literature. It commenced by providing an overview of the apparel industry of Sri Lanka. The literature was then reviewed under three blocks representing the theoretical relationships of the three themes: RBFOTs, organisational culture, and manufacturing performance. The first block reviewed the relationships between RBFOT and manufacturing performance. The second block reviewed the relationships between organisational culture and manufacturing performance, and the third block reviewed the relationship between RBFOT and organisational culture. Hypotheses were then formulated based on the review findings and research gaps identified under each block, enabling synthesising the domain exploited for theory development and testing. The final section explained how and why the parallel multiple mediation model was conceptualised to formulate and test the theory.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter elaborates on the overall research process adopted to collect data for the study. It describes the research philosophy and approach of the researcher, the choice of methodology, the time horizon, and the data collection strategy and methods considered. The philosophical stance and approach of the researcher, the methodological choice, and the associated data collection methods are highlighted in Figure 3.1 (see the large incoming arrow). The chapter further describes the quantitative dominant multimethod design and the justification for selecting this methodology to collect the data. The ethical aspects considered are presented in this chapter's final section.

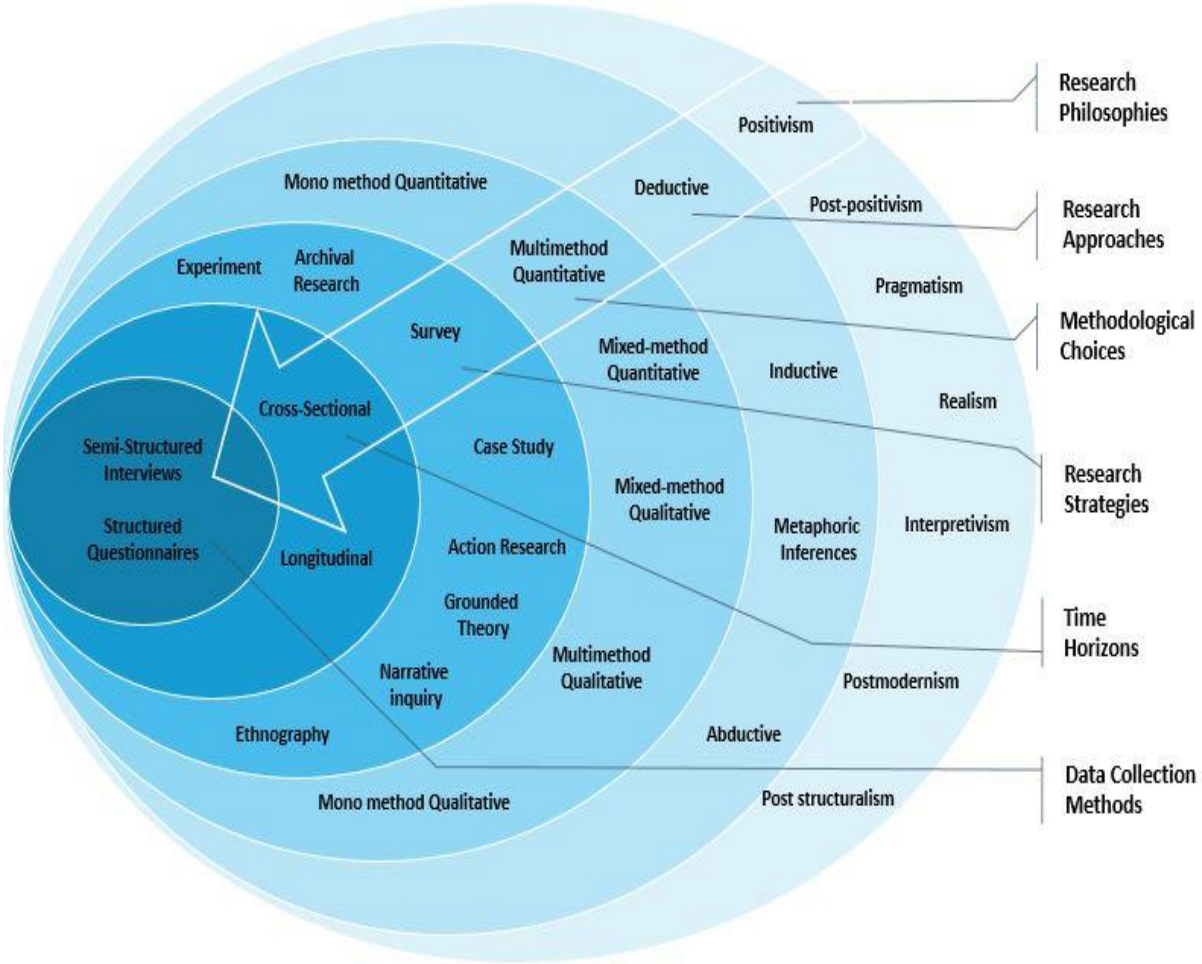


Figure 3.1 *Research Process Considered*

Source: [Adapted from] (Saunders et al., 2016, p. 38)

3.2 Research philosophy and approach to theory development

The beliefs and assumptions of the researcher about the development of knowledge for this study were guided by the research philosophy of positivism. However, the researcher acknowledges that some scholars criticise the positivism paradigm for being too restrictive in studying social phenomena, particularly when the study is driven entirely by quantitative approaches (Clark, 1998; Hesse-Biber & Johnson, 2016; Yin, 2014). Hence, this study gathered qualitative data through semi-structured interviews (e.g., understanding how foreign firms are established and how they establish their cultures in Sri Lanka) and quantitative data through structured questionnaires (e.g., to test the model and the related hypotheses) while staying within the boundaries of positivism.

The researcher believes in external reality but acknowledges imperfections and limits in accurately capturing it with quantitative data and methods alone. However, keeping within the positivist stance, the researcher took all possible steps to be objective and value-free as much as possible throughout the research process. The researcher's methodological standpoint is predominantly quantitative. However, qualitative data were gathered through a preliminary field study, as explained in chapter 4. These qualitative data (using semi-structured interviews) were not used in theory formulation but used to clarify and understand the research context which in turn supports the quantitative data collected through the structured questionnaire method. Therefore, the researcher believes that the established organisational phenomena could be effectively understood, explained, and generalised by resorting to the quantitative dominant multimethod design within the positivist paradigm.

Table 3.1

Anatomy of the Researcher's Philosophy

Ontology	The researcher believes that external social reality exists like natural reality, but imperfections exist and there are limits to accurately capturing it.
Epistemology	The researcher is independent of what is being researched and attempts were being made to preserve objectivity, acknowledging that there would be an unavoidable element of subjectivity in the research process.
Methodology	Hypothesis testing has been carried out through a quantitative study using deductive reasoning, but to clarify and better understand the research context a preliminary field study has been conducted using the interview method.
Purpose	Understand, explain, predict, and generalise

Source: [Adapted from] (Hesse-Biber & Johnson, 2016)

The research philosophy describes in Table 3.1 underpins the researchers' theory development approach (deductive), methodological choice (multimethod quantitative design), research strategy (survey), time horizon (cross-sectional), data collection methods (interviews and questionnaires), and analytical procedures. Hence, it facilitated the researcher to design a coherent research project in which all elements of the research process are well fitted together (Figure 3.1). Accordingly, the researcher adopts the deductive approach to theory development using a multimethod quantitative design to collect data and achieve the study's objectives.

3.3 Selected methodology

Various research designs — mono method, multimethod, and mixed-methods — adopted by previous researchers are presented in Table 3.2 (Creswell & Plano Clark, 2018; Hesse-Biber & Johnson, 2015; Johnson et al., 2007; Saunders et al., 2016). This study employs a multimethod quantitative design embedding a preliminary field study as a complementary data collection method supporting the dominant quantitative study. As mentioned earlier, a preliminary field study (conducted through semi-structured interviews) was designed to clarify and understand the research context as a forerunner to the fully-fledged quantitative data collection to test the mediation model/theory using quantitative methods/techniques. The qualitative data collection also helped develop a new scale to operationalise manufacturing performance for the apparel industry.

The quantitative study was designed to test the model and the related hypothesis and represents a major part of the data collection and analysis, leading to the study's overall findings. Structured questionnaires were used as the main quantitative data collection and related data analysis methods. The details of the selected research design of the study are presented in bolded text shaded columns in Table 3.2.

Table 3.2

Research Designs used by Previous Researchers on Mono, Multi and Mixed Methods

RESEARCH DESIGN	MONO METHOD		MULTIMETHOD		MIXED-METHOD	
Ontology	Objectivism	Subjectivism	**Objectivism**	Subjectivism	Objectivism	Subjectivism
Epistemology	Positivism	Interpretivism	**Positivism**	Interpretivism	Pragmatism	Realism
Methodological Stance	Quantitative	Qualitative	**Quantitative**	Qualitative	Quant > Qual	Qual > Quant
Methodological Choices						
Reasoning / Research approach for theory development	Deductive	Inductive	**Deductive**	Inductive	Deductive > Inductive	Inductive > Deductive
Data collection strategy	Single Quant (Survey)	Single Qual (Case Study)	**Single Quant** **(Survey)**	Single Qual (Case Study)	Multiple Quant > Qual (Survey > Case Study)	Multiple Qual > Quant (Case Study > Survey)
Data collection method	Single Quant (Structured Questionnaires)	Single Qual (In-depth Interviews)	**Multiple Quant > Qual** **(Structured Questionnaires + Semi-structured Interviews**	Multiple Qual > Quant (In-depth Interviews + Structured Questionnaires)	Multiple Quant > Qual (Quantitate Data Collection > Qualitative Data Collection)	Multiple Qual > Quant (Qualitative Data Collection > Quantitative Data Collection)
Data type	Quantitative	Qualitative	**Quant > Qual**	Qual > Quant	Quant > Qual	Qual > Quant
Data analysis method	Single Quant (Regression analysis)	Single Qual (Thematic analysis)	**Quant > Qual** **(EFA + CFA + Regression analysis + Correlation analysis > Textual analysis + Response comparative analysis)**	Qual > Quant (Thematic analysis + Content analysis > Correlation analysis + Regression analysis)	Quant > Qual Quantitative Data Analysis > Qualitative Data Analysis	Qual > Quant Qualitative Data Analysis > Quantitative Data Analysis

Quant = Quantitative Quant > Qual = Quantitative dominant The symbol > means greater than
Qual = Qualitative Qual > Quant = Qualitative dominant The symbol < means less than

Sources: [Adapted from] (Creswell & Plano Clark, 2018; Hesse-Biber & Johnson, 2016; Johnson *et al.*, 2007; Saunders *et al.*, 2016)

3.4 Justification of the selected methodology

Recent positivist research used to study social phenomena by adopting multiple data collection methods (qualitative and quantitative) from numerous sources (Clark, 1998; Yin, 2014). The collection of qualitative and quantitative data in two different phases using two different methods enabled the researcher to enhance the validity and reliability of the overall findings by complementing the interview-based fieldwork with the questionnaire-based quantitative study. This multimethod design provides the basis for collecting the most appropriate data needed to achieve the study's main objectives. For example, qualitative data (preliminary field study) helps to design the quantitative methodology by filling the missing gaps required for theory testing, which range from construct operationalisation (i.e identifying possible metrics to design the MPS) to sampling frame design (i.e.determining the potential list of respondents).

When analysing the methodological approaches adopted in previous organisational culture-performance studies, researchers have used quantitative methodologies as their main research approach (Denison *et al.*, 2014; Hartnell *et al.*, 2011; Patterson *et al.*, 2005; Schneider *et al.*, 1998). Besides, some scholars suggest that an initial understanding of the research context using qualitative studies essentially enhances the validity of the subsequent quantitative findings (Reamer, 1993; Roger, 1990). Therefore, based on the specific nature and the data required at different phases of the study, the selected methodology provides the most appropriate mix of data collection methods to examine the research question/s effectively.

3.5 Details of the preliminary field study

The details of this field study are elaborated on in chapter 4. This study was designed and carried out as a qualitative field study in the initial phase of the study to clarify and understand the operational context of the BOI-approved apparel sector of Sri Lanka and to identify the metrics used to measure the manufacturing performance of apparel firms. The study used semi-structured interviews in the BOISL and Katunayaka Export Promotion Zone (KEPZ) of Sri Lanka which were the main data collection sites.

3.6 Details of the quantitative study design

Following the preliminary field study, the quantitative study — comprising a major part of the research — was designed to test the model and the related hypotheses. The quantitative study was designed and implemented with two sample surveys — DOCS and MPS — complemented with structured questionnaires. It was designed as a cross-sectional study.

3.6.1 Operationalisation of the constructs of the study

Since the quantitative study design was intended to test the hypotheses, the deductive approach was applied to test the model statistically. Therefore, the abstract concepts of the study were deduced into a more concrete empirical level to facilitate measuring quantitatively. The process used to operationalise the considered variables of the study is presented in Table 3.3.

Table 3.3

Operationalisation of the Constructs of the Study

Variable	Concept	Indicators	Measures
Manufacturing Performance DEPENDENT VARIABLE	Manufacturing Performance of an apparel firm	Cost-efficiency Delivery Product Quality Flexibility Innovativeness	Measured by a 20-item Scale (4 items per Indicator). A new scale was designed, developed, and validated to measure the manufacturing performance of an apparel firm.
Organisational Climate MEDIATOR VARIABLES	Organisational Climate of an apparel firm	Involvement trait - Empowerment - Team orientation - Capability development Consistency trait - Core Values - Agreement - Integration Adaptability trait - Generating change - Customer focus - Organisational learning Mission trait - Strategy direction - Goals - Vision	Measured by using DOCS (Denison et al., 2004) A well validated and tested 60-items Likert scale. 15 items are used to measure each of the four culture traits. 5 items are used to measure each of the three management practice orientations representing each trait.
Region-Based Firm Ownership Type INDEPENDENT VARIABLE	Western region origin foreign-owned firms	Equity ownership Region of origin	100% equity share North American & Western European
	East Asian region origin foreign-owned firms	Equity ownership Region of origin	100% equity share East Asian & South East Asian
	South Asian region origin Sri Lankan-owned firms	Equity ownership Region of origin	100% equity share South Asian Sri Lankan

In quantitative research involving directly unobservable variables, a question arises as to whether the indicators used to represent each such variable are a reasonable representation of the construct. This is a question of "content validity" (Fitzpatrick, 1983; Haynes *et al.*, 1995; Nunnally, 1978). Typically, content validity is a judgemental matter involving so-called "content experts" rather than a statistical matter based on a threshold value (Grant & Davis, 1997). The researcher argues that there is no need to use content experts to establish the content validity of measurement items used in operationalising the DOCS constructs because the content validity is already established in previous research. Therefore, content experts were used only to establish the content validity of MPS which is a new scale developed by the researcher (details in chapter 5).

3.6.2 Methods of data collection

Two industry-wide sample surveys were conducted among the RBFOTs. The surveys were administered using the Qualtrics online survey tool in two sequential phases from November 2020 to February 2021. For this purpose, two online survey distribution plans [one for MPS (APPENDIX E) & the other for DOCS (APPENDIX F)] were prepared for both phases I & II.

3.6.3 Sample Size

Since the study analysed the data to test the hypothesis using multiple regression — the SPSS PROCESS macro (Hayes, 2018) was used — the minimum sample size was computed using the freeware GPower 3.1 (Faul *et al.*, 2007), prompting it to use its regression mode (the F test for the model). The estimated sample size was found to be 88 firms assuming a statistical power of .8 and an effect size of .2, taking .05 as the significance level; effect size is a metric defined by Cohen (1992) to denote the strength of a relationship for the particular statistical analysis technique being used (multiple regression in testing the theoretical model). According to Cohen, effect sizes .02, .15, and .35 denote a small, medium, and large effect size in multiple regression analysis. The effect size assumption of .2 was considered because the researcher expects a relationship (in terms of the R^2 value) that can be deemed larger than a medium effect but substantially smaller than a larger effect[16]. This effect size selection for the study was supported by the R^2 and effect size values of the previous culture-performance studies (Chow *et al.*, 2003; Denison *et al.*, 2004; Ghasem *et al.*, 2018; Prajogo & McDermott, 2011). When

[16] Cohen (1992) defined the effect size for regression analysis as $R^2/(1-R^2)$. This means that the R^2 value for small, medium and large effects correspond to .02 (2%), .13 (13%), and .26 (26%) respectively. An effect size of .20 translates to an R^2 value of .17 (17%).

estimating the sample size to test the mediation effect of the parallel multiple mediation model, nine predictor variables (categorical variable with three groups, four mediator variables, and three covariates representing the control variables) were considered in obtaining the sample size estimation. See APPENDIX G for details of the sample size estimation using GPower 3.1. Considering the sample size estimate and relevant population, 120 firms (40 Western region-origin foreign-owned firms, 40 East Asian region-origin foreign-owned firms, and 40 South Asian region-origin Sri Lankan firms) were selected as the sample size of the main survey.

However, when selecting the South Asian region origin 100% Sri Lankan-owned firms (40 out of 141 firms operating in operating under BOISL), similarities exist among the three types of firms in terms of the number of employees, technological capabilities, type of products manufactured, the age of the firm, location of the firm were considered (i.e. broadly speaking, the demographics). Hence, a cluster sampling technique — the three clusters being the three RBFOTs — was adopted in selecting representative and matching sample groups. This resulted in 120 firms, representing 40 firms under each RBFOT (Table 3.4). Hence, this sample selection process controlled the aforesaid factors affecting the manufacturing performance of the RBFOTs, which is the dependent variable of this study, and it helped to minimise the influence of possible sample bias in the surveys (Bryman, 2016).

3.6.3.1 **Sample frame**

The sample frame is shown in Table 3.4. The unit of observation is the managers in each firm, while the unit of analysis is the firm (more about this in section 3.9.1).

Table 3.4

Sample Frame used for the Study

	Western region origin foreign-owned firms	East Asian region origin foreign-owned firms	South Asian region origin Sri Lankan owned firms	Total
Number of Firms	40	40	40	120
Senior Managers (Directly involved in operations and production related positions)	40	40	40	120
Middle Managers (Executives, Supervisors, Leaders of various units, sections, and departments)	200	200	200	600

The analysis of previous culture measurement literature reveals that multiple respondents in middle-level management are the most appropriate and widely used informants to rate the organisational culture (Denison & Neale, 1996). It was revealed that senior managers are the most appropriate and widely used informants to rate organisational performance (Denison *et al.*, 2014; Hartnell *et al.*, 2011; Puppatz *et al.*, 2017). This study does not operationalise organisational performance in governance, financial, and customer/market performance. Thus, only the ones directly related to manufacturing operations were considered among senior managers. The DOCS questionnaire was distributed among 5–10 middle-level managers working in various sections, divisions, units, and departments of each apparel firm expecting on average 3–5 managers to rate the organisational culture.

Similarly, the MPS questionnaire was distributed among three senior managers directly involved in production or operations management positions, expecting at least one senior manager to rate the manufacturing performance of each firm. Since the senior managers are well-experienced and knowledgeable about the operations and production functions of the firm, one senior manager is assumed to be sufficient to rate the manufacturing performance of the firm. Common method bias was not a problem in this study because two different sets of informants (middle managers vs senior managers) were asked to rate the two different scale constructs, and two different response formats were used to rate the scale constructs (Doty & Glick, 1998). For example, a 1–5 scale to rate the culture items and a 1–7 scale to rate the manufacturing performance items.

3.7 Measures to increase the response rates and avoid possible missing values

Furthermore, when planning the surveys and designing the questionnaires, many proactive and innovative measures were adopted to encourage and enhance the survey response rates (Saleh & Bista, 2017). These measures included a) creating firm-specific survey links, b) customising the survey to mobile phones, c) emphasising the importance of respondents' input to the research study, d) assuring confidentiality and anonymity with university sponsorship, e) providing convenient times and durations to respond, f) creating interest in the survey, g) using easy to complete question blocks and progress bars, h) revealing the researcher and supervisor's identity.

3.8 Data collection instruments

3.8.1 Instrument to measure the construct of organisational culture

To measure the organisational culture, the DOCS (Denison *et al.*, 2004; Denison & Mishra, 1995; Denison & Neale, 1996) was used to collect the data. This is a 60-item scale designed to measure all four culture traits — Involvement, Consistency, Adaptability, and Mission — reflected in the conceptual model and the study's hypotheses. Fifteen items were used to measure each culture trait with three management practice orientations as sub-indicators. DOCS is a five-point rating scale (Likert scale) where respondents were required to indicate their degree of agreement for each item ranging from 1 – Strongly disagree to 5 – Strongly agree (Denison & Neale, 1996). The researcher obtained prior permission from Denison Consulting (the patent rights granting authority for this instrument) to use the instrument for the study. Please refer to APPENDIX H for the finalised surveyed DOCS instrument.

3.8.1.1 Reliability and Validity of Denison's Organisational Culture Survey

The most recent studies comparing different instruments for measuring organisational culture have strongly supported DOCS as a well-accepted measurement scale of organisational culture (Denison *et al.*, 2014; Hartnell *et al.*, 2011; Puppatz *et al.*, 2017). DOCS has been validated in several settings (e.g., many industrial, educational, and healthcare sectors) and is regarded as a valid and reliable instrument to capture the organisational culture within a country (Patterson *et al.*, 2005; Scott *et al.*, 2001) as well as between diverse regions and countries of the world (Denison *et al.*, 2004; Denison *et al.*, 2014; Patterson *et al.*, 2005; Scott *et al.*, 2001; Zeng & Luo, 2013). It has been a statistically well-accepted tool that has been demonstrated to have high factor loadings (> .6), convergent validity (*AVE* >.70), scale reliability (Cronbach's α > .8) as well as high interrater agreement (> .8) at the firm level (Denison *et al.*, 2014; Puppatz *et al.*, 2017; Zeng & Luo, 2013).

3.8.1.2 Translation and back-translation of DOCS

Since most of the middle-level managers who constitute the respondents of the apparel firms are Sinhalese, the DOCS was translated into the Sinhala language and tested for back-translation. The initial translation was done by Denison Consulting, the patented authority of the DOCS instrument. Then, however, it was back-translated and further edited with the researchers' involvement as a Sinhala-educated Sri Lankan academic with the support of another Sinhala-educated Sri Lankan staff member from Massey University.

3.8.1.3 Pre-testing the DOCS

DOCS was pre-tested for further validity and reliability in the Sri Lankan context. This process was done with the help of a DOCS Pre-test Assessment Sheet (APPENDIX I). The pre-test assessment sheet was sent along with the back-translated (Sinhala) questionnaire and English DOCS (APPENDIX J) for six qualified and experienced academics in human resource management and organisational behaviour in Sri Lanka. Three of them assessed the translated survey instrument concerning its translations and applicability in the Sri Lankan context.

The experts recommended changing the Sinhala vocabulary as well as the terminology used in some translated questions to match the English meaning. They further recommended simplifying certain questions to increase the clarity in keeping with the corresponding English meanings. Based on the pre-test assessment feedback, the back-translated (Sinhala) questionnaire was revised to provide more clarity (APPENDIX K for the back-translated questionnaire, which was sent along with the main survey invitations for survey participants in Sri Lanka after accommodating the pre-test feedback improvements).

3.8.2 Instrument to measure the construct of manufacturing performance

Chapter 5 describes the process the researcher followed to design, develop, and validate a new performance scale to measure the manufacturing performance of an apparel firm, which, as mentioned before, is the study's dependent variable. This scale considered five performance dimensions — cost-efficiency, delivery, product quality, flexibility, and innovativeness — critical to the apparel industry. This is a 20-item scale consisting of four items to represent each of the five performance dimensions. The initially developed MPS was pre-tested by six experts using a pre-test assessment opinion survey. The improved MPS was then pilot-tested using 84 senior managers of apparel firms operating in seven leading Asian apparel manufacturing countries. The scale had high factor loadings (> .60), convergent validity (*AVE* > .70), and scale reliability (Cronbach's $\alpha > .8$). The finalised MPS was used to measure manufacturing performance in the main survey conducted in Sri Lanka.

3.9 Methods of data analysis

3.9.1 Unit of observation and unit of analysis

In social research, the entity being studied (i.e., the entity to which the theory is supposed to be applicable) need not necessarily be the source from which data are being collected (Bryman,

2016; Judd & Kenny, 2010). The former is known as the unit of analysis, while the latter is known as the unit of observation or the unit of measurement (DeCarlo, 2018).

The unit of analysis of this study is firm. The unit of observation is the respondent (within a firm) who responded to either the MPS or DOCS. Consequently, the unit of analysis pertained to 120 firms according to the sample frame. The individual responses received from each survey instrument were aggregated to get a single measure for the firm to test the path model's direct, indirect, and total effects (Denison *et al.*, 2014; Hartnell *et al.*, 2011). Accordingly, the manufacturing performance at the firm level (the dependent variable of the study) was rated by considering the response from one senior manager. However, the organisational culture at the firm level (mediator variable of the study) was rated by aggregating (averaging) the individual responses received from 2 to 5 middle-level managers.

To justify aggregation across respondents in each firm, the inter-rater agreement was calculated with the DOCS survey response data (LeBreton & Senter, 2008). The Intraclass Correlation Coefficient (*ICC*) values computed using the survey response data from the apparel firms in Sri Lanka revealed a high significant overall interrater reliability ($ICC = .93$, $p < .05$), Involvement trait ($ICC = .91$, $p < .05$), Consistency trait ($ICC = .89$, $p < .05$), Adaptability trait ($ICC = .94$, $p < .05$) and Mission trait ($ICC = .93$, $p < .05$) confirming high interrater agreement among different middle-level managers' ratings of the DOCS instrument. Moreover, Denison *et al.* (2014) review of studies in 160 companies also supported such ratings (ICC > .9) of individual responses to the culture traits at the firm level. Hence, the firm-level data well represents the aggregation of the individual respondents' ratings.

3.9.2 Statistical methods and techniques

To test the hypotheses, one-way ANOVA and PROCESS macro for mediation - Model 4 was applied (Hayes, 2018). The PROCESS macro is a path analysis tool for analysing path relationships involving directly observable variables (as opposed to latent variables) based on the ordinary least squares regression technique. In addition, PROCESS macro performs bootstrapping test — which sampled the dataset 5,000 times to test the mediating effects at 5% confidence intervals (Hayes, 2018). Process defines a wide range of models (i.e. Model 1 to 27) involving different macro algorithms to test various mediation and moderation relationships. This study uses Model 4, a specifically designed PROCESS macro algorithm, to conduct (parallel) mediation analysis for multiple regression analyses using the Statistical Package for Social Sciences (SPSS).

3.9.3 Control variables considered for mediation analysis

The control variables influencing manufacturing performance at the firm level were identified through the literature, the analysis of the pilot survey for MPS development, and the preliminary field study. Many control variables that have been used in prior studies to examine the RBFOT → Manufacturing Performance Relationship (Table 2.4) were excluded due to sample matching. For example, out of the four control variables used by (Doms & Jenson, 1995), the age, industry type, and plant location, only size (number of employees) becomes a control variable. This is because the industry type is the same (apparel manufacturing), the age is matched (only mature firms were considered, meaning firms having more than 5 years of operation), and the location is matched (foreign and local firms operate in industrial zones having similar facilities and benefits). Consequently, only three control variables were used in this study. These were the level of employees in the factory (**C1),** the extent of technology used for garment manufacturing (**C2)**, and the type of market for which the firm mainly served (**C3)**.

In statistical analysis, a control variable is a variable that can affect the findings of a study (e.g. the findings of an experiment, the findings of regression analysis in a correlational study such as this research) unless being controlled in some way (Huenermund *et al.*, 2022). In correlational research (e.g., a cross-sectional study involving regression analysis), the effects of control variables on the outcome (dependent variable) are statistically controlled. For example, in regression analysis, the control variables act as additional terms (i.e. terms in addition to the theoretical variables) to provide more reliable estimates of the effects of the theoretical variables. Moreover, it helps to rule out alternative explanations, reduce error terms and increase statistical power (Becker, 2005). In this study, control variables were of an interval scale for the regression analysis.

3.9.4 Reasons for not using Structural Equation Modelling for the mediation analysis

One can question why a latent variable path analytic approach (i.e., a structural model with full measurement models) incorporated in structural equation modelling (SEM) was not adopted in this study to test the hypotheses[17]. The main reason why SEM was not considered was that the researcher did not think that the considered mediation model should be at a level of abstraction warranting latent variables (also see section 6.10). The researcher argues that many mediation

[17] SEM and the approach used in this study would return similar results for the path analysis if each construct is represented by the single indicator score (average scores used in this study).

models in social research have not used SEM, despite seemingly abstract concepts being involved in theorising the mediation models. The researcher notes that the hybrid approach of using latent variable approaches for factor structure confirmation and single indicator approaches for testing hypothesised structural relationships have been published in top-tier operations management journals such as the Journal of Operations Management (Naor *et al.*, 2010). The other reason why SEM was not considered was that the study's independent variable (i.e., RBFOT) is categorical. While using categorical variables as control variables in SEM is not uncommon, it is exceptionally uncommon for a theoretical variable to be modelled as a categorical variable in SEM. It is unknown how the violation of SEM assumptions occurs because using a categorical variable affects SEM results (Finney & DiStefano, 2006; Iacobucci, 2012).

3.10 Ethics considered in conducting the study

The study was deemed low-risk for humans, and a low-risk notice was issued (Ethics approval number 4000020355). The interview programme for the preliminary study and the surveys were conducted following the code of research ethics of Massey University.

The ethical standards were described in the cover pages of the interview protocols and explained before the commencement of the interviews. Interviews were conducted with prior approval and appointments with minimum interruption to the official duties of the managers. Prior consent was also obtained from all the interviewees before proceeding with the audio recording of the interviews.

The ethical standards were described in the introductory pages of the survey questionnaires and elaborated further in all the email communications with the survey participants. In addition, the names and contact details of the researcher and the supervisors were made available for all the respondents of the interviews and surveys with voluntary exit options. Moreover, precautionary steps were taken to protect the anonymity of the respondents and the confidentiality of the data collected through the interviews and surveys.

3.11 Chapter Summary

This chapter describes in detail the overall research process adopted to collect data for the study and the research philosophy and approach of the researcher, the methodological choice, the time horizon, and the data collection strategy and methods considered. It further described the details of the quantitative dominant multimethod design, why it was selected, the adopted data analytic methods, along with the ethical compliances in conducting the study.

CHAPTER 4

PRELIMINARY FIELD STUDY

4.1 Introduction

This chapter describes the details and results of the preliminary field study carried out to clarify and understand the operational context of the BOI-approved apparel sector of Sri Lanka. Initially, the chapter describes the objectives of this field study along with its design characteristics. Then it presents the summary of results about the regulatory and ownership context of the BOI-approved apparel sector and the operational dynamics of the BOI-approved apparel firms. The limitations of the preliminary study are presented in the last section of this chapter.

4.2 Details of the field study

This preliminary study was designed and carried out to complement the quantitative study used by the researcher to test the theoretical model. The aim was to fill the missing gaps required for theory testing, which range from construct operationalisation to sampling frame design. The data collection sites were the BOISL and Katunayaka Export Promotion Zone (KEPZ) of Sri Lanka which was carried out in the initial phase of the study (from February and March 2019) to achieve the following objectives.

a) To obtain a working knowledge of the regulatory and competitive environment in which foreign and local firms operate in the BOI-approved apparel sector.

b) To profile the firms to sample them for quantitative data collection in the next stage.

c) To further understand how foreign apparel firms establish organisational cultures in Sri Lanka.

d) To further understand the perceptions and determinants of manufacturing performance differences of apparel firms (both foreign and local) and how these firms operationalise and measure manufacturing performance.

4.2.1 Method of data collection

This study used semi-structured interviews (Alsaawi, 2014) involving 13 participants. Of these, nine were senior managers representing local (four) and foreign (five) apparel firms (Table 4.1), while the remaining four were officials affiliated with the BOISL (Table 4.2). The interviews were face-to-face and lasted between 30 to 45 minutes. All the interviews were voice recorded. APPENDIX A provides further details of the interview programme.

Table 4.1

Details of the Interview Participants (Managers) Representing Apparel Firms

Participant	Designation	Ownership Type (Local vs Foreign)	Region of Origin	Tenure (Yrs.)
M1	Operations Manager	Local – Sri Lanka	South Asian	12
M2	Managing Director	Foreign – UK	Western	20
M3	Managing Director	Foreign – Singapore	East Asian	15
M4	Operations Manager	Foreign – China	East Asian	10
M5	GM – Operations	Local – Sri Lanka	South Asian	14
M6	Operations Manager	Foreign – USA	Western	15
M7	Operations Manager	Local – Sri Lanka	South Asian	18
M8	Managing Director	Foreign – Germany	Western	15
M9	GM – Operations	Local – Sri Lanka	South Asian	22

Note:

M – Manager

GM – General Manager

Participants M1 through M9 are arranged in the interviewing order

Tenure is defined as the work experience in the firm (in years)

Table 4.2

Details of the Interview Participants (Officials) Representing the BOISL

Participant	Designation	Department	Tenure (Yrs.)
O1	Senior Deputy Director	Investment Promotion	14
O2	Senior Deputy Director	Project Monitoring	10
O3	Executive Director	Industrial Zones	18
O4	Executive Director	Investment Appraisal	12

Note:
O – Official
Tenure is defined as the work experience in the BOISL (in years)

4.2.2 Data collection instruments

Two separate interview protocols (one for officials of the BOISL and the other for managers of apparel firms) were designed as question guides to collect the data. Each interview protocol consisted of seven open-ended standard questions sequenced systematically to collect specific data to achieve the pre-determined objectives. However, some flexibility was allowed to adjust the way the questions were asked, the order in which the questions were asked, and the asking of probing questions to enrich the answers depending on the situation of the interviews (Jacob & Furgerson, 2012).

4.2.3 Ensuring the trustworthiness of the interview findings

To ensure the objectivity of the interview findings, the researcher adopted all the steps possible to enhance the trustworthiness of the verbal responses by using well-worded interview questions (Appleton, 1995), selecting the right people to interview, and pilot interviews before the main interviews. Accordingly, the interview protocol was moderated by the supervisors and two experts involved with the Sri Lankan apparel industry. Furthermore, the interview protocol (the interview questions) was refined via pilot testing involving two participants. The finalised interview protocols used to conduct interviews are shown in APPENDIX B (for BIOSL officials) and APPENDIX C (for managers in apparel firms).

Although the researcher does not view these interviews as case studies (section 3.5), from the interview protocols, the reader will note that the researcher used the literal replication[18] principle described by Yin (2014) associated with positivistic case studies. Therefore, the researcher expects similar results (answers) from the participants in literal replication.

An interview schedule was organised with a specific date and time for each interview with prior permission and appointments from the top management of the BOISL and apparel firms. The data collection request letter issued by Massey University (APPENDIX D) helped successfully arrange and conduct the interviews.

4.2.4 Method of data analysis

Since the answers to the interview questions were straightforward, textual and response comparative analyses were carried out to identify the scenario descriptions, commonly held views/points, and similar/dissimilar answer categories revealed from the interviews (Roulston, 2014). For this purpose, the transcribed voice-recorded interviews were coded, analysed, and summarised manually using excel.

4.3 Findings based on the interviews with BIOSL officials

4.3.1 Investment methods

Interviews with the BIOSL officials resulted in finding out the details of various methods of capital investment permitted by the BOISL on behalf of the government of Sri Lanka. These were greenfield investments, joint ventures, acquisitions, and mergers. However, the most common (and encouraged) method was "greenfield investments". A greenfield investment is a specific type of FDI where a company establishes operations in a foreign country and commences a new manufacturing facility cross-border from the beginning. The BOISL encourages joint ventures if the foreign investing company prefers this method. The joint ventures are allowed on a 51%**:**49% ratio, provided the investor proposes a local/foreign partnership. Foreign companies are allowed to hold the majority partnership. Acquisitions were revealed to be the other common investment method, and mergers were the least common method in the apparel industry.

[18] In literal replication, cases are selected to predict similar results for practical reasons. However, in theoretical replication cases are selected to predict the contrasting results for theoretical reasons (Yin, 2014).

4.3.2 Investment process

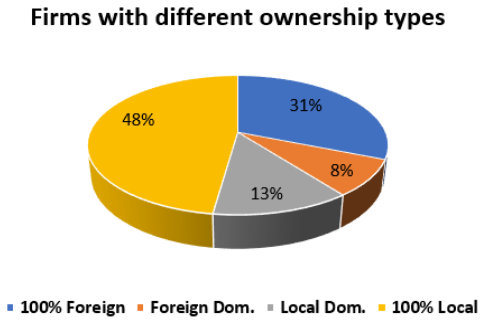
The interviews also enabled the researcher to understand the process adopted in setting up a foreign affiliate in Sri Lanka, using the greenfield investment method under section 17 of the BOI law (initial application submission to final operations commencement). Submission of an application of interest to invest in Sri Lanka through the BOISL website is the first step of the process to be initiated by the potential foreign investor. The next step is to invite the foreign company to apply for foreign investment with a full project report. Once the application is received, the BOISL evaluates the application/documents/project and informs the acceptance or rejection. Following this approval, the investor is issued a letter of acknowledgment of business activity from the project appraisals department of the BOISL. The next step is to enter into an investment agreement with the foreign company to set up the manufacturing plant in Sri Lanka. The foreign company is then invited for an initial site visit and preliminary discussion on prime issues relating to the commencement of the manufacturing plant in the selected site. The final step is establishing the business entity approved under section 17 of the BOI Law in Sri Lanka with detailed operations commencement guidelines.

4.3.3 Investor profile and RBFOTs

The interviews found that FDI mainly comes from Western European, American, East Asian, and South East Asian regions. The main countries which invested in the apparel industry of Sri Lanka include; the UK, USA, Canada, Germany, Hong Kong, China, South Korea, and Taiwan.

The BOI-approved apparel sector consisted of 295 large firms with diverse firm nationalities belonging to different regions of the world. The firm's ownership varies from fully (100%) foreign-owned, majority foreign-owned joint ventures to minority foreign-owned joint ventures. Approximately 20% of the total number of large firms (62) were joint venture firms (25 foreign dominant joint ventures & 37 locally dominant joint ventures) and the remaining 80% of large firms (233) were fully owned firms by local or foreign investors. Of these 233 fully owned firms, 141 (60%) were fully locally owned firms, while 92 (40%) were fully foreign-owned firms. Of the 92 fully foreign-owned firms, 84 (91%) belong to the Western and East Asian regions of the world. The composition of apparel firms belonging to various regions of the world operating in the BOI-approved apparel sector is presented in Figure 4.1.

Firm Ownership Type	No. of Firms	%
Hundred percent Foreign-owned	92	31
Foreign Dominant Joint Ventures	25	8
Local Dominant Joint Ventures	37	13
Hundred percent Locally-owned	141	48
Total	**295**	**100**



Region of Origin	No. of Firms	%
Western Region	43	18
East Asian Region	41	18
Middle East Region	3	1
South Asian Region(non-Sri Lankan)	5	2
South Asian (Sri Lankan)	141	61
Total	**233**	**100**

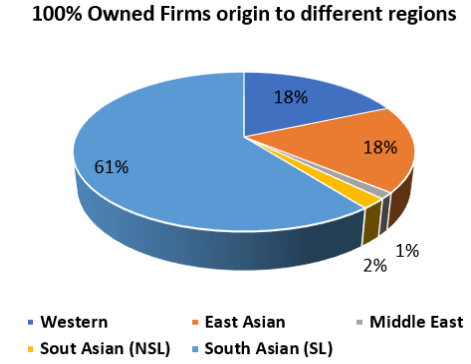


Figure 4.1 *Composition of Apparel Firms in the BOI-approved Sector*
Source: (Board of Investments of Sri Lanka, 2018)

4.3.4 Investment incentives/benefits

The investments approved under section 17 of the BOI Law provide a range of investment incentives/benefits. Financial incentives include a capital allowance for depreciated assets, concessionary corporate tax, dividend tax exemptions, port and levy exemptions, duty-free imports of raw material/machinery, and custom duty exceptions. Non-financial incentives include 100% foreign equity and expatriation of earnings, access to BOI zones, visa facilities, and free investor advisory services. These incentives are provided to all the BOI registered projects in three stages, namely, preliminary, secondary, and tertiary depending on the progress of the investment project. Once a foreign or local firm is registered and approved by section 17 of the BOI law, it becomes entitled to all the investment incentives irrespective of the firm's country of origin. Most investing firms become entitled to all these incentives within the first two years of their operations.

The BOISL permits fully owned local firms (Sri Lankan) meeting the investment threshold (min. US$ 500,000) and employment threshold (min. 250 employees) values to register under section 17 of the BOI Law. Therefore, the locally owned firms were entitled to and enjoyed the same investment incentives/benefits as foreign firms. This method of incentivisation was

revealed to be one of the strategies adopted by the BOISL to make the apparel industry competitive whilst promoting FDI and apparel exports in the country.

4.3.5 Performance monitoring and evaluation process

The performance of BOI-approved firms is monitored according to the performance criteria stipulated by section 17 of the BOI Law and the investment agreement entered with the firm. The overall performance of the firms is monitored annually on three criteria, namely, financial, social, and environmental performance. Financial performance details were not disclosed during the interviews due to confidentiality reasons. However, compliance with social and environmental criteria was found to be more consistently maintained and adhered to by foreign firms than by Sri Lankan firms. Three actions were revealed for non-compliance with the stipulated performance criteria. Risk-notice issuance is the first step, followed by suspension and cancellation notices. The cancellation notices were the last option and were found to be rarely executed unless a severe violation of the contract is evident. However, risk notice issuance due to non-compliance with social and environmental issues was found to be common. The non-compliance risk notice issuance was found to be comparatively lesser among foreign-owned firms than Sri Lankan firms.

4.3.6 The general opinion about the performance of BOI-approved firms

The interviews revealed that fully-owned firms generally perform better than joint-venture firms in the apparel industry of Sri Lanka. Moreover, the interviewees revealed that foreign firms prefer to use joint-venture firms as an entry and learning strategy, and local firms prefer to engage in joint ventures to capture the foreign markets and gradually obtain the ownership interests of the firm. Because of this ingenuity in partner objectives, joint ventures were found to be the less attractive and sustainable investment option in the apparel industry of Sri Lanka.

4.4 Findings based on the interviews with managers of local and foreign firms

4.4.1 How foreign-owned firms establish organisational cultures in Sri Lanka

The interview questions to understand how foreign-owned firms establish their culture in Sri Lanka were framed considering the culture establishment model presented in chapter 2 (specifically see Figure 2.4). The foreign-owned firms (three Western and two East Asian) in common were very much committed to establishing and maintaining their parent company's

core values, management practices, systems, techniques, and norms in their business in Sri Lanka. Representing the majority view participant **M2** mentioned:

> We want to ensure that our core ideology and values are embedded firmly in our Sri Lankan affiliate. We want to make sure that our values and the ways of doing business are embraced firmly by all the employees from the board room to the shop floor. These values are clearly spelled out in our corporate Vision and Mission.

In the formative years of establishing the business in Sri Lanka, foreign owners appointed their nationals to key positions. This was revealed to be the main strategy used by foreign firms to establish the parent company's core values, management practices, systems, techniques, and norms. Representing the majority view participant **M4** said:

> I am a Sri Lankan working for this company. I work as the operations manager for this company for more than 10 years. This is a big Chinese multinational apparel company and when they establish foreign affiliates in Sri Lanka, they want to ensure that everything goes on according to their expectations, so the owners initially appoint Chinese expatriates to the top managerial positions. We have to work closely with these top senior Chinese managers.

Moreover, foreign-owned firms in general revealed to be maintaining close supervision and centralised decision-making in the formative years until the top management ensures that the ways of doing things are in line with the expectations of the parent company. Representing the majority view participant **M8** mentioned:

> The initial years of our operations in Sri Lanka were very challenging. The operative staff and supervisory management were from Sri Lanka, and we wanted to maintain strict control over them and ensure they work according to our systems, targets, and deadlines, in the way we want. This inevitably led to close monitoring of the operations, and the top management made most of the decisions in the formative years.

Once the foreign company establishes its desired culture (about two years later from operations commencement), the senior and middle-level positions occupied by foreign nationals were gradually replaced by qualified and experienced local managers. One of the main criteria for the selection of local managers for the senior position was their fitness to the core cultural values of the parent company. These local managers were then given the required training and

development by attaching them to their foreign affiliates. Representing the majority view participant **M6** mentioned:

> In this company, Sri Lankan senior managers are trained using overseas training and development programmes. It is compulsory for all the senior managers to attend these programmes, conducted locally and overseas. The senior managers can survive here only if they do adhere to the parent company's values, policies, practices, and systems.

The foreign firms offer above-industry-average salaries and perks for competent and culture-fitting managers, in addition to overseas training in their parent company. This is another strategy used by foreign firms in common to establish their cultures in their affiliates in Sri Lanka. According to participant **M3 "***We provide a very attractive salary package to our senior and middle-level managers. So these managers are very happy and they continue to work with high enthusiasm and commitment. We have a zero level of senior staff turnover".*

The participants of foreign companies also highlighted that their parent companies generally appoint expatriate managers from the parent company to the board of directors of their foreign affiliates to oversee how things are getting along with the parent company's expectations. The key operations managers (mostly locally appointed) are required to report periodically the firm's progress (the extent to which the KPIs are achieved) to the parent company's management. The foreign owners and their representative expatriate managers were found to possess substantial authority and control over their affiliates' corporate/strategic management aspects. Representing the majority view, participant **M4** mentioned:

> As the operations manager of this company, I am required to report the progress of the operations on a daily basis and the extent to which the targets on key performance indicators are achieved, on a weekly basis. All the strategic decisions relating to marketing and long-term business planning are done by the senior management of the company.

Managers who had experience in foreign dominant joint ventures revealed that the top management of fully owned foreign firms has comparatively higher controllability in establishing their core values, management practices, systems, and norms than majority foreign-owned joint-venture firms. These managers also revealed that there is more risk for conflicts (among senior management) and culture clashes in joint-venture firms than in fully-owned firms. Therefore, the managers are of the view that the establishment of the culture is

easier and quicker in fully-owned firms compared to joint-venture firms. Participant **M2:** revealed an interesting story in support of the general opinion on this point:

> When I first started working as a senior expatriate manager in a South Asian country, my parent company was having 51% controlling in the joint-venture. It was a very challenging job for me. The senior managers of the local counterpart were trying to dominate everything, even though we had the majority holding. It was not possible to do things the way we wanted. I encountered many conflicts as well as culture clashes as we had to respect the cultural values of both parties, due to a lack of collective agreements and decisions. I could not work in this job for long. After a few months, when I was assigned a similar job in a fully owned foreign affiliate, I was very authoritative and comfortable working with the local managers and employees. Within a short period, we were able to do things in the way we wanted, without much difficulty.

4.4.2 **Managers' perceptions about the determinants of manufacturing performance**

All the managers interviewed agreed that foreign and Sri Lankan firms are operating on a level playing field in terms of incentives and facilities provided by the BOISL in achieving performance targets and criteria. However, the participants' responses suggested that a firm's management practices, systems, techniques, and norms substantially influence manufacturing performance, whether they are locally owned or not. Representing the majority view, participant **M9** said:

> If a firm is approved under BOISL law in Sri Lanka, all have equal footing and a level playing field in terms of facilities and incentives. All of these firms are having similar products, processing technologies, and production layouts and adopt similar techniques. But the way they manage the operations and do business with the customers has a significant impact on our company's performance.

This finding is consistent with the researcher's hypotheses that consider culture as a predictor (more technically precisely a mediator) and manufacturing performance as a response. The interview responses also suggested that in addition to practices, systems, techniques, and norms (the organisational culture), the size of firms, the extent of technology being used in manufacturing, the type of market for which the firm mainly serves, the training and development, competencies of the managers, operator absenteeism, labour union problems can

also influence the manufacturing performance of an apparel firm. Representing the majority view, participant **M8** mentioned:

> I agree that organisational culture is an important determinant of our factory performance, but at the same time, the different types of innovative technologies we use to manufacture garments, the number of employees in the factory, and the different types of markets for which we serve could have a great impact on our factory performance. In addition, unnotified absenteeism and labour union actions have had a substantial impact on our factory performance.

The findings imply that control variables need to be carefully chosen during data collection for the hypothesis testing stage.

4.4.3 Managers' perceptions of manufacturing performance differences

As regards managers' perceptions of overall manufacturing performance between foreign-owned and Sri Lankan-owned firms, the interview findings produced mixed results. The managers of local firms opined that Sri Lankan-owned firms outperform foreign-owned firms, **M1** replied *"A few years ago, the Sri Lankan firms were performing lower than most of the foreign firms. However, now the situation has changed and the local firms have caught up with the art of running apparel business profitably"*. On the other hand, the managers of foreign firms opined that foreign-owned firms outperform Sri Lankan-owned firms. **M6** mentioned *"My opinion is that foreign firms in general perform better than most of the local firms. However, we must also acknowledge that there are a handful of local firms (names concealed) that do perform extremely well"*.

However, in the sample selected, the performance non-compliance (in terms of the number of non-compliance notices issued) was found to be higher among the local firms than foreign firms.

The managers in both local and foreign firms opined that there is a difference in manufacturing performance between foreign and local firms based on what criteria (dimension) of performance one are looking at. They revealed many differences in prioritising the manufacturing performance criteria and related indicators (metrics) used to measure these criteria (dimensions). The foreign firms were found to be focusing more on innovativeness and

production flexibility on top of their main priority on product quality. The response of participant **M4** is typical:

> We give high priority to producing high-quality garments that meet the expectations of our customers. Customer satisfaction is our main goal. To achieve this goal, we take steps to introduce new designs and styles based on the changes happening in the buyer markets; we invest heavily in research & development and flexible manufacturing systems, new methods, and techniques of production.

The local firms in general focussed more on cost-efficiency and on-time delivery aspects on top of their main priority on product quality. The response of participant **M7** is typical:

> Our priority concern is to meet the order expectations with high-quality garments. Since we mainly serve low-end to medium-market customers with large orders, we take all the possible steps to reduce waste, non-value-adding processes, and delays in our manufacturing plants. We extensively treat our managers and workers and provide incentives for meeting deadlines and targets.

4.4.4 Managers' perceptions of revealing manufacturing performance data

The managers were not willing to reveal confidential performance data such as productivity levels, product cost, quality levels, and technological capabilities to external parties (e.g., researchers) without prior permission from the top management. However, all the interviewees opined that they would prefer to reveal information relating to these confidential data using rating scales rather than directly revealing them from their company records.

4.4.5 How do apparel firms operationalise and measure manufacturing performance

The interview findings relating to the questions on the operationalisation and measurement of manufacturing performance (BQ.3, BQ.4 & BQ.5) are presented in detail in section 5.3.2.1 (in the next chapter on the development of a scale to operationalise and measure the manufacturing performance of an apparel firm). Since the presentation of the interview findings for these particular questions bring smooth flow and clarity in the six steps sequential process of scale development, the responses for these questions are discussed and presented in the in section 5.3.2.1 under Step 2 – Dimensions Identification and Items Generation (see Figure 5.1)

4.5 Limitations of the study and the chapter conclusion

Since the study was carried out using open-ended questions representing the nature of a semi-structured interview, an element of subjectivity and bias is likely to be present in the interview responses. The findings could also be influenced by the managers' personal views and opinions regarding the study's operational context (Queirós *et al.*, 2017). The interview responses were not used in theory building (hypothesis formulation) or theory testing (hypothesis testing). The preliminary field study can be considered industry scoping, a forerunner for the main quantitative study. This study helped to select the relevant sample, operationalise/measure the manufacturing performance of an apparel firm, select control variables, and test the hypotheses to make the study meaningful and valuable.

Hence, this field study was primarily carried out to understand the research context better while staying within the paradigm of positivism to supplement the main quantitative study. One may wonder whether some of the questions the researcher asked to fall in line with the ontology of objectivity and hypothetico-deductive epistemology espoused in positivism. For example, the researcher asked, *"do you see a difference in performance between foreign and local apparel manufacturing firms, and if so, what do you mainly attribute to that difference?"*. The purpose of asking this question is not to test a hypothesis but to find out how things are done in the firms in practice (this approximately translates to culture) and confirm the control variables identified from the prior literature. Therefore, the reader should not consider this work a positivistic case study conducted to formulate propositions, as promulgated by authors such as Eisenhardt (1989) and Yin (2014).

CHAPTER 5

DEVELOPMENT OF A SCALE TO OPERATIONALISE AND MEASURE THE MANUFACTURING PERFORMANCE OF AN APPAREL FIRM

5.1 Introduction

This chapter elaborates on the process adopted in designing, developing, validating, and establishing the Manufacturing Performance Scale (MPS) to operationalise and measure the manufacturing performance of an apparel firm. The chapter starts with the rationale for developing a new operational-level performance measurement scale unique to the apparel industry. The rest of the chapter describes in detail the sequential process of scale development adopted, namely, 1) Domain and construct definition, 2) Dimensions identification and items generation, 3) Initial scale design and development, 4) Assessing the validity and reliability of the scale, 5) Final scale establishment and 6) Replicating the scale in diverse contexts for external validity. At last, it describes the theoretical and empirical limitations of the scale.

5.2 Rationale

The review of literature on the relationship between RBFOT and manufacturing performance found that foreign and local firms were using diverse econometric measures to operationalise and measure manufacturing performance leading to inconsistent comparative findings. The summaries of findings are given in Table 2.2 and Table 2.3. Moreover, the interviews with the senior managers confirmed that foreign and locally owned apparel firms operating in Sri Lanka were using diverse and inconsistent metrics to operationalise and measure their manufacturing performance. The details of the interview findings are given in Table 5.2 (see the last column for different metrics used by the firms interviewed).

The analysis of the literature relating to the apparel industry further revealed that most of the scales used by previous performance-related studies in the apparel industry had been broadly focused on the corporate/strategic and tactical levels — balanced scorecard, financial performance, export performance (Dickson Marsha *et al.*, 2012; Joshi & Singh, 2009; Karabay & Kurumer, 2012; Khan & Rattanawiboonsom, 2019; Naveed *et al.*, 2021; Rossano *et al.*, 2007). Conversely, even the scales used to measure operational level performance were narrowly focused on one or few dimensions or specific aspects of operations — cost, delivery, quality, flexibility, innovativeness, line efficiency, machine efficiency, and operator performance (Dissanayaka *et al.*, 2016; Durairatnam *et al.*, 2020; Gamage *et al.*, 2017; Hui &

Ng, 2005; Niromi *et al.*, 2021; Taplin, 1996; Wadho & Chaudhry, 2018). The details of these studies are given in Table 5.1. Hence, a comprehensive scale to measure all the dimensions of the manufacturing performance of an apparel firm at the operational level was found to be lacking in the domain of operations management.

The adoption of diverse and inconsistent metrics and the lack of a comprehensive scale to measure the operational level performance induced the researcher to develop a commonly applicable synthesised scale to measure the construct of manufacturing performance for the apparel industry.

The precise measurement of complex multi-faceted operations management constructs such as manufacturing performance is an unrealistic task with single-dimension or single-item scales (Spector, 1992). However, the majority of the existing scales on performance measurement in the apparel firms were found to be typically unidimensional and few-items scales. Therefore, the development of a comprehensive multidimensional scale with multiple items to measure the manufacturing performance of an apparel firm for accurate comparison at the firm, sector, or industry level remains unaddressed.

Since there is an obvious issue of confidentiality in revealing performance data in any competitive industry, including apparel, the interviewed managers of the apparel firms revealed their general unwillingness to disclose hard data (i.e. data gathered from company records). A rating scale was revealed to be preferred by these interviewees in revealing their manufacturing performance data to researchers. Hence, developing a new multidimensional rating scale helps to mirror confidential performance data while effectively addressing the resistance by firms operating in competitive industries, especially apparel.

A multidimensional rating scale would be beneficial for researchers and industry practitioners to accurately and consistently measure and compare the operational-level performance of an apparel firm. It could also be used as a base scale for the researchers in operations and performance management domains to develop new scales for similar constructs for other related manufacturing industries (e.g., textiles, yarn, footwear). Finally, the scale may also be used as an approximation of the construct of interest and may then be used to relate the construct to other constructs or different levels of organisational performance (Spector, 1992).

5.3 The process of scale design, development, and validation

To effectively design, develop and validate a new scale, the researcher employed methodologies of scale development as elaborated in the work of a few leading scholars in scale development (DeVellis, 2017; Hensley, 1999; Spector, 1992). This methodology guides the development of a scale having a good theoretical grounding, industry relevance, and feasibility. The sequential steps followed to design, develop and validate the MPS are presented in Figure 5.1.

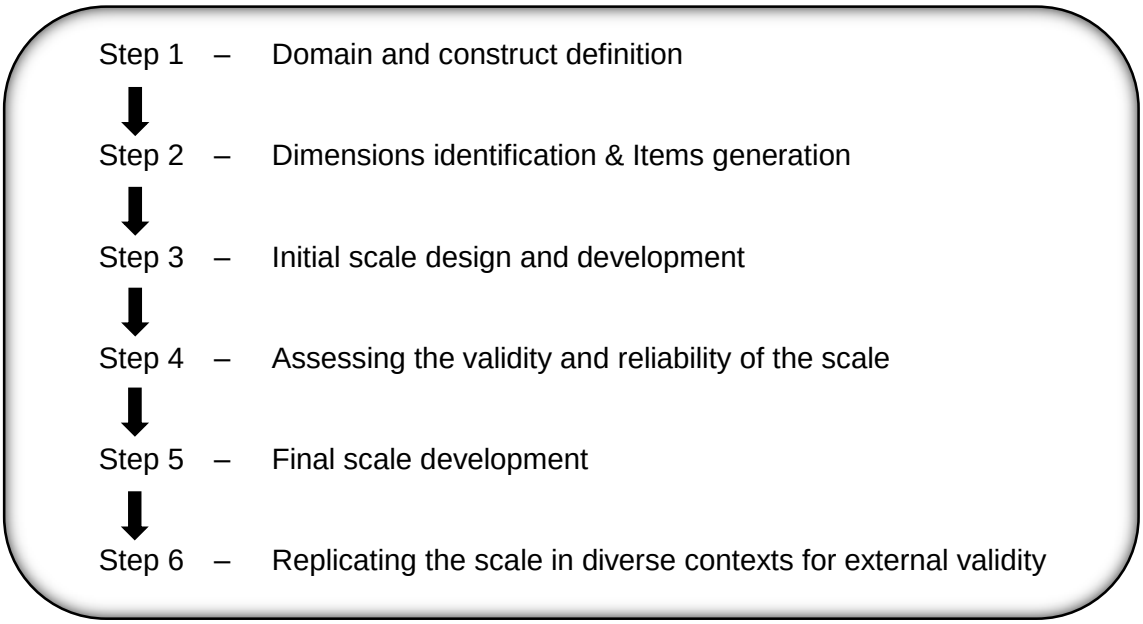


Figure 5.1 *Process used to Develop the MPS*

Source: [Adapted from] (DeVellis, 2017; Hensley, 1999; Spector, 1992)

5.3.1 Domain and construct definition

The operational-level performance of manufacturing firms is the main domain of interest for this scale development. In exploring the past operations management literature on the performance measurement of manufacturing firms, studies have used various scale definitions, dimensions, metrics, and items to measure manufacturing performance in diverse industry and regional contexts relating to durable and non-durable goods.

Searching for relevant literature using the article databases revealed that a wide array of terms has been used to represent the operational-level performance of a manufacturing organisation. Most of these studies have coined operational performance (Google Scholar, keyword search result count, 135,000) and manufacturing performance (41,800). However, the term

operational performance has been used to denote the performance of service-oriented organisations, whereas the term manufacturing performance has been used to denote the performance of goods-oriented organisations. Moreover, some studies have used the terms manufacturing productivity (22,500), factory performance (6,910), operational productivity (3,020), and factory productivity (1,880), and very few studies have used the terms manufacturing plant performance (1,370), manufacturing plant productivity (218) as similar terms to denote operational level performance of a firm.

Leachman *et al.* (2005, p. 854) defined manufacturing performance as the "overall operational capability of transforming input resources into valuable product/s as expected by its targeted customers". According to previous studies, cost-efficiency (Morgan *et al.*, 2005), delivery (Sakakibara *et al.*, 1997), quality (Flynn *et al.*, 1995; Su & Linderman, 2016), flexibility (Boyer & Leong, 1996; Hallgren & Olhager, 2009), innovativeness (Kang & Nabeshima, 2021) have been considered as the main dimensions of manufacturing performance of goods-oriented industries. Some scholars argue that "Sustainability" is a new dimension of manufacturing performance (Shahbazpour & Rainer, 2006). However, the majority consider it not as a dimension of manufacturing performance but as a broader strategic dimension of the firms' corporate performance (Hristov & Chirico, 2019).

Since the current study is concerned with the manufacturing performance of apparel firms, the new scale has been focusing on the operational performance of apparel manufacturing at the factory (plant) level in producing ready-made garments. Hence, all the apparel industry-related transformation activities and dimensions that lead to producing low-cost, high-quality, and innovative ready-made garments that satisfy various end-user customer requirements are considered in this scale. This new scale is, therefore, specifically developed to measure the manufacturing performance of firms operating in the apparel industry context.

5.3.2 **Dimensions identification and Items generation**

The operations management literature reflects multiple dimensions to represent the construct of manufacturing performance. Skinner (1974) defined it through delivery cycles, reliable deliveries, agility in volume changes, and lower cost. Jayaram *et al.* (1999) in their study on manufacturing performance, operationalised it using cost, quality, time, and flexibility as the main dimensions. Krajewski and Ritzman (1987) recognised it with dimensions such as efficiency in cost, consistent quality, design performance, flexibility in products and volumes, and prompt deliveries. Ferdows and De Meyer (1990) built his cumulative manufacturing

capability theory with four dimensions of manufacturing performance — cost-efficiency, product quality, dependability, and flexibility. Moreover, Boyer *et al.* (1994) emphasised quality, delivery, cost, flexibility, and innovativeness as the most critical aspects that constitute manufacturing performance. According to Youndt *et al.* (1996) considered operational cost, quality, and flexibility in delivery play a significant role in defining strategic manufacturing performance.

The literature further reveals that performance dimensions have become constituent parts of manufacturing performance over time with the gradual changes in the macro and micro business environment conditions over the last century.

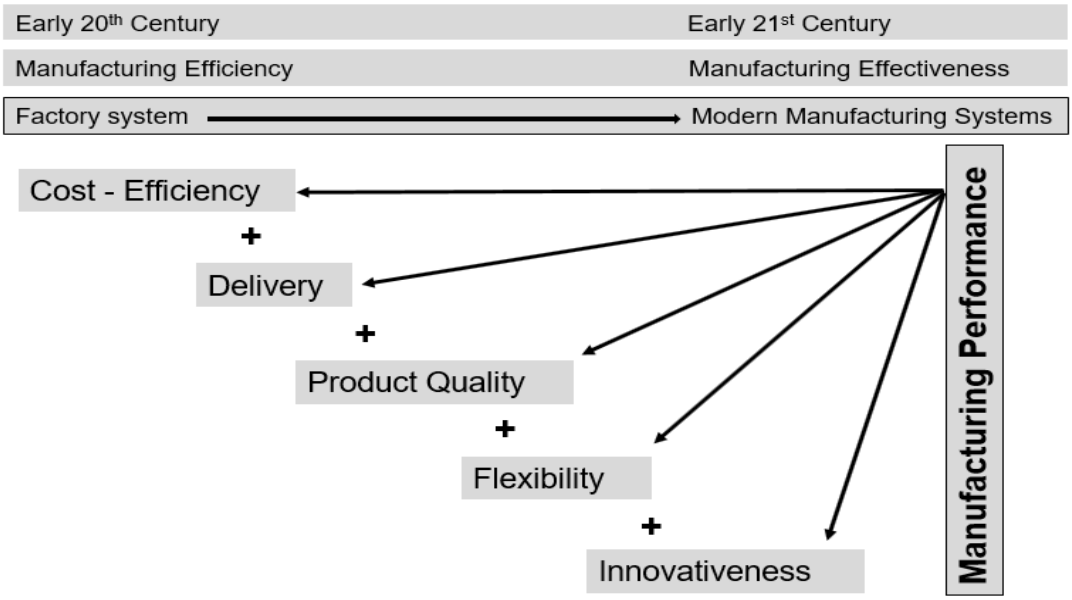


Figure 5.2 *Evolution of the Dimensions that Reflected the Construct of MP*

Source: [Adapted from] (Bodrožić & Adler, 2018; Shahbazpour & Rainer, 2006)

Accordingly, the corresponding waves of technological revolutions, parallel applications of manufacturing, information, and communication technologies, and the succeeding adoption of management approaches have significantly contributed to these changes (Bodrožić & Adler, 2018; Shahbazpour & Rainer, 2006).

Figure 5.2 elaborates on how various dimensions reflect the construct of manufacturing performance over the last century. For example, cost-efficiency and delivery were the main efficiency-oriented dimensions of manufacturing performance reflected during the early periods of the factory system. On the other hand, product quality, flexibility, and innovativeness were the main effectiveness-oriented dimensions reflected in the era of modern

manufacturing systems. Hence, today, the construct of manufacturing performance is comprehensively represented by the dimensions of cost-efficiency, delivery, product quality, flexibility, and innovativeness, contributing to manufacturing efficiency and effectiveness.

Ward *et al.* (1998) studied the manufacturing firms of developing countries and identified a four-factor structure for manufacturing performance: cost, delivery, quality, and flexibility. In this study, the scale items for the dimension of the cost were determined using the unit cost of production, raw materials, overhead and inventory costs, operator efficiency, and machine efficiency as main indicators. The scale items for the dimension of delivery were determined using delivery reliability and delivery speed as main indicators. The scale items for the dimension of quality were determined with defects rates, re-work rates, and application of quality certifications as main indicators. Finally, the scale items for the dimension of flexibility were determined using cycle time to introduce new products, manufacturing, and procurement lead times, and time required for change of products in the manufacturing process as main indicators.

A study conducted by Naor (2006) among manufacturing plants in developed countries also identified a four-factor structure for manufacturing performance: cost, delivery, quality, and flexibility. In this study, the scale items to measure cost were determined using inventory turnover and manufacturing unit cost as the main indicators. The scale items to measure delivery were determined using on-time delivery performance and fast delivery as the main indicators. The scale items to measure quality were determined using the product's capability to satisfy customer needs and conformance to product specifications as the main indicators. Finally, the scale items to measure flexibility were determined using adaptability to change product mix and adaptability to change production volume as the main indicators.

In the study of best manufacturing practices in Australia and New Zealand, the Operational Performance Outcomes Index used to measure the manufacturing performance of the firms considered six dimensions: cost, timeliness, quality, flexibility, innovativeness, and competitiveness (Australian Manufacturing Council, 1994). The cost dimension was measured using the cost per unit (materials, labour, overheads, total) as the main indicator. The dimension of timeliness was measured in terms of the order to the delivery time and delivery without defaults to the customer as the main indicators. The quality dimension was measured using the finished product defects rate, the ratio of staff directly involved with quality management, the extent of application of quality certifications, and the cost of quality as the main indicators. The dimension of flexibility was measured using the average process changeover time, the

application of flexible manufacturing systems such as Just-In-Time production (JIT), and the usage of technology for manufacturing such as Computer-Aided Manufacturing (CAM) as the main indicators. The dimension of innovativeness was measured in terms of the ability to develop new products and new product introduction lead-time as the main indicators. Finally, the dimension of competitiveness was measured using relative market share, brand value, and competitor ratings as the main indicators.

Although many unique features characterise the apparel industry, markets, and products, the dimensions of operations performance critical to an apparel firm were almost similar to other manufacturing industries. However, since the apparel industry is predominantly a labour-intensive and mid-stream industry focused on producing non-durable consumer goods (ready-made garments), the prominence given to performance dimensions varies based on the market it serves. Apparel manufacturing firms mainly cater to diverse markets characterised by value propositions consisting of price, quality, and creativity (Textiles & Apparel Intelligence Ltd., 2018). Moreover, the markets are constantly changing and have gradually become very competitive. The manufacturing performance of an apparel firm is represented by cost-efficiency, delivery, product quality, flexibility, and innovativeness as the critical performance dimensions to effectively cater to these evolving customer and market requirements (Devkumar *et al.*, 2014; Wickramasinghe & Perera, 2016).

Therefore, the items representing the five most critical dimensions of an apparel firm's manufacturing performance have been identified using a deductive dominant hybrid approach[19]. Hence, most items of the MPS were selected based on existing literature, scales, and theories. However, the views expressed and information revealed by the senior managers of apparel firms in Sri Lanka (through interviews) for the questions on manufacturing performance measurement were also considered in identifying and defining the dimensions and items. This hybrid item generation process helped to ensure the face validity[20] of the initial MPS.

[19] The deductive dominant hybrid approach uses a combination of deductive and inductive methods in item generation, giving more prominence to the deductive method. The deductive method generates items using the literature review and existing scales. The inductive method leads to generating items using interviews in the apparel industry of Sri Lanka. This combination is consistent with the recommended strategy for developing new scales (DeVellis, 2017).

[20] Face validity means that the scale and its constituent dimensions measure what it claims for in relation to the subject of interest from which the scale is developed. It is often used to refer to the appearance of the scale generally acceptable to members of the relevant population (DeVellis, 2017).

To reflect the face validity of the manufacturing performance dimensions of an apparel firm, the items relevant to the performance dimensions (cost efficiency, delivery, quality, flexibility, and innovativeness) were developed solely focusing on the apparel industry context. Therefore, the items of the MPS were identified based on metrics unique to the apparel industry. To name a few, cut-to-make ratio, cost per minute, sample approval rate, and defects per thousand standard garments. Hence, to accurately and adequately represent the dimensions of an apparel firm's manufacturing performance, five items for each dimension were initially determined as an appropriate number considering the most common metrics used by apparel firms. These metrics unique to the apparel industry were identified based on multiple sources - literature review, interview findings, and industry expert opinions.

When identifying the relevant items for the initial MPS, prominence was given to the performance measurement scales (dimensions, metrics, and items) used by previous researchers in the apparel industry. Moreover, the apparel industry websites were reviewed, especially regarding apparel firms' widely used performance measurement metrics.

Table 5.1 presents the summary of various scales used to measure the performance of apparel firms by previous researchers. It identifies the performance scales at various measurement levels in the firm and the dimensions, indicators, and items used to measure the performance. An important finding derived from this review was that most of the scales used by the apparel firms had been broadly focused on the corporate/strategic and tactical levels - balanced scorecard, financial performance, and export performance (Dickson Marsha *et al.*, 2012; Joshi & Singh, 2009; Karabay & Kurumer, 2012; Khan & Rattanawiboonsom, 2019; Naveed *et al.*, 2021; Rossano *et al.*, 2007).

Conversely, even the scales used to measure operational level performance were narrowly focused on one or few dimensions or specific aspects of operations - cost, delivery, quality, flexibility, innovation, line, and operator performance (Dissanayaka *et al.*, 2016; Durairatnam *et al.*, 2020; Gamage *et al.*, 2017; Hui & Ng, 2005; Niromi *et al.*, 2021; Taplin, 1996; Wadho & Chaudhry, 2018; Zaharie *et al.*, 2017). Hence, a comprehensive scale to measure all the dimensions of the manufacturing performance of an apparel firm was found to be lacking in operations management, though such scales are available in other industries.

Table 5.1

Various Scales being used to Measure the Performance of Apparel Firms

Title of the study	Measurement data	Level of measurement	Dimensions / Items used	Author/s
Managing Through Strategic Performance Management in Apparel Companies	Hard data[1]	Corporate	Balanced Score Card: Financial (3 items), Customer (3 items), Learning & growth (9 items, Internal Process (14).	(Karabay & Kurumer, 2012)
Stakeholder Expectations for Environmental Performance within the Apparel Industry: The Urgency of Business Response.	Hard data	Corporate	Environmental Performance: Water usage, Carbon footprint, Product safety, Restricted substances, and Regulatory compliance.	(Dickson Marsha *et al.*, 2012)
The effects of inbound logistics capability on firm performance-a study on the garment industry in Bangladesh.	Hard data	Corporate	Firm Performance: Return on Assets (ROA), Low cost, Improved firm productivity, Customer satisfaction.	(Khan & Rattanawiboonsom, 2019)
Comparative Performance of the Indian Apparel Firms.	Hard data	Tactical	Input to output productivity ratio: Net fixed assets + Raw materials + Power & fuel + Wages & salaries / Gross sales.	(Joshi & Singh, 2009)
Internal key factors in export performance: A comparative analysis in the Italian and Spanish textile-clothing sector	Hard data	Tactical	Export Performance: International experience, Investment in R&D, Export sales/total sales	(Rossano *et al.*, 2007)
A Framework for Evaluating the Supply Chain Performance of Apparel Manufacturing Organizations.	Hard data	Tactical	Supply Chain Performance: Investment in inventory, Inventory turnover, On-time supplier delivery, Lead-time, Unplanned orders, Schedule changes, Overdue backlog.	(Naveed *et al.*, 2021)
Acceptance of Taguchi's Quality Philosophy and Practice by Lean practitioners in apparel manufacturing.	Rating scale	Operational	Manufacturing process outcomes: Risk and time of new product development, Manufacturing cycle time, Product development method, Rate of scrap	(Gamage *et al.*, 2017)

			& rework, Customer complaints on product quality.	
Measuring determinants of quality performance: Pilot study in Sri Lankan apparel industry.	Rating scale	Operational	Quality performance: Cost of scraps, Cost of rework, Delivery, Product quality, Customer satisfaction.	(Durairatnam *et al.*, 2020)
A new approach for prediction of sewing performance of fabrics in apparel manufacturing using artificial neural networks.	Rating scale	Operational	Sewing performance: Puckering (1 item), Needle damage (1 item), Distortion (1 item), Overfeeding (1 item).	(Hui & Ng, 2005)
A hierarchical approach to order acceptance and delivery date setting problems in the apparel industry.	Rating scale	Operational	On-time delivery performance: Speed of delivery, Delivery cycle time, Delays in procurement and processing, Cost of delivery.	(Zaharie *et al.*, 2017)
Analysis of efficiency ladders used in apparel manufacturing line performance forecasting	Hard data	Operational	Line performance: Average learning curve time for sewing lines (1 item).	(Dissanayaka *et al.*, 2016)
Rethinking flexibility: the case of the apparel industry.	Hard data	Operational	Process flexibility: Time is taken to accurately respond to changing requirements of the existing customers.	(Taplin, 1996)
Significance of operational capabilities of suppliers on the front-end decision-making in apparel product innovation in Sri Lanka.	Hard data	Operational	Product innovation: Ability to introduce appropriate and timely designs and styles to cater to the new requirements of potential customers.	(Niromi *et al.*, 2021)
Innovation and firm performance in developing countries: The case of Pakistani textile and apparel manufacturers.	Hard data	Operational	Innovativeness: Research expertise in the firms, Creativity of managers and operatives, R&D investment of new process and product technologies.	(Wadho & Chaudhry, 2018)

Note: Apparel (garment or clothing) firms manufacture ready-made garments. The firms mainly apply order processing method consisting of placement of orders, sample design, sample approval & order reconfirmation, tech pack preparation & costing, purchasing of materials and accessories, cutting, sewing, finishing, and dispatching. In the value chain process, Textile/Fabric and garment accessories manufacturing firms act as the main raw materials suppliers and Buying offices, Retail & Fashion clothing stores/outlets act as the main firms that demand ready-made garments.

[1] Hard data = Data obtained through company records (direct statistics)

5.3.2.1 **Interview findings on manufacturing performance measurement**

The interviews with senior managers in the apparel industry of Sri Lanka concerning the questions on manufacturing performance measurement revealed various dimensions and metrics the local and foreign firms used to measure their manufacturing performance and for which dimensions they give prominence in their respective firms. The summary of the interview findings for questions BQ.3, BQ.4, and BQ.5 questions is presented in Table 5.2.

The answers to BQ.3 "*What manufacturing performance criteria do you think are critical for the survival and growth of apparel firms in the present-day business environment*?" were found to be in line with the five dimensions (cost-efficiency, delivery, product quality, flexibility, and innovativeness) identified in the operations management literature. In addition, the firms' answers revealed exact or similar meanings of the five manufacturing performance dimensions.

The common answer revealed by all the firms to BQ.4 "*What do you consider as the most critical manufacturing performance criteria in your firm*? was "high-quality garments" However, the priority given for the criteria was found to be different among the apparel firms. Foreign firms were found to be giving more priority to innovativeness and flexibility in addition to product quality, whereas local firms were found to give more priority to cost-efficiency and delivery in addition to product quality. When asked about "sustainability" as an emerging performance criterion as a probing question, the majority view was that "Sustainability" should be considered as a broader and strategic criterion of the firms' corporate performance and should not be considered as a criterion of a manufacturing performance of an apparel firm. The answers to BQ.5, *"How do you measure those most critical manufacturing performance criteria in your firm?"* were diverse and inconsistent across the interviewed firms. These firms found using different and multiple indicators (metrics) to measure the manufacturing performance criteria/dimensions unique to their respective firms. Hence, the wide use of multiple and inconsistent indicators/metrics (measures) was evident among the interviewed firms in measuring their critical manufacturing performance criteria. The summary of the different indicators (metrics) used by these interviewed firms for each of their manufacturing performance criteria is presented in Table 5.2.

The findings on manufacturing performance measurement from the interviews were synthesised together with the findings from the literature to identify and define the manufacturing performance dimensions, items, and item descriptors of the new scale.

Table 5.2

Interview Findings on Critical Criteria and Key Metrics of Manufacturing Performance used by Apparel Firms in Sri Lanka

Interviewed Firm	Nature of the firm	Critical MP Criteria	Metrics used to measure Manufacturing Performance
1. Firm6	Western-region origin 100% Foreign-owned firm (USA)	High-quality garments Innovations On-time delivery Process flexibility Cost reduction	Defects rate, Rejects rate, Rework rate No. of new garments introduced per annum Cycle time, Customer compliance delivery rate Time taken to respond to new or unexpected changes Cost per minute, Cut-to-shipment ratio
3. Firm2	Western-region origin 100% Foreign owned firm (UK)	High-quality garments Innovations On-time delivery Adaptability Cost-efficiency	Defects rate, No. of repeat orders, No. of customer complaints % of expenditure on research and development Procurement delays in days, Shipment delays in days No. days taken to deliver new orders or order extensions Line efficiency, Operator efficiency
2. Firm4	East Asian-region origin 100% Foreign-owned firm (China)	High-quality garments Creativity/continuous improvements Flexible technology On-time delivery Productivity improvements	Sample approval rate, Order rejections due to product defects No. new improvements, % of expenditure on new technology Time taken to changeover to a new order No. of order rejection due to delivery defects, Cost of delivery Operator efficiency, Material efficiency, Machine efficiency
7. Firm3	East Asian-region origin 100% Foreign-owned firm (Singapore)	High-quality garments Creativity and Innovations Adaptability to changes On-time delivery Cost minimisation	Defective rate, Sample approval rate, Rejection rate Percentage of own design creations, R&D investment % No. of process changes and the amount invested in flexible systems Time taken to deliver an order without any delivery defects Cost per minute, Cut-to-make ratio, Operator efficiency

9. Firm9	South Asian-region origin 100% Locally owned firm (Sri Lanka)	High-quality garment Waste reduction Efficiency of operations On-time delivery Flexible manufacturing systems Creativity/Skill of people	Defects per 1000 items, Sample rejection rate, Order rejection rate Cost saving target achievement %, Non-value adding activities % Operator efficiency %, Line efficiency %, Machine efficiency % Procurement delays, Processing delays, Order compliance rate Product changeover time, Ability to cater to sudden order changes No. of new ideas, designs, and styles introduced
7. Firm7	South Asian-region origin 100% Locally owned firm (Sri Lanka)	High-quality garments Cost effectiveness On-time delivery Flexibility	Defective rate, Sample approval rate, cost of quality % Cost per minute, Cut-to-make ratio, Operator efficiency No. of days from procurement to shipment, Time taken to deliver an unexpected/unplanned order
9. Firm1	South Asian-region origin 100% Locally owned firm (Sri Lanka)	High-quality garment Cost-efficient operations On-time delivery Flexible manufacturing systems Inventions and Innovations	Sample rejection rate, Defects per 100 items, Satisfaction Index Cost target achievement %, Operator and Machine efficiency rates No. of days from procurement to shipment acceptance Product changeover time, Ability to cater to sudden order changes No. of new designs introduced, Cost of new style development

5.3.3 Initial scale design and development

This section describes how the initial MPS was developed based on identified five manufacturing performance dimensions. Table 5.3 describes the operational definitions of the five dimensions in relation to an apparel factory. It elaborates on the multidimensional structure used to develop the initial items for each scale's dimensions.

Table 5.3

Multidimensional Structure used to Develop the MPS for an Apparel Firm

		Manufacturing Performance				
		Cost-efficiency	Delivery	Product quality	Flexibility	Innovativeness
No	**Item Indicator Definition**	**D1**	**D2**	**D3**	**D4**	**D5**
1	**Intends to measure the capability of the manufacturing system to reduce the operational cost of the firm** (Morgan *et al.*, 2005).	X				
2		X				
3		X				
4		X				
5		X				
6	**Intends to measure the capability of the manufacturing system to deliver the products on-time to its final customers** (Sakakibara *et al.*, 1997).		X			
7			X			
8			X			
9			X			
10			X			
11	**Intends to measure the manufacturing system's capability to conform to the attributes of the product/s as expected by its final customers** (Flynn *et al.*, 1995; Su & Linderman, 2016).			X		
12				X		
13				X		
14				X		
15				X		
16	**Intends to measure the manufacturing system's capability to adjust its internal processes according to the changes take place in the products and markets** (Boyer & Leong, 1996).				X	
17					X	
18					X	
19					X	
20					X	
21	**Intends to measure the manufacturing system's capability to cater appropriately to the new requirements and expectations of its final customers** (Kang & Nabeshima, 2021).					X
22						X
23						X
24						X
25						X

D1= Dimension 1, **D2** = Dimension 2, **D3** = Dimension 3, **D4** = Dimension 4, **D5** = Dimension 5

Table 5.3 describes how the five constituent dimensions (cost-efficiency, delivery, product quality, flexibility, and innovativeness) reflect the composite construct of manufacturing performance. Accordingly, the construct of manufacturing performance of an apparel firm is construed as a composite measure of the overall capability of the apparel factory (plant) to transform its input resources into valuable ready-made garments expected by its targeted customers [Adapted from] (Leachman *et al.*, 2005, p. 854).

Based on this structure, an initial MPS was developed with 25 items (5 items for each of the five dimensions), drawing items from a pool of items revealed in theory (literature) and practice (interviews). When selecting the five items for each dimension, an expert review was carried out (3 apparel industry experts participated in this preliminary item review and selection). The initially developed scale (Table 5.4 and APPENDIX L) was then subjected to a two-step validation process, as described in the next section.

5.3.4 **Assessing the validity and reliability of the scale**

To ensure the validity and reliability of the initially developed MPS, firstly, a theoretical analysis is carried out using an expert opinion survey, and secondly, a psychometric analysis is carried out using a pilot survey (Morgado *et al.*, 2018).

The scale was pre-tested with six experts specialising in operations management and the apparel industry. Based on the results, a theoretical analysis was conducted to assess the scale's content validity. Subsequently, the pre-tested scale was pilot-tested using 84 senior managers who work as operations and production managers of apparel firms operating in seven leading apparel manufacturing countries in Asia. Based on the results, psychometric analysis was carried out to assess the construct validity and reliability of the scale.

Table 5.4

Initially developed MPS used for Pre-testing

Manufacturing Performance Scale (MPS)

Cost Efficiency

Q1 Cut to make ratio and material efficiency of our firm is	**1**	**2**	**3**	**4**	**5**
Q2 Operator efficiency of our firm is					
Q3 Line efficiency of our firm is					
Q4 Machine efficiency of our firm is					
Q5 Cost per minute of our firm is (**R**)					

Delivery (D2)

Q6 Procurement and processing delays in our firm are (**R**)
Q7 Number of shipment days the orders get delayed in our firm is (**R**)
Q8 Order delivery cycle time (Procurement to Shipment) of our firm is (**R**)
Q9 Order rejection rate due to delivery defects of our firm is (**R**)
Q10 Perfect order fulfilment rate in our firm is

Product Quality (D3)

Q11 Rate of product defects in our firm is (**R**)
Q12 Rate of rework of our firm is (**R**)
Q13 Rate of sample approval of our firm is
Q14 Order rejection rate due to product defects of our firm is (**R**)
Q15 The level of customer satisfaction and repeat orders in our firm is

Flexibility (D4)

Q16 Time taken to respond to new changes in our firm is (**R**)
Q17 Time taken to changeover from one product to another in our firm is (**R**)
Q18 Time taken by the supply chain to respond to an unplanned increase in demand is (**R**)
Q19 Efforts taken to cater to the new requirements of the customers in our firm is
Q20 Overall adaptability and agility of our firm is

Innovativeness (D5)

Q21 Percentage of expenditure on research and development of our firm is
Q22 Number of new ideas implemented in our firm is
Q23 Number of new products introduced in our firm is
Q24 Percentage of expenditure on new techniques and technology of our firm is
Q25 The level of creativity and innovativeness of the workforce of our firm is

(R) – Reverse-worded items

The scale used to rate the items:

1- Very low
2- Marginally below the industry average
3- Equal to the industry average
4- Marginally above the industry average
5- Very high

5.3.4.1 Pre-testing the scale

The main objective of the pre-testing was to obtain an expert opinion and assess the relevance and clarity of the items, structure, sequence, feasibility, and overall quality of the scale to ensure its content validity[21]. For this purpose, an expert opinion survey (APPENDIX M) was designed and carried out with a pre-test scale assessment (content validation) Sheet. This sheet was sent out to 14 experts in operations management and the apparel industry. However, only six experts responded to the pre-test scale assessment survey. Table 5.5 summarises the anonymous details of the six experts who assessed the initially developed MPS.

Table 5.5

Details of the Pre-Test Assessment Experts

Expert	Profile in brief	Experience
1	A professor from the Department of Textiles and Apparel Engineering – University of Moratuwa, Sri Lanka.	Possessed more than twenty-five years of experience as a researcher and senior academic in operations management.
2	A professor from the Department of Management and Technology – University of Moratuwa, Sri Lanka.	Possessed more than fifteen years of experience as a researcher and senior academic in operations management.
3	An emeritus Professor - Former Chief Executive Officer, Brandix College of Clothing Technology, Sri Lanka	Possessed more than thirty years of experience as a manager, trainer, researcher, and consultant in the apparel industry.
4	A professor from the Department of Operations and Decision Sciences – University of Sri Jayewardenepura, Sri Lanka.	Possessed more than thirty years of experience as a researcher and senior academic in operations management.
5	A senior lecturer (Dr) from the Department of Operations and Engineering Innovations – Massey University, New Zealand.	Possessed more than twenty years of experience as a researcher and senior academic in Operations Management and Engineering Technology.
6	A senior lecturer (Dr) from the Business School – Massey University, New Zealand.	Possessed more than fifteen years of experience as a researcher and senior academic in Management and Psychology.

The six experts responded with diverse opinions/recommendations in the expert opinion survey. Table 5.6 summarises the details of the pre-test assessment opinions/recommendations of these experts on a range of questions asked about the overall quality of the scale.

[21] Content validity ensures that the selected scale items appropriately and adequately represent and measure the constituent dimensions and the main construct of interest (DeVellis, 2017).

Table 5.6

Details of the Pre-Test Assessment Opinions / Recommendations of Experts

Assessment Area of the Scale	Summary of opinions/recommendations
I. Clarity of the Instructions	Should be straightforward and specific. Item comparison in relation to industry competitors is more appropriate than the industry average. A specific time duration to compare (e.g., 3 years) should be specified. A key describing the options of the rating scale provides more clarity to the respondents.
II. Clarity of the items, terms, and concepts used in phasing the item statements and item sequencing	Should be short, clearer, and targeted respondent-oriented. Double-barrel questions should be avoided. Industry-specific terminology should be used. Present the items as short statements using simple English to provide more clarity. To clarify certain technical terms, better to state the elaborated meaning within brackets adjacent to such terms.
III. Appropriateness and relevance of the rating scale and the anchors used	A seven-point rating scale having an equal scale interval is recommended keeping with anchors used for similar research measurement scales by previous researchers.
IV. Presence of duplicate or similar meaning items.	Certain item statements in each dimension provided overall meanings of the dimension and similar meanings. Recommend eliminating such items from the scale. Also, recommend re-phrasing certain item statements to differentiate them from other items to reflect diverse aspects of each dimension.
V. Opinion about the inclusion of reverse-worded items	The scale consists of too many reverse-worded items. Few are acceptable as far as they meet with the industry practices and break the response monotony. The majority view was to avoid reverse-worded items with an appropriately worded rating scale.
VI. Duration to complete the survey	Survey completion duration time estimates provided varied from 8–12 minutes.
VII. Effects of respondent's fatigue	The survey should design and distribute appropriately to provide more interest and convenience to the respondents to avoid possible survey fatigue.
VIII. Other comments to improve the feasibility and quality of the scale	The scale should include a convincing introduction indicating the purpose of the study. It should also include a few appropriate demographic variables.

All the opinions and recommendations proposed by the six pre-test assessors for each of the eight assessment areas were accommodated to improve the content validity of the initial scale. These opinions and recommendations helped significantly improve the relevance and clarity of the items, structure, sequence, feasibility, and overall quality of the scale.

However, only four experts responded to the pre-test assessment sheet in rating the content validity of each item on the scale. The mean scores of the four pre-test assessors of each item of the scale with the decision to accept or reject the items are presented in Table 5.7. The mean

cut-off score for accepting or rejecting items from the scale was determined as three on a rating scale[22] of very weakly representing the construct (1) to very strongly representing the construct (5). Hence, all the items with a mean assessment score of less than three were rejected and eliminated from the scale (APPENDIX N).

Table 5.7

Pre-Test Assessment of the Content Validity of Items in the MPS

Item Code	Item	Pre-test Assessment Mean Score	Accept/ Reject
Cost Efficiency (Dimension 1)			
Q1	Cut to make ratio and material efficiency of our firm is	3.75	Accept
Q2	Operator efficiency of our firm is	3.50	Accept
Q3	Line efficiency of our firm is	2.00	Reject
Q4	Machine efficiency of our firm is	3.50	Accept
Q5	Cost per minute of our firm is (R)	4.00	Accept
Delivery (Dimension 2)			
Q6	Procurement and processing delays in our firm are (R)	3.50	Accept
Q7	Number of shipment days the orders get delayed in our firm is (R)	3.75	Accept
Q8	Order delivery cycle time (Procurement to Shipment) of our firm is (R)	4.25	Accept
Q9	Order rejection rate due to delivery defects of our firm is (R)	3.75	Accept
Q10	Perfect order fulfilment rate in our firm is	1.75	Reject
Product Quality (Dimension 3)			
Q11	Rate of product defects of our firm is (R)	4.00	Accept
Q12	Rate of rework of our firm is (R)	3.50	Accept
Q13	Rate of sample approval of our firm is	4.25	Accept
Q14	**Order rejection rate due to product defects of our firm is (R)**	**2.25**	**Reject**
Q15	The level of customer satisfaction and repeat orders in our firm is	3.50	Accept
Flexibility (Dimension 4)			
Q16	Time taken to respond to new changes in our firm is (R)	3.25	Accept
Q17	Time taken to changeover from one product to another in our firm is (R)	4.00	Accept
Q18	Time taken by the supply chain to respond to an unplanned increase in demand is (R)	3.50	Accept
Q19	Efforts taken to cater to the new requirements of the customers in our firm is	3.50	Accept
Q20	Overall adaptability and agility of our firm is	2.00	Reject
Innovativeness (Dimension 5)			
Q21	Percentage of expenditure on research and development of our firm is	4.00	Accept
Q22	Number of new ideas implemented in our firm is	3.25	Accept
Q23	Number of new products introduced in our firm is	4.50	Accept
Q24	Percentage of expenditure on new techniques and technology of our firm is	3.25	Accept
Q25	The level of creativity and innovativeness of the workforce of our firm is	1.50	Reject

The items Q3, Q10, Q15, Q20, and Q25 (5 items), which had a pre-test mean assessment score of less than three, were eliminated from the scale. All other items in the scale were accepted and included as having acceptable content validity.

[22] The scale used to rate the content validity of the items: 1 - Very weakly represent the construct, 2 - Weakly represent the construct, 3 - Moderately represent the construct, 4 - Strongly represent the construct, 5 - Very strongly represent the construct.

Based on the outcomes of the pre-test assessment, an improved MPS was developed. Consequently, a scale consisting of 20 items that demonstrated higher content validity (having a pre-test assessment mean score of more than 3) was developed (Table 5.8). This improved pre-tested MPS was subjected to further structural validation using a pilot test.

Table 5.8

Improved MPS used for Pilot-Testing

Manufacturing Performance Scale (MPS)	1	2	3	4	5	6	7
Q1 The cut-to-make ratio of our firm relative to our competitors is							
Q2 Operator efficiency of our firm relative to our competitors is							
Q4 Machine efficiency of our firm relative to our competitors is							
Q5 Cost per minute of our firm relative to our competitors is							
Q6 Procurement compliance (no supply delays & defects) in our firm							
Q7 Order delivery compliance (no delivery delays & defects) in our firm							
Q8 Order delivery cycle time (from procurement to shipment) in our firm							
Q9 Order acceptance rate due to delivery compliance of our firm is							
Q11 Rate of product defects of our firm relative to our competitors is							
Q12 Rate of rework of our firm relative to our competitors is							
Q13 Rate of sample approval of our firm relative to our competitors is							
Q14 Level of customer satisfaction of our firm relative to our competitors is							
Q16 Response time to cater to the market changes in our firm							
Q17 Changeover time from one product to another in our firm							
Q18 Response time to meet an unplanned increase in demand in our firm							
Q19 Extent of adaptability of our firm's resources to unexpected environmental change							
Q21 Percentage of expenditure on research and development of our firm is							
Q22 Number of new ideas implemented in our firm is							
Q23 Number of new products introduced in our firm is							
Q24 Efforts taken to identify and satisfy the new customer requirements in our firm is							

The scale used to rate the items:

1- Very much worse (VMW),
2- Much worse (MW),
3- Somewhat worse (SWW),
4- About the same (AS),
5- Somewhat better (SWB),
6- Much better (MB)
7- Very Much Better (VMB)

5.3.4.2 **Pilot testing of the scale**

The main purpose of the pilot testing was to statistically assess the underlying factor structure, dimensionality, and psychometric properties of the pre-tested MPS. Hence, it further helped to ensure the construct validity[23] and scale reliability[24]. For pilot testing, the improved pre-tested MPS was designed as a pilot survey questionnaire (APPENDIX O).

For the pilot survey, a sample of 100 cases (5 respondents per item) was determined as the expected sample size (Pallant, 2020). The respondent of the pilot survey has been defined as an experienced senior manager directly involved with operations and production positions of apparel firms in Asian countries (except Sri Lanka). Since the main survey is expected to be carried out in Sri Lanka, it was decided to exclude the respondents from Sri Lanka for the pilot survey.

Due to the Covid-19 pandemic situation and online accessibility to potential participants, the data collection for this pilot survey was carried out online. Since the response rate is a crucial factor for the success of online surveys, more attention was given to methods and techniques of designing the online questionnaire and distributing the survey link to enhance the expected response rate. Nearly one-third of online empirical studies found an average response rate of around 34%, and the response rates for studies using social media ranged from 25% to 40% (Basa-Martinez *et al.*, 2018). Therefore, it was planned to send the survey invitation to 500 potential participants. Accordingly, the pilot study was carried out from July to August 2020 using the Qualtrics Online Survey Tool.

The apparel firms and the potential participants were initially identified using the LinkedIn people search toolbox by selecting the country, apparel industry, name of the apparel firm, operations manager position, and English profile as the search options. Moreover, additional contact details of the identified participants were obtained through their Facebook profiles.

The survey link was sent out to 440 survey participants during the survey period among seven Asian apparel manufacturing countries (10 per day for 44 days of the survey period) using the LinkedIn and Facebook profiles of the potential participants (APPENDIX P).

[23] Construct validity of the scale indicates whether the construct of interest measures what it is supposed to measure. This reflects the relatedness of the items and dimensions within the scale - convergent validity and unrelatedness of the items and dimensions of the scale with other constructs of measurement - discriminant validity (DeVellis, 2017).

[24] The scale's reliability refers to the extent to which items consistently measure what they are supposed to measure. It reflects whether items of the scale provide the same results from different respondents at different periods (DeVellis, 2017).

Senior managers in production and operations management positions in apparel firms operating in seven leading Asian apparel manufacturing countries (India, Bangladesh, Vietnam, Malaysia, Indonesia, Cambodia, and Thailand) responded to the pilot survey. Ninety-three responses were received by the end of the survey, with a response rate of 21%. There were nine missing value responses, and these cases were eliminated from the analysis as all of them had a missing value for 40% or more of the scale items compared with the total number of items on the scale (20).

To describe the sample of the pilot survey, three demographic variables were included in the questionnaire, namely, **Q1.** No. of years of experience in the firm, **Q2.** Size of the firm in terms of employment and **Q3.** The extent of technology used for apparel manufacturing. The responses received for these demographics are listed in Table 5.9.

Table 5.9

Summary of Respondents' Demographic Characteristics

Q1 **Experience of the Managers**			**Q2** **Level of Employment**			**Q3** **Extent of Technology used**		
	N	**%**		N	**%**		N	**%**
< 5 Yrs.	0	0	> 500	0	0	Very Low	0	0
5 - 10 yrs.	27	32	500-1000	24	30	Low	26	31
10 - 15 yrs.	38	45	1001-2000	33	38	Moderate	40	48
15 - 20 yrs.	11	14	2001-3000	21	25	High	18	21
> 20 yrs.	8	9	< 3000	6	7	Very High	0	0
Total	**84**	**100**	**Total**	**84**	**100**	**Total**	**84**	**100**

Sample size (N) = 84

Table 5.9 indicates that 68% of the managers who responded had more than ten years of experience. This further confirmed the quality of the responses to the pilot survey. In addition, 70% of the responded managers were found to be working in apparel factories having more than 1,000 employment levels. Most firms (48%) were found to be deploying a moderate level of technology to manufacture garments. Nevertheless, none of the firms had very low or high technology applications for garment manufacturing.

The Kaiser-Meyer-Olkin sample adequacy coefficient of .87 indicated that the considered sample size of 84 cases for the pilot survey was adequate for the factor analysis. In addition, Bartlett's Test of Sphericity ($p < .05$) supports the factorability of the data. This was further justified by the determinant score of 4.506, which is well above zero (0) unacceptable value.

Parallel Analysis[25] (PA) was carried out to assess the factor structure of the MPS, and it confirmed the presence of five factors. The five-factor solution was further examined using an Exploratory Factor Analysis (EFA) using the principal axis factoring as the factor extraction method and Promax as the factor rotation method. This was to ascertain the underlying factor structure based on eigenvalues exceeding 1 with the help of a Scree Plot. The factor extraction (Principal axis factoring) and rotation method (Promax) for the EFA were selected considering the extent of correlations among the factors.

The EFA results further confirm the presence of a five-factor structure showing high item loadings (above .4) towards each of the five factors of the scale and the majority of items strongly loading above .7 [except items Q11_DL (.472) and Q23_IN (.490)]. The absence of cross-loading items further revealed a high construct validity of the developed MPS. Table 5.10 indicates the structure matrix of items loaded into five separate factors and how these factors together explained a total variance of 79.3%.

[25] Parallel analysis is a statistical method used to determine the number of components to keep in a principal component analysis or factors to keep in exploratory factor analysis. The method compares the eigenvalues generated from the data matrix to the eigenvalues generated from a Monte-Carlo simulated matrix created from random data of the same size (Hayton *et al.*, 2004).

Table 5.10

Structure Matrix of Pilot Survey Responses and Item Loadings

	Factor				
	1	**2**	**3**	**4**	**5**
Q4-Cost Efficiency	.271	**.871**	.335	.464	.512
Q5-Cost Efficiency	.289	**.900**	.420	.438	.423
Q6-Cost Efficiency	.171	**.809**	.197	.338	.310
Q7-Cost Efficiency	.280	**.805**	.278	.387	.453
Q8-Delivery	.460	.335	**.925**	.567	.534
Q9-Delivery	.490	.301	**.980**	.540	.563
Q10-Delivery	.562	.304	**.860**	.589	.545
Q11-Delivery	.377	.344	**.598**	.413	.470
Q12-Product Quality	**.845**	.245	.403	.460	.343
Q13-Product Quality	**.957**	.242	.531	.595	.409
Q14-Product Quality	**.859**	.300	.455	.494	.445
Q15-Product Quality	**.729**	.233	.492	.514	.406
Q16-Flexibility	.461	.419	.569	**.880**	.552
Q17-Flexibility	.558	.467	.569	**.929**	.561
Q18-Flexibility	.516	.430	.495	**.808**	.480
Q19-Flexibility	.580	.375	.514	**.896**	.533
Q20-Innovativeness	.346	.497	.562	.580	**.892**
Q21-Innovativeness	.404	.448	.516	.555	**.938**
Q22-Innovativeness	.400	.355	.511	.447	**.799**
Q23-Innovativeness	.469	.321	.443	.442	**.612**
Eigenvalues	9.38	2.43	1.65	1.27	1.19
Proportion of TVE[1]	46.8%	12.1%	8.2%	6.3%	5.9%
Cum. Proportion of TVE[1]	46.8%	58.9%	67.1%	73.4%	79.3%

Sample size (N) = 84

Extraction Method: Principal Axis Factoring

Rotation Method: Promax with Kaiser Normalization

[1] Total Variance Explained (TVE)

Reliability analysis was also carried out to test the degree of internal consistency of the 20-item scale and the reliability of each of the five dimensions that constitute the composite construct of manufacturing performance. Table 5.11 shows the results of the reliability analysis carried out using SPSS.

Table 5.11

Correlation and Reliability Estimates of MPS - Pilot Survey

Factor	Items	Mean	SD	CE	DL	PQ	FL	IN	MP
CE	4	3.80	1.08	**.90** [a]					
DL	4	4.38	1.06	.35 **	**.91** [a]				
PQ	4	3.63	1.13	.28 *	.53 **	**.91** [a]			
FL	4	3.67	1.26	.45 **	.59 **	.58 *	**.93** [a]		
IN	4	4.26	0.99	.46 **	.60 *	.46 **	.58 **	**.88** [a]	
MP	20	3.95	0.85	.66 **	.79 **	.75 **	.85 **	.79 **	**.94** [a]

Sample size (N) = 84

* Correlation is significant at the .05 level (2-tailed)

** Correlation is significant at the .01 level (2-tailed)

[a] Cronbach's alpha (α) coefficients

Key: **CE** = Cost Efficiency, **DL** = Delivery, **PQ** = Product Quality, **FL** = Flexibility, **IN** = Innovativeness

Table 5.11 reveals high internal consistency with Cronbach's α coefficient exceeding .8 (over the minimum accepted value of .7) for the overall MPS (.94) and each of the five dimensions. Furthermore, the item-total correlation and inter-item reliability also exceeded .7, confirming the high internal consistency of the scale. Additionally, the inter-factor correlation coefficients revealed more than .3 but less than .6 values indicating a moderately high correlation among these five factors.

Based on the psychometric properties revealed from the EFA, and reliability analysis, the pilot-tested MPS was confirmed to have high construct validity and reliability. In addition, the overall findings supported the multidimensionality of the MPS consisting of five separate dimensions in measuring the composite construct of manufacturing performance of an apparel firm.

The descriptive statistics of individual items relating to the five dimensions of manufacturing performance are shown in Table 5.12. These results could be useful for firms who want to improve their manufacturing performance based on the item-wise score ranges given in the table. For example, if a firm receives a score for item Q7 – Cost per minute relating to Cost efficiency, the firm is aware that the average score is (≈3.27) and there is scope for further improvement up to 6 (based on a scale of 1 – Very much worse to 7 – Very much better).

Table 5.12

The Mean and Range Scores of Individual Items for Five Dimensions of MPS

Scale Item	Brief description of the metric	Min. Score	Mean Score	Max. Score
Cost Efficiency				
Q4	Cut-to-make ratio	2	3.93	7
Q5	Operator efficiency	1	4.05	6
Q6	Machine efficiency	2	3.93	7
Q7	Cost per minute	1	3.27	6
Delivery				
Q8	Procurement compliance	1	4.32	7
Q9	Order delivery compliance	2	4.25	6
Q10	Order delivery cycle time	2	4.44	7
Q11	Order acceptance rate	3	4.49	6
Product Quality				
Q12	Rate of product defects	3	4.02	7
Q13	Rate of rework	2	3.73	6
Q14	Rate of sample approval	1	3.32	7
Q15	Level of customer satisfaction	2	3.45	7
Flexibility				
Q16	Response time to cater to the market changes	2	3.81	6
Q17	Changeover time from one product to another	1	3.82	7
Q18	Response time to meet an unplanned demand	2	3.30	7
Q19	The extent of adaptability of the firm's resources	3	3.75	6
Innovativeness				
Q20	Number of new ideas implemented	1	4.61	7
Q21	Percentage of expenditure on R & D	2	4.36	7
Q22	Number of new products introduced	2	4.10	6
Q23	Efforts taken to identify and satisfy the new customer requirements	3	3.97	6

Sample size (N) = 84

5.3.4.3 **Reconciling the MPS items with widely used manufacturing approaches**

In manufacturing and operations management literature, superior manufacturing performance is considered to be a result of superior processes that result in products and services that meet or exceed customer expectations. As such, the researcher attempted to align two widely applied

process management approaches in manufacturing to ensure that the scale being pilot-tested can be aligned with these approaches (i.e., manufacturing performance results that can possibly be achieved via these approaches). The first manufacturing approach considered was lean manufacturing, which is aimed at reducing waste and nonvalue-adding activities from every aspect of company operations to improve the company's value proposition — that is providing products at competitive prices (Shah & Ward, 2007; Sundar *et al.*, 2014). Lean is thus predominantly an approach to improving efficiency. Lean approaches attempt to reduce or eliminate seven forms of waste: transportation, inventory, motion, waiting, overproduction, overprocessing, and defects (Chiarini, 2013). Six sigma is a scientific approach that is primarily aimed at improving the processes to reduce variably (e.g., part-to-part variability of finished goods) to satisfy customers through superior productivity, to improve a company's profitability (Antony & Banuelas, 2002). In some instances, six sigma can be used in product design to achieve the superior functional performance of the products, for example, durable garments goods (Antony & Coronado, 2002; Liverani *et al.*, 2019). The alignment of MPS scale items with Lean and Six Sigma is shown in Table 5.13.

Table 5.13

Reconciliation of MPS Survey Items with Lean and Six Sigma

MPS Item	Lean	Six Sigma
Q1 The cut-to-make ratio of our firm relative to our competitors is...	√	
Q2 Operator efficiency of our firm relative to our competitors is...	√	√
Q4 Machine efficiency of our firm relative to our competitors is…	√	√
Q5 Cost per minute of our firm relative to our competitors is...	√	
Q6 Procurement compliance (no supply delays & defects) in our firm…	√	√
Q7 Order delivery compliance (no delivery delays & defects) in our firm...	√	
Q8 Order delivery cycle time (from procurement to shipment) in our firm...	√	
Q9 Order acceptance rate due to delivery compliance of our firm is…	√	√
Q11 Rate of product defects of our firm relative to our competitors is…	√	√
Q12 Rate of rework of our firm relative to our competitors is…	√	√
Q13 Rate of sample approval of our firm relative to our competitors is…	√	√
Q14 Level of customer satisfaction of our firm relative to our competitors is...	√	√
Q16 Response time to cater to the market changes in our firm...		
Q17 Changeover time from one product to another in our firm...	√	
Q18 Response time to meet an unplanned increase in demand in our firm...		

MPS Item	Lean	Six Sigma
Q19 Extent of our firm's resource adaptability to unexpected environmental change…		
Q21 Percentage of expenditure on research and development of our firm is…	√	√
Q22 Number of new ideas implemented in our firm is…	√	
Q23 Number of new products introduced in our firm is…		
Q24 Effort taken to identify & satisfy the new customer requirements in our firm is…		√

It is noted that only very few items in the MPS scale do not tally with Lean and Six Sigma but can be aligned with other approaches such as agile manufacturing, an approach that is aimed at improving responsiveness to customer/market needs (Mathrani *et al.*, 2021; Mathrani, 2022). Since firms typically use integrated management systems (Mohammad *et al.*, 2006), it is reasonable to argue that the MPS items align well with well-known manufacturing management approaches (e.g., Lean Manufacturing, Six Sigma, and Flexible/Agile Manufacturing), or more generally manufacturing management practices.

5.3.5 Final scale development

The overall results of the pilot testing of the scale suggest that the five dimensions of MPS can be effectively used as a valid and reliable instrument to measure the manufacturing performance of an apparel firm.

Since the pilot-tested scale revealed high item loading values (>.40) for each of the five dimensions (with no cross-loadings), all 20 items were accepted as valid and reliable items for the final scale. Since no changes were made to the item wordings or sequencing for the 20 items of the pilot-tested scale, a final MPS survey was then developed considering the same items and dimensions used in the pilot-tested scale. The finalised MPS survey (APPENDIX Q) was administered to measure the manufacturing performance of apparel firms in the study's main survey, which was conducted in Sri Lanka.

5.3.6 Replicating the scale in diverse contexts for external validity

Initial scale development and validation were conducted using data from managers in 84 apparel manufacturing firms in seven Asian countries other than Sri Lanka. To establish

external validity[26], the newly developed MPS was tested with Sri Lankan data as part of the main study. The Confirmatory Factor Analysis (CFA) for the MPS replicated with main survey data in Sri Lanka confirms the presence of a five-factor structure in the apparel industry of Sri Lanka (CFI = .93, TLI = .92, and SRMR = .044). More details are given in the main analysis; the results further validate the scale acceptability and generalisability and guarantee MPS with potential external validity (details are given in section 6.5.1 in chapter 6).

The more the scale testing is replicated, the more it gets validated and established as a fully valid, reliable, and generalisable scale.

5.4 Limitations of the developed MPS

In the development process of this scale, less-than-desirable sample sizes were used for pilot testing *(N=84)*. The scale validity and reliability were assessed based on this smaller sample (due to the Covid-19 impact). The literature on scale development suggests that the scale validity and reliability assessment is more effective when larger samples are considered, *N > 200*, at least 10 cases: 1 item ratio (Morgado *et al.*, 2018). Due to time constraints, content validity was examined based on the opinion of a limited number of experts, and the scales were established and tested by using a single method, namely EFA (Morgado *et al.*, 2018).

5.5 Chapter Summary

At the start, the chapter elaborated on the rationale for developing a new scale to comprehensively measure the construct of manufacturing performance relating to an apparel firm. Next, the chapter elaborated on how the findings of existing literature and preliminary field study identified the research gap for a new scale to measure manufacturing performance in the apparel industry. It then described the sequential steps followed to design and develop a valid, reliable, comprehensive, and generalisable scale useful for researchers and practitioners in the apparel industry. These steps were discussed under six sub-headings, namely, 1) Domain & construct definition, 2) Dimensions identification & items generation, 3) Initial scale design & development, 4) Assessing the validity and reliability of the scale, 5) Final scale development and 6) Replicating the scale in diverse contexts. Finally, this chapter revealed that the five dimensions of MPS could be effectively used as a valid and reliable multidimensional instrument to measure the manufacturing performance of an apparel firm subject to a few theoretical and practical limitations of the developed MPS.

[26] External validity refers to the extent to which the construct scores are empirically related and applicable to the scores tested in other contexts. This explains the generalisability potential of the new instrument/scale (DeVellis, 2017).

CHAPTER 6

RESULTS

6.1 Introduction

This chapter presents the key results of data collection and analysis of the quantitative study relating to the two main surveys (MPS and DOCS). It initially presents the data collection process, response rates, and the cleaning of the datasets for analysis. After that, the demographic characteristics of the respondents of DOCS and MPS are presented. Then it presents confirmation of the factor structures of the two surveys, the validity and reliability of the scales, and descriptive statistics. Finally, the key results of the inferential analysis leading to testing the mediation model and the related hypotheses are presented along with the assumptions considered in carrying out such analysis in the last section of this chapter.

6.2 Survey distribution and response rates

The data collection was carried out in phase I (November 2020 to January 2021) and phase II (January to March 2021) in the BOI-approved apparel sector in Sri Lanka. It was done online using the Qualtrics Survey Tool according to pre-prepared survey distribution plans for the two surveys.

Since the unit of analysis of this study is "Firm", the two surveys (DOCS and MPS) were administered among 120 region-based firms according to the sample frame. Thus, the individual responses received from each survey instrument were aggregated at the firm level.

The DOCS questionnaire was distributed among middle-level managers attached to various sections, divisions, units, and departments of the 120 apparel firms operating in the BOI-approved apparel sector. Two hundred fifty-two managers responded from 93 firms with a firm-level response rate of 78%.

Since two to five middle-level managers rated the organisational culture at the firm level, the responses received from 93 firms were averaged to obtain the firm-level data. Hence, an interrater reliability test was conducted using SPSS with the DOCS dataset to test the interrater agreement. The Intraclass Correlation Coefficient (*ICC*) value revealed a high significant overall interrater reliability (*ICC* = .93, $p < .05$), Involvement trait (*ICC* = .91, $p < .05$), Consistency trait (*ICC* = .89, $p < .05$), Adaptability trait (*ICC* = .94, $p < .05$) and Mission trait

(*ICC* = .93, $p < .05$) confirming high interrater agreement among different middle-level managers' ratings of the DOCS instrument.

The MPS survey was distributed among senior managers directly involved in production and operations management positions in 120 apparel firms operating in the BOI-approved apparel sector. As a result, 93 senior managers from 93 firms (the same firms that middle-level managers responded to DOCS) responded with a firm-level response rate of 78%.

Since only one senior manager rated the manufacturing performance at the firm level, there was no necessity to aggregate the responses from the individual level to the firm level. Hence, no inter-rater reliability test was carried out on the MPS dataset to determine the extent of individual rater agreement.

The number of region-based firms that responded to both DOCS and MPS surveys with their respective response rates is depicted in Table 6.1.

Table 6.1

Sample Representation of RBFOTs and their Response

Region-based firm ownership type	Relevant population	Surveyed Firms	Responded Firms	Response Rate
Firms belong to Western Region [a]	43	40	33	83%
Firms belong to East Asian Region [b]	41	40	32	80%
Firms belong to South Asian Region [c]	141	40	28	70%
Total	**225**	**120**	**93**	**78%**

[a] Apparel firms that are fully owned and controlled by investors from Western countries

[b] Apparel firms that are fully owned and controlled by investors from East Asian countries

[c] Apparel firms that are fully owned and controlled by investors from Sri Lanka

The response rate from the firms belonging to Western, East Asian, and South Asian regions was 83%, 80%, and 70%, respectively, having an overall firm-level response rate of 78%. However, these response rates do not include the firms (5) that responded only for DOCS and

the firms (7) that responded only for MPS. Therefore, the firms included in Table 6.1 represent the firms that responded for both DOCS and MPS.

To achieve this response rate, firm-specific survey invitations were sent out to influential managers using the databases of apparel firms maintained by BOISL, SLAEA, EDBSL, JAAF, related e-commerce websites, and social media platforms. The invitations were sent out using the snowballing technique with a convincing email cover letter. In addition, after sending the initial invitations, three reminder emails were sent during phase I (using two-week intervals), and another two reminder emails were sent during phase II of the data collection to follow up on responses regularly.

6.3 Screening and cleaning the datasets

6.3.1 Screening and cleaning of DOCS dataset

The DOCS responses received were coded, entered, and arranged as an SPSS datasheet appropriate for analysis using SPSS version 27 (APPENDIX R for Codebook). All the data items for the 252 cases were checked for the prevalence of possible errors using descriptive and frequency statistics. The dataset was further checked for outliers using boxplots. One outlier was identified due to a data entry error (when replacing the missing values to the dataset) and was corrected. Apart from this, the DOCS dataset was found to be free from unusual values that significantly affect the error variance, assumptions of regression analysis, and the power of the statistical tests.

However, there were 12 cases with missing values. As the incomplete responses represented less than 5% of the total responses (12 / 252 = 4.8%), the missing values were replaced with the series mean using SPSS for data analysis as the data distribution was normal. The method to deal with the missing values for this dataset was determined based on the incomplete response rate (4.8%), the pattern of the missing value cases (missing at random), the nature of the distribution of the dataset, and their potential impact on the inferential results (Cool, 2000). Since the inferential results of the study were almost the same when testing the dataset with the mean replacement method against keeping the missing value cases as it is, the former method resorted to proceeding with the data analysis.

6.3.2 Screening and cleaning the MPS dataset

The MPS responses received were coded, entered, and arranged as an SPSS dataset appropriate for analysis using SPSS version 27 (APPENDIX S for Codebook). After that, all data items were checked for the prevalence of possible errors using descriptive and frequency statistics. No data entry errors were identified. The dataset was further checked for outliers using the boxplots. The MPS dataset was found to be free from unusual data values that significantly affect the error variance, assumptions of regression analysis, and the power of the statistical tests.

However, there were four cases with missing values. As the incomplete responses represented less than 5% of the total responses (4 / 93 = 4.3%), the missing values were replaced with the series mean using SPSS for data analysis as the data distribution was normal. The method to deal with the missing value for this dataset was determined based on the incomplete response rate (4.3%), the pattern of the missing value cases (missing at random), the nature of the distribution of the dataset, and their potential impact on the inferential results (Cool, 2000). Since the inferential results of the study were almost the same when testing the dataset with the mean replacement method against keeping the missing value cases as it is, the former method resorted to proceeding with the data analysis.

6.4 Demographic characteristics of the respondents – DOCS and MPS

6.4.1 Demographic characteristics of the respondents – DOCS

Data were collected on four demographic variables of the middle-level managers. These variables comprise **(a)** Gender, **(b)** Number of years of experience in the firm, **(c)** Highest qualification earned, and **(d)** Working location. The statistics relating to the demographic characteristics of respondents are presented in Table 6.2.

Table 6.2 indicates that over 53% of the responded middle-level managers were females, while the male representation was about 44%. In addition, approximately 60% of the middle-level managers had more than seven years of experience in the firm, whereas managers with experience of fewer than three years were about 7%. Moreover, about 73% of the middle managers were qualified above advanced level (diploma, graduate, and postgraduate), whereas only about 3% had ordinary level qualifications.

Table 6.2

Demographic Characteristics of the Respondents of the DOCS Survey

Characteristics	N	Percentage (%)
(a) Gender		
Female	134	53.2
Male	112	44.4
Prefer not to reveal	6	2.4
Total	252 [a]	100.0
(b) No. of years of experience in the firm		
Less than 3	17	6.7
3 – 6	83	32.9
7 – 10	93	36.9
More than 10	59	23.5
Total	252 [a]	100.0
(c) Highest qualification earned		
Ordinary level	8	3.2
Advanced level	61	24.2
Diploma	106	42.1
Graduate	67	26.5
Postgraduate	10	4.0
Total	252 [a]	100.0

[a] *Sample size (N)* = 252

The summary of the responses received relating to the working locations of the middle-level managers **(d)** is presented in Table 6.3. Middle-level managers from 20 different work locations were found to have responded to the survey. The highest number of responses were received from Merchandising (8.7%), Accounts, Finance & Administration (8.3%), and Cutting (7.9%) divisions. However, the lowest number of responses were received from managers attached to Pattern Making (1.2%), Embroidery (0.8%), and Washing (0.8%) divisions.

Table 6.3

Working Locations of the Middle-Level Managers

Department / Unit / Division / Section	N	%	Cum %
Merchandising	22	8.7%	8.7%
Accounts, Finance & Administration	21	8.3%	17.1%
Cutting	20	7.9%	25.0%
Sampling	19	7.5%	32.5%
Designing	18	7.1%	39.7%
Sewing	18	7.1%	46.8%
Stores and Inspection	16	6.3%	53.2%
Human Resources	15	6.0%	59.1%
Marketing and business development	12	4.8%	63.9%
Maintenance	11	4.4%	68.3%
Production planning	10	4.0%	72.2%
Quality control	9	3.6%	75.8%
Shipping and documentation	8	3.2%	79.0%
Information systems and technology	7	2.8%	81.7%
Packing	5	2.0%	83.7%
Printing	5	2.0%	85.7%
Industrial engineering and technical	5	2.0%	87.7%
Pattern making	3	1.2%	88.9%
Embroidery	2	0.8%	89.7%
Washing	2	0.8%	90.5%
Unspecified	24*	9.5%*	100.0%
Total	**252**	**100%**	

* Respondents who have not revealed the working place.

6.4.2 Demographic characteristics of the firms and respondents – MPS

Data were collected on four demographic variables affecting the manufacturing performance of apparel firms. These variables include **(e)** the experience of the senior managers in the apparel industry, **(f)** the number of employees in the factory, **(g)** the extent of technology used for garment manufacturing, and **(h)** The market for which the firm mainly served. The statistics relating to the demographic characteristics of the firms and respondents are presented in Table 6.4.

The results (the proportions shown as a %) shown in Table 6.4 suggest that the firms within each RBFOT are reasonably well-matched for the four demographic characteristics considered in the study. This (i.e., reasonably well-matched samples) is highly desirable, even though three of the four demographic characteristics serve as control variables in the study.

Table 6.4

Demographic Characteristics of the Firms Participated in MPS Survey by RBFOT

Characteristics	Number of Firms (% Total)			
	Western	**East Asian**	**South Asian**	**Total**
(e) No. of years of experience in the industry				
Less than 5	0 (0%)	0 (0%)	0 (0%)	0 (0%)
5 – 10	8 (24%)	4 (13%)	5 (18%)	17(18.3%)
11 – 15	16 (49%)	20 (63%)	15 (54%)	51 (58.4%)
15 – 20	7 (21%)	4 (12%)	5 (18%)	16 (17.2%)
More than 20	2 (6%)	4 (12%)	3 (10%)	9 (9.7%)
Total [a]	33 (100%)	32 (100%)	28 (100%)	93 (100%)
(f) No. of employees in the factory				
Less than 500	0 (%)	0 (%)	0 (0%)	0 (0%)
501 – 1000	3 (9%)	8 (25%)	4 (14%)	15 (16.1%)
1001 – 1500	17 (51%)	19 (59%)	15 (54%)	51 (53.8%)
1501 – 2000	10 (31%)	4 (13%)	8 (28%)	22 (24.7%)
More than 2000	3 (9%)	1 (3%)	1 (4%)	5 (5.4%)
Total [a]	33 (100%)	32 (100%)	28 (100%)	93 (100%)
(g) Extent of technology used for garment manufacturing				
Very low	0 (0%)	0(0%)	0 (0%)	0 (0%)
Low	7 (21%)	5 (16%)	8 (29%)	20 (21.5%)
Moderate	23 (70%)	21 (66%)	17 (60%)	61 (65.5%)
High	3 (9%)	6 (18%)	3 (11%)	12 (12.9%)
Very high	0 (%)	0 (%)	0 (0%)	0 (0%)
Total [a]	33 (100%)	32 (100%)	28 (100%)	93 (100%)
(h) Mainly served market type				
Lowest value-seeking market	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Low-end market	7 (21%)	10 (31%)	13 (47%)	30 (32.3%)
Middle-range market	20 (61%)	17 (53%)	12 (42%)	49 (52.7%)
High-end market	6 (18%)	5 (16%)	3 (11 %)	14 (15.0%)
Highest value-seeking market	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Total [a]	33 (100%)	32 (100%)	28 (100%)	93 (100%)

[a] *Sample size: Western (n) = 33, East Asian (n) = 32, South Asian (n) = 28, Total (N)* = 93

Table 6.4 indicates that about 82% of the senior managers had more than ten years of experience in the apparel industry. Approximately 80% of firms had a total employment level ranging from 1001 to 2000 in their factories, while none of the firms had an employment level below 500. Approximately 66% of firms indicate that they use a moderate level of technology for garment manufacturing. None of the firms had very low or very high usage of technology.

Regarding the market served, the South Asian firms catered to low-end to middle-range markets, while the Western and East Asian firms catered to middle-range to high-end markets. About 53% of firms cater to the middle-range market, while none cater to the very low value-seeking and very high value-seeking markets, as the mainly served market type. Further, most firms can be generally characterised by medium size (number of employees), moderate level of technology, and serving mostly the middle-range markets.

6.5 Factor structures of DOCS and MPS

6.5.1 Factor structure of DOCS

CFA was conducted to confirm the factor structures of DOCS as there is a well-established underlying theory for DOCS. Each DOCS construct consists of three facets, for example, for trait Involvement, the three facets are empowerment, team orientation, and capability development (Figure 6.1). For the CFA, survey questions were parcelled within each facet to form three indicators per construct, each indicator being the average score of five questions. Therefore, each construct (culture trait) in the CFA model represents three management practice orientations as defined in DCM. The CFA parameter estimates (correlations) are shown in Figure 6.1, while the goodness of fit statistics are shown in Table 6.5. Based on the factor loadings (correlation between the construct and its indicator), it is clear that all indicators show high factor loadings (correlation > .70) as required.

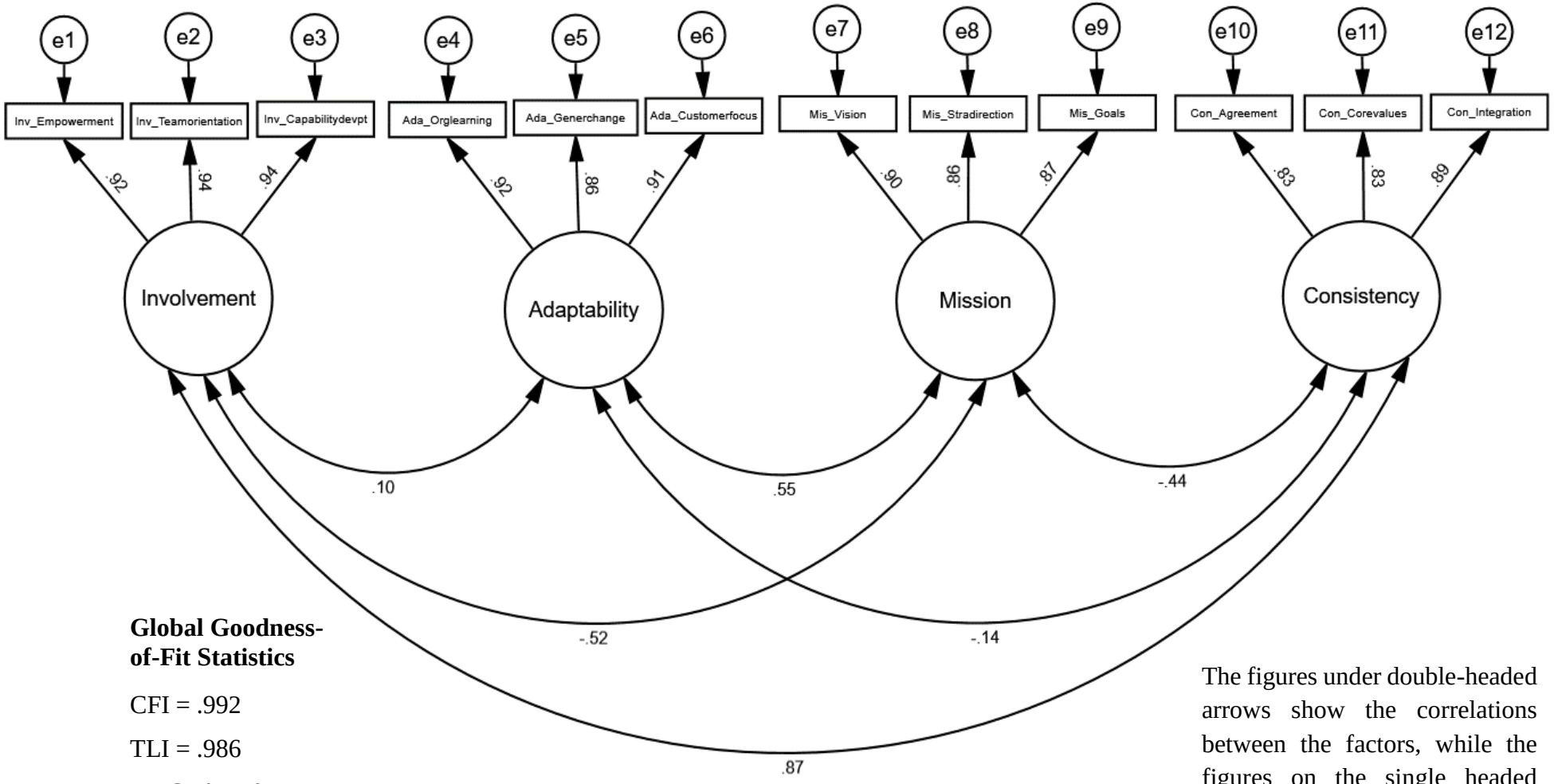
Table 6.5

CFA Four Factor Model: Model Fit of User Model vs Baseline Model

Measures of model fit	Value	Threshold [1]
Comparative Fit Index (CFI)	.992	.90
Tucker-Lewis Index (TLI)	.986	.90
Root Mean Square Error of Approximation (RMSEA)	.047	.05
Standardised Root Means Square Residual (SRMR)	.036	.08

[1] Based on Hooper *et al.* (2008); Xia and Yang (2019)

The CFI and TLI values for the four-factor model indicate above .90, and the RMSEA and SRMR values are below .05. This confirms that the DOCS factor structure in Sri Lanka (user model) fits well with the original DOCS four-factor structure (baseline model).



Global Goodness-of-Fit Statistics

CFI = .992

TLI = .986

RMSEA = .047

SRMR = .036

The figures under double-headed arrows show the correlations between the factors, while the figures on the single headed arrows show the factor loadings.

Figure 6.1 *CFA Four-Factor Model of DOCS With Results*

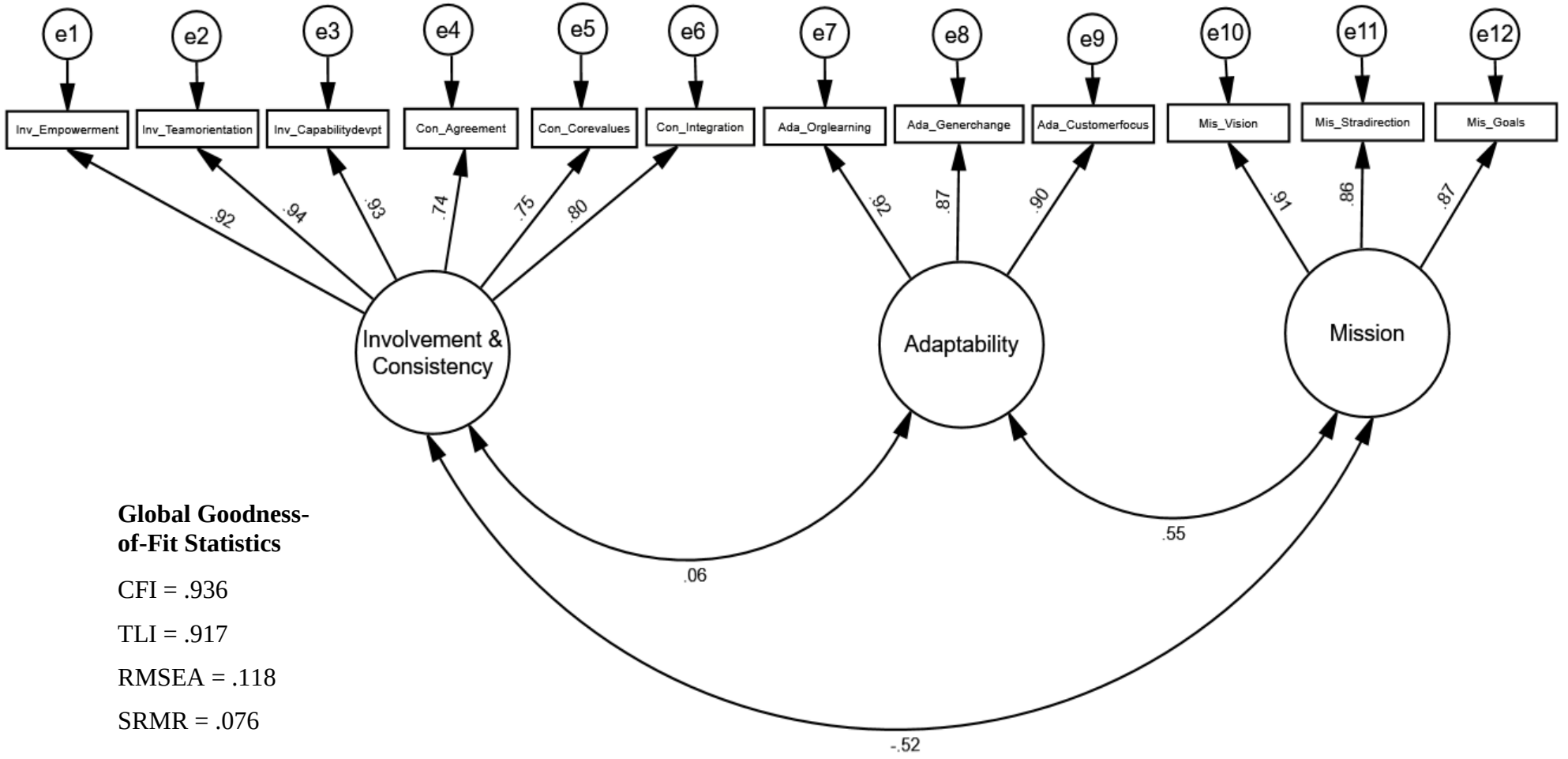


Figure 6.2 *CFA Three-Factor Model of DOCS With Results*

However, it is also noted that there is a very high correlation between involvement and consistency traits (r = .87). One can argue that this could mean that the conceptual domains represented by the two constructs overlap significantly. Therefore, to ensure that this four-factor CFA model (Figure 6.1) is a better fit for data than a three-factor model (Figure 6.2), where the indicators of involvement and consistency reflect a single construct (named Involvement & Consistency), a chi-squared difference test was conducted.

Table 6.6

Chi-Squared Difference Test: CFA Four-Factor Model vs Three-Factor Model

	Df	AIC	BIC	Chisq	Chisq diff	Df diff	Pr (>Chisq)
fit_docs_cfa_4F_parcels	48	3786.8	3892.7	76.255			
fit_docs_cfa_3F_parcels	51	3935.9	4031.1	231.290	155.04	3	0.0000
fit_docs_cfa_4F_parcels							
fit_docs_cfa_3F_parcels ***							
Significance codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1							

The chi-squared test results reveal that the four-factor model is a better covariance fit to data than the three-factor model (Table 6.6). Hence, the organisational culture factor structure posited in the DCM is confirmed by this study. Thus, organisational culture is confirmed as a multidimensional construct consisting of four culture traits — Involvement, Consistency, Adaptability, and Mission.

6.5.2 Factor structure of MPS

EFA was conducted earlier (via the pilot study) to explore the facture structure of MPS. This factor structure was confirmed through CFA to confirm the previously identified five-factor structure of MPS. Table 6.7 depicts the CFA results for goodness-of-fit.

Table 6.7

CFA Five Factor Model of MPS: Model Fit of User Model vs Baseline Models

Measures of model fit	Value	Threshold [1]
Comparative Fit Index (CFI)	.933	.90
Tucker-Lewis Index (TLI)	.917	.90
Root Mean Square Error of Approximation (RMSEA)	.082	.05
Standardised Root Means Square Residual (SRMR)	.043	.08

[1] Based on Hooper *et al.* (2008); Xia and Yang (2019)

The CFI and TLI values for the five-factor model indicate above .90, and the SRMR value was below .08. The RMSEA value was found to be exceeding the minimum threshold value of .05. However, considering the four goodness-of-fit indices together confirm that the MPS factor structure in Sri Lanka (user model) fits satisfactorily with the MPS five-factor structure (baseline model) identified in the pilot study.

Figure 6.3 depicts the CFA in diagrammatic form along with the correlations between the factors as well as the correlations between the factors and their indicators (i.e. factor loadings) for this five-factor model. Based on the factor loadings shown in Figure 6.3, all indicators show high factor loadings (correlation > .70) as required. It is especially noted that there is a high correlation between the five factors (r > .78). Because of this high correlation, this five-factor model was compared against the one-factor model (Figure 6.4) for the goodness of fit.

For the goodness-of-fit indices returned for the one-factor model (see Figure 6.4), it is clear that these indices fall below the threshold values prescribed in the literature, suggesting that this one-factor model is not a good covariance fit to the data in the way the factor is being represented by several similar indicators (there are as many as 20 indicators of this one-factor model).

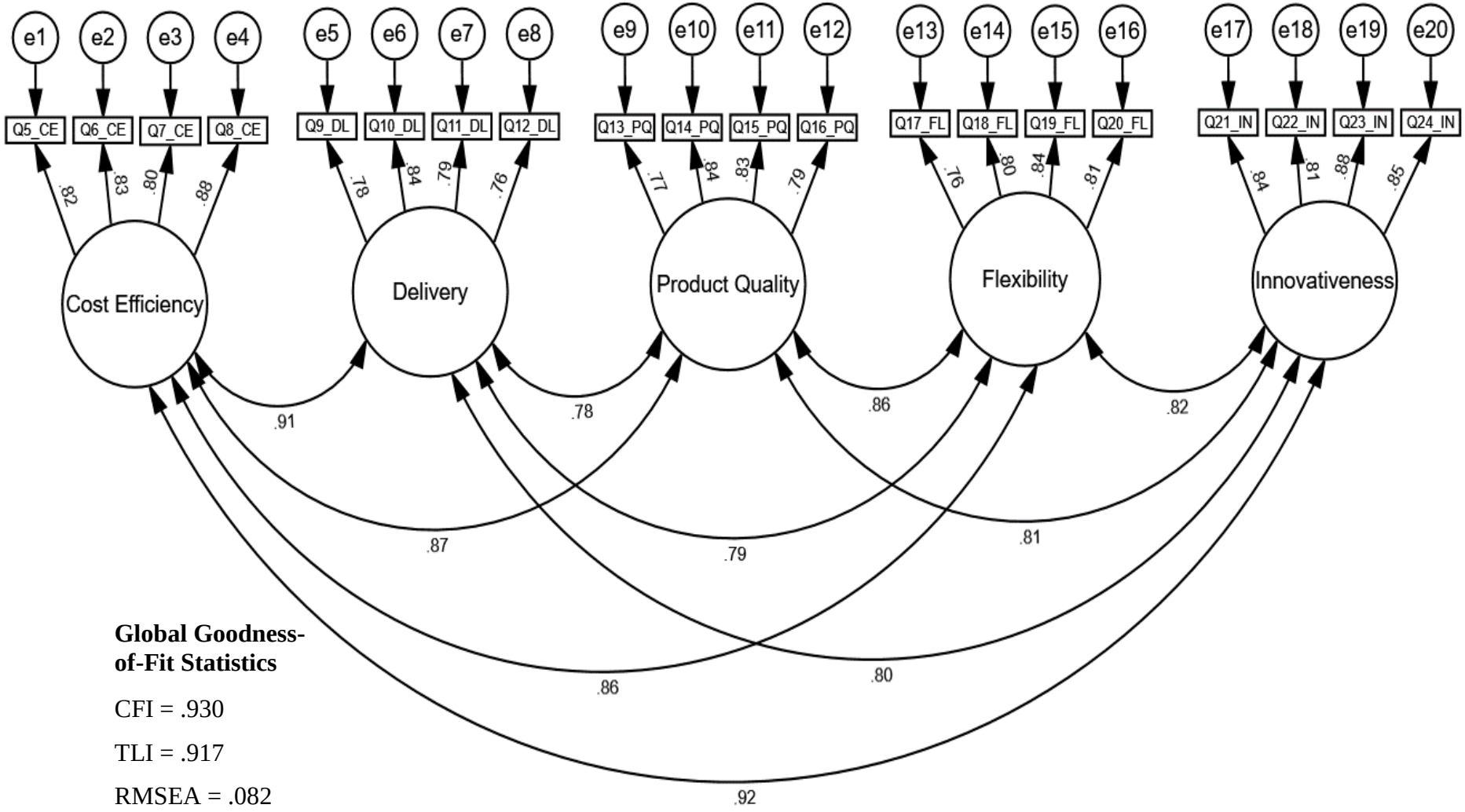


Figure 6.3 *CFA First Order Five-Factor Model of MPS With Results*

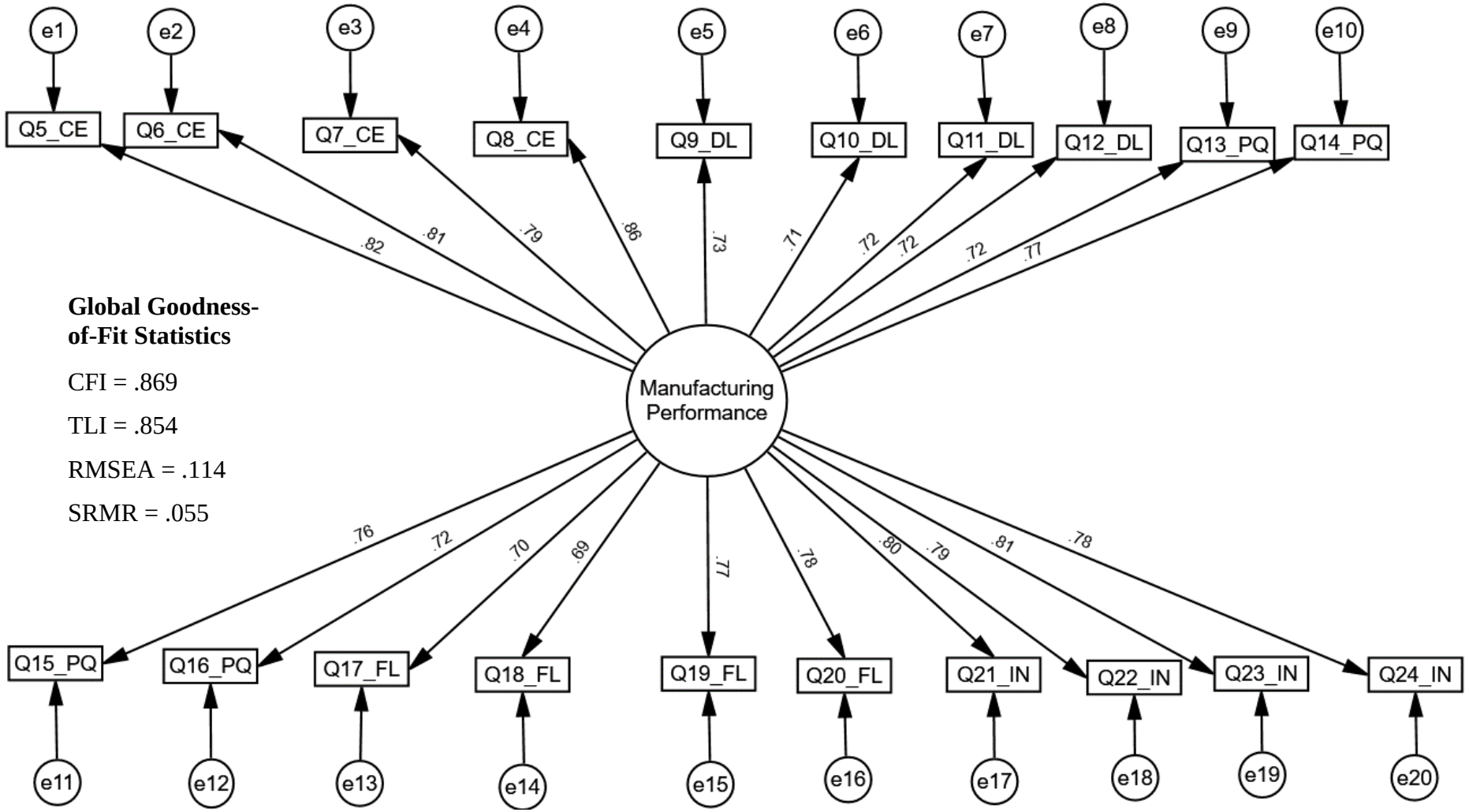


Figure 6.4 *CFA First Order One-Factor Model of MPS With Results*

To compare the difference in model fit between the one-factor model and the five-factor model, the chi-squared difference test was conducted. Table 6.8 shows the chi-squared test for difference (one-factor versus five-factor model). The results show that the five-factor model is a better covariance fit for the data than the one-factor model.

Table 6.8

Chi-Squared Difference Test: CFA One-Factor Model vs Five-Factor Model

	Df	AIC	BIC	Chisq	Chisq diff	Df diff	Pr (>Chisq)
fit_mps_cfa_1F	170	2854.8	2953.9	363.11			
fit_mps_cfa_5F	160	2773.1	2897.0	261.39	101.72	10	.0000
fit_mps_cfa_1F							
fit_mps_cfa_5F '***'							
Significance codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1							

Although the five-factor model fits the data well, since the correlations between the five factors are strong and positive (Figure 6.3), a CFA second-order factor model was developed and tested (see Figure 6.5 for CFA test results).

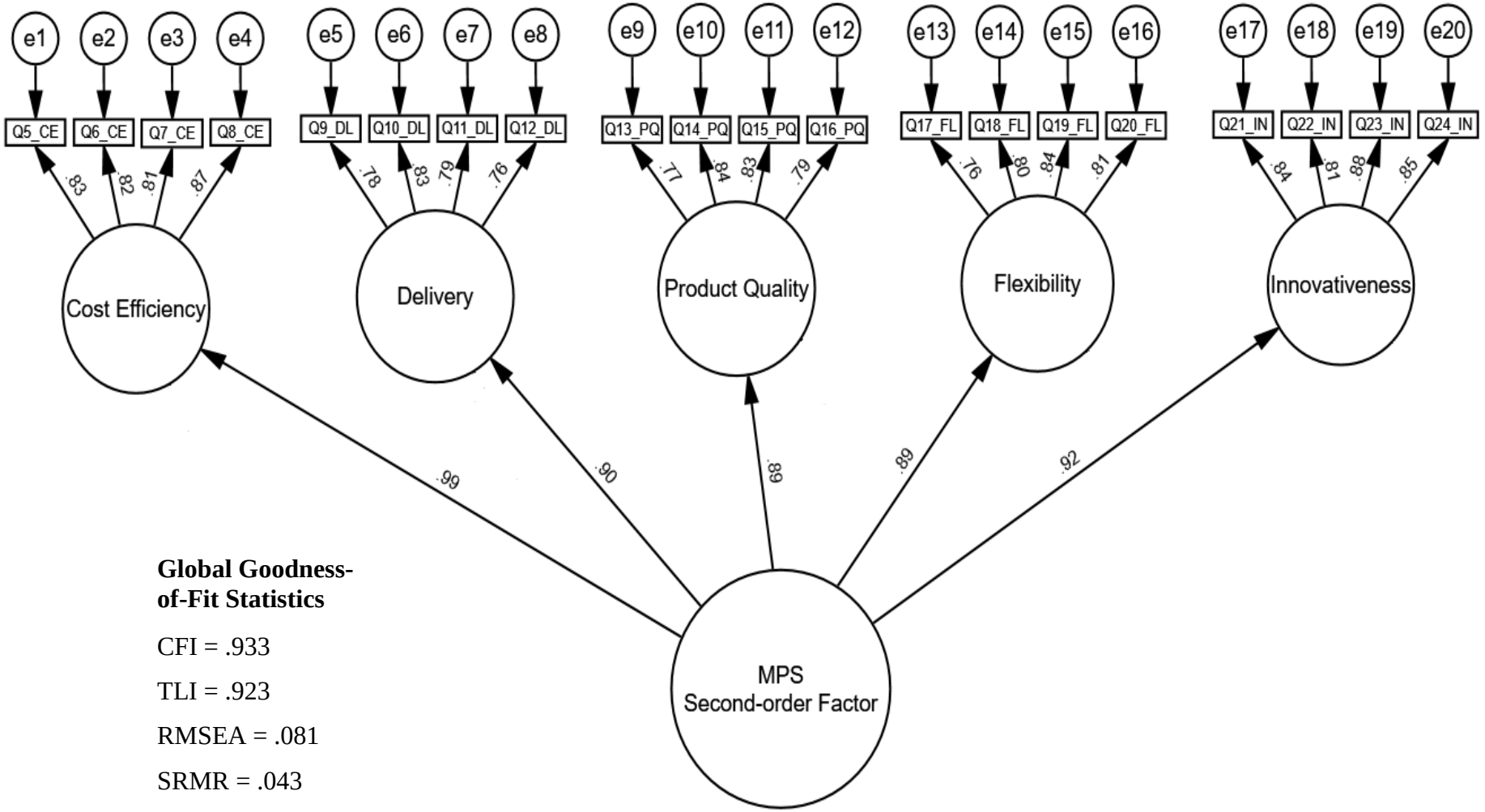


Figure 6.5 *CFA Results for Second-Order Factor Model of MPS With Results*

The results (the global goodness-of-fit statistics) of the second-order factor analysis were similar to the first-order five-factor model. This result was further confirmed by the nonsignificant chi-squared difference test between the CFA first-order five-factor model and the second-order factor model (Table 6.9).

Table 6.9

Chi-Squared Difference Test: CFA Five-Factor Model vs Second Order-Factor Model

	Df	AIC	BIC	Chisq	Chisq diff	Df diff	Pr (>Chisq)
fit_mps_cfa_5F	160	2773.1	2897.0	261.00			
fit_mps_cfa_2ndF	165	2769.2	2880.7	267.11	6.1157	5	0.2951
Significance codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1							

Since the five-factor model and the second-order factor model have the same fit, it suggests that the MPS could be considered either as a five-factor scale or a single-factor scale (representing a second-order factor) depending on the study requirements. Accordingly, for testing the mediation model MPS was considered as a second-order single-factor scale (as the researcher does not intend to test the mediating effect of the firms' culture based on manufacturing performance dimension-wise). However, for comparing different facets of manufacturing performance (cost-efficiency, delivery, product quality, flexibility, and innovativeness) of RBFOTs, the five-factor scale was considered.

6.6 Reliability and Validity of DOCS and MPS instruments

The constructs to be assessed for scale reliability and validity are DOCS: Involvement trait (three five-item parcels), Consistency trait (three five-item parcels), Adaptability trait (three five-item parcels), Mission trait (three five-item parcels), and MPS (five four-item parcels).

Reliability is a necessary but not a sufficient requirement for validity (Nunnally, 1978). The following subsections show scale reliability, convergent validity, and discriminant validity results of the scales. Convergent validity can be established if it can be shown that the items/measures assigned to a particular scale construct strongly correlate with the same scale construct. Discriminant validity can be shown if measures belonging to a particular scale construct do not correlate with other scale constructs as strongly as they do with their assigned scale construct (Gefen & Straub, 2005; Henseler *et al.*, 2015).

6.6.1 Reliability

Table 6.10 depicts the reliability coefficients of the five constructs under purview. The Cronbach alpha values easily pass the minimum value of 0.70 prescribed by Nunnally (1978). Similarly, Composite Reliability (CR) values easily exceed the minimum value of 0.70 prescribed in prior research (Chin, 1998; Hair *et al.*, 2013).

Table 6.10

The Reliability Coefficients of the Scale Constructs

Scale Construct	Cronbach Alpha	Composite Reliability
Involvement trait	.950	.968
Consistency trait	.887	.929
Adaptability trait	.908	.942
Mission trait	.906	.939
Manufacturing performance	.938	.953

6.6.2 Convergent Validity

The convergent validity[27] of the scale constructs was assessed based on the Average Variance Extracted (AVE) values for each scale construct. These values are presented in Table 6.11. Accordingly, the convergent validity of the scale constructs was found to be satisfactory, with AVE values above .50 of the accepted threshold for all the scale constructs (Fornell & Larcker, 1981). Moreover, given that the square root of AVE indicates the average correlation between the construct and its measures (Chin, 1998), the high values of the square root of AVE of the constructs provide further evidence of convergent validity.

[27] Convergent validity can be established if it can be shown that the items/measures assigned to a particular scale construct do strongly correlate with the same construct (Chin, 1998; Jayamaha *et al.*, 2014).

Table 6.11

Convergent Validity of the Scale Constructs

Scale Construct	AVE	Square Root of AVE
Involvement trait	.909	.953
Consistency trait	.814	.902
Adaptability trait	.844	.919
Mission trait	.837	.915
Manufacturing performance	.802	.896

6.6.3 Discriminant Validity

6.6.4 Discriminant Validity

Discriminant validity was established based on the pattern Heterotrait-Monotrait ratio of correlations (HTMT ratio of correlations) which is the latest and most robust for discriminant validity assessment (Henseler *et al.*, 2015). The requirement based on the HTMT test is that these ratios should be < 0.90 (ideally < 0.85) (Hair *et al.*, 2013; Henseler *et al.*, 2015). The HTMT ratio of correlations in Table 6.12 shows that the scale constructs pass the HTMT test for discriminant validity.

Table 6.12

Discriminant Validity of the Scale Constructs based on HTMT Ratio of Correlations

	Involvement	Consistency	Adaptability	Mission	Manufacturing Performance
Involvement					
Consistency	.888				
Adaptability	.112	.113			
Mission	.526	.442	.560		
Manufacturing Performance	.571	.479	.561	.230	

6.7 Descriptive statistics of DOCS and MPS

The descriptive statistics pertaining to DOCS, MPS constructs, and the demographics of firms are presented in Table 6.13.

Table 6.13

Descriptive Statistics of DOCS and MPS

Variable	Mean	SD	1.	2.	3.	4.	5.	6.	7.	8	9.
1. Experience in the industry	3.18	.85	--								
2. Employees in the Factory	3.18	.77	.13	--							
3. Extent of technology used	2.91	.58	-.19	-.26*	--						
4. Mainly served market type	2.83	.67	.02	.15	.07	--					
5. Involvement trait	3.04	.67	.10	-.05	.03	.31**	--				
6. Consistency trait	3.06	.76	.10	.03	-.01	.37**	.88**	--			
7. Adaptability trait	2.97	.57	.11	-.14	.20	.15	.10	-.13	--		
8. Mission trait	3.17	.68	.05	.10	.15	.15	-.51**	-.44**	.54**	--	
9. Manufacturing Performance	4.37	.60	.08	.13	.30**	.56**	.56**	.47**	.53**	.22*	--

Sample size (N) = 93

* Correlation is significant at the .05 level (2-tailed)

** Correlation is significant at the .01 level (2-tailed)

The overall mean manufacturing performance of RBFOTs was 4.37 (*SD* = .60), which indicates a "Somewhat better" position on a seven-point rating scale of very much worse (1) to very much better (7). In addition, the technology used to manufacture garments and the main served market type indicate a significant positive relationship with the manufacturing performance of RBFOTs (r = .30 *and* r = .56, p < .05). Conversely, the senior managers' experience in the apparel industry indicates a nonsignificant relationship with the manufacturing performance of RBFOTs (r = .08, p > .05). Moreover, a significant negative correlation was evident between the number of employees in the factory and extent of technology used for garment manufacturing (r = -.257, p < .05). The correlations between each DOCS construct and manufacturing performance indicate significant positive association.

Since the correlation between Involvement and Mission traits (r = -.44, p < .05) as well as Consistency and Mission traits (r = -.51, p < .05) were negative, these correlation patterns were further investigated for each region. Figures 6.6 and 6.7 show the relevant scatter plots which suggest that correlations between the above traits are positive for each region but because the

locations of the data points are different (this is consistent with H3 which posits that there are differences in culture traits among RBFOTs) the overall correlation between culture traits were revealed to appear as negative.

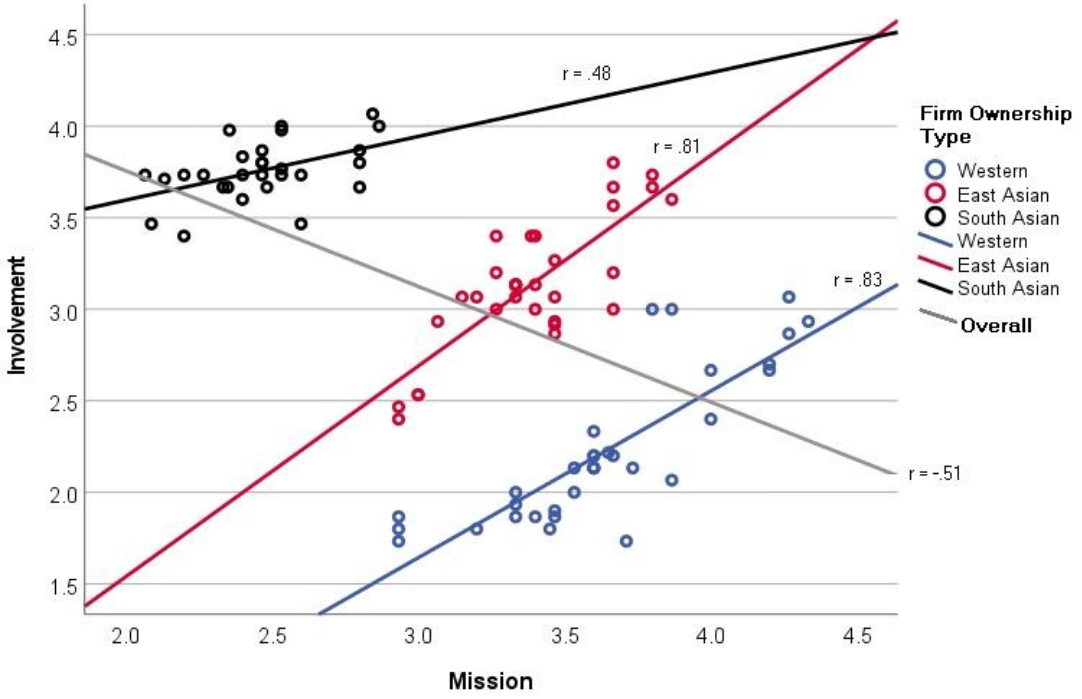


Figure 6.6 *Region-Wise and Overall Correlation between Involvement vs MissionTraits*

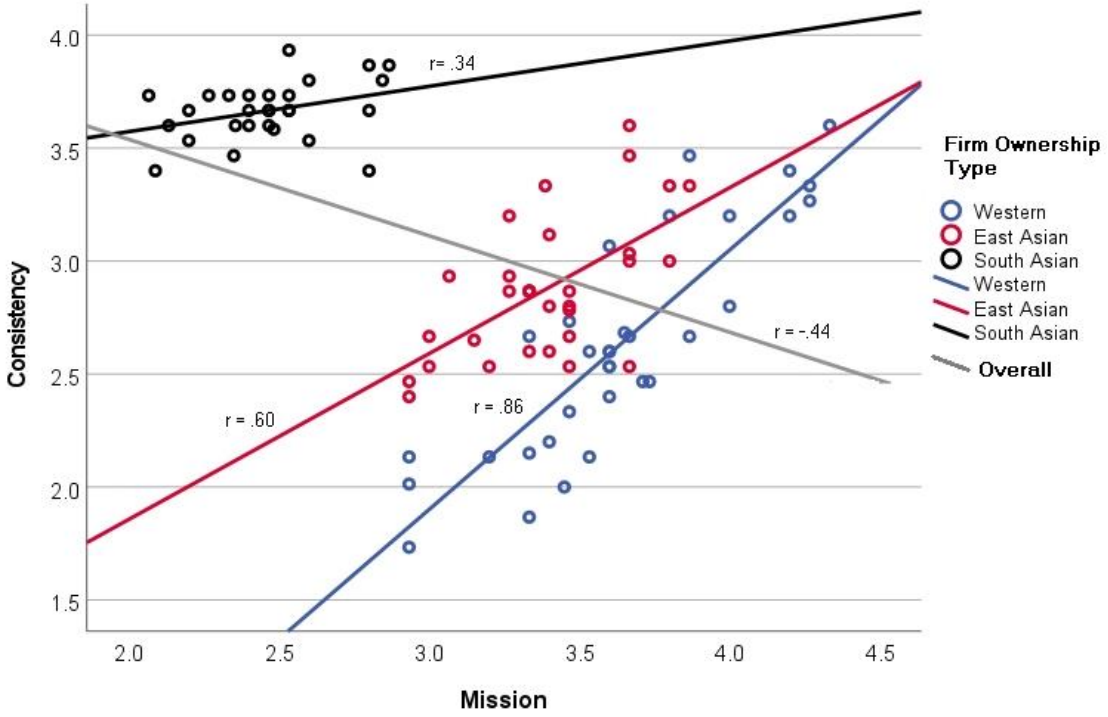


Figure 6.7 *Region-Wise and Overall Correlation between Consistency vs MissionTraits*

Positive correlations between culture traits — Consistency and Involvement traits (r = .88, p < .01) and Adaptability and Mission traits (r = .54, p < .01) — were also investigated at the regional level to confirm that such correlations exist at the regional level. Figures 6.8 and 6.9 indicate that region-wise correlations are also positive.

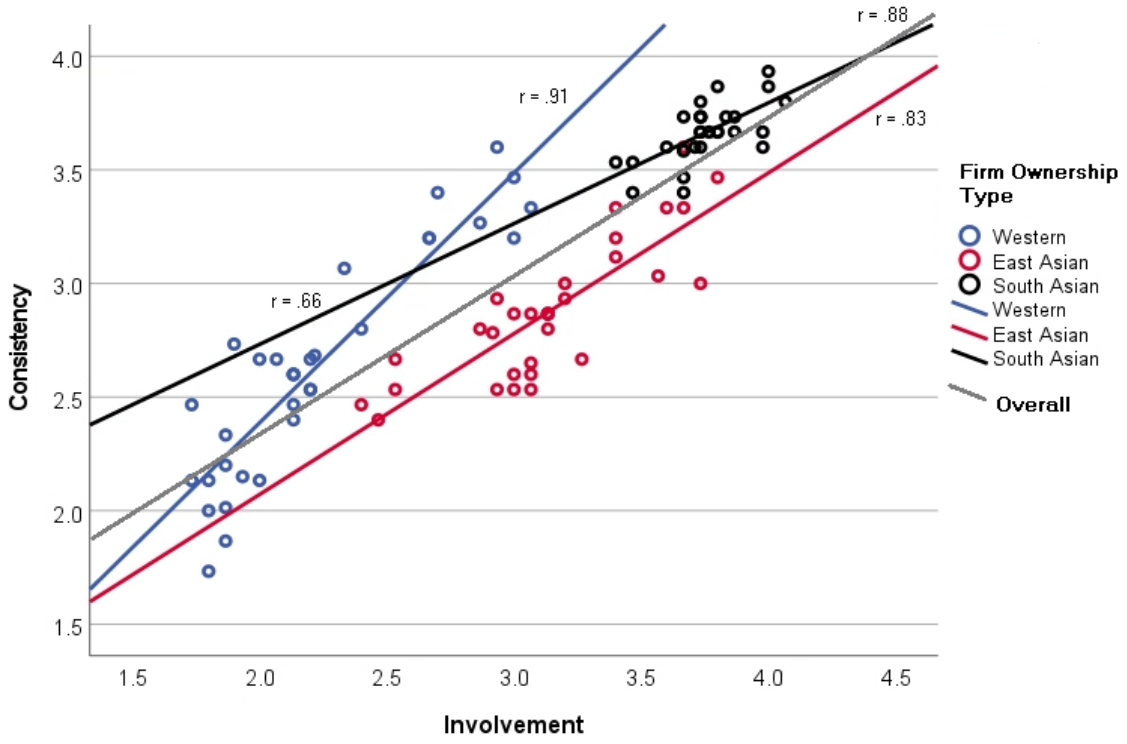


Figure 6.8 *Region-Wise and Overall Correlation between Consistency vs Involvement Traits*

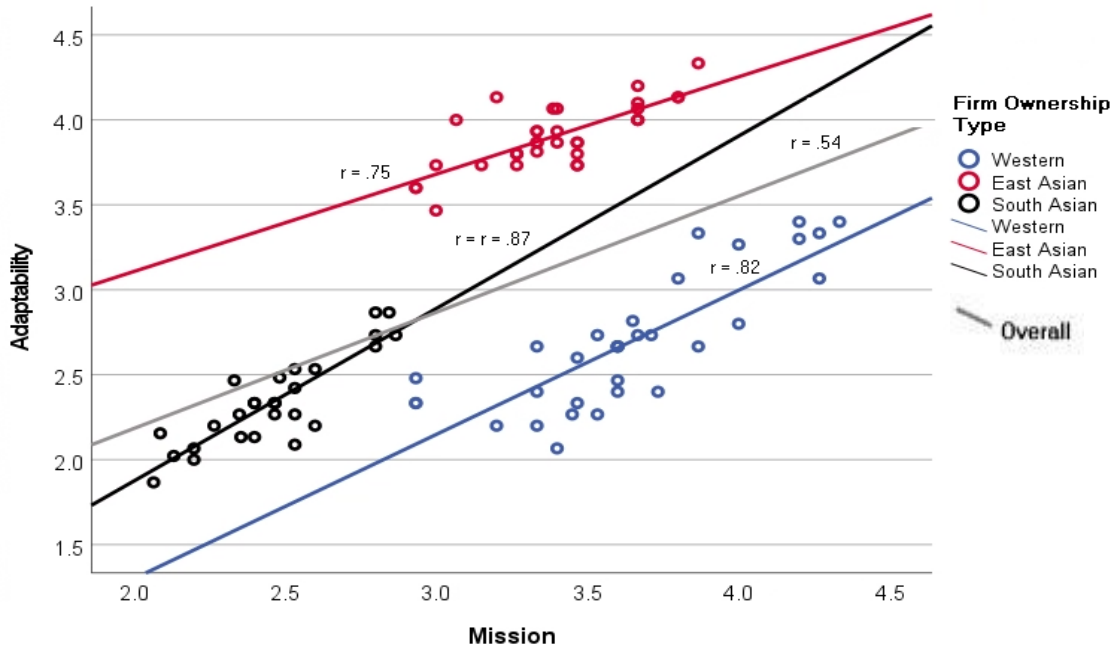


Figure 6.9 *Region-Wise and Overall Correlation between Adaptability vs Mission Traits*

The two nonsignificant correlations between culture traits — Adaptability and Involvement (r = .10, p>.05); Adaptability and Consistency traits (r = -.13, p >.05) — were also investigated at the regional level to confirm the correlations exist at the regional level. Figures 6.10 and 6.11 indicate that region-wise correlations are also positive.

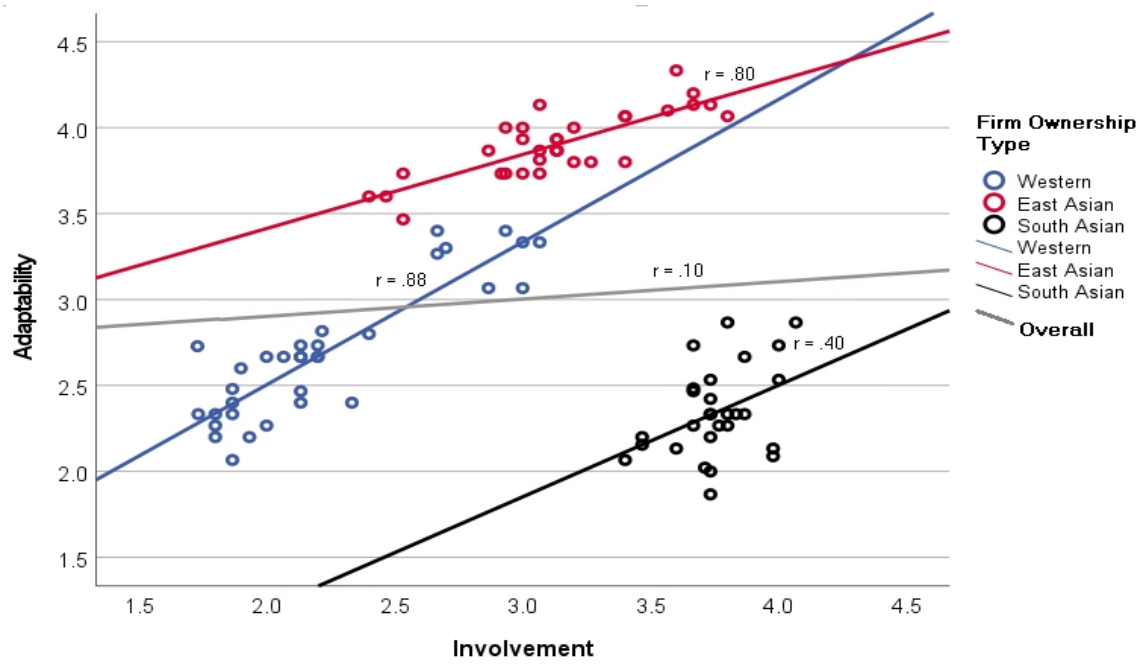


Figure 6.10 *Region-Wise and Overall Correlation between Adaptability vs Involvement Traits*

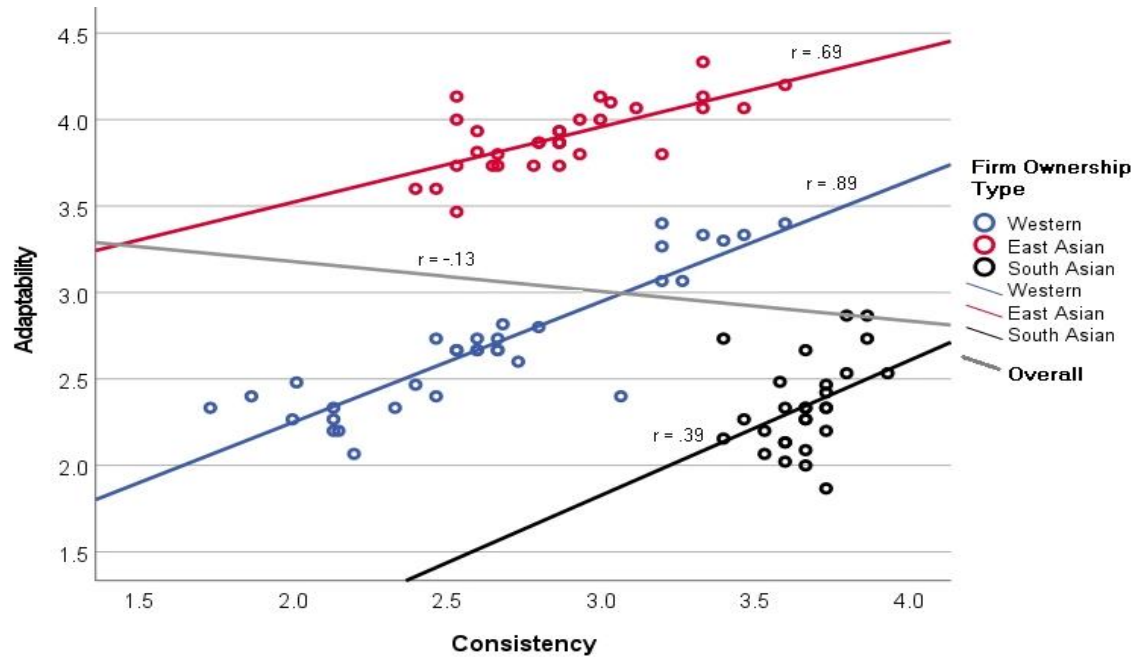


Figure 6.11 *Region-Wise and Overall Correlation between Adaptability vs Consistency Traits*

6.8 The difference in manufacturing performance of RBFOTs

The mean manufacturing performance of East Asian firms recorded the highest value (M = 4.68, SD = .47) in comparison to the second-highest in South Asian firms (M = 4.39, SD = .51) and the lowest in Western firms (M = 4.04, SD = .61). The mean manufacturing performance of the three types of region-based firms are presented in Figure 6.12.

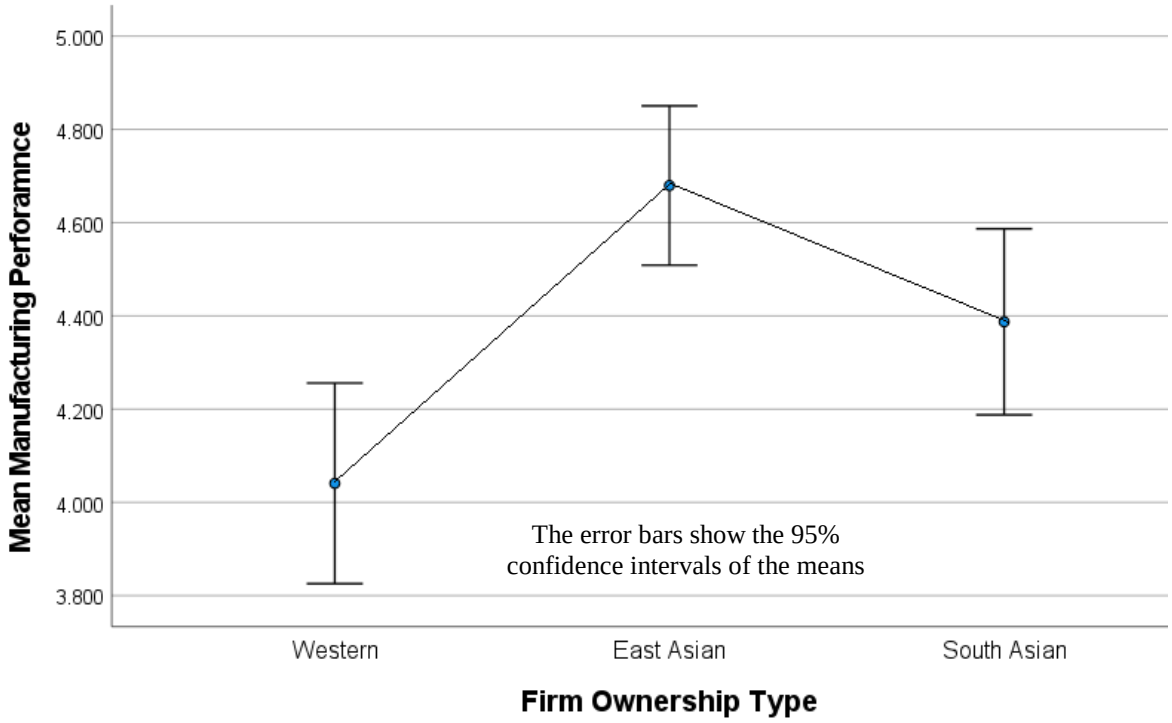


Figure 6.12 *Mean Manufacturing Performance of RBFOTs*

A one-way ANOVA test was carried out to assess the significance of the mean manufacturing performance difference of the RBFOTs. Table 6.14 indicates the comparative statistics of the mean MP, mean differences, and the significance of these differences among the RBFOTs assuming "equal variance" across the three groups.

Table 6.14

One-Way ANOVA: Mean Manufacturing Performance Difference of RBFOTs

					95% CI for Mean			
RBFOT	**N**	**Mean**	**SD**	**SE**	**LL**	**UL**	**Min.**	**Max.**
Western	33	4.04	.61	.106	3.825	4.256	3.05	5.30
East Asian	32	4.68	.47	.084	4.508	4.850	3.90	5.65
South Asian	28	4.39	.51	.097	4.188	4.586	3.45	5.50
Total	93	4.37	.60	.062	4.242	4.487	3.05	5.65

One-way ANOVA

RBFOT	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	6.65	2	3.325	11.557	.000
Within Groups	25.89	90	.288		
Total	32.54	92			

* Mean difference is significant at the .05 level.

The ANOVA test results reveal a significant mean difference in manufacturing performance at least between two groups among the three RBFOTs ($F = 11.6$, $p < .05$). This reveals that the mean manufacturing performance differs significantly between at least one group but does not exactly tell which one. Therefore, a post hoc test was carried out.

The post hoc test using Tukey HSD (since the group size is almost the same) indicates significant pair-wise mean differences in manufacturing performance among the RBFOTs with 95% confidence. The results show that the manufacturing performance significantly differs between the Western vs East Asian firms ($p < .05$) and Western vs South Asian firms ($p < .05$). However, the results show that there is no significant difference in manufacturing performance between East Asian and South Asian firms ($p > .05$). Table 6.15 indicates the statistics for the pair-wise mean manufacturing performance differences of the RBFOTs.

Table 6.15

Post Hoc Test Using Tukey HSD: Manufacturing Performance Difference of RBFOTs

					95% CI	
(I) RBFOT	(J) RBFOT	Mean Difference (I-J)	SE	Sig.	LL	UL
Western	East Asian	-.638*	.133	.000	-.955	-.321
	South Asian	-.346*	.137	.036	-.675	-.018
East Asian	Western	.638*	.133	.000	.321	.955
	South Asian	.292	.138	.094	-.038	.622
South Asian	Western	.346*	.137	.036	.018	.675
	East Asian	-.292	.138	.094	-.622	.038

* Mean difference is significant at the .05 level.

As mentioned earlier in scale development (chapter 5) and factor structure determination in section 6.5.2, the researcher found that manufacturing performance can also be represented as a construct demonstrating five seemingly measurable dimensions, each reflecting five interrelated facets or manifestations of a manufacturing performance outcome: cost-efficiency, delivery, product quality, flexibility, and innovativeness. Based on this finding, a mean comparison was carried out to identify how the manufacturing performance differs among the RBFOTs based on these five facets. This analysis is done to understand whether manufacturing performance significantly differs among the RBFOTs in terms of cost-efficiency, delivery, flexibility, and innovativeness and how these interrelated elements collectively contribute. The results are indicated in Table 6.16.

Table 6.16

Means and Standard Deviations of Manufacturing Performance Dimensions

	Western		East Asian		South Asian		Total	
MP Dimension	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Cost Efficiency	3.67	.69	4.46	.67	4.11	.73	4.07	.76
Delivery	4.23	.57	4.71	.51	4.62	.52	4.51	.57
Product Quality	4.26	.76	4.86	.57	4.65	.55	4.58	.68
Flexibility	4.27	.49	4.91	.58	3.98	.66	4.55	.64
Innovativeness	3.78	.70	4.46	.48	3.58	.63	4.08	.67

Table 6.16 indicates that the manufacturing performance of East Asian firms is the highest in terms of all the manufacturing performance dimensions. However, compared with the East Asian firms, the South Asian firms were found to perform better in cost-efficiency and delivery,

and Western firms were found to perform better in the Flexibility and Innovativeness dimensions. In terms of product quality, all three firms (Western: M = 4.26, SD = .76; East Asian: M = 4.86, SD = .57 and South Asian: M = 4.65, SD = .55) were found to be performing better while East Asian firms had the highest performance in terms of product quality.

A one-way ANOVA test was conducted to test the group mean differences in manufacturing performance dimensions among the RBFOTs with 95% confidence. The results are shown in Table 6.17.

Table 6.17

ANOVA Test Results for the Five Dimensions of Manufacture Performance

MP Dimensions		Sum of Squares	df	Mean Square	F	Sig.*
Cost Efficiency	Between Groups	10.30	2	5.15	10.74	.001
	Within Groups	43.15	90	.48		
	Total	53.45	92			
Delivery	Between Groups	4.10	2	2.05	7.19	.001
	Within Groups	25.69	90	.29		
	Total	29.80	92			
Product Quality	Between Groups	6.07	2	3.04	7.52	.001
	Within Groups	36.35	90	.40		
	Total	42.42	92			
Flexibility	Between Groups	6.68	2	3.34	9.86	.001
	Within Groups	30.47	90	.34		
	Total	37.15	92			
Innovativeness	Between Groups	7.87	2	3.94	10.71	.001
	Within Groups	33.10	90	.37		
	Total	40.97	92			

* Mean difference is significant at the .05 level.

Table 6.18 reveal a significant mean difference in manufacturing performance dimensions at least between two groups among the three RBFOTs (cost-efficiency: F = 10.7, p < .05; delivery: F = 7.2, p < .05; product quality: F = 7.5, p < .05; flexibility: F = 9.9, p < .05; innovativeness: F = 10.7, p < .05). This reveals that the mean manufacturing performance

dimensions differ significantly between at least one group but does not exactly tell which one. Therefore, a post hoc test was carried out using Tukey HSD (since the group size is almost the same), which indicates significant pair-wise mean differences in manufacturing performance among the RBFOTs with 95% confidence.

Table 6.18

Post Hoc Test: Pair-Wise Differences in MP Dimensions of RBFOTs

MP Dimension	(I) RBFOT	(J) RBFOT	Mean Diff. (I-J)	SE	Sig.*	95% CI LL	95% CI UL
Cost Efficiency	Western	East Asian	-.794*	.172	.001	-1.20	-.38
		South Asian	-.440*	.177	.040	-.86	-.02
	East Asian	Western	.794*	.171	.001	.38	1.20
		South Asian	**.354**	**.179**	**.124**	**-.07**	**.78**
	South Asian	Western	.440*	.177	.040	.01	.86
		East Asian	**-.353**	**.179**	**.124**	**-.78**	**.07**
Delivery	Western	East Asian	-.476*	.132	.002	-.79	-.16
		South Asian	-.381*	.137	.018	-.70	-.05
	East Asian	Western	.476*	.132	.002	.16	.79
		South Asian	**.095**	**.138**	**.772**	**-.23**	**.42**
	South Asian	Western	.381*	.137	.018	.05	.70
		East Asian	**-.094**	**.138**	**.772**	**-.42**	**.23**
Product Quality	Western	East Asian	-.602*	.157	.001	-.97	-.22
		South Asian	-.394*	.163	.046	-.78	-.01
	East Asian	Western	.602*	.157	.001	.22	.97
		South Asian	.208	.164	.042	-.18	.59
	South Asian	Western	.394*	.163	.046	.01	.78
		East Asian	-.208	.164	.042	-.59	.18
Flexibility	Western	**East Asian**	**-.315**	**.149**	**.094**	**-.67**	**.04**
		South Asian	.641*	.144	.001	.29	.98
	East Asian	**Western**	**.315**	**.149**	**.094**	**-.04**	**.67**
		South Asian	.325	.150	.043	.03	.68
	South Asian	Western	-.641*	.144	.001	-.98	-.29
		East Asian	-.325	.150	.043	-.68	-.03
Innovativeness	Western	**East Asian**	**-.201**	**.155**	**.601**	**-.57**	**.16**
		South Asian	-.680*	.151	.001	-1.03	-.32
	East Asian	**Western**	**.201**	**.155**	**.601**	**-.16**	**.57**
		South Asian	.478*	.156	.008	.10	.85
	South Asian	Western	.680*	.150	.001	.32	1.03
		East Asian	-.478*	.156	.008	-.85	-.10

* Mean difference is significant at the .05 level.

Table 6.18 shows that there is no significant difference between East Asian vs Western firms in terms of Flexibility and Innovativeness ($p > .05$). It also indicates that there is no significant difference between East Asian vs South Asian firms in terms of cost-efficiency and delivery (p

> .05). The results further revealed that there is a significant difference in terms of Product quality among all the three types of firms ($p < .05$).

6.9 The difference in culture traits of RBFOTs

The mean culture traits of the RBFOTs are presented in Figure 6.13. It reveals that the Adaptability trait of East Asian firms (M = 3.90, SD = .19), the Involvement trait of South Asian firms (M = 3.76, SD = .16), and the Mission trait of Western firms (M = 3.64, SD = .37) indicate the highest mean values. However, the Involvement trait of Western firms (M = 2.22, SD = .41), the Adaptability trait of South Asian firms (M = 2.34, SD = .26), and the Consistency trait of Western firms ((M = 2.63, SD = .49) indicate the lowest mean values.

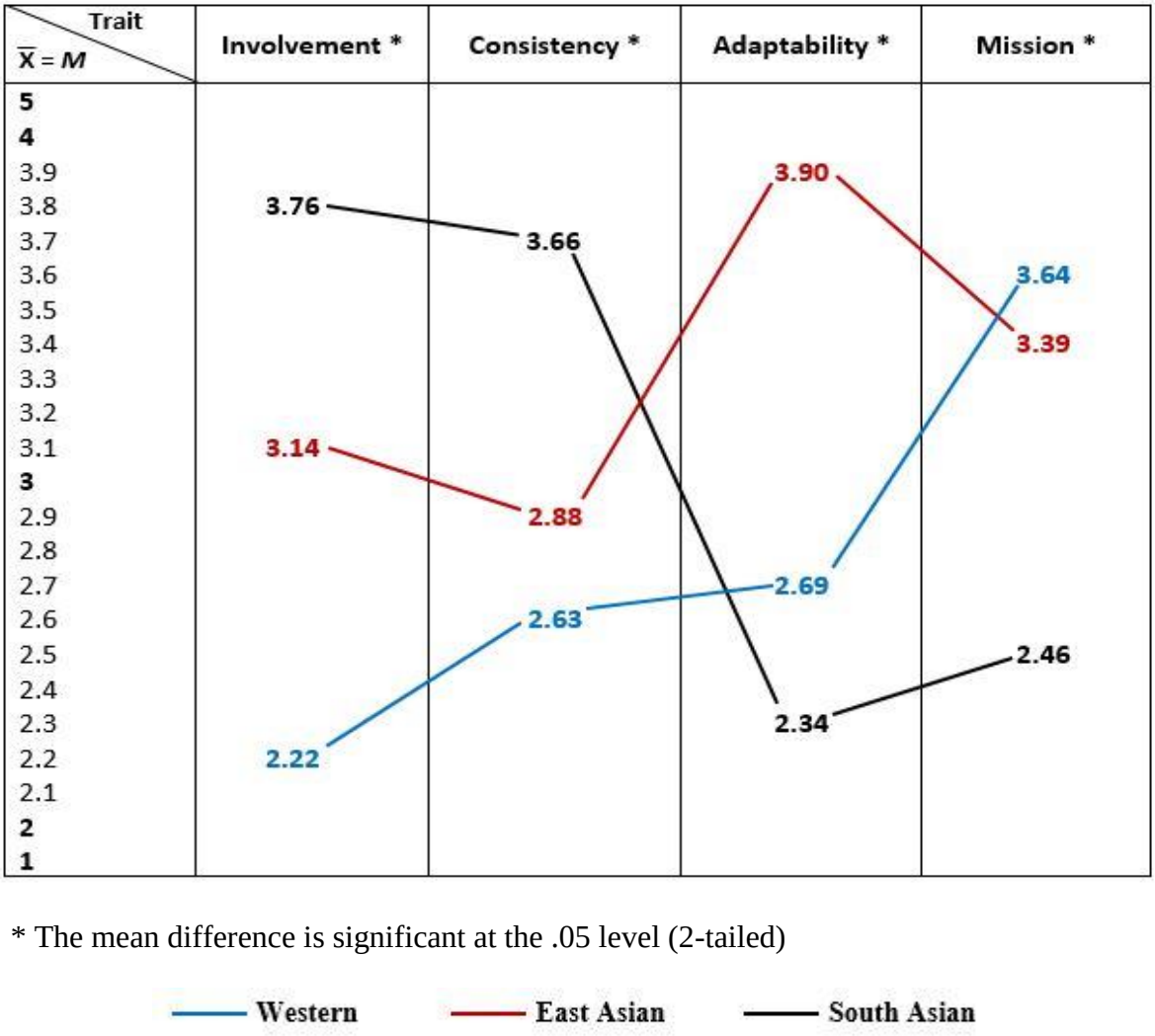


Figure 6.13 *Mean Culture Traits of RBFOTs*

A one-way ANOVA test was carried out to test the significance of mean culture difference among the RBFOTs. Table 6.19 indicates the comparative statistics of the mean differences

between these traits and their significance. The results show that mean culture differences among RBFOTs are significant (Involvement trait: $F = 163$, $p < .05$; Consistency trait: $F = 69$, $p < .05$; Adaptability trait: $F = 238$, $p < .05$; Mission trait: $F = 131$, $p < .05$).

Table 6.19

One-Way ANOVA: Mean Difference Culture Traits among RBFOTs

						95% CI for Mean			
Cultural Dimension	**RBFOT**	**N**	**Mean**	**SD**	**SE**	**LL**	**UL**	**Min.**	**Max.**
Involvement Trait	Western	33	2.22	.41	.0713	2.077	2.368	1.73	3.06
	East Asian	32	3.13	.35	.0634	3.008	3.267	2.40	3.80
	South Asian	28	3.76	.16	.0305	3.694	3.819	3.40	4.06
	Total	93	3.04	.71	.0738	2.852	3.146	1.73	4.06
Consistency Trait	Western	33	2.63	.49	.0863	2.455	2.807	1.73	3.60
	East Asian	32	2.88	.30	.0540	2.766	2.986	2.40	3.60
	South Asian	28	3.66	.12	.0245	3.615	3.716	3.40	3.93
	Total	93	3.06	.55	.0577	2.912	3.142	1.73	3.93
Adaptability Trait	Western	33	2.69	.38	.0675	2.551	2.826	2.06	3.40
	East Asian	32	3.90	.19	.0340	3.834	3.972	3.46	4.33
	South Asian	28	2.34	.26	.0493	2.242	2.445	1.86	2.86
	Total	93	2.97	.73	.0758	2.852	3.153	1.86	4.33
Mission Trait	Western	33	3.64	.37	.0649	3.504	3.769	2.93	4.33
	East Asian	32	3.39	.25	.0444	3.299	3.480	2.93	3.86
	South Asian	28	2.46	.22	.0421	2.377	2.550	2.06	2.86
	Total	93	3.16	.57	.0595	3.080	3.316	2.06	4.33

One-Way ANOVA

Cultural Dimension	**RBFOT**	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.***
Involvement Trait	Between Groups	36.59	2	18.30	163.44	.001
	Within Groups	10.07	90	.11		
	Total	46.67	92			
Consistency Trait	Between Groups	17.31	2	8.66	69.34	.001
	Within Groups	11.23	90	.13		
	Total	28.55	92			
Adaptability Trait	Between Groups	41.36	2	20.68	238.20	.001
	Within Groups	7.81	90	.09		
	Total	49.17	92			
Mission Trait	Between Groups	22.61	2	11.31	131.24	.001
	Within Groups	7.75	90	.08		
	Total	30.37	92			

However, the results of ANOVA indicate that at least one firm group's culture traits are significantly different from others but do not exactly tell which one. Hence, a post hoc test was carried out using Tukey HSD (since the group size is almost the same) to test the significance

of the pair-wise mean differences of culture traits among the RBFOTs with 95% confidence. The results show that the culture traits significantly differ between the Western vs East Asian firms ($p < .05$), Western vs South Asian firms ($p < .05$), and South Asian vs East Asian firms ($p < .05$). Table 6.20 indicates the statistics for the pair-wise mean culture traits differences of the RBFOTs.

Table 6.20

Post Hoc Test Using Tukey HSD: Pair-Wise Mean Culture Trait Difference of RBFOTs

Cultural Dimension	(I) RBFOT	(J) RBFOT	Mean Differ. (I-J)	SE	Sig.*	95% CI LL	95% CI UL
Involvement Trait	Western	East Asian	-.915*	.083	.001	-1.113	-.717
		South Asian	-1.534*	.085	.001	-1.739	-1.329
	East Asian	Western	.915*	.083	.001	.717	1.113
		South Asian	-.619*	.086	.001	-.825	-.412
	South Asian	Western	1.534*	.085	.001	1.329	1.739
		East Asian	.619*	.086	.001	.412	.825
Consistency Trait	Western	East Asian	-.244*	.087	.017	-.453	-.035
		South Asian	-1.034*	.090	.001	-1.250	-.817
	East Asian	Western	.244*	.087	.017	.035	.453
		South Asian	-.789*	.091	.001	-1.007	-.571
	South Asian	Western	1.034*	.090	.001	.817	1.250
		East Asian	.789*	.091	.001	.571	1.007
Adaptability Trait	Western	East Asian	-1.214*	.073	.001	-1.388	-1.040
		South Asian	.344*	.075	.001	.164	.524
	East Asian	Western	1.214*	.073	.001	1.040	1.388
		South Asian	1.559*	.076	.001	1.377	1.741
	South Asian	Western	-.344*	.075	.001	-.524	-.164
		East Asian	-1.559*	.076	.001	-1.741	-1.377
Mission Trait	Western	East Asian	.247*	.072	.003	.073	.420
		South Asian	1.172*	.075	.001	.993	1.352
	East Asian	Western	-.247*	.072	.003	-.420	-.073
		South Asian	.925*	.075	.001	.744	1.106
	South Asian	Western	-1.172*	.075	.001	-1.352	-.993
		East Asian	-.925*	.075	.001	-1.106	-.744

* The mean difference is significant at a .05 level.

The post hoc results indicate that all four culture traits (Involvement, Consistency, Adaptability, and Mission) significantly differ between the three types of RBFOTs (The Involvement trait ($P < .05$): Consistency ($P < .05$): Adaptability trait ($P < .05$) and Consistency ($P < .05$) between Western vs East Asian, Western vs South Asian and East Asian vs South Asian.

When comparing the culture trait profiles of the RBFOTs, the profiles of all three types of firms indicated some degree of disparity (imbalance) regarding the four culture traits of Involvement, Consistency, Adaptability, and Mission. For example, according to Figure 6.14, Eastern firms revealed an imbalanced culture profile more oriented towards the *Adaptability trait*, Western firms revealed an imbalanced culture profile more oriented towards the *Mission trait*, and South Asian firms revealed an imbalanced culture profile more oriented towards the *Involvement trait*.

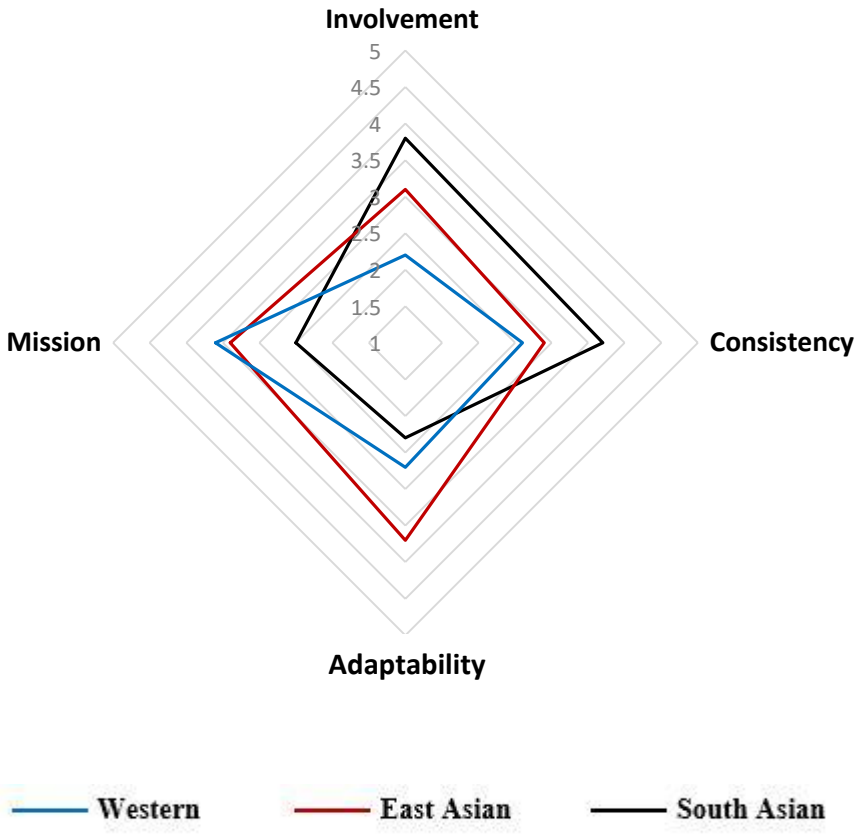


Figure 6.14 *Organisational Culture Profiles of the RBFOTs – The Mean Scores*

Figure 6.14 further indicates that the organisational culture profile of South Asian firms is more characterised by Involvement and Consistency traits. The organisational culture profile of East Asian firms is more characterised by Adaptability and Involvement traits, whereas the organisational culture profile of Western firms is more characterised by Mission and Adaptability traits.

Since each of the four culture traits comprises three management practice orientations, the mean values of the twelve management practice orientations representing the four culture traits of RBFOTs are presented in Table 6.21.

Table 6.21

Mean Scores of Management Practice Orientations Representing each Culture Trait

Management Practice Orientation	Western		East Asian		South Asian		Total	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
1. Involvement - Empowerment	2.37	.51	3.24	.44	3.84	.39	3.12	.75
2. Involvement - Team orientation	2.19	.48	3.11	.41	3.77	.28	2.97	.76
3. Involvement - Capability development	2.11	.51	3.06	.43	3.65	.36	2.89	.77
4. Consistency - Core values	2.74	.60	2.99	.41	3.68	.40	3.11	.62
5. Consistency - Agreement	2.67	.63	2.86	.51	3.66	.31	2.84	.66
6. Consistency - Integration	2.49	.62	2.77	.39	3.64	.37	2.92	.68
7. Adaptability - Generate change	2.82	.55	3.87	.52	2.45	.40	3.08	.78
8. Adaptability - Customer focus	2.67	.47	3.95	.43	2.35	.36	3.04	.81
9. Adaptability - Organisational learning	2.58	.50	3.89	.37	2.15	.37	2.90	.84
10. Mission - Strategy direction	3.71	.53	3.45	.36	2.56	.38	3.28	.65
11. Mission - Goals	3.63	.47	3.40	.36	2.46	.34	3.21	.63
12. Mission - Vision	3.55	.46	3.31	.33	2.32	.37	3.10	.65

Table 6.21 shows that mean values for worker empowerment (M = 3.84, SD = .39), team orientation (M = 3.77, SD = .28), and employee capability development (M = 3.65, SD = .36) were highest in South Asian firms than in East Asian and Western firms. Western firms indicate the lowest values in all these involvement-oriented management practices.

It also indicates that mean values for adherence to core values (M = 3.68, SD = .4), commitment to a mutual agreement (M = 3.66, SD = .31), and integration of tasks through rules and regulations (M = 3.64, SD = .37) were highest in South Asian firms than in East Asian and Western firms. Western firms indicate the lowest values in all these consistency-oriented management practices.

It further reveals that mean values for commitment to generate change (M = 3.87, SD = .52), being customer-focused (M = 3.95, SD = .43), and encouraging organisational learning (M = 3.89, SD = .37) were highest in East Asian firms than in Western and South Asian firms. South Asian firms indicate the lowest values in all these adaptability-oriented management practices.

Finally, it shows that mean values for the presence of strategic direction (M = 3.71, SD = .53), clear goals (M = 3.63, SD = .47) and vision for the organisation (M = 3.55, SD = .46) were highest in Western firms than in East Asian and South Asian firms. South Asian firms indicate the lowest values in all these mission-oriented management practices (see APPENDIX W).

The most common management practice orientations prevail among the RBFOTs were Mission – Strategic Direction (*M* = 3.28), Mission – Goals (*M* = 3.21), Involvement – Empowerment (*M* = 3.12, *SD* = .75), Consistency – Core values (*M* = 3.11), Mission – Vision (*M* = 3.10), Adaptability – Generate change (*M* = 3.08) and Adaptability – Customer focus (*M* = 3.04).

The least common management practice orientations prevail among the RBFOTs were Consistency – Agreement (*M* = 2.84), Involvement – Capability development (*M* = 2.89), Adaptability – Organisational learning (*M* = 2.90), Consistency – Integration (*M* = 2.92) and Involvement – Team orientation (*M* = 2.97).

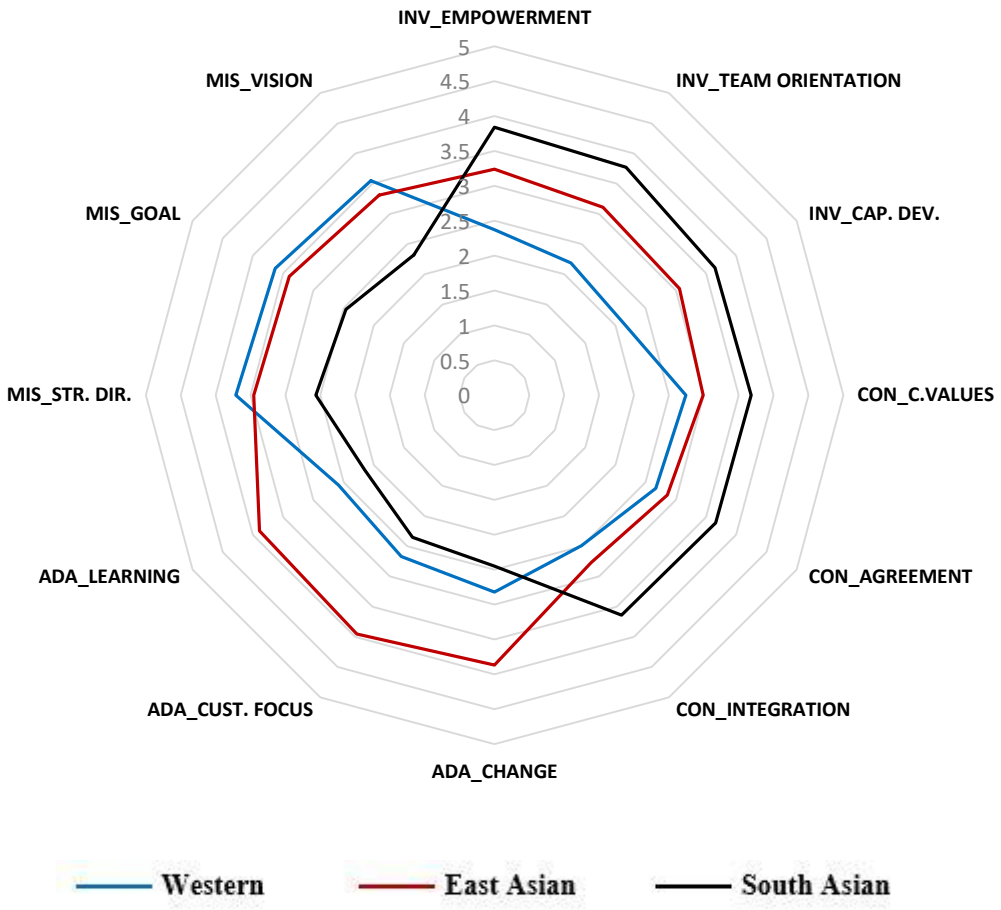


Figure 6.15 *Management Practice Orientations of the RBFOTs – The Mean Scores*

Figure 6.15 compares the organisational culture profiles of the RBFOTs in terms of twelve management practice orientations. This further confirms that the organisational culture profile of South Asian firms is more characterised by six involvement and consistency-oriented management practices. On the contrary, the organisational culture profile of East Asian firms is more characterised by three adaptability-oriented management practices, and Western firms are more characterised by three mission-oriented management practices.

6.10 Testing the mediation model and the related hypotheses

The MPS and DOCS datasets were merged (using the firm code as the key) to reflect the data for the same 93 firms. Consequently, the merged firm-level dataset was tested for assumptions required for mediation analysis.

6.10.1 Assumptions required for parallel mediation analysis

Since the mediation analysis was carried out using SPSS PROCESS macro, which executes the required linear multiple regression tasks via SPSS, the assumptions tested were the same as those required for linear multiple regression analysis: normality, linearity, homoscedasticity, independence, and lack of multicollinearity. Hence, before carrying out the mediation analysis, the models the five regression models were tested for all the above assumptions except multicollinearity using the residual plots produced by SPSS. The multicollinearity was examined via the VIF values of the predictors obtained using collinearity diagnostics reported by SPSS.

Since there are too many graphs involving residuals to display in the main body of this thesis, only the residual plots for the model predicting manufacturing performance (the main model among the five models) are shown in Figures 6.16, 6.17, and 6.18. The histogram (Figure ***6.16***) and the normal probability plot (Figure 6.17) suggest that residuals are approximately normally distributed. In contrast, the residual vs predicted value plot (Figure 6.18) shows homoscedasticity (equal variability of residuals for the full range of predicted values), linearity (the notion that the assumed model has been correctly specified), and independence (the notion that the residuals are independent and random).

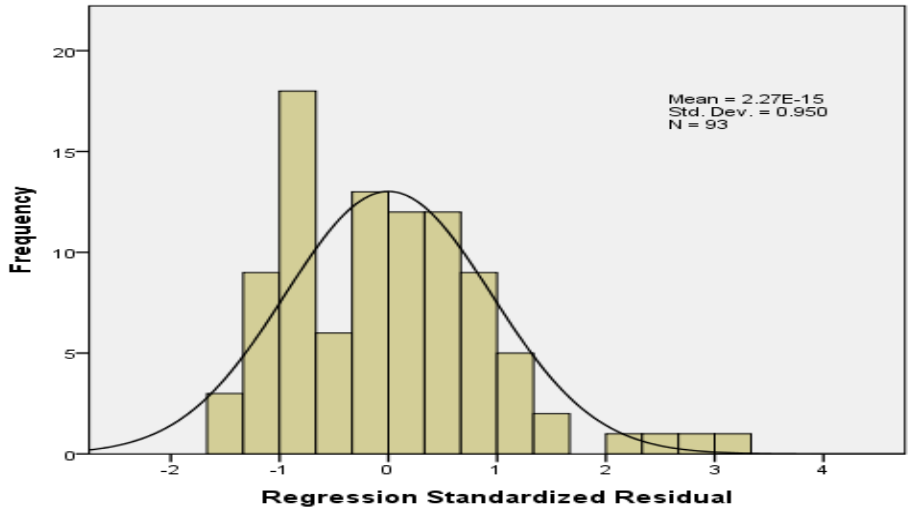


Figure 6.16 *Histogram of Residuals for Manufacturing Performance*

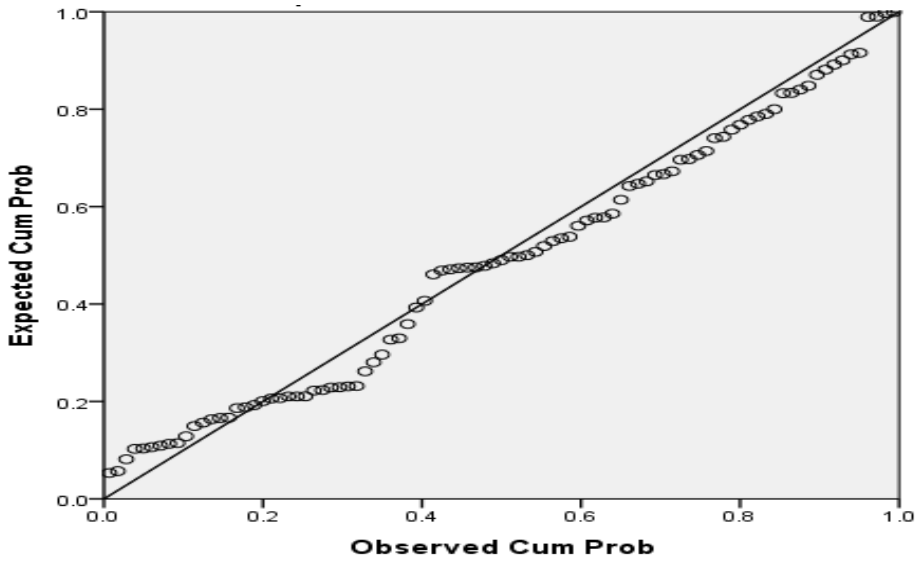


Figure 6.17 *Normal Probability Plot of Residuals*

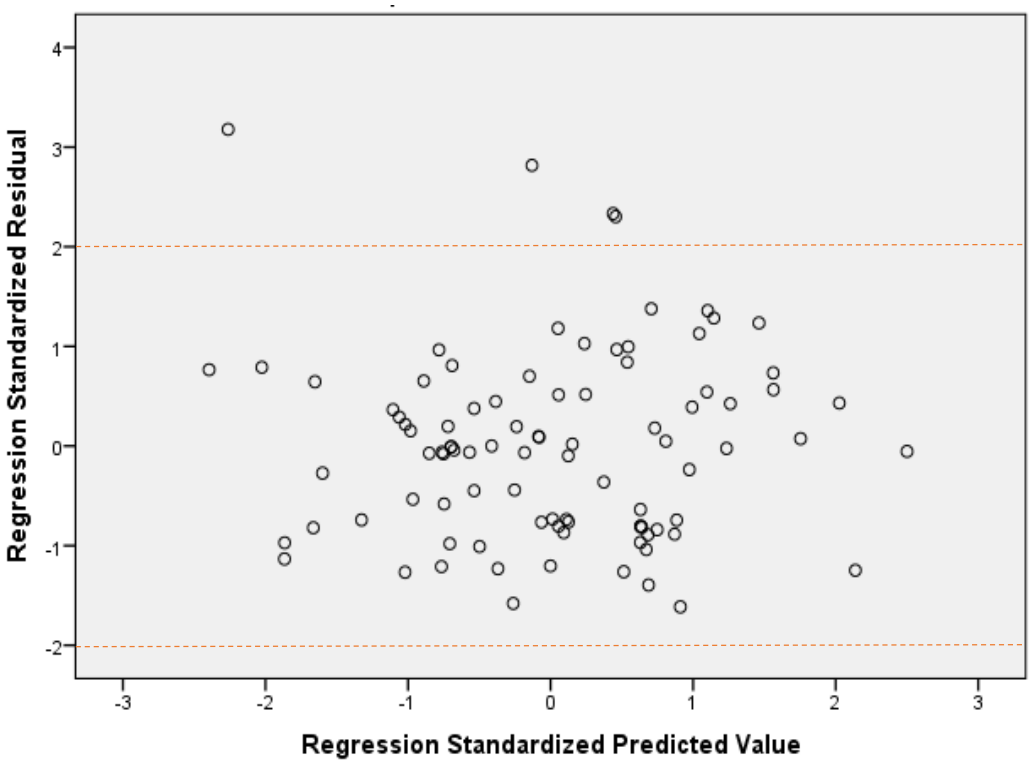


Figure 6.18 *Residual vs Predicted Values for Manufacturing Performance*

Figure ***6.18*** shows one area of slight concern: four observations return residuals having standard deviations greater than 2.0 (in standardised units), suggesting further investigation. Table 6.22 shows these four observations along with the RBFOTs to which each observation belongs. However, it was decided not to remove these observations to re-estimate model parameters because they did not show any bias towards a particular RBFOT.

Table 6.22

The High Standardised Residuals and the Corresponding RBFOTs

Observation Number	Corresponding RBFOT	Observed Manufacturing Performance	Predicted Manufacturing Performance	Residual	Standardised Residual
27	East Asian	5.300	4.593	0.707	2.51
45	South Asian	5.150	4.297	0.853	2.94
61	Western	5.300	4.603	0.697	2.54
86	Western	4.150	3.187	0.963	3.32

The VIF values of the two highly correlated mediators exceeded the 10.0 threshold sometimes used in regression modelling to flag multicollinearity issues (VIF of Involvement = 15.087, VIF of Consistency = 11.171).

When there are multiple parallel mediators, there is a condition that no mediator causally influences another but is allowed to correlate with each other in the model (Hayes, 2018). Since the four culture traits revealed a correlation with each other and not causality, this condition remains unviolated.

The non-parametric approach of bootstrapping was considered for testing H4 because the indirect effect does follow a normal distribution in mediation (that is one cannot use a normal distribution approach to compute the t-statistic to determine significance) (Hayes, 2018).

6.10.2 Parallel multiple mediation analysis

Based on the conceptualised model of the study, a structural model was used to test the hypothesised relationships by applying the parallel multiple mediation analysis. This structural model describes the theoretical path relationships of testing the mediating effect of the firms' culture represented by four culture traits on the relationship between RBFOTs and manufacturing performance while controlling the effect of the three covariates. Figure 6.19 shows the structural model representing the theoretical relationships used to compute the direct (c'), indirect (a_n*b_n), and total [$c' + \Sigma(a_n*b_n)$] path effects and coefficients in algebraic form.

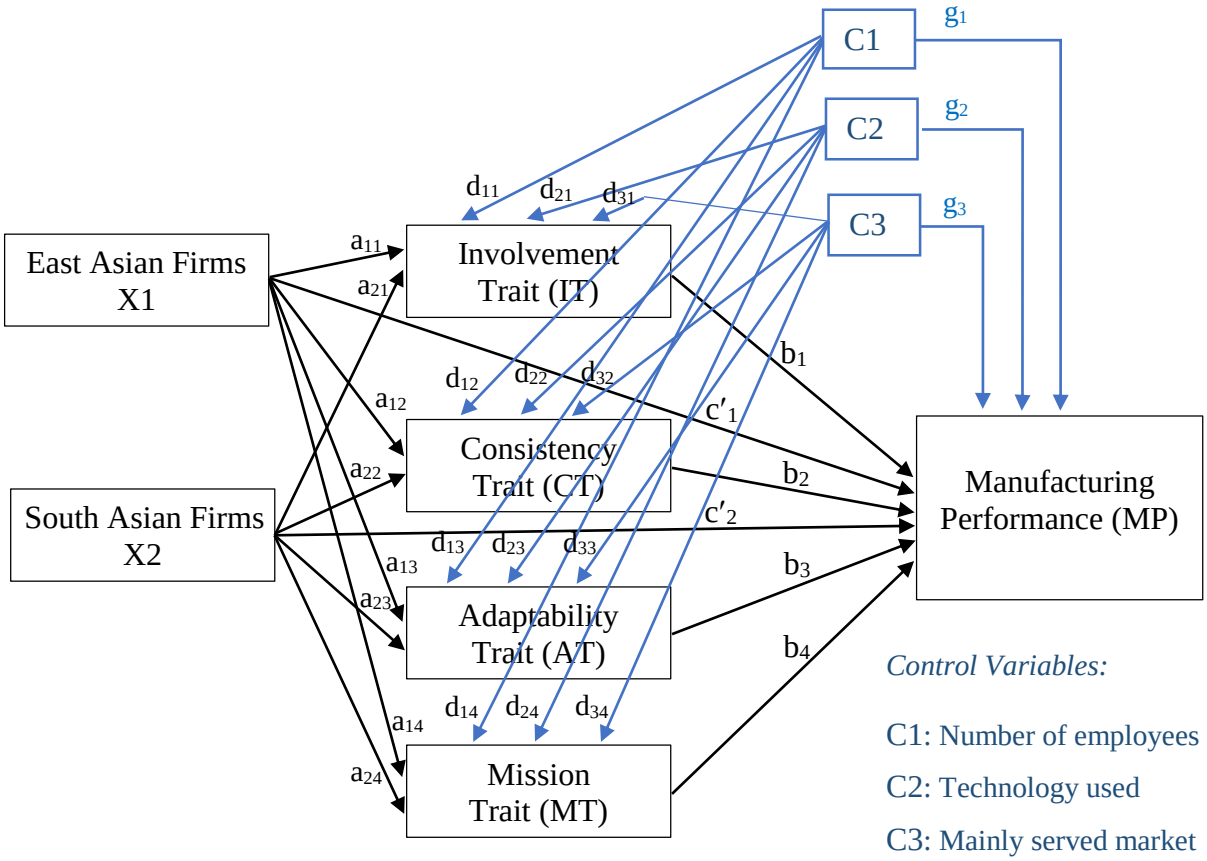


Figure 6.19 *The Parallel Mediation Model with Path Coefficients in Algebraic Form*

When dummy coding the categorical predictor variable (RBFOT) for regression analysis, the firms belonging to the Western region were selected as the base (reference) group against which the firms belonging to the East Asian region (X1) and firms belonging to the South Asian region (X2) were compared. Hence, the regression coefficients for X1 represent the mean difference between East Asian firms and Western firms, while the coefficients for X2 represent the mean difference between South Asian firms and Western firms (Hayes, 2018).

The regression equations of the path model are shown below (equations 1 through 5).

$$IT = I_1 + a_{11}X1 + a_{21}X2 + d_{11}C1 + d_{21}C2 + d_{31}C3 + e_1 \quad (1)$$

$$CT = I_2 + a_{12}X1 + a_{22}X2 + d_{12}C1 + d_{22}C2 + d_{32}C3 + e_2 \quad (2)$$

$$AT = I_3 + a_{13}X1 + a_{23}X2 + d_{13}C1 + d_{23}C2 + d_{33}C3 + e_3 \quad (3)$$

$$MT = I_4 + a_{14}X1 + a_{24}X2 + d_{14}C1 + d_{24}C2 + d_{34}C3 + e_4 \quad (4)$$

$$MP = I_5 + c'_1X1 + c'_2X2 + b_1IT + b_2CT + b_3AT + b_4MT + g_1C1 + g_2C2 + g_3C3 + e_5 \quad (5)$$

In the above-given equations, I_1 through to I_5 are the intercepts while e_1 through to e_5 are the error terms.

Taking the partial derivatives using equation 5, we get:

$$\partial MP/\partial X1 = c'_1 + a_{11}b_1 + a_{12}b_2 + a_{13}b_3 + a_{14}b_4 \quad (6)$$

$$\partial MP/\partial X2 = c'_2 + a_{21}b_1 + a_{22}b_2 + a_{23}b_3 + a_{24}b_4 \quad (7)$$

Therefore:

The total effect of X1 on MP is = $c'_1 + a_{11}b_1 + a_{12}b_2 + a_{13}b_3 + a_{14}b_4$

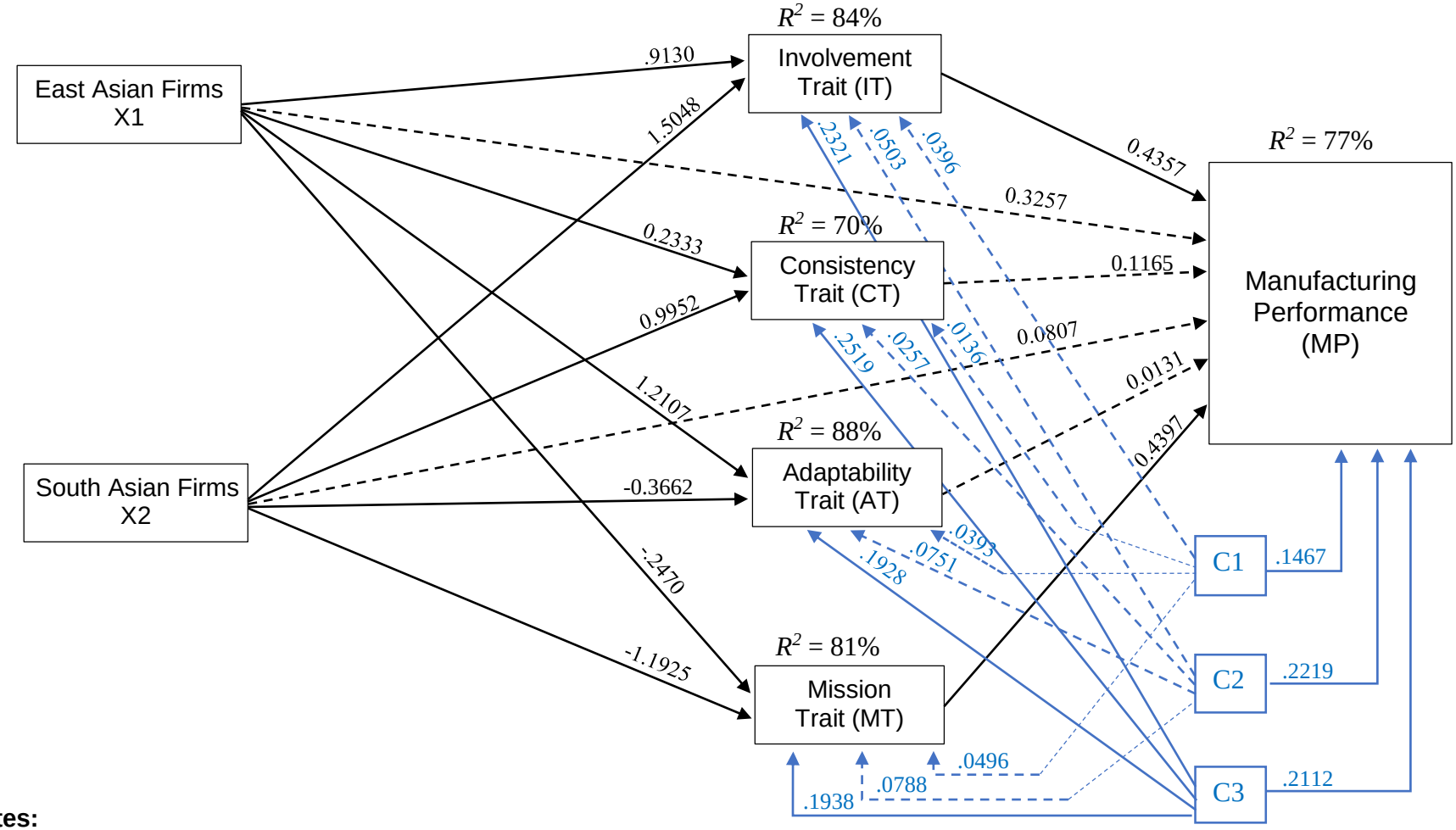
The total effect of X2 on MP is = $c'_2 + a_{21}b_1 + a_{22}b_2 + a_{23}b_3 + a_{24}b_4$

c'_1 is the direct effect of X1 on MP

c'_2 is the direct effect of X2 on MP.

The total indirect effect is the total effect minus the direct effect.

Parallel multiple mediation analysis was carried out using the SPSS PROCESS macro applying the Model 4 algorithm to examine whether the four traits characterising the organisational culture mediate the relationship between RBFOT and manufacturing performance. When carrying out this analysis, a series of multiple regressions were run for each path relationship (*a*, *b*, and *c*) of the model. However, bootstrapping test was run to test the mediating effects at a 95% confidence interval (Hayes, 2018). Bootstrapping was conducted by setting the number of samples to 5000 (default setting in PROCESS macro) to get a stable result. The path coefficients and the R^2 values derived from the SPSS PROCESS macro applying Model 4 for the multiple parallel mediation model with the significance of path relationships are presented in Figure 6.20.



Notes:

Control Variables: C1: Number of employees; C2: Technology used; C3: Mainly served market

The hash lines show nonsignificant paths ($p > 0.05$), while the sold lines show significant paths

Figure 6.20 *The Estimated Path Coefficients and the R^2 Values of the Mediators and the Dependent Variable*

Table 6.23 displays the summary of the multiple regression results for paths a, b, and c of the parallel multiple mediation model, as shown in Figure 6.20. Paths a and b represent the indirect relationship for each of the four mediators, and path c represents the direct relationship between RBFOT and manufacturing performance (MP). It also presents the regression results on the relationship between control variables and the four mediators.

Table 6.23

Regression Coefficients of the Path Relationships

Core Variable / Relationship	Path	B	SE	t	p*	95% CI	
1st Mediator – Involvement Trait (IT)							
X1 → IT	a_{11}	.913	.08	12.04	.000	.76	1.06
X2 → IT	a_{21}	1.505	.08	19.56	.000	1.35	1.65
IT → MP	b_1	.436	.20	2.14	.035	.03	.84
C1 → IT	d_{11}	.040	.04	.91	.365	-.05	.13
C2 → IT	d_{21}	.050	.06	.91	.366	-.06	.16
C3 → IT	d_{31}	.232	.05	4.93	.000	.14	.33
2nd Mediator – Consistency Trait (CT)							
X1 → CT	a_{21}	.233	.08	2.90	.005	.07	.39
X2 → CT	a_{22}	.995	.08	12.18	.000	.83	1.15
CT → MP	b_2	.117	.19	.62	.540	-.26	.49
C1 → CT	d_{21}	.014	.05	.29	.770	-.08	.11
C2 → CT	d_{22}	.026	.06	.44	.663	-.09	.14
C3 → CT	d_{23}	.252	.05	5.03	.000	.15	.35
3rd Mediator – Adaptability Trait (AT)							
X1 → AT	a_{31}	1.211	.07	18.06	.000	1.08	1.34
X2 → AT	a_{32}	-.366	.07	-5.38	.000	-.50	-.23
AT → MP	b_3	.013	.20	.06	.949	-.39	.42
C1 → AT	d_{31}	.039	.04	1.02	.309	-.04	.12
C2 → AT	d_{32}	.075	.05	1.54	.128	-.02	.17
C3 → AT	d_{33}	.193	.04	4.63	.000	.11	.28
4th Mediator – Mission Trait (MT)							
X1 → MT	a_{41}	-.247	.07	-3.73	.000	-.38	-.12
X2 → MT	a_{42}	-1.193	.07	-17.77	.000	-1.33	-1.06
MT → MP	b_4	.440	.20	2.15	.034	.03	.85
C1 → MT	d_{41}	.050	.04	1.31	.194	-.03	.12
C2 → MT	d_{42}	.079	.05	1.63	.106	-.02	.17
C3 → MT	d_{43}	.194	.04	4.72	.000	.11	.28
RBFOT X1 ⟶ MP	c'_1	.326	.32	1.03	.306	-.30	.96
X2 ⟶ MP	c'_2	.081	.41	.20	.845	-.74	.90

According to Table 6.23, the regression results for *path a* for all four culture traits show that the RBFOT is a significant predictor of firms' culture characterised by the four culture traits. Hence, RBFOT is found to be a significant predictor of the Involvement trait, Consistency trait, Adaptability trait, and Mission trait. This further confirms that the organisational culture represented by the four culture traits significantly differs among the three types of RBFOTs — Western, East Asian, and South Asian.

The results of the regression for path b indicate that two out of the four culture traits (Involvement & Mission) show a significant positive effect on manufacturing performance (b_1: B = .436, t = 2.14, $p < .05$; b_4: B = .440, t = 2.15, $p < .05$). However, the other two culture traits (Consistency & Adaptability) reveal a nonsignificant effect on manufacturing performance (b_2: B = .117, t = .615, $p > .05$; b_3: B = .013, t = .064, $p > .05$).

The regression results for path c indicate that RBFOT is a nonsignificant predictor of manufacturing performance with a direct effect of X1: c'_1: B = .326, t = 1.03, $p > .05$. X2: c'_2: B = .081, t = .196, $p > .05$. This indicates that the organisational culture traits as mediators significantly contribute to explaining the relationship between RBFOT and manufacturing performance.

The control variables C1 (number of employees) and C2 (extent of technology used for garment manufacturing) indicate nonsignificant influence on all four culture traits of the RBFOTs. However, the control variable C3 (mainly served market type) indicates a significant influence on all four culture traits of the RBFOTs.

Table 6.24 shows the specific indirect effects of each mediator after controlling for the impact of the control variables (C1, C2, and C3) and other parallel mediators on manufacturing performance. All the control variables were found to have a significant positive direct effect C1: B =.147, t = 3.23, $p < .05$, C2: B = .222, t = 3.81, $p < .05$, C3: B = .211, t = 3.76, $p < .05$ and a significant positive total effect C1: $\beta = .188$, t = 3.26, $p < .05$, C2: B = .282, t = 3.86, $p < .05$, C3: B = .430, t = 6.88, $p < .05$ on manufacturing performance. Moreover, C3 – Mainly served market type reveals the highest effect (B = .430) on manufacturing performance, and C1 – Level of employment (B = .188) reveals the lowest total effect on manufacturing performance out of the three control variables. Overall, the results for control variables indicate that the three control variables together have a significant positive impact on manufacturing performance.

Table 6.24 further shows each mediator's specific indirect effects (a_n*b_n), the direct effect, and the total effect of the overall model, along with the R^2 values reflecting the model's goodness of fit. The specific indirect effects (a_n*b_n) reveal whether a particular culture trait is having a mediating effect or not. It also presents the regression statistics of the indirect, direct, and total effects of the three control variables on manufacturing performance.

Table 6.24

Indirect, Direct, and Total Effects with R^2 Values of the Model

Effect		Path	B	SE	t	p*	95% CI	
1st Mediator: Involvement Trait (IT)		R^2_{IT} = 83.8%				.000		
Indirect effect	X1 → IT → MP	$(a_{11}*b_1)$	.398	.184			.05	.78
	X2 → IT → MP	$(a_{21}*b_1)$	.656	.290			.09	1.24
2nd Mediator: Consistency Trait (CT)		R^2_{CT} = 70.1%				.000		
Indirect effect	X1 → CT → MP	$(a_{21}*b_2)$	.027	.044			-.06	.12
	X2 → CT → MP	$(a_{22}*b_2)$	.116	.198			-.24	.45
3rd Mediator: Adaptability Trait (AT)		R^2_{AT} = 87.9%				.000		
Indirect effect	X1 → AT → MP	$(a_{31}*b_3)$	.016	.228			-.44	.47
	X2 → AT → MP	$(a_{32}*b_3)$	-.005	.072			-.15	.13
4th Mediator: Mission Trait (MT)		R^2_{MT} = 81.1%				.000		
Indirect effect	X1 → MT → MP	$(a_{41}*b_4)$	-.109	.057			-.24	-.03
	X2 → MT → MP	$(a_{42}*b_4)$	-.524	.226			-.97	-.08
Direct effect	X1 ⟶ MP	c'_1	.326	.327	1.03	.307	-.30	.96
	X2 ⟶ MP	c'_2	.081	.412	.20	.845	-.74	.90
		$R2_{Total\ Effect}$ = 59%				.000		
Total effect	X1	$c'_1 + \Sigma(a_n*b_n)$	.658	.101	6.55	.000	.46	.86
	X2	$c'_2 + \Sigma(a_n*b_n)$	.323	.102	3.17	.002	.12	.53
Effect from control variables		$R^2_{(C1, 2 \& 3)}$ = 10.5%						
Direct effect	C1 ⟶ MP	g_1	.147	.045	3.23	.001	.06	.24
	C2 ⟶ MP	g_1	.222	.058	3.81	.000	.11	.34
	C3 ⟶ MP	g_1	.211	.056	3.76	.000	.10	.32
Total effect	C1		.188	.058	3.26	.001	.07	.30
	C2		.282	.073	3.85	.000	.14	.43
	C3		.430	.062	6.88	.000	.31	.55

* The significance is tested at .05 level (two-tailed)

Moreover, the specific indirect effect of Involvement and Mission traits show a mediating effect as the "zero" did not fall within the 95% confidence interval for these two traits X1: (a_1*b_1) = .398, Bootstrap 95% CI [.52, .78]; X2: (a_1*b_1) = .656, Bootstrap 95% CI [.09, 1.24] and X1: (a_4*b_4) = -.109, Bootstrap 95% CI [-.24, -.03]; X2: (a_4*b_4) = -.524, Bootstrap 95% CI [-.97, -.08]. The Involvement trait showed a positive mediation effect, and the Mission trait showed a negative mediating effect. Comparatively, the Involvement trait provides a strong mediating effect than the Mission trait in terms of absolute values. However, the specific indirect effect of Adaptability and Consistency traits did not show a mediating effect as "zero" fall within the 95% confidence interval for these two traits X1: (a_2*b_2) = .027, Bootstrap 95% CI [-.06, .12]; X2: (a_2*b_2) = .116, Bootstrap 95% CI [-.24, .45] and trait X1: (a_3*b_3) = *.016*, Bootstrap 95% CI [-.44, .47]; X2: (a_3*b_3) = *.005*, Bootstrap 95% CI [-.15, .14].

The overall results show that the Mission and Involvement trait explains the relationship between RBFOT and manufacturing performance. Although the Mission trait shows a negative mediating effect and the Involvement trait shows a positive mediation effect, the Involvement trait shows a stronger numerical mediating effect when compared with the Mission trait. However, the total indirect effects of the four mediators (X1: B = .332 and X2: B = .243) reveal a positive coefficient for both East Asian and South Asian firms against Western firms, indicating a collective positive indirect influence on manufacturing performance.

6.10.2.1 **The goodness-of-fit of the mediation model**

The R^2 effect-size measures associated with the mediation model (Table 6.24) suggest that the five regression models (equations 1-5) are a good fit for the data (Fairchild *et al.*, 2009). The R^2 values of culture traits revealed high values: Involvement R^2_{IT} = 84%; Consistency R^2_{CT} = 70%; Adaptability R^2_{AT} = 88%; and, Mission R^2_{MT} = 81%. These results indicate that the variability of the culture traits is strongly explained by RBFOTs.

The predictors of the manufacturing performance (RBFOTs, the four mediators, and the three control variables) explain 77% of the variability of manufacturing performance (R^2 = .766, p < .05). Since the control variables were not part of the theory, it is important to show to what extent the control variables contributed to the increase in the R^2 of manufacturing performance. The R^2 of manufacturing performance without the control variables was found to be 66%, which means that the control variables contributed to explaining an additional 11% (R^2 = 10.58) of the variability of the manufacturing performance.

As shown in Table 6.24, the total effect of RBFOTs on manufacturing performance (with control variables) manifests R^2 of 59% (R^2 = .592, p < .05). When the relationship between RBFOTs and culture traits is taken into account to form the mediating relationships, the direct effect of RBFOTs on manufacturing performance becomes nonsignificant. This means that 59% of the variability of manufacturing performance is effectively explained by the four mediators of the model (total indirect effect) representing the organisational culture.

6.11 Verification of the hypotheses

Testing hypothesis 1 (H1)

HI – There is a difference in manufacturing performance among the RBFOTs operating in the apparel industry of Sri Lanka.

The results of the one-way ANOVA (Table 6.14) reveal that a significant mean difference in manufacturing performance is present at least between two groups among the three RBFOTs (F = 11.6, p < .05). The results of the post hoc test (Table 6.15) show that the manufacturing performance significantly differs between the Western vs East Asian firms (p = .000) as well as Western vs South Asian firms (p = .036) and no significant difference between East Asian and South Asian firms (p = .940). This result can also be obtained by regressing the RBFOT dummy variable (East Asian dummy X1 and South Asian dummy X2, considering Western as the reference) against manufacturing performance. Since ANOVA was conducted without control variables, the dummy variable regression was also conducted without control variables for parity. The inclusion of control variables did not make any noticeable difference (B for X1 with control variables = .658 while B for X1 without control variables .639; B for X2 with control variables = .323 while B for X1 without control variables .347) in the coefficients for RBFOTs.

Hence, hypothesis 1 (H1) is accepted based on these results.

Testing hypotheses 2 (H2) – Path b of the model – 2nd part of the indirect effect

H2 – Organisational culture traits (Involvement, Consistency, Adaptability, and Mission), have a positive effect on the Manufacturing Performance of RBFOTs.

The results of the regression analysis (Table 6.23) for path b_1 of the model indicate that the Involvement trait has a significant positive effect on manufacturing performance (B = .436, t = 2.14, p < .05). The results of the regression analysis for path b_2 of the model indicate that

the Consistency trait has a nonsignificant effect on manufacturing performance (B = .117, t = .62, p > .05). The results of the regression analysis for path b_3 of the model indicate that the Adaptability trait has a nonsignificant effect on manufacturing performance (B = .013, t = .06, p > .05). The results of the regression analysis for path b_4 of the model indicate that the Mission trait has a significant positive effect on manufacturing performance (B = .440, t = 2.15, p < .05).

Hence, hypothesis 2 (H2) is accepted based on these results.

Testing hypotheses 3 (H3) – Path a of the model – 1st part of the indirect effect

H3 – There are differences in organisational culture traits (Involvement, Consistency, Adaptability, and Mission) among RBFOTs.

The results of the regression analysis (Table 6.23) for paths a_{11} and a_{21} of the model indicate that the Involvement trait is significantly higher for East Asia and South Asia relative to the reference group (X1: a_{11} B = .913, t = .08, p < .05; X2: a_{21} B = 1.505, t = .08, p < .05). The nonoverlapping 95% CI for X1 and X2 indicate that the Involvement trait is significantly higher for South Asia relative to East Asia. Path a_{21} and a_{22} of the model indicate that the Consistency trait is significantly higher for East Asia and South Asia relative to the reference group (X1: a_{21} B = .233, t = .08, p < .05; X2: a_{22} B = .995, t = .08, p < .05).

The nonoverlapping 95% CI for X1 and X2 indicates that the Consistency trait is significantly higher for South Asia relative to East Asia. Path a_{31} and a_{32} of the model indicate that the Adaptability trait is significantly higher for East Asia and significantly lower for South Asia relative to the reference group (X1: a_{31} B = 1.211, t = .07, p < .05; X2: a_{32} B = -.366, t = .07, p < .05). The nonoverlapping 95% CI for X1 and X2 indicate that the Adaptability trait is significantly higher for East Asia relative to South Asia. Path a_{41} and a_{42} of the model indicate that the Mission trait is significantly lower for East Asia and South Asia relative to the reference group (X1: a_{41} B = -.247, t = .07, p < .05; X2: a_{42} B = -1.193, t = .07, p < .05).

The nonoverlapping 95% CI for X1 and X2 indicates that the Mission trait is significantly higher for East Asia relative to South Asia. Further analysis was conducted to compare pairs of mean differences via the Tukey test simultaneously. The one-way ANOVA post hoc test results in Table 6.20 further confirm the regression results.

Hence, hypothesis 3 (H3) is accepted based on these results.

Testing Hypotheses 4 – Path a*b of the model – Mediating effect

H4 – The effect of RBFOTs on Manufacturing Performance is mediated by the organisational culture traits of Involvement, Consistency, Adaptability, and Mission.

To test hypothesis 4 (H4), the parallel multiple mediation results in Table 6.24 were considered, and the results indicate that Involvement and Mission traits mediate, whereas Consistency and Adaptability traits did not.

The results of the regression for path (a_1*b_1), which represents the median path via the Involvement trait, and path (a_4*b_4), which represents the mediation path via the Mission trait of the model indicate that "zero" did not fall within the 95% confidence interval for the specific indirect effect. This confirms that these two traits (Involvement and Mission) mediate the relationship between RBFOT and manufacturing performance.

The results of the regression for path (a_2*b_2) which represents the mediation path via the Consistency trait, and path (a_3*b_3) which represents the mediation path via the Adaptability trait of the model indicate that "zero" falls within the 95% confidence interval for the specific indirect effects. These results confirm that both Consistency and Adaptability traits do not mediate the relationship between RBFOT and manufacturing performance.

Hence, hypothesis 4 (H4) is partially accepted based on these results.

The test results for Hypothesis 4 can be summarised as follows

Summary of results for parallel mediation – Testing the Hypotheses 4

DOCS traits	**Direct effect (c′)**	**Indirect effect** (a*b)	**Mediating effect**
Involvement trait	Not Significant	Significant	Present
Consistency trait	Not Significant	Not Significant	Not present
Adaptability trait	Not Significant	Not Significant	Not present
Mission trait	Not Significant	Significant	Present

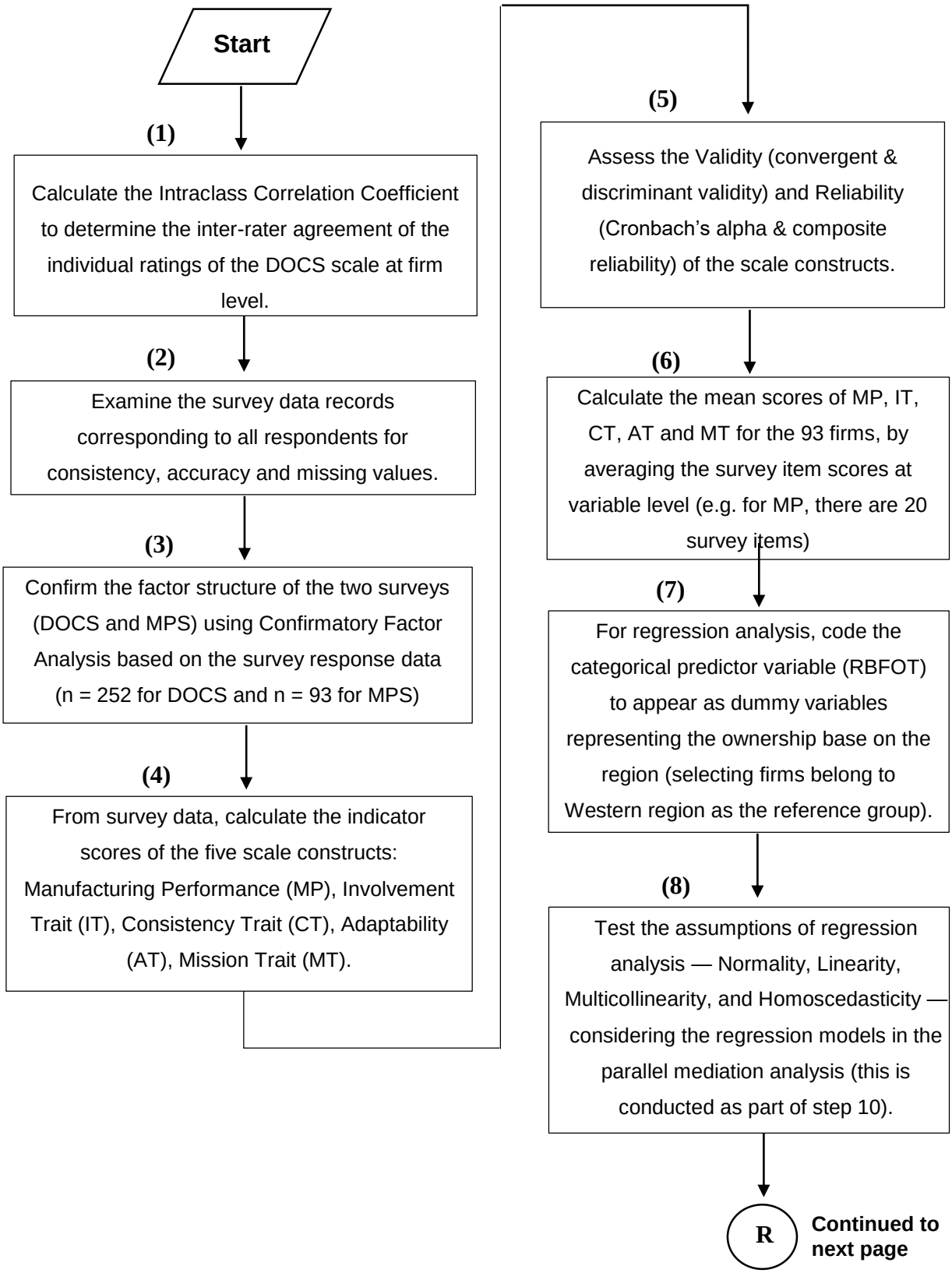
The overall hypothesis test results can be summarised as follows:

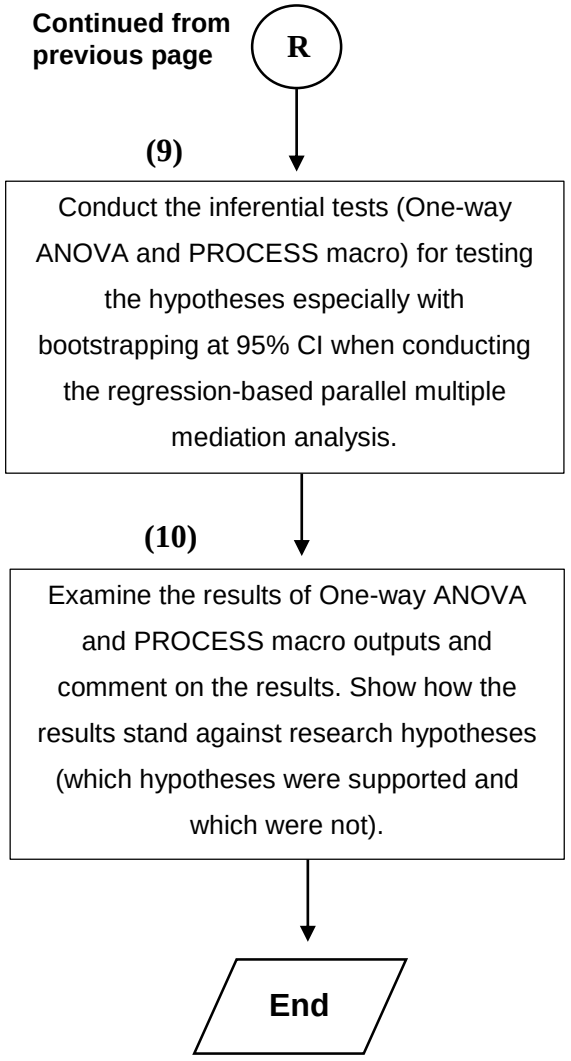
Hypothesis	Evidence	Path	Statistical Technique	Conclusion
H1	Table 6.14 / 6.15	c	One-way ANOVA	Accepted
H2	Table 6.23	b	Mediation Analysis via regression	Accepted
H3	Table 6.23	a	Mediation Analysis via regression	Accepted
H4	Table 6.24	(a*b)	Mediation Analysis via regression	Accepted (partially)

All four hypotheses of the study were accepted. Overall, the inferential results revealed that the effect on the manufacturing performance of RBFOTs is mediated by the firm's culture characterised by Involvement and Mission traits. While the results show that the relationship between RBFOT and manufacturing performance is fully mediated by organisational culture (the direct effects of X1 and X2 on manufacturing performance were not significant), this mediation seems to be caused by two culture traits only.

6.12 Process of the data analysis leading to hypotheses testing

To provide clarity and flow of data analysis leading to the hypotheses testing, a summary of the key steps followed to facilitate one-way ANOVA and parallel multiple mediation analysis using the regression-based SPSS PROCESS macro - Model 4 are presented in Figure 6.21.





Three predictor-response relationships are involved in the regression analysis via PROCEES macro:

- RBFOTs predicts the composite variable MP after controlling for three control variables.
- RBFOTs predicts the composite variables IT, CT, AT, MT (the four traits of organisational culture) after controlling for three control variables
- RBFOTs plus IT, CT, AT, MT predict the composite variable MP after controlling for three control variables.

Figure 6.21 *Flowchart Indicating the Key Steps Followed in Data Analysis to Facilitate Hypotheses Testing*

6.13 Chapter Summary

This chapter presented the key results of the data collection and analysis of the two surveys (MPS and DOCS). It initially presented the data collection process adopted, response rates, and the steps taken to screen and clean the datasets for analysis. After that, the demographics of the two survey respondents were presented along with the confirmation of the factor structures with EFA and CFA results. Then it presented the validity and reliability outcomes of the two survey scales along with descriptive statistics. Finally, the chapter presented the key results of the One-way ANOVA and parallel multiple mediation analysis carried out using SPSS PROCESS macro to test the mediation model and related hypotheses considering the assumptions required for such analysis.

CHAPTER 7

DISCUSSION

7.1 Introduction

This chapter evaluates and interprets the study's findings in light of the available literature and practical implications relating to the research question/s examined. Section 8.2 provides an overview of the study leading to research findings. Sections 8.3 to 8.7 discuss the results from a theoretical perspective (i.e., in relation to extant literature). Section 8.8 discusses the validation of DOCS in Sri Lanka. 8.9 discusses the results of the new scale developed to operationalise and measure the manufacturing performance of apparel firms. Section 8.10 discusses the external validity and generalisability of the study findings. Finally, Section 8.11 discusses the study findings' implications for the practice of cross-cultural operations management and industrial management within the context of apparel manufacturing.

7.2 Overview of the study leading to research findings

The basis of this study is to understand the manufacturing performance difference of RBFOTs (broadly speaking foreign vs local). This is the basis of H1 which posits that there are differences in manufacturing performance among RBFOTs. The research developed a theory to explain what causes these differences.

The literature review revealed that part of the reason for the differences in the manufacturing performance of RBFOTs was related to the operationalisation of manufacturing performance (many different dimensions and metrics have been used to measure manufacturing performance). This research also suggested that the other reason for the differences in the manufacturing performance of RBFOTs is in the theorisation, as many different antecedents can be used to explain manufacturing performance differences. Therefore, this study developed a new scale for the apparel manufacturing contexts and posited a theory that explains and predicts manufacturing performance differences, from a cross-cultural operations management perspective. More specifically, the study examined the role of the organisational culture as a mediator in the RBFOT → manufacturing performance relationship in explaining performance differences accross RBFOTs.

The primary aim of this thesis was to examine the mediating role played by the organisational culture on the relationship between RBFOT and manufacturing performance. Thus, the

research question investigated in this study was "*what is the role being played by the organisational culture as a mediator in the relationship between RBFOT and manufacturing performance?"*. Answering this research question, warranted both a theory formulation component and a theory testing component. In the theory formulation, the study formulated four hypotheses (H1 through to H4 shown in chapter 2) that collectively represented the researcher's theory. In theory testing, the study tested the four hypotheses empirically by collecting data and fitting the data to statistical models that represented the hypotheses. The empirical test results provided answers to such questions as how and to what extent they mediate the RBFOT → manufacturing performance relationship.

For theory formulation and testing, this thesis focused on three RBFOTs: fully-owned foreign firms belonging to the Western region, fully-owned foreign firms belonging to the East Asian region, and fully-owned local (Sri Lankan) firms belonging to the South Asian region. The Sri Lankan apparel industry was considered as the theory-testing context of this study. A preliminary field study was carried out in the initial phase to clarify and understand the research context, the background leading to the research question, and some of the considerations required to design the quantitative study effectively.

Since different dimensions, scales and metrics have been used to operationalise and measure the construct of manufacturing performance in the apparel industry, as mentioned earlier, this study developed a new Manufacturing Performance Scale (MPS) unique to the apparel industry. This scale comprehensively covered five dimensions (measurement domains) that fall in line with the operations management literature: cost-efficiency, delivery, product quality, flexibility, and innovativeness. These dimensions are deemed critical in operations performance monitoring and management (Cua *et al.*, 2001; Gomes *et al.*, 2004; Leachman *et al.*, 2005). The contribution of the study is not just reconfirming that these five dimensions collectively represent the manufacturing performance of the apparel industry as well. Rather, the contribution is in developing apparel-specific metrics that represent these five dimensions. The study considered the MPS as a single scale for parallel multiple mediation because the factor structure analysis (i.e. CFA) showed that MPS can be represented either as a single (second order) factor or five separate (first order) correlated factors equally well, in terms of global goodness of fit. A separate discussion about this scale development is presented in Section 7.9.

The organisational culture measurement scale (survey) developed by Denison and his associates was used in this study to measure organisational culture. This instrument is

customarily known as Denison Organisational Culture Survey (DOCS). According to Denison and his colleagues, organisational culture is collectively characterised by four cultural traits: *involvement*, *consistency*, *adaptability*, and *mission*, and three related management practice orientations representing each of the four traits. The literature shows that foreign firms operating in host countries have different organisational cultures compared to those of local firms. In addition, research has shown that organisational cultures can be classified based on the regions (in this study, Western, East Asian and South Asian) to which a firm belongs. This is the reason why it was hypothesised that the four culture traits are different among these RBFOTs (H3). Prior research has also shown that these traits affect firm performance (H2). In this study, examining the firm performance was limited to manufacturing performance, which is an important but not the only critical aspect of firm performance.

An organisational culture-based mediation model (Figure 2.7) was conceptualised based on the literature to answer the research question. The fact that this study hypothesises that RBFOT affects organisational culture and organisational culture, in turn, affects manufacturing performance resulting in a model where culture acts as a mediator. This is the basis of developing the H4 which posits that organisational culture mediates the relationship between RBFOT and manufacturing performance.

The model and related hypotheses were tested by collecting data from 93 firms belonging to the three RBFOTs operating in the BOI-approved apparel industry of Sri Lanka. All four hypotheses (H1, H2, H3, and H4) were supported by the data, which suggests that the theory proposed in this study is tenable. The goodness-of-fit (the R^2) of the five regression models associated with the mediation model (see Figure 6.19), suggests that these models are a good fit for the data. This was evident from the R^2 of 77% for the overall model (the model that predicts manufacturing performance) with a total indirect effect of 57% (the indirect effect coming from the four mediators taken together). A discussion about the external validity of the model and the generalisability of the study findings are presented in Section 7.10.

7.3 Role of the organisational culture as a mediator

The results of the fourth hypothesis can be used to discuss the role of organisational culture as a mediator.

H4 – The effect of RBFOTs on Manufacturing Performance is mediated by the organisational culture traits of Involvement, Consistency, Adaptability, and Mission.

The mediation model of the study was empirically tested and accepted as the hypotheses relating to the direct and indirect paths of the model were supported by the data. The results displayed a nonsignificant direct effect of RBFOTs on manufacturing performance and a significant indirect effect of RBFOTs on manufacturing performance through organisational culture. Hence, the study found that differences in manufacturing performance are effectively explained through the differences in the organisational cultures of the RBFOTs.

The findings suggest that the tested mediation model can be applied as an acceptable cross-cultural operations management model to understand, explain, and predict the manufacturing performance differences of RBFOTs. Many studies have used organisational culture as a mediator to explain the relationship between independent and dependent variables to explain different managerial phenomena (Alotaibi *et al.*, 2015; Fathi Mohamed *et al.*, 2017; Ghazo *et al.*, 2019; Gholamhossein *et al.*, 2020; Hilman *et al.*, 2020; Metwally *et al.*, 2019; Muhammad Ibrahim *et al.*, 2021). This study examined the mediating role of organisational culture (measured using DOCS) in the relationship between RBFOT (fully owned Western, East Asian & South Asian firms) and manufacturing performance (measured using MPS) in the Sri Lankan (South Asian) regional context addressing the identified research gaps. The hypothesis test results suggest that RBFOTs have a significant effect on organisational culture, and the organisational culture, in turn, has a significant effect on manufacturing performance, while controlling the direct effects of RBFOTs (not found to be significant) and three control variables on manufacturing performance. Hence, the organisational culture was found to reveal a full mediating effect on the relationship between RBFOTs and manufacturing performance. The succeeding sections discuss this mediation effect in relation to the theory testing and theory formulation components of the research question.

In addressing the theory testing component of the investigated research question (how and to what extent the organisational culture mediates?), the results revealed that only two of the four organisational cultural traits (Involvement and Mission) mediated the relationship between RBFOT and manufacturing performance; the effects of other two traits (Consistency and Adaptability) was not found to be significant ($p > .05$). This finding suggests that the Involvement and Mission traits of the organisational culture contribute to explaining the difference in the manufacturing performance of RBFOTs. In other words, this finding suggests that Involvement and Mission trait-related management practice orientations largely account for the manufacturing performance differences of RBFOTs. This means that in the South Asian regional context, the Involvement trait-oriented management practices (worker empowerment, employee development, and teamwork) and the Mission trait-oriented management practices

(strategic direction, complementary goals, coordinated shared vision) primarily account for the manufacturing performance differences of RBFOTs.

The management practice orientations associated with the Involvement trait demonstrate a family-oriented culture guided by the employee, team, humane, and informal-driven value orientations while the management practice orientations associated with the Mission trait demonstrate an ambitious futuristic culture guided by strategy, proactive, long-term, results, and outward driven value orientations (Denison & Neale, 1996). It could be quite possible that the management practices associated with the said two culture traits are the ones that are required (mostly) to succeed in the apparel industry, which is very competitive. Unfortunately, this cannot be confirmed without a follow-up study (industry engagement) which was not possible due to Covid 19 reasons. For example, interviews with top managers would have shed some light on what practices are valued by them most or what corporate strategies their business pursues, for example, a cost leadership strategy or some form of a differentiation strategy (Porter, 2004).

It is important to note that just because this study suggested that Consistency and Adaptability traits are not significant mediators, this does not imply that these two cultural traits (more precisely, the management practices associated with the two traits) are not important in the apparel business (see the next paragraph for a potential technical reason why Consistency trait did not return as significant mediator).

As mentioned in chapter 6, the high correlation found between Consistency and Involvement traits (r =.88, p < .05) is the main reason for the high variance inflation of the regressors' Involvement (VIF = 15.087) and Consistency (VIF = 11.171) in the relationship that predicts manufacturing performance. Under these circumstances (multicollinearity), it is not very surprising that only one of the two regressors (Involvement) was found to be a significant regressor, and hence a mediator, given the parallel multiple mediation model of this study. In the present study, it was found that Consistency and Involvement traits were significantly different among the RBFOTs (the radar chart shown in Figure 6.14), but only Involvement was found to be significantly affecting manufacturing performance could be interpreted as a result of collinearity. The Involvement and Consistency traits are highly correlated for all three RBFOTs as demonstrated in Figure 6.8. Therefore, it can be argued that although the Consistency trait did not appear as a significant mediator in this study, it too has a role to play in improving manufacturing performance. The reader will note that manufacturing performance is almost as equally well correlated with Consistency (r = .47) as with

Involvement (r = .56). It is impossible to argue that the management practices associated with Consistency — developing procedures and rules for integration and coordination, common principles, and joint agreement — is not important to manufacturing, especially quality improvement, which insists on these very practices (Anderson & Rungtusanatham, 1994; Daniel & Brian, 2017; Mohammad Mosadeghrad, 2014). For example, *standard operating procedures* are a rule in manufacturing than an exception (Jana & Tiwari, 2021; Shumpei & Mihail, 2018; Yeung *et al.*, 2008).

It is noted that previous studies that examined the validity of the DOCS and the relationship between the four DOCS culture traits and organisational effectiveness report positive correlations among all four culture traits (Denison *et al.*, 2004; Denison & Mishra, 1995; Denison *et al.*, 2014; Fey & Denison, 2003; Yilmaz & Ergun, 2008; Zeng & Luo, 2013). In this study, the correlations between some traits were found to be either negative or zero (not significant) because of location differences of data points due to differences in region-wise mean values of culture traits (this is consistent with H3). However, correlations between the traits for each region were found to be positive keeping in line with previous research studies using DOCS (see Figure 6.6. to 6.11).

When considering the theory formulation component of the research question (what are the relationships among RBFOTs, organisational culture, and manufacturing performance?), the previous studies revealed conflicting results on the relationship between RBFOT and manufacturing performance (Mihai, 2014; Miller Stewart & Eden, 2006; Pasali & Chaudhary, 2020). Moreover, these studies found that the reasons for the difference in manufacturing performance were mostly international economics and finance-oriented (Ebersberger & Lööf, 2005; Pasali & Chaudhary, 2020; Temouri *et al.*, 2008; Willmore, 1986; Yudaeva *et al.*, 2003). However, the findings of the study suggest that organisational culture (from cross-cultural operations management perspective) is a significant mediator through which the relationship between RBFOT and manufacturing performance could be effectively explained. The operations management fraternity is aware that organisational cultures could be different across firms in different regions (Flynn & Saladin, 2006; Jung *et al.*, 2008; Lagrosen, 2003). However, how these regional cultural differences account for manufacturing performance differences is not well understood by previous studies when foreign firms operate in host countries. This research filled this gap through a well-defined manufacturing context.

For the aforesaid reasons, the present study postulates a new theorisation based on cross-cultural operations management to explain the differences in manufacturing performance

among the three types of RBFOTs. Moreover, the study contributes to cross-cultural operations management literature by theorising new empirical relationships among RBFOTs, organisational culture, and manufacturing performance. These relationships enable the firms to adopt different culture-performance fitness outcomes required for superior manufacturing performance of RBFOTs. These relationships are discussed in detail in the following sections.

7.4 Differences and similarities in organisational culture traits of RBFOTs

The test results of the third hypothesis can be used to discuss the differences and similarities in organisational cultural traits of RBFOTs.

H3 – There are differences in organisational culture traits (Involvement, Consistency, Adaptability, and Mission) among RBFOTs.

The results supported H3 to demonstrate that the organisational cultural traits of Involvement, Consistency, Adaptability, and Mission are significantly different among the RBFOTs (Western vs East Asian, Western vs South Asian, and East Asian vs South Asian). A significant difference in organisational cultural trait profiles among RBFOTs implies that culture trait-based management practice orientations among the RBFOTs do differ (see Table 6.20). This implies that RBFOTs do differ in the way they do business to achieve business outcomes and how they manage their firms with diverse management practices, systems, techniques, norms, and values.

A cross-cultural study by Denison *et al.* (2004) found no significant difference in organisational cultural traits among European, North American, East Asian, Middle-East, and South African countries except Japan and Jamaica. However, they emphasise the need for more cross-cultural research in diverse regional contexts to understand cultural similarities and differences to promulgate a common cultural theory applicable to all regions of the world. It is important to note that the operations management fraternity generally supports the notion that management practices across cultures tend to differ (Flynn & Saladin, 2006; Jung *et al.*, 2008; Lagrosen, 2003) and that the West and the East have very different views and practices of doing business (Chen & Miller, 2011; Dahlgaard *et al.*, 1998; Imai, 1986; Lee *et al.*, 2022).

The significant difference in DOCS cultural traits among the RBFOTs operating in Sri Lanka (South Asian regional context) does not seem to support Denison's finding of similar cultural scores in firms in different countries and regions (Denison *et al.*, 2004). The finding of the study on differences in culture traits among the RBFOTs supports and contributes to the

regionalistic view of organisational culture application across different regions, which is in line with the consensus among the operations management fraternity. In addition, the cultural traits of the RBFOTs revealed a resemblance with the findings of the studies conducted by cross-cultural researchers who are of the view that firm culture is influenced by the national cultural values of the region to which those firms belong (Dunning, 2008; Hofstede, 1980; House *et al.*, 2002; Trompenaars & Hampden-Turner, 1998). A discussion on how the various DOCS culture traits of RBFOTs are consistent with societal and cultural values typical of the regions (as per the GLOBE study) is presented in Section 7.4.1.

The cultural trait profile of East Asian firms consisted of traits with high scores on Adaptability and Mission (external adaptation and flexibility) and moderate scores on Involvement and Consistency (internal integration and stability). This finding reveals that East Asian firms were more external adaptation than internal integration-oriented in managing their businesses. These firms were found to possess high flexibility and market orientation in satisfying their customers and adapting to the changing requirements of the markets and business environments with a high risk-taking attitude. At the same time, these firms showed a higher futuristic orientation with clear future directions having complementary targets, objectives, goals, missions, and visions. Overall, the external adaptation orientation (dominant with high scores on the Adaptability trait) was complemented by the moderate scores on internal integration orientation (dominant with high scores on the Involvement trait).

The cultural trait profile of Western firms consisted of traits with a high score on Mission, a moderate score on Adaptability (external adaptation and flexiblity), and low scores on Consistency and Involvement (internal integration and stability). This finding implies that Western firms are more external-oriented than internal integration oriented in managing their businesses but different from East Asian firms. These firms had a high futuristic orientation with clear future directions, complementary targets, objectives, goals, missions, and visions but lacked the required internal integration orientation to complement the future direction. The reason for the lack of internal integration may be due to the Western firms' lack of cultural proximity, acquaintance, and low absorptive capacity to gain the expected ground-level worker empowerment, commitment, teamwork, and consistent coordination and communication in operations management aspects in the South Asian regional context (business environment). This speculation is consistent with the findings of the studies done by Wang *et al.* (2014); Zhang *et al.* (2010) on cultural proximity and absorptive capacity by foreign firms operating in host countries.

The cultural trait profile of South Asian firms consisted of traits with high scores on Involvement and Consistency (internal integration and stability) and low scores on Adaptability and Mission (external adaptation and flexibility). This finding reveals that South Asian firms were more internal integration than external adaptation-oriented in managing their businesses. These firms focused on high orientation towards employee involvement, teamwork, and worker empowerment required to achieve quality. At the same time, these firms showed higher commitment to core values, policies, and procedures with a high level of coordination and communication. However, these firms seem to lack the expected external adaptation (Mission and Adaptability traits) orientation to complement the excessively focused internal integration. The reason for the high internal integration orientation of Sri Lankan (South Asian) owned firms operating within Sri Lanka may be due to the Sri Lankan firms' cultural acquaintances and high absorptive capacity to gain the required ground-level worker empowerment, commitment, teamwork, and consistent coordination and communication in operations management aspects in the South Asian region context (business environment) than their foreign counterparts. It is unknown whether low external adaptation (Mission and Adaptability traits) orientation meant any disadvantage to Sri Lankan-owned firms over the East Asian and Western firms. In a cross-sectional study, it is always difficult to answer this question, and one should not answer this question purely by looking at manufacturing performance results (mean comparisons) across the three RBFOTs[28].

When comparing the cultural trait profiles of the RBFOTs, the profiles of all three types of firms indicated some degree of disparity (imbalance) regarding the four cultural traits of Involvement, Consistency, Adaptability, and Mission. East Asian firms revealed an imbalanced culture profile more oriented towards the *Adaptability trait*, Western firms revealed an imbalanced culture profile more oriented towards the *Mission trait*, and South Asian firms revealed an imbalanced culture profile more oriented towards *Involvement and Consistency traits*. However, East Asian firms, revealed the least gaps among their four cultural traits, and Western firms revealed the most gaps among their four cultural traits. This finding in conjunction with the ANOVA results reported in section 6.8 seems to suggest that the lesser the differences in gaps between the four cultural traits (balanced-culture profile) better will be the manufacturing performance. This finding supports the findings revealed by Yilmaz and Ergun (2008) on the balanced-culture hypothesis.

[28] Based on ANOVA results covered in section 6.8, at .05 significance level, there is no significant difference in manufacturing performance between Sri Lankan (South Asian) firms and East Asian firms and both categories of firms outperform Western firms.

The most common management practice orientations that prevailed among the RBFOTs with the highest mean values (see Figure 6.15) were *Mission trait – strategic direction, goals, and vision, Involvement trait – empowerment and team orientation, Consistency trait – Core values and Adaptability trait – generate change and customer focus*. This finding implies that RBFOTs commonly apply all four trait-oriented management practices used by RBFOTs in managing their firms, but each RBFOT type seems to be biased towards some cultural traits more than others. The external orientation-focused traits of Mission and Adaptability suggest the importance and priority given to external adaptation-oriented management practices by the RBFOTs to successfully cater to the increasingly volatile, uncertain, complex, and ambiguous apparel industry business environment. However, it is interesting to note from the results (section 6.8) that Sri Lankan (South Asian) firms that return the highest mean values for Involvement and Consistency traits — thus suggesting an internal focus — outperform Western firms at .05 level, and revealed no difference in performance between East Asian firms (see Tukey test results shown in Table 6.15). Therefore, which type of management focus and hence which culture traits are more important than the others in the apparel sector seem to depend on both internal factors (e.g., the workforce, the general business climate of the host country) and external factors (types of markets in which firms choose to compete).

7.4.1 Evaluating the findings of the study with the GLOBE study findings

The GLOBE study is the most recent comprehensive study examining regional cultural differences and similarities based on nine national cultural value dimensions for ten regional country clusters (House *et al.,* 2002). The present study found specific associations between regional cultures (identified based on nine national cultural dimensions) and the organisational cultures of RBFOTs (identified based on Denison's four cultural traits).

The extent of association (possible influence) the regional cultures could have on the identified organisational cultures of the RBFOTs is shown in Table 7.1. The GLOBE study's national culture dimensions with Denison's organisational culture dimensions are interpreted based on four national cultural values that closely represent the meanings of Denison's four cultural traits. Table 7.1 further revealed the extent of influence the GLOBE study's regional cultures had on the organisational cultures of the three RBFOTs. These interpretations suggest that some culture traits (i.e. Mission and Involvement) and related management practice orientations reflect the regional cultures to which the firms belong. However, the comparison and interpretations are indicative only due to the differences in classifying the regional country clusters by the study, different rating scales used to rate the culture profiles, and the differences in meanings attached to the related national cultural dimensions to represent Denison's culture

traits. Therefore, this can be flagged as a potential area for future researchers to examine how the four traits of Denison are associated with the firms belonging to ten regional clusters identified by the GLOBE study.

Table 7.1

The extent of National Culture reflection on Organisational Cultures of RBFOTs

GLOBE Study findings		Study findings (based on Denison's Model)		Interpretation
Regional Cluster	**Scores on National Cultural Dimensions**	**Region of Origin (Study Clusters)**	**Score on Organisational Cultural Dimensions**	**The extent of national culture influence on organisational cultures of RBFOTs**
Anglo and Germanic Europe	Power Distance Medium Uncertainty Avoidance Medium Humane Orientation Medium Institutional Collectivism Low In-Group Collectivism Low Assertiveness Medium Gender Egalitarianism Low Future Orientation High Performance Orientation High	Western region firms	Consistency trait Low Involvement trait Low Adaptability trait Medium Mission trait High	Low institutional collectivism is reflected by the low Consistency trait. Low in-group collectivism is reflected by the low Involvement trait. Medium uncertainty avoidance is reflected by the medium Adaptability trait. High futuristic orientation is reflected by the high Mission trait.
Confucian Asia	Power Distance Medium Uncertainty Avoidance Medium Humane Orientation Medium Institutional Collectivism Medium In-Group Collectivism High Assertiveness Medium Gender Egalitarianism Medium Future Orientation High Performance Orientation High	East Asian region firms	Consistency trait Medium Involvement trait Medium Adaptability trait High Mission trait High	Medium institutional collectivism is reflected by the medium Consistency trait. High in-group collectivism is reflected by the medium Involvement trait. Medium uncertainty avoidance is reflected by the high Adaptability trait. High futuristic orientation is reflected by the high Mission trait.
Southern Asian	Power Distance Medium Uncertainty Avoidance Medium Humane Orientation High Institutional Collectivism High In-Group Collectivism High Assertiveness Medium Gender Egalitarianism Low Future Orientation Medium Performance Orientation Medium	South Asian region firms	Consistency trait High Involvement trait High Adaptability trait Low Mission trait Low	High institutional collectivism is reflected by the high Consistency trait High in-group collectivism is reflected by the high Involvement trait. Medium uncertainty avoidance is reflected by the low Adaptability trait. Medium futuristic orientation is reflected by the low Mission trait.

7.5 Differences and similarities in manufacturing performance of RBFOTs

The test results of the first hypothesis can be used to discuss the differences and similarities in the manufacturing performance of RBFOTs. It is important to note in a mediation context, that the total effect of RBFOT on manufacturing performance and the effect due to mean differences of RBFOTs on manufacturing performance are the same. If all means of manufacturing performance are the same, then RBFOT does not affect manufacturing performance. On the other hand, if there are differences in the mean values of RBFOTs — rejecting the null hypothesis "all regional means are the same" in favour of the alternative hypothesis "not all regional means are the same" — then that is the effect of RBFOTs on manufacturing performance (in a mediation context, the total effect).

HI – There is a difference in Manufacturing Performance among the RBFOTs operating in the apparel industry of Sri Lanka.

The results found that the mean manufacturing performance of East Asian firms recorded the highest value compared to the second-highest in South Asian firms and the lowest in Western firms. However, the results comparing the mean manufacturing performance revealed a nonsignificant difference between East Asian and South Asian firms, but both these firms were found to be significantly higher than Western firms. This finding further shows that locally owned (South-Asian) firms performed significantly better than Western-owned foreign-owned firms. There is no significant difference in manufacturing performance between locally-owned (South-Asian) firms and foreign-owned firms belonging to the East Asian region, although it must be mentioned that smaller sample sizes fail to detect small differences between the groups due to the prevailing noise (within-group variation). This could be due to the question of effect size (Cohen, 1992). This findings also could be attributable to cultural proximity, acquaintance with business environment, and absorptive capacity of East Asian firms than Western firms operating in the South Asian regional context (Wang *et al.*, 2014; Zhang *et al.*, 2010).

Above said, since manufacturing performance has been identified to be consisting of five dimensions (cost-efficiency, delivery, product quality, flexibility, and innovativeness), and the CFA test results showed that manufacturing performance can also be operationalised through five separate dimensions, a comparison of individual dimensions among the RBFOTs was made (Table 6.17). This comparison indicates that the manufacturing performance of East Asian firms was the highest in terms of all five dimensions (nonsignificant differences existed). The South Asian firms were found to perform better in cost-efficiency and delivery than

Western firms, and Western firms were found to perform better in Innovativeness and flexibility dimensions than South Asian firms. Regarding product quality, all three RBFOTs (Western, East Asian, and South Asian) returned high scores for product quality. However, East Asian firms had the highest, South Asian firms had the second highest and Western firms had the lowest manufacturing performance in terms of product quality (this ranking is based on the Tukey pairwise comparison test results shown in Table 6.17).

The results comparing the mean manufacturing performance in five dimensions among the RBFOTs showed a nonsignificant difference between East Asian vs Western firms in terms of flexibility and innovativeness. It also indicated a nonsignificant difference between East Asian and South Asian firms in terms of cost-efficiency and delivery. The results further revealed a significant difference in terms of product quality among all three types of firms (Western, East Asian, and South Asian).

The high priority given to product quality by the RBFOTs supports the findings of the studies on Total Quality Management (TQM). Before the quality movement, which began in the early 1980's organisations believed that there was an inverse relationship between product quality and cost-efficiency as these firms assumed that product quality and cost-efficiency were in a trade-off relationship (Skinner, 1986). However, after the quality movement, a new quality-efficiency theory based on the teachings of quality advocates such as Deming, Juran, Crosby, and Ishikawa evolved, leading to the simultaneous achievement of quality and cost-efficiency (Brown, 2013; Hackman & Wageman, 1995). The basic idea is that if higher-quality products are produced efficiently, there would be less rework and scrap, thus lowering the cost of quality (Hackman & Wageman, 1995; Schiffauerova & Thomson, 2006; Sousa & Voss, 2002). Moreover, with the introduction of the concept of TQM and lean manufacturing (reducing waste and nonvalue-adding activities from the processes) in the late 1990s by the Toyota Motor Company, organisations began to recognise quality as the central dimension of manufacturing performance complemented by cost-efficiency, delivery, flexibility, and innovativeness (Brown, 2013; Dahlgaard-Park, 2011).

Keeping in line with these quality and lean management views, Ferdows and De Meyer (1990) suggested a cumulative built-up theory of manufacturing performance dimensions, prioritising product quality as the core dimension. The finding of the study seems to be in line with the cumulative built-up theory of Ferdows and De Meyer (1990), which explained how the other manufacturing performance dimensions (cost-efficiency, delivery, flexibility, and innovativeness) are cumulatively built-up focusing on product quality as the core dimension.

The study further revealed that East Asian and Western firms focused more on manufacturing effectiveness (flexibility and innovativeness) than manufacturing efficiency (delivery and cost-efficiency) in gradually building product quality in their respective organisations. The reason could be that foreign-owned firms operating in a host country may expect higher external (markets and business environment) orientation by being more adaptive to changing (new) requirements than the local firms (South Asian).

7.6 Relationship between cultural traits and manufacturing performance of RBFOTs

The test results of the second hypothesis can be used to discuss the relationship between cultural traits and the manufacturing performance of RBFOTs.

H2 – Organisational culture traits (Involvement, Consistency, Adaptability, and Mission), have a positive effect on Manufacturing Performance.

The study's findings answered the question, "what is the most effective combination of organisational cultural traits (organisational culture profile) of the RBFOTs? Based on mediation analysis it was shown that Mission and Involvement traits are the significant traits that predict manufacturing performance. Moreover, the regression coefficients associated with these regressors were positive. This implies that high scores in Mission and Involvement are required to achieve high manufacturing performance.

The East Asian firms revealed the highest mean manufacturing performance and highest mean values for all five dimensions. Accordingly, a high level of external adaptation and flexibility (Adaptability and Mission traits) and a moderate level of internal integrations and stability (Involvement and Consistency traits) were revealed to be the most effective organisational culture profile. On the other hand, since Western firms revealed the lowest mean manufacturing performance, the organisational culture profile of the Western firms was characterised by the least effective organisational culture profile. Accordingly, a high level of Mission, a moderate level of adaptability, and a low level of Involvement and Consistency represented the least effective organisational culture profile. The South Asian firms, as the second-highest performing firm category, revealed a high-level internal integration (Involvement and Consistency traits) and a low level of external adaptation (Adaptability and Mission traits). Since these findings are based on mean scores of culture traits, the individual scores of highest performing (top ten) and lowest-performing (bottom ten) firms were examined to determine the plausibility of the above finding on the most and least effective culture profiles (see APPENDIX V). The bar graphs in APPENDIX V indicate that the least performing firms possess a culture profile that is consistent with the Western firms (9 out of 10). Moreover, the

most effective firms possess a culture profile that is consistent with East Asian firms (6 out of 10).

When comparing culture profiles of the lowest performing firms and highest performing firms, it shows that the lowest performing firms tend to possess imbalanced low levels of culture traits whereas the high performing firms tend to possess a balanced higher level of culture traits. This finding further supported the balanced-culture hypothesis (Yilmaz & Ergun, 2008) that examined the relative effects of cultural traits on the relationship between organisational culture profiles and firm performance.

South Asian firms revealed higher mean scores for Involvement and Consistency traits than Adaptability and Mission traits. Hence, two most prioritised traits of these firms were Involvement and Consistency. This finding revealed that South Asian firms are more internal integration and stability-oriented in achieving product quality focusing more on cost-efficiency and delivery than flexibility and innovativeness. This specific combination of cultural traits and related management practice orientations of South Asian firms were well-aligned with their priority focus on cost-efficiency and delivery dimensions in achieving superior product quality. This finding suggests that South Asian firms (on average) attempt to achieve higher product quality through manufacturing efficiency than effectiveness. It further suggests that the South Asian firms' culture-based approach toward increasing manufacturing performance is more aligned with the resource-intensive approach (Barney, 1986) than the market-intensive approach (Porter, 2004) adopted in strategic operations management.

Western firms revealed higher mean scores for Mission and Adaptability traits than Involvement and Consistency traits. The two most prioritised traits of these firms were found to be Mission and Adaptability. This finding revealed that Western firms are more external adaptation and flexibility oriented in achieving product quality focusing more on innovativeness and flexibility than cost-effieciency and delivery. Western firms' specific combination of cultural traits and related management practice orientations seem to be well-aligned with their priority focus on innovativeness and flexibility in achieving superior product quality. This finding suggests that Western firms (on average) attempt to achieve higher product quality through manufacturing effectiveness than efficiency. It further suggests that the Western firms' culture-based approach toward increasing manufacturing performance is more aligned with the market-intensive approach (Porter, 2004) than the resource-intensive approach (Barney, 1986).

East-Asian firms revealed higher mean scores for Adaptability and Mission traits than Involvement and Consistency traits. The two most prominent traits of these firms were Adaptability and Mission. This reveals that East Asian firms are more external adaptation and flexibility oriented than internal integration and stability-oriented in enhancing the manufacturing performance. However, unlike Western and South Asian firms, the East Asian firms found to be focusing relatively highly on product quality complemented with flexibility, innovativeness, cost-efficiency, and delivery dimensions. The specific combination of cultural traits and related management practice orientations of East Asian firms well align with their priority focus on flexibility and innovativeness coupled with cost-efficiency and delivery dimensions in achieving superior product quality. This suggests that East Asian firms (on average) attempt to achieve higher product quality through manufacturing effectiveness as well as efficiency. This finding further suggests East Asian culture-based approach toward increasing manufacturing performance is more aligned with both the market-intensive approach (Porter, 2004) and the resource-intensive approach (Barney, 1986).

The above findings propose that market-intensive and resource-intensive approaches should be effectively integrated to improve the manufacturing performance of RBFOTs and thereby to gain competitive advantages. Hence, the findings suggest that appropriate integration of the market-intensive and resource-intensive approaches could be useful to enhance manufacturing performance by adopting the most effective matching of cultural traits-manufacturing performance dimensions. This integration approach is further supported by the studies conducted by Bridoux (2004); Steininger *et al.* (2011). These studies suggest that an appropriate level of focus on both the firm's capabilities and market environment shapes the business strategy and performance of the firm.

Overall, these findings revealed that in an attempt to achieve superior manufacturing performance, foreign-owned firms (East Asian and Western) give more prominence to external adaptation and flexibility-oriented management practices and locally-owned firms (South Asian) give more prominence to internal integration and stability-oriented management practices. Hence, the overall findings suggest that manufacturing performance differences among East Asian, South Asian, and Western firms are attributable to the differences in their organisational cultures (the way they do business and manage their firms in the South Asian regional context) and the way these firms prioritise on manufacturing performance dimensions. Hence, apparel firms must be guided by the most operationally effective organisational culture profiles, most effective cultural traits, and related management practice orientations in the South Asian regional context. This finding is vital in enhancing the manufacturing performance

of RBFOTs by having the right combination of cultural traits-manufacturing performance dimensions.

The nature of the organisation culture profiles of the RBFOTs was a significant factor affecting the manufacturing performance. Hence, the study suggests that organisational culture profiles, related culture traits, and management practice orientations should be changed in the right direction to achieve superior manufacturing performance. A study conducted by Peters (2011) using "Mckinsey's 7-S Model" suggest that if existing organisational culture (shared values) is the barrier to enhancing performance, it must be appropriately aligned or changed to fit the other elements (strategy, style, staff and skills, structure and systems) to promote performance. A study by Ghasem *et al.* (2018) further suggests that contemporary manufacturing organisations must be well-configured with results-driven organizational cultures to achieve manufacturing excellence. Therefore, it is worth reconciling the study findings with the modern Business Excellence (BE) frameworks to initiate appropriate cultural changes in the right direction relating to contemporary manufacturing organisations.

7.7 Reconciling the findings of the study against the core values and standard practices identified by the Business Excellence (BE) frameworks

The purpose of this section is to compare the cultural traits of RBFOTs against the core values and principles embedded in BE frameworks (only the Baldrige Excellence Framework evolved in the USA and the Australian Excellence Framework have been considered because BE frameworks adopted in different regions share a common/equivalent set of core values). This comparison is relevant because the traditional notion of manufacturing excellence — a firm being able to satisfy the customers through superior products and services — has now assumed a wider management perspective of responsiveness, business model innovation, leadership responsibility (good governance), social responsibility, and so forth. This new form of excellence is commonly known as BE (Feng *et al.*, 2018; Flynn & Saladin, 2001; Matthew *et al.*, 2016; Mohammad *et al.*, 2011). BE principles apply to any business (e.g., manufacturing or service, for-profit or nonprofit, large or small), although the focus of this study is manufacturing.

BE is warranted due to the rapid expansion of the global markets and frequent encounters with VUCA (Volatile, Uncertain, Complex, and Ambiguous) business environments, foreign and domestic firms (including apparel manufacturing firms) are facing increasing pressure to achieve and maintain operational excellence and competitiveness (Emmanuel & Rene, 2022;

Kirkham *et al.*, 2014). Consequently, more than at any other time, manufacturing firms today can no longer rely on their traditional business processes, techniques, practices, and norms in highly competitive markets. To successfully survive and grow, these firms need to adopt and implement modern business processes, techniques, practices, and core values which have been successful over recent years (Emmanuel & Rene, 2022; Kuo *et al.*, 2021; Okoshi *et al.*, 2019).

The core values of BE serve as the guiding principles leading to superior management practices leading to superior corporate performance (Matthew *et al.*, 2016; Mohammad *et al.*, 2011). Consequently, causality is embedded in BE frameworks (Dahlgaard *et al.*, 2013), in the sense, that these models posit that superior results stem from superior processes based on best practices (Jayamaha *et al.*, 2008; Matthew *et al.*, 2016; Mohammad *et al.*, 2011).

Based on the above reasoning, it can be argued that the core values that underpin BE frameworks and Denison's culture traits share similar thinking. It is argued that TQM management practices and core values of BE, in general, are superior forms of organisational culture representations (Kanji & Yui, 1997; Prajogo & Brian, 2017; Prajogo, D. & McDermott, C. M., 2005), which organisational behaviour scholars may view as being equivalent to Denison's ideal culture profile. Table 7.2 reconciles the study's findings with the core values and standard practices adopted by two leading BE frameworks. Figure 7.1 depicts a visual representation of the commonality between Denison's culture traits and the core values of BE. The intersecting circles represent the overlapping nature of core values of BE and Denison's culture traits while the double-headed arrows represent the theoretical association between the four domains represented by DCM as well as BE.

Table 7.2

Reconciling the Study Findings with Leading Operational Excellence Frameworks

Core Values Underpinning the Baldrige Excellence Framework	**Core Values Underpinning the Australian Excellence Framework**	***Cultural traits and Management Practice Orientations of RBFOTs***
Visionary leadership (**VL**)	Clear direction and mutually agreed plans	***Mission trait*** *and related management practice orientations were found to be the most common and effective trait among the RBFOTs. This reveals the importance given to futuristic orientation by the RBFOTS*
Focus on success (**FS**)	Leadership driven excellence	
Customer-focused excellence (**CE**)	Understanding what customers value	***Adaptability trait*** *and related management practice orientation were found to be the second most effective cultural trait among the RBFOTs*

Innovation, learning, and agility (**ILA**)	Innovation and learning	
Valuing people (**VP**)	Involving people and their creativity for operational excellence	***Involvement trait*** *and related management practice orientation were found to be the third most effective cultural trait among the RBFOTs*
Management by fact (**MBF**) Systems perspective (**SP**)	Management by fact Systems perspective (in relation to work and activities)	***Consistency trait*** *and related management practice orientations facilitated synchronising the Mission, Adaptability, and Involvement traits and related management practice orientations towards the achievement of higher manufacturing performance*

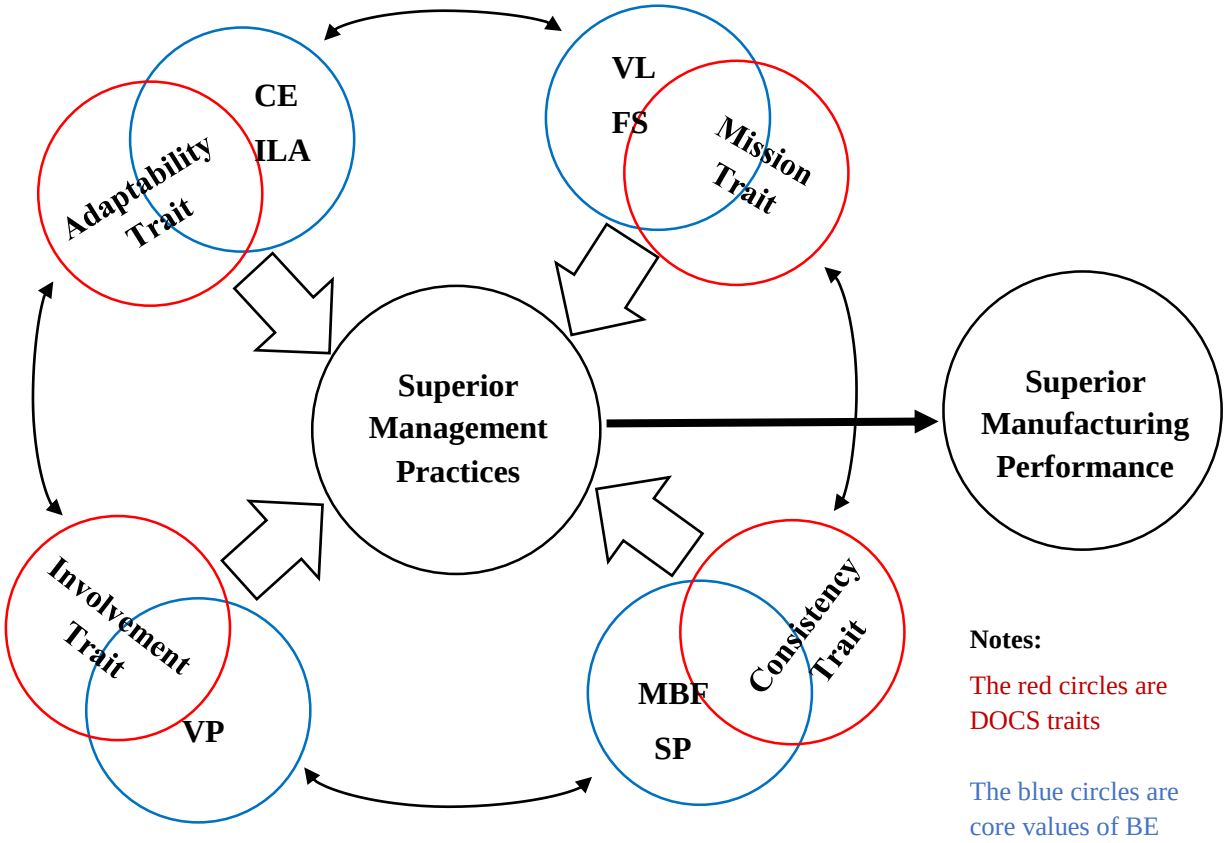


Figure 7.1 *The Overlapping Nature of Culture Traits and Core Values of BE (Own Work)*

Although the cultural traits (Consistency, Involvement, Adaptability, and Mission) and the related management practice orientations significantly differ among the RBFOTs, the apparel firms belonging to all three regions operate and compete in their markets with the prime aim of achieving superior performance in the same operating and business environments. The above reconciliation suggests that the core values of BE and the empirical findings of this study need

to be more external adaptation oriented with high levels of futuristic orientation, performance orientation, and agility oriented complemented with high levels of people orientation.

7.8 Validation of DOCS in Sri Lanka

The literature revealed a lack of cross-cultural studies in the South Asian region using the DOCS (Denison *et al.*, 2014; Hartnell *et al.*, 2011; Puppatz *et al.*, 2017), which necessitated research to test the theoretical and predictive validity of DOCS, considering Sri Lanka (South Asia) a specific region of interest. Hence, the study provided an avenue to validate DOCS in the apparel industry in Sri Lanka. Since, Sri Lanka is a third-world country representing the South Asian region, the culture traits and management practice orientations proposed by Denison could be different from the traits and practices found in the developed Western and the emerging developing countries in East Asia.

A CFA was carried out to confirm the identified four-factor structure, where each factor is represented by DOCS traits. The CFI and TLI values were indicated above .90, and the RMSEA and SRMR values were below .05. This confirmed that the DOCS factor structure in Sri Lanka (user model) fitted well with the original DOCS four-factor structure (baseline model). Furthermore, the chi-square difference test (between three-factor vs four-factor CFA models) revealed a better fit for the four-factor model (the three-factor model was considered because of the strong association between Involvement and Consistency traits). Hence, the organisational culture was further confirmed as a multidimensional construct consisting of four cultural traits — Involvement, Consistency, Adaptability, and Mission — in the apparel industry of Sri Lanka.

In addition to the construct validity, the convergent validity of the four scale constructs of DOCS was found to be satisfactory, with AVE values above .80 for all four scale constructs. The finding of the study further confirmed the discriminant validity of DOCS traits compared with the manufacturing performance scale (MPS), indicating the HTMT ratio of correlation values well below the .85 threshold. The reliability (internal consistency) of the four scale constructs was also very high, indicating Cronbach alpha values above .90.

Since DOCS has been used to measure organisational culture in Western, European and East Asian, and Middle-East countries but is not being used to the best of researchers' knowledge in South Asian regions, this validation in a South Asian country (Sri Lanka) helps to bridge this gap and provide more external validity to DOCS as a well-accepted culture measurement

scale. The predictive validity is implied from the association between four DOCS traits (see the bivariate correlations reported in Table 6.14) as well as the demonstrated mediation roles being played by the DOCS traits in the relationship between RBFOT and manufacturing performance. However, it is important to note that the validation of DOCS can be extended to the validation of propositions embedded in the DCM on the nexus between DOCS culture traits and business focus (external adaptation, internal integration, flexibility, and stability). The scope of this study did not cover examining these broader propositions in detail.

7.9 The new scale developed to operationalise manufacturing performance

The new scale contributes to the operations management literature on two counts. On the one hand, it serves as a well-validated comprehensive scale to operationalise the manufacturing performance of apparel manufacturing firms. On the other hand, it serves as an operation management-oriented scale to consistently measure and compare foreign and local apparel firms' manufacturing performance in various countries and regions.

The literature on scale development in the apparel industry revealed a lack of a consistent and comprehensive scale to operationalise the manufacturing performance of an apparel manufacturing firm. The newly developed manufacturing performance scale (MPS) is introduced as a validated, consistent, comprehensive scale to operationalise and measure the manufacturing performance unique to the apparel industry. The majority of the existing scales on performance measurement in apparel firms are found to be typically unidimensional, using diverse and inconsistent metrics. Therefore, the newly developed scale helps comprehensively measure apparel firms' manufacturing performance and provides the avenue for comparing performance at the firm, sector, or industry levels (e.g. benchmarking). This finding is one of the unique contributions this study brings to bridging the knowledge gaps that prevailed in the apparel industry.

The literature on the relationship between firm-ownership type and manufacturing performance revealed that one part of the difference in performance between foreign and locally owned manufacturing firms was related to operationalisation. The previous studies which compared the performance of foreign and local manufacturing firms were found to be using econometric-oriented measures. However, the newly developed scale, which consisted of five operations management-oriented dimensions (cost-efficiency, delivery, product quality, flexibility and innovativeness) can be used to compare the manufacturing performance of foreign and locally

owned apparel firms. This newly developed scale can be used to accurately measure the manufacturing performance of apparel firms for research in operations management.

The literature further revealed that a comprehensive scale to measure all the dimensions of the manufacturing performance of an apparel firm at the operational level was found to be lacking in the domain of operations management. However, some scholars argue that "sustainability" should be included as a dimension of manufacturing performance, and others argue that it should not be included as part of manufacturing performance. Many scholars are of the view that sustainability should be considered as part of the corporate/strategic level performance of a firm. But some scholars argue that sustainability relating to cleaner, greener, and safer manufacturing (environmental sustainability) should be considered as a new dimension of manufacturing performance. However, in the apparel industry, sustainability is applied in a limited sense in relation to social sustainability such as empowering women and their welfare (Herath, 2015). Since, sustainability is a broad concept covering at least three dimensions (economic, social, and environmental) metrics are not well established in the apparel industry to capture these triple-bottom line dimensions. Therefore, sustainability was not included as a dimension of manufacturing performance. This is another potential area emerging from this study.

While it would have been ideal to collect data on the 20 metrics of manufacturing performance from company records, this was not possible due to managers' reluctance to divulge hard data (meaning data from company records). This warranted adopting a 1-7 rating scale based on respondents' opinions. However, hard data have been mainly used to measure specific aspects of operational performance (e.g., line efficiency, machine efficiency, and operator absenteeism) (Hui & Ng, 2005; Srivastava *et al.*, 2020; Taplin, 1996; Zaharie *et al.*, 2017). Hard data have also been used mainly to measure corporate-level performance using publicly available and accessible data (Dickson Marsha *et al.*, 2012; Karabay & Kurumer, 2012; Khan & Rattanawiboonsom, 2019). However, researchers compel to use rating scales to collect confidential performance data covering the critical dimensions (such as product quality, cost-efficiency, and innovativeness) of manufacturing performance. The researcher believes that the data relating to these critical manufacturing performance dimensions can be effectively collected and measured reliably and consistently using rating scales, as most firms are unwilling to disclose their hard data due to confidential reasons. This contention of the researcher is supported by previous researchers such as Dess and Robinson (1984); Singh *et al.* (2016).

7.10 The external validity and generalisability of the findings

The external validity and generalisability of the findings of this study are based mainly on the soundness of the conceptualised model built and the methodology used to collect the data and test the hypotheses.

The conceptual model was built based on the main research gaps identified after extensively reviewing the existing literature. Moreover, the quantitative dominant multimethod design helped the researcher to collect qualitative and quantitative data required to achieve the main objectives of the study. The quantitative study was conducted using the survey method after gathering information to clarify and understand the research context through a preliminary field study. The field study was instrumental in designing the quantitative study with accurate sampling, survey, data collection, and analytical decisions. Hence, when collecting the quantitative data, it was possible to take the appropriate steps to minimise the sample selection bias, response bias, and missing values and achieve higher firm-level survey response rates.

The Intraclass Correlation Coefficient (ICC) values revealed a highly significant interrater reliability (ICC > .8, $p < .05$) confirming high interrater agreement among different middle-level managers' ratings of the four DOCS constructs. The CFA results confirmed the factor structures of DOCS and MPS. The convergent and discriminant validity test results of the scale constructs (DOCS and MPS) easily passed the accepted threshold values. Moreover, the reliability of the scale constructs was found to be very high (> .9 Cronbach alpha values).

The parallel multiple mediation analysis using the bootstrapping technique in regression (SPSS PROCESS macro - Model 4) accurately estimated the mediation effect by taking all four cultural traits simultaneously as mediators into the model. While the strong correlation between Involvement and Consistency was not ideal ($r = 0.88$) in linear modeling, in a theory-testing framework[29], the collinearity that resulted mainly from the above association is something that the researcher has to live with.

As regards mediation, when the culture traits were included in the model as separate mediators (i.e. simple mediation), all four traits were found to mediate the relationship between RBFOT and manufacturing performance. However, when the four culture traits were considered simultaneously as parallel mediators (i.e. multiple mediation), only two cultural traits

[29] Dimension reduction mehods such as partial least squares regression to overcome collenearity was not considred because such methods are not suitable to achive the research objectives.

(Involvement and Mission) were found meditating while the other two (Consistency and Adaptability) did not. A simple mediation model is an oversimplification of the phenomenon under study because it is not possible to represent organisational culture through a single construct, knowing that organisational culture needs to be represented through four interrelated constructs. Therefore, the parallel multiple mediation model used in this study allowed the RBFOTs effect to be transmitted to manufacturing performance through the four organisational cultural traits simultaneously.

Deployment of three control variables — the variables that are not part of the theory but might affect the results, such as the estimates of the path coefficients — served as additional terms (regressors) in the regression analysis to provide more reliable estimates of the effects of the theoretical variables. Consequently, the inclusion of control variables helped to rule out alternative explanations, reduce systematic error and increase the statistical power (Becker, 2005).

All three control variables — level of employees in the factory (**C1),** the extent of technology used for garment manufacturing **(C2)**, and the type of market for which the firm mainly served (**C3)** — were found to have a significant direct effect on manufacturing performance of RBFOT. Thankfully, the contribution from the control variables to the R^2 in explaining the variability of manufacturing performance was found to be considerably less than that made by the theoretical variables (R^2 with control variable 77%; R^2 without control variables 66%), thus providing the practical utility of the researcher's theory. However, the fact that the three control variables returned significant coefficients ($p < .05$) means that in addition to organisational culture, the level of technology, mainly served market type, and size of the firm (based on the number of employees) affect the manufacturing performance of apparel firms. This finding, though not part of theory testing, is consistent with the studies that examined the relationship between the size of the firm, the extent of technology used, and the type of market served by manufacturing firms and performance (Dubey, 2015; Raja & Kumar, 2005; Rasiah & Krishnan, 2008; Swamidass & Kotha, 1998).

Two control variables (number of employees and extent of technology used) returned a nonsignificant effect on the firm's culture, implying no influence on manufacturing performance through culture. However, the type of market served affected the firms' culture significantly ($p < 0.05$), implying an indirect influence of this variable on manufacturing performance through culture. Hence the consideration of control variables in the model justifies

the selection of control variables, in addition to further confirming the accuracy of the estimated mediating effect in the relationship between RBFOT and manufacturing performance.

Based on the soundness of the model and the methodology, the model's goodness-of-fit to data is another important concern reflecting the theoretical soundness (adequacy) of the tested mediation model. The predictors of the mediation model (RBFOTs, four cultural traits, and three control variables) explained 77% of the variability in manufacturing performance. Since the direct effect of RBFOT on manufacturing performance was not found to be significant, and 57% of the variation in manufacturing performance was explained by the four mediators of the model, it can be argued that four mediators collectively explain a substantial portion of the variability in manufacturing performance after controlling the effects RBFOTs and three control variables on manufacturing performance. This suggests that the organisational culture of RBFOTs is an important determinant accounting for the difference in manufacturing performance. Hence, the tested model can be used as a reliable organisational culture-based mediation model to explain and predict the manufacturing performance differences of RBFOTs.

7.11 Implications of the findings to the practice of (cross-cultural) operations management and industrial (apparel manufacturing) management

The study's findings provide useful empirical insights and evidence for foreign and local firms engaging in international business in general and apparel manufacturing in particular. This section discusses the implications of the study's findings to the practitioners (owners, leaders, and managers) of the foreign and local firms and policymakers of developed and developing countries.

Today, the most challenging task of firms engaging in international business is establishing affiliates in host countries and successfully managing local operations for superior performance (Deresky, 2017). Research on international business has found that many multinational firms underperform or fail in their international operations in host countries due to a lack of cultural adaptation (Srivastava *et al.*, 2020). Since foreign firms need to ensure higher performance to achieve their investment goals, these firms are expected to adopt the most effective management practices, systems, techniques, norms, and values that bring the highest performance. Hence, the cultural management practices, systems, techniques, norms, and values adopted by the affiliates have to be fine-tuned for superior performance. Therefore, the

finding of this study provides valuable implications for practitioners and policymakers in numerous ways to make the right decisions as discussed in the following sections.

7.11.1 Implications for practitioners

This research delivers practical evidence to foreign and locally owned apparel manufacturing firms operating in South Asia (especially Sri Lanka) on how to shape and align their management practice orientations in line with the most effective organisational culture traits and profiles to improve their manufacturing performance and competitiveness in international markets. Furthermore, leaders/managers would assist in understanding how to diffuse, adapt or change the management systems, techniques, practices, and norms to organise operations management activities successfully and tasks within their factories/plants in South Asian countries like Sri Lanka.

The organisational culture-based manufacturing performance improvement model provides useful insight for industry practitioners in understanding what contributes to the difference in their manufacturing performance in relation to their competitors in the apparel industry. In the first instance, the study findings convey to the leaders and managers in the apparel firms that their firms' culture significantly influences their manufacturing performance. It further revealed what kind of organisational culture profiles, culture traits, and operations practice orientations the ROBFOTs may be more effective in enhancing manufacturing performance. The study showed that (on average) firms belonging to a particular region tend to possess a certain culture profile (e.g. for Western, high Mission but low to moderate Involvement, Adaptability, and Consistency), the highest performing firms tend to maintain a more balanced culture profile that is high in all four culture traits, implying that these firms tend to adopt all the management practice orientations covered in the DCM (APPENDIX V).

Since this study developed (and tested) a measurement scale to operationalise and measure manufacturing performance for the apparel industry, it can be used by practitioners in the apparel industry for performance monitoring and improvement purposes. This new manufacturing performance scale helps practitioners to measure and compare their performance consistently, comprehensively, and accurately to improve operational performance. It also facilitates the comparison of the five critical dimensions of manufacturing performance (cost-efficiency, delivery, product quality, flexibility, and innovativeness) with the other competing firms in the industry for operational, tactical, and strategic planning and control purposes. This competitive benchmarking provides the basis for firms to formulate

appropriate operations management strategies to achieve sustainable competitive advantage in overseas markets.

The competing nature of the culture traits and related management practice orientations revealed in the study, along with the balanced-culture profile and integrations of a resource-intensive approach (Involvement and Consistency) and market-intensive approach (Adaptability and Mission) for superior manufacturing performance, provides a strong foundation on how to align their organisational culture with the right combination of internal integration/stability and external adaptation/flexibility.

7.11.2 Implications for policymakers

From a policymaker's point of view, foreign direct investment is critically important to a developing economy (especially to foreign investment-dependant developing countries such as Sri Lanka), irrespective of how well foreign firms perform (or otherwise) relative to local firms. However, the study findings (especially the extent of manufacturing performance difference among the RBFOTs) could be helpful to policymakers (the government) in decision-making. For example, if local firms perform equally well (or better) than foreign firms, the policymakers can develop strategies to consolidate or sustain this position through incentivisation and other strategic initiatives (i.e. industry advisory service). On the other hand, if local firms perform poorer than foreign firms, the policymakers can take necessary policy decisions in collaboration with industry associations (i.e. facilitating industry consultancy and advisory services) to improve the performance of the local firms. The study showed that there are low Involvement-trait oriented practices (i.e, empowerment, capability development, teamwork) in Western firms. While the policymakers cannot influence Western firms (any foreign-owned firm for that matter), they certainly can take policy decisions to improve employee Involvement through industry services such as Employer Assistance Services, and Joint Consultancy Councils because the operational staff working in foreign-owned firms are mostly local employees. Low employee involvement in particular could lead to motivational problems resulting in operational issues such as labour relations, high absenteeism, and employee turnover.

The study provides empirical evidence to existing and potential investors in other regions and countries around the world interested in investing in the apparel industry in Sri Lanka and the South Asian region. The study's findings stemming from theory testing can be used to understand whether RBFOTs matter in manufacturing performance in the apparel industry.

Model test results can be used by policymakers in apparel manufacturing countries to better understand the links between RBFOT → organisational culture → manufacturing performance, especially because these relationships were found to be strong (high R^2). While the policymakers in developed countries cannot influence organisational culture, they can take policy decisions that may help foreign firms to achieve certain favourable performance improvement conditions (e.g. increased Involvement through worker engagement). It also helps the policymakers of the developing countries in South Asia (i.e. especially Sri Lanka) to create the required infrastructure facilities and institutional support needed to promote the organisational culture-based high-performance operations management practices.

7.12 Chapter Summary

This chapter evaluated and interpreted the study's findings in light of the available literature and practical implications relating to the research question/s examined. It discussed the results revealed for the four hypotheses from a theoretical perspective in relation to extant literature. It further discussed the validation of DOCS in Sri Lanka, and the new MPS scale developed to operationalise and measure the manufacturing performance of apparel firms. Finally, it discusses the implications of the study findings to the practice of (cross-cultural) operations management and industrial (apparel manufacturing) management. The implications were discussed in detail on how the study findings will be useful for the apparel industry practitioners and policymakers.

CHAPTER 8

CONCLUSIONS

This chapter summarises the key findings of the study in relation to study objectives and its contribution to the theory and practice. It also provides suggestions for practitioners based on the key findings, and perhaps more importantly, suggestions for further research.

The literature review revealed part of the reason for the differences in the manufacturing performance of RBFOTs was related to the operationalisation of manufacturing performance and other reasons stemmed from differing theorisations from prior research.

The study addressed the theorisation issue by positing that on average, organisational cultures differ based on RBFOTs and the former (i.e. culture) in turn causes manufacturing performance differences among RBFOTs. This is the reason why the researcher posited that the organisational culture mediates the relationship between RBFOT and manufacturing performance. The study addressed the operationalisation issue by developing an apparel industry-specific scale to operationalise manufacturing performance.

Though there are various reasons attributed to the differences in manufacturing performance among the foreign and local firms belonging to diverse regions of the world, this study examined the identified theoretical and operationalisation issues from a cross-cultural operations management perspective by selecting the apparel manufacturing industry of Sri Lanka as the theory testing context. Hence, the study's specific research question was "*what is the role being played by the organisational culture as a mediator in the relationship between RBFOT and manufacturing performance*". This research question covered both the theory formulation component (What is the theoretical relationship exists among RBFOTs, organisational culture, and manufacturing performance?) and the theory-testing component (whether organisation culture mediates the relationship between RBFOT and manufacturing performance in the first instance and if so how and to what extent does it mediate?).

Hence, the key findings revealed from the study were summarised based on the study's main objectives, which addressed the theory formulation and theory testing components in relation to the research question examined. Furthermore, since the DOCS is used to operationalise and measure the organisation culture of this study, the study provided an avenue to validate the DOCS in the apparel industry in Sri Lanka.

8.1 Conclusions relating to the objective – 1

The study's first objective was to determine whether organisational culture mediates the relationship between RBFOT and manufacturing performance, and if so, identify how and to what extent it mediates. Achievement of this objective resulted in a new theorisation that explains and predicts how the organisational culture plays a role in causing manufacturing performance differences across RBFOTs. Based on the DCM (the constructs of DCM being measured through DOCS) the study represented organisational culture through four distinct constructs — Involvement, Consistency, Adaptability, and Mission — which meant that the study represented the path RBFOT → organisational culture → manufacturing performance through four parallel paths (e.g., see Figure 8.1, being an *a posteriori* of Figure 2.7), resulting in parallel mediation.

The mediation model required four hypotheses. The first hypothesis (H1) posits that there is a relationship between RBFOT (independent variable) and manufacturing performance (dependent variable). This dependent variable versus independent variable relationship is a necessary (but not sufficient) condition to establish a mediation effect. In the language of mediation, H1 represents the *total effect* of RBFOT on manufacturing performance.

In this study, H4 posits the mediation effect (Figure 8.1). The paths relating to hypotheses H3 (path a) and H2 (path b), the indirect paths in the RBFOT → manufacturing performance relationship, represent the paths that are needed to complete the mediation test (testing H4).

It is important to note that the relationship represented as path c in the study — in the language of mediation, the direct effect — is different from the relationship that corresponds to the total effect represented by H1. In mediation, the direct effect is the effect between the independent variable and the dependent variable, once this relationship has been controlled, taking the indirect path/s into account via the mediator/s (in this study, four mediators). Similarly, it is important to note that while H4 is the main hypothesis related to objective 1, the remaining three hypotheses also play a role in making mediation theoretically meaningful.

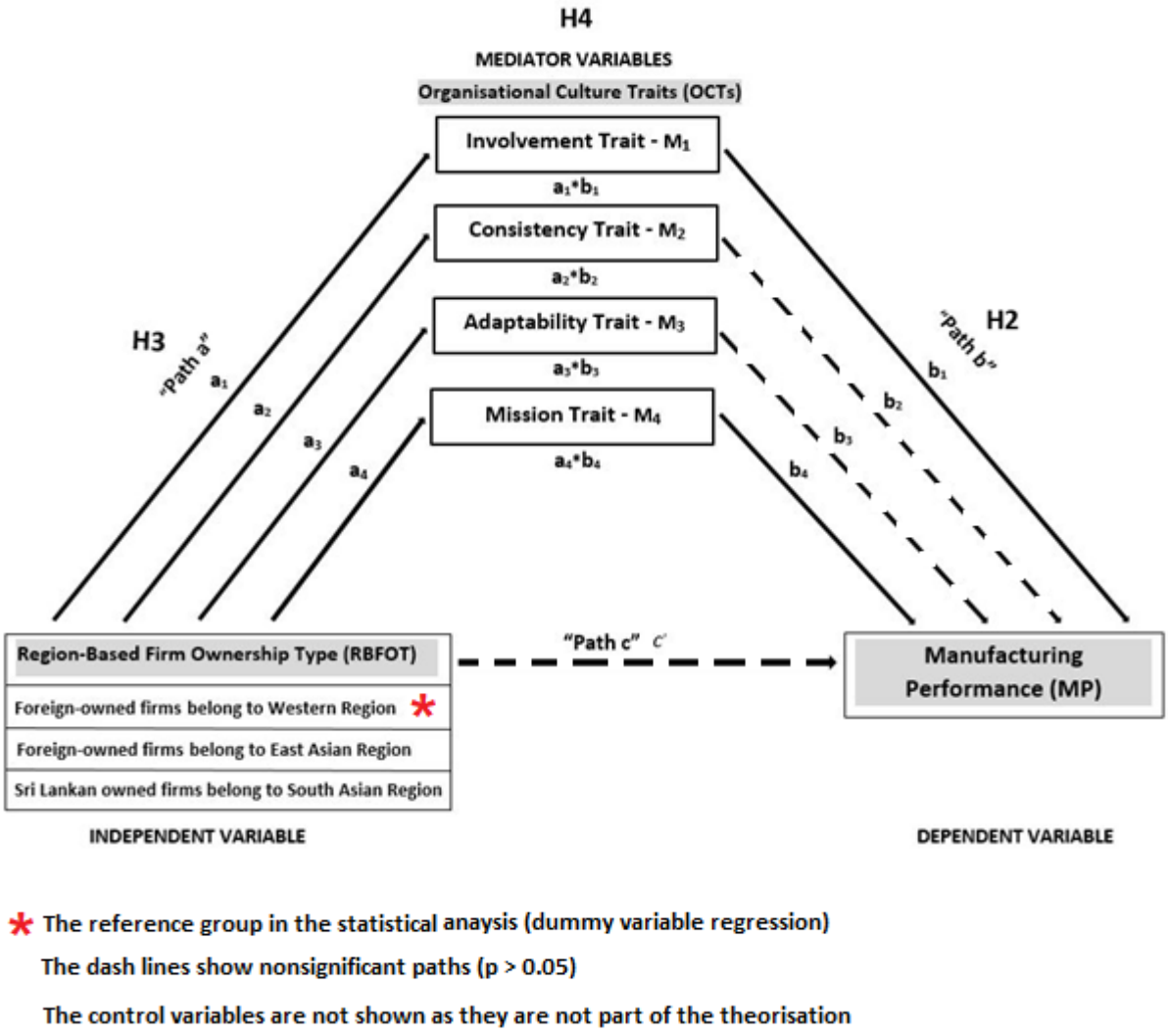


Figure 8.1 *The Supported and Unsupported Paths of the Mediation Model*

Since the data supported the four hypotheses the study showed that the hypothesised model is tenable. This said the test results returned a nonsignificant direct effect of RBFOTs on manufacturing performance. What the nonsignificant path (path c in Figure 8.1) suggests is that the nature of mediation is a "full mediation" (sometimes also called a complete mediation). Consequently, the findings imply that the differences in manufacturing performance across RBFOTs in the study context are effectively explained through the differences in the organisational cultures of the RBFOTs.

In addressing the second part of the research question related to objective 1 (how and to what extent the organisational culture mediates the RBFOT → manufacturing performance relationship), the results revealed that only two of the four organisational cultural traits (Involvement and Mission) mediated the relationship between RBFOT and manufacturing performance. This was an interesting finding (details in the discussion) because the study showed that RBFOT influences all four cultural traits (findings related to H3). The two

significant parallel mediation paths imply that Involvement related practices (characterised by worker empowerment, employee development, and teamwork) and Mission related practices (characterised by strategy direction, complementary goals, and unified shared vision) are the practices accountable for the manufacturing performance differences observed among RBFOTs.

The study found a high bivariate correlation between Consistency and Involvement (r = .88, as shown in Table 6.12) and some moderate bivariate correlations (some negative) among other pairs of cultural traits. This was investigated by studying the correlation patterns for each RBFOT which were proven to be positive (Figures 6.6 – 6.11). These positive correlation patterns were consistent with prior research, and the reason why the overall correlation patterns were different from prior research is because of the location difference of data points of DOCS traits (this is consistent with H3).

The study found that the scores of the four organisational cultural traits of Involvement, Consistency, Adaptability, and Mission were significantly different among the RBFOTs (Western vs East Asian, Western vs South Asian, and East Asian vs South Asian). Hence a significant difference in organisational cultural trait profiles and cultural trait-based management practice orientations among the RBFOTs was evident. East Asian firms returned relatively high scores on Adaptability and Mission implying high external adaptation/flexibility and relatively moderate scores on Involvement and Consistency, implying moderate internal integration/stability. Western firms returned a relatively high score on Mission and a relatively moderate score on Adaptability, implying a high to moderate external adaptation/flexibility, and relatively low scores on Consistency and Involvement, implying low internal integration/stability. South Asian firms (Sri Lankan) revealed relatively high scores on Involvement and Consistency implying high internal integration/stability and relatively low scores on Adaptability and Mission revealing relatively low external adaptation/flexibility.

The study found that the mean manufacturing performance of East Asian firms recorded the highest value compared to the second-highest in South Asian firms and the lowest in Western firms. The results comparing the mean manufacturing performance revealed that there was no significant difference between East Asian and South Asian firms, but both these firms were significantly higher than Western firms. However, a comparison of individual dimensions among the RBFOTs indicates that the manufacturing performance of East Asian firms was the highest in terms of all five dimensions (cost-efficiency, delivery, product quality, flexibility, and innovativeness of capability theory). Conversely, South Asian firms were found to be

performing better in cost-efficiency and delivery than Western firms. However, Western firms were found to be performing better in innovativeness and flexibility than South Asian firms. Regarding product quality, all three firms (Western, East Asian, and South Asian) revealed a higher mean score than the other four manufacturing performance dimensions.

The results comparing the mean manufacturing performance of five dimensions among the RBFOTs showed no significant difference between East Asian vs Western firms in terms of Flexibility and Innovativeness. It also indicated no significant difference between East Asian and South Asian firms in terms of cost-efficiency and delivery. The results further revealed that there is a significant difference in terms of product quality among all three types of firms (Western, East Asian, and South Asian).

The study's finding supports the cumulative built-up theory of Ferdows and De Meyer (1990), which explained how the other manufacturing performance dimensions (cost-efficiency, delivery, flexibility, and innovativeness) are cumulatively built-up, focusing on product quality as the core dimension. The study further revealed that East Asian and Western firms focused more on manufacturing effectiveness (flexibility and innovativeness) than manufacturing efficiency (delivery and cost-efficiency) in gradually building product quality in their respective organisations. In other words, East Asian and Western firms were more oriented toward external adaptation/flexibility (adaptability and mission traits), and South Asian firms were more oriented towards internal integration/stability (involvement and consistency traits).

Overall, the study revealed that the manufacturing performance differences among East Asian, South Asian, and Western firms were attributable to the differences in their organisational cultures. The superior performance depend on how the firms match their culture profiles with the correct prioritisation of the manufacturing performance dimensions.

The R^2 effect-size measures associated with the mediation model found a good fit for the data. The predictors of the mediation model (RBFOTs, four cultural traits (including the three control variables) explained 77% of the variation in manufacturing performance. The total indirect effect of the model (four cultural traits) explained 57% of the variation in manufacturing performance as the direct effect was nonsignificant. These results suggest that the model is useful for theoretical and practical applications. For example, one can expect realistic improvement in manufacturing performance by appropriately changing the firm’s culture (DOCS traits).

8.2 Conclusions relating to the objective – 2

The second objective of the study was to develop a comprehensive measurement scale to operationalise manufacturing performance for the apparel industry. This objective fills the gap of not having a scale that represents manufacturing performance in the apparel industry to the detail that is understood and becomes valuable to the industry (the industry needs specific metrics that capture the interrelated dimensions of cost efficiency, delivery, product quality, flexibility, and innovativeness used in operations management literature).

To effectively design, develop and validate, the researcher employed the methodologies of scale development as elaborated in the work of leading scholars in scale development (DeVellis, 2017; Hensley, 1999; Spector, 1992). This methodology guides the development of a scale having a broad theoretical grounding, industry relevance, and feasibility. Six sequential steps were followed to design, develop and validate the MPS scale, namely, 1) Domain and construct definition, 2) Dimensions identification & Items generation, 3) Initial scale design and development, 4) Assessing the validity and reliability of the scale, 5) Final scale development, and 6) Replicating the scale in diverse contexts.

The newly developed scale confirmed five interrelated performance dimensions — cost-efficiency, delivery, product quality, flexibility, and innovativeness — critical to the apparel industry. These dimensions of manufacturing performance themselves are nothing new to the operations management fraternity. What is new is the details on how these dimensions are best captured in the apparel sector via industry-specific metrics. This scale consisted of 20 items (four representing each of the five interrelated performance dimensions). The initially developed MPS scale was pre-tested by six experts using a pre-test assessment opinion survey. The pre-tested MPS scale was then pilot-tested using 84 senior managers of apparel firms operating in seven leading Asian apparel manufacturing countries. The scale had high factor loadings (> .65), convergent validity (*AVE* > .70), and scale reliability (Cronbach's $\alpha > .8$). The finalised MPS was used to measure manufacturing performance in the main survey conducted in Sri Lanka.

The CFA results for the manufacturing performance scale confirmed factorial validity. The study showed that manufacturing performance can be represented either as a second-order factor or five first-order factors because the chi-squared test for difference in model fit was found to be nonsignificant. The study adopted both these manufacturing performance operationalisations depending on the study requirements.

8.3 Conclusions relating to the objective – 3

The third objective of the study was to validate Denison's Organisational Culture Survey (DOCS) in the apparel industry of Sri Lanka. This objective helped to further validate the DOCS in a new industrial and regional context.

CFA results confirmed that the DOCS factor structure in Sri Lanka (user model) fitted well with the original DOCS four-factor structure (baseline model). The chi-Squares difference test (between three-factor vs four-factor CFA models) revealed a better fit for the four-factor model. Hence, the organisational culture was further confirmed as a multidimensional construct consisting of four cultural traits - Involvement, Consistency, Adaptability, and Mission - in the apparel industry of Sri Lanka.

In addition, to construct validity, the convergent validity of the four scale constructs of DOCS was found to be satisfactory, with AVE values above .80 for all four scale constructs. The study's findings further confirmed the discriminant validity of DOCS traits compared with the MPS, indicating the HTMT ratio of correlation values well below the .85 threshold. The reliability (internal consistency) of the four scale constructs was also very high, indicating Cronbach alpha values above .90.

The researcher acknowledges that validating DOCS is arguably more than just a theoretical exercise of establishing factorial validity and other theoretical validity facets mentioned above. Denison and his associates make serious claims about ideal culture profiles (according to them firms should score highly in all four cultural traits to achieve optimal business outcomes) and culture profiles desired for specific types of corporate outcomes. For example, Denison et al. claim that firms that score highly in adaptability and mission traits perform better in innovation, sales growth, and market share, compared to firms that do not score highly in the said traits. Neither this claim nor other claims made by Denison *et. al.* (2004) on organisational effectiveness — perhaps except quality — have been tested in this research. This aspect is covered later under limitations and suggestions for further research.

8.4 Contribution of the study to theory

The study's findings contribute new knowledge to the theories of mediational studies and culture-effectiveness studies done using the DOCS, Cross-cultural operations management, and industrial (apparel manufacturing) management.

For the most part, prior research has studied the relationship between foreign-local ownership type and firm performance using econometric approaches (based on an international economics perspective). These studies returned conflicting evidence. Most findings from prior studies provide limited insight into cross-cultural operations management practice orientations. Justifiably, this study took the position that firm performance (especially manufacturing performance) results from different operations management practices, systems, techniques, and norms that are best characterised by the culture of the RBFOTs. Hence, the study posits that RBFOTs influence the firm's organisational culture, and the organisational culture, in turn, influences manufacturing performance. Consequently, the study provides a (novel) theoretical underpinning that is better grounded in international and cross-cultural operations management.

The study contributed to theory on several counts. Firstly, it introduced a new organisational culture-based mediational model/theory to better understand, explain and predict the manufacturing performance differences of RBFOTs (Western, East Asian, and South Asian firms operating in the apparel industry of Sri Lanka). This culture-based mediation model had a 59% predictive relevance and explanatory power in explaining the differences in manufacturing performance while controlling the direct effects of RBFOTs and three control variables on manufacturing performance.

The study contributed to identifying how the differences in organisational cultures explain the differences in the manufacturing performance of the RBFOTs. It identified the most to least effective organisation culture profiles, culture traits, and operations management practice orientations leading to different levels of manufacturing performance.

The study clarified theoretical links among the RBFOTs, organisational culture, and manufacturing performance in a South Asian developing country (Sri Lanka). Hence, it provides empirical evidence on understanding to what extent the operations management practices, systems, techniques, and norms are influenced by the regional cultures to which the firms belong. Hence, the study postulates a new theorisation based on cross-cultural operations management to explain the differences in manufacturing performance among the local and foreign firms operating in developing regions.

The study contributed to the industrial management theory by developing and validating a new five-dimensional, twenty-item survey instrument (Manufacturing Performance Scale – MPS) for the apparel manufacturing industry. This scale is the first comprehensive scale to measure

the manufacturing performance of an apparel firm which covers all the key operational performance dimensions (cost-efficiency, delivery, product quality, flexibility, and innovativeness) and related metrics critical for the success of an apparel manufacturing firm.

Since this scale is designed, developed, and validated by taking data from seven leading apparel manufacturing countries in the Asian region, it can be used as an effective performance measurement tool or base scale by researchers and practitioners. In addition, this scale provides a theoretical knowledge base to develop new scales to measure operations performance of apparel-related industries such as textile, garment accessories, leather, and footwear. Finally, it can also be used by researchers in apparel and other related industries for scientific purposes (e.g., hypothesis testing).

The study contributed by validating the DOCS instrument and the findings of the balanced-culture hypothesis of DOCS in the apparel industry of Sri Lanka. The findings of the study support the regionalistic culture-specific view the — view that an organization's culture represents the unique identity and character of the firms owned by corresponding regions of the world.

8.4.1 The multidisciplinary nature of the contribution of the study to theory

This study draws knowledge from several major disciplines. The overarching problem of the study "*why is there a difference in manufacturing performance between foreign and local firms operating in various regions of the world, when everything seems to be the same (labour, capital, technology, markets) or controlled* " lies in the domain of Operations Management (OM). Hence, the study mainly contributes to the discipline of OM. However, today, due to the increased globalisation of manufacturing businesses the world over, the study also contributes to International Business (IB) which is a growing discipline in the 21st Century. The researchers' main focus of the study was to examine the role of the organisational culture of region-based firms as a mediator, it also contributes to the discipline of Organisational Behaviour (OB). Moreover, the development of the new manufacturing performance scale and the validation DOCS in Sri Lanka contributes mainly to the broader discipline of Performance Management (PM) but more specifically to performance measurement and scale validation.

Today, research problems (related questions) are not confined to a particular discipline and they become more multidisciplinary. Similarly, the research problem the researcher attempted to partly address from the specific research question extends to multiple disciplines (OM, IB,

OB, and PM) and as a result, the study contributes toward multiple disciplines. Hence, while the study generally contributes to the field of operations management, it specifically contributes to the emerging new fields of International Cross-Cultural Operations Management; Performance Measurement, and Scale Validation. Figure 8.2 depicts the multidisciplinary nature of the study's contribution to theory.

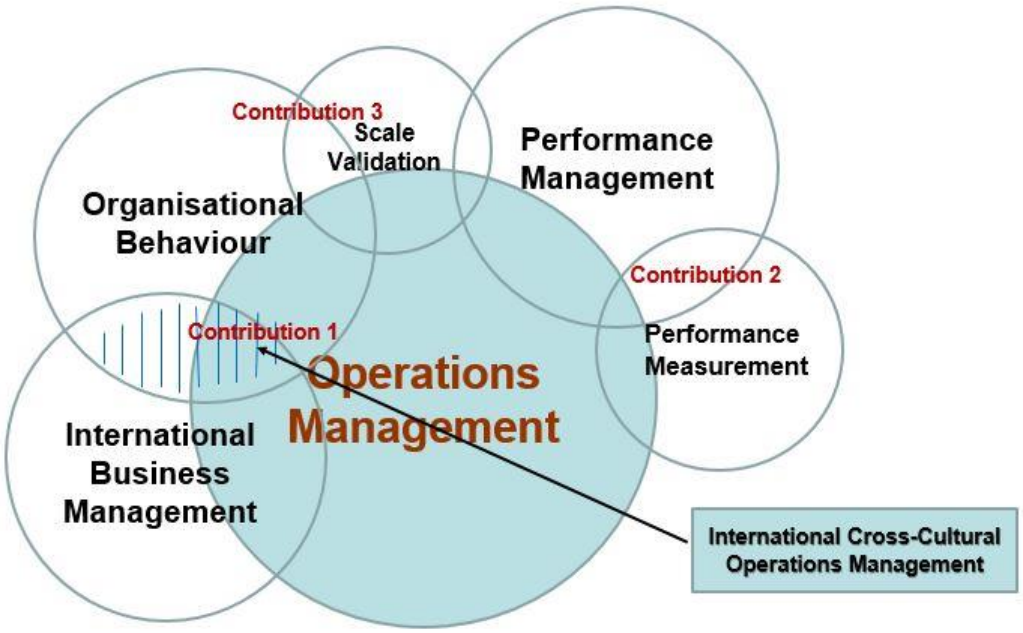


Figure 8.2 *The Multidisciplinary Nature of the Study's Contribution to Theory*

8.5 Contribution of the study to practice

The findings of the study contribute to the practice of international business in general (international firms that establish their business in host countries) and apparel business in particular on three counts. Firstly, the study makes a practical contribution to the operational performance measurement field. To improve operational performance (in this study, the manufacturing performance), practitioners need to know how to measure performance reliably and accurately in the first place. Then they should have benchmarks (e.g. the scores of best-performing firms) to compare their performance (baseline measurement) and take action to improve their performance over time toward the desired benchmarks. Since this study developed (and tested) a measurement scale to operationalise and measure manufacturing performance for the apparel industry, and this scale contains 20 metrics on performance with the minimum, average and maximum scores for each metric, apparel firms can use these scores for performance measuring and monitoring purposes (the reader may refer to Table 5.12). Moreover, the industry research organisations (ex. Bloomberg, Nelson), industry associations (e.g. Joint Apparel Association Forum of Sri Lanka – JAAFSL, Sri Lanka Apparel Exporters

Association – SLAEA), and industry regulatory bodies (ex. Board of Investments of Sri Lanka – BOISL, Sri Lanka Export Development Board – SLEDB) can use the researcher's metrics to measure and monitor the performance of the local and foreign apparel manufacturing firms operating in the industry or rank apparel firms based on the overall score for manufacturing performance.

If the researcher's scale is to be used by individual firms, the researcher recommends that this scale (more specifically the performance measurement system the study developed) should be used in conjunction with a strategic performance measurement system such as the balanced scorecard (Kaplan & Norton, 2007). A firm's strategic performance measurement system covers not only manufacturing performance, but also learning and growth (leading indicator), customer performance (lagging indicator 1), and financial performance (lagging indicator 2)[30].

Secondly, the study makes a practical contribution because the mediation model developed and tested by the researcher can be used to understand what can be expected (on average) in the organisational culture of a particular RBFOT, and how it could impact the firm's operational performance. Foreign firms are very cautious about investing in foreign territories, which are unfamiliar to them. The managers of RBFOTs could improve their performance based on the most and least effective cultural trait profiles and related management practice orientations via the necessary transformative leadership interventions. The researcher however acknowledges that more research needs to be conducted (details given later) to better understand how DCM/DOCS works in an apparel industry context.

Finally, the study makes a practical contribution because it provides valuable research-based evidence to decision-makers (including policymakers) of apparel manufacturing countries to take high-level decisions perhaps more effectively. Developing economies desperately need FDI. While it is not perhaps surprising that Sri Lankan firms and East Asian firms outperformed Western firms in a labour-intensive, moderate technology industry such as apparel, the FDI contributions Western firms make in a developing economy cannot be taken lightly. While culture is an important prerequisite for strategic performance, selecting the right competitive strategy itself becomes important. For example, if a Western firm decides to compete based on cost by being a "low-cost operator" — the very phrase used by Michel Porter — the DCM/DOCS provides insights as to what culture profile works best for that competitive

[30] Note that lagging vs leading indicator classification is in relation to internal business operations. Learning (includes growth also) is a leading indicator because if leaning (and growth) does not take place, internal business performance would suffer sooner or later (after some time delay).

strategy. The study showed that Western firms score poorly in the Involvement and Consistency traits. If Denison's claims (propositions) are to be believed, Western firms are expected to perform poorly relative to their South Asian counterparts if they compete based on cost. Western firms could outperform their South Asian and East Asian counterparts if they adopt a suitable differentiation strategy such as big-step improvement (e.g., product innovation) or business model innovation. Again, it is acknowledged that more research is needed to make more concrete statements about what strategies may work when a foreign firm invests in a developing economy.

8.5.1 Extendability of the study findings to non-apparel industries

Since the study was conducted taking the apparel industry as the context, it mainly contributes to the apparel industry. The apparel industry is a multitrillion (USD 3.5 trillion) worth of industry and it is the largest and most vital industry for many South Asian and East Asian economies. Hence, the contribution of the study to the apparel industry is significant in terms of the extended culture-based mediation model as well as the new scale development.

However, the study's contribution cannot be confined to the apparel industry alone, in the sense, the organisational culture acting as the mediator in the RBFOT → manufacturing performance relationship is generalisable across manufacturing industries. The new mediation model and the manufacturing performance scale can be effectively extended to other industries, with suitable modifications. Although establishing content validity of the metrics used to capture manufacturing performance was not within the scope of the study, it can be argued that the model and the operational definitions of manufacturing performance can be readily applied to similar industries (e.g., textile, leather products, footwear, soft toys).

As mentioned above, the mediation model can be further tested in other manufacturing industrial contexts with minor customisation to the metrics of manufacturing performance. Therefore, the five dimensions of manufacturing performance — cost-efficiency, delivery, product quality, flexibility, and innovativeness — can be extended to other industries, while the apparel industry-specific metrics such as cut-to-make ratio, cost per minute, and sample approval rate can be substituted with equivalent metrics, depending on the characteristics of the considered industry. Therefore, 17 metrics out of 20 used to measure the manufacturing performance of an apparel firm can be effectively used in other similar industries without any change to measure their manufacturing performance. Figure 8.3 diagrammatically illustrates the extendability of the study findings to non-apparel industries.

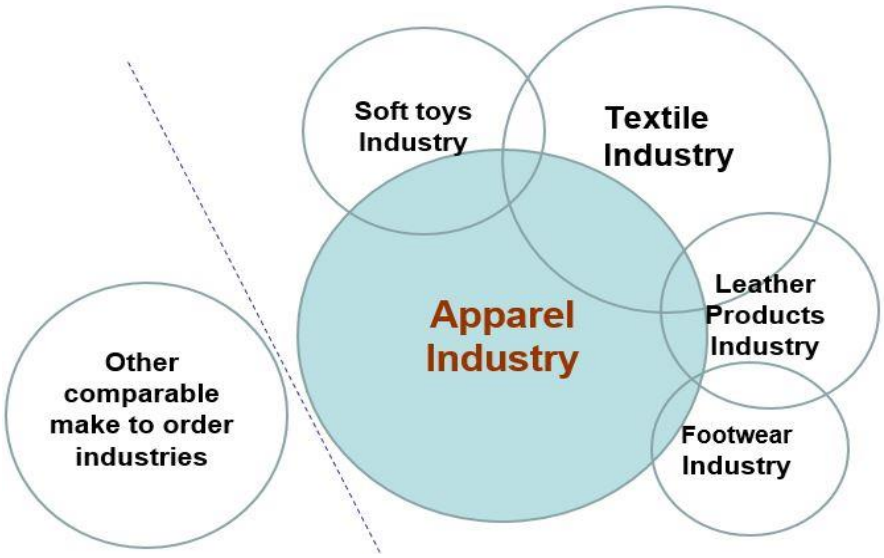


Figure 8.3 *Extendability of the Study Findings to Non-Apparel Industries*

8.6 Suggestions for practitioners based on the key findings

As mentioned earlier, the researcher's mediation model and empirical test results show that cultures across RBFOTs differ significantly and this in turn affects manufacturing performance. Hence, the researcher suggests that top managers in apparel firms have a thorough understanding of how the culture is established in their firm (especially the cultural traits and management practice orientations), what factors influence the formation of the culture, and how it could be aligned and changed for the betterment of their respective firms, in keeping with the manufacturing and business strategy. The researcher acknowledges that it is difficult to change once the culture is firmly established and grounded in the firm. According to (Hofstede *et al.*, 2010), the management of an organisation can never change national cultures, it can only understand and use them. However, (Carpenter *et al.*, 2009; MacKenzie, 1995; Schein, 2010) propergate that firms can create and change an organisational cultures. This is also espoused in quality and operations management. The quality guru W. Edwards Deming (arguably the most respected one in manufacturing) always advocated transformation for the better as everybody's responsibility, not just the change agent's responsibility (e.g., Deming's 14th principles on improvement) (Deming, 2018). Hence, although it may not be possible to change the core values (affiliate to national cultures) it is possible to change the management practices, systems, techniques, and norms (affiliate to organisational culture). Therefore, the top management of apparel firms could take appropriate actions to change the management practices, systems, techniques, and norms that do not produce the desired performance in their respective organisations.

Though the findings revealed that the RBFOTs are having different organisational cultures accounting for different levels of manufacturing performance, it is important to consider changing or shaping the culture profiles, traits, and management practice orientations and the associated management systems, structures, techniques, norms, and values to gradually match the identified high performance-driven culture profile. This high-performance culture profile reflects high scores on Adaptability and Mission traits coupled with moderate scores on Involvement and Consistency traits (this recommendation is based on the mean scores of the East Asian firms on the four culture traits). However, Denison and his associates advocate an ideal culture profile where high trait scores are envisaged in all four culture traits. This argument is based on the premise that successful businesses excel in not just profitability, but also business model innovation, sales, market share, creativity, customer satisfaction, quality, and employee satisfaction. This discrepancy between what the present research found and what Denison and his associates advocate on the ideal culture profile could be attributed to the particular competitive strategies adopted by the apparel firms.

As the local and foreign firms need to adopt better cultural trait-manufacturing performance dimension fitness required for superior manufacturing performance, the leaders and senior managers could consider the most effective cultural traits that promote superior manufacturing performance. For example, if the firm wants higher flexibility and innovativeness (product and process innovativeness) in manufacturing performance, they need to focus more on Adaptability and Mission traits with external adaptation and flexibility. On the other hand, if the firm wants higher cost efficiency and delivery, they need to focus more on Involvement and Consistency traits with internal integration and stability.

Since product quality was found to be the central or core dimension around which all the other manufacturing performance dimensions (cost-efficiency, delivery, flexibility, innovativeness) are gradually built, it is suggested to adopt a similar cumulatively built-up approach to enhance manufacturing performance. Since the most critical dimension of manufacturing performance was found to be product quality (as all the firms revealed achieving superior product quality as the most prioritised dimension), it is recommended to adopt a cumulative built-up total quality management approach (complementing product quality with innovativeness and flexibility dimensions followed by cost-efficiency and delivery dimensions).

Although the firms adopted different culture-based manufacturing performance approaches, firms are suggested to adopt an integrated culture-based manufacturing performance enhancing strategy, prioritising the market-intensive approach followed by resource-intensive (creating

unique resources that are hard to imitate) approach. Furthermore, since the present-day apparel firms confront VUCA (volatile, uncertain, complex, and ambiguous) business environment, this performance enhancement strategy would provide a sustainable competitive advantage to the firms over its rivals.

8.7 Suggestions for future research based on the key findings and limitations

8.7.1 Comprehensive testing of the DCM and incorporation of corporate performance as the Dependent Variable

As mentioned earlier, this study only validated the DOCS scale in an apparel context in a developing country context. However, DOCS is just a survey tool, and the study did not validate the implied propositions associated with the DCM, the raison d'être of the DOCS. In presenting the DCM, Denison and his colleagues make some serious claims about organizational effectiveness such as an "Ideal culture profile" (a culture that scores high in all four cultural traits in the DOCS) and organisational culture profile that are focused on specific aspects of corporate goals. For example, according to the DCM, firms that have an external focus by way of possessing high Adaptability and Mission are expected to excel in innovation, sales growth, and market share. Using Porter's generic strategies, it can be argued that a firm can be very competitive by selecting just cost competitiveness or some form of a differentiation strategy such as focusing on niche markets or innovation, or superior quality. Future studies could be designed to test the DCM (not just the DOCS as this study accomplished) more comprehensively by capturing additional information to examine whether the DCM lives up to its claims in a manufacturing setting such as Sri Lanka.

Combining Porter's arguments and the claims (propositions) embedded in the DCM, it can be argued that firms can be very effective by possessing just two strong cultural traits with either an internal focus or an external focus, or a focus on flexibility or stability. This study did not validate the claims embedded in the DCM because the objectives of the study did not cover studying the corporate performance (organisational effectiveness results) of apparel firms based on RBFOT. Although manufacturing performance is expected to be positively correlated with corporate performance, one should not mix up operational performance with corporate performance as they are two separate but interconnected concepts/constructs. Thus, it is suggested that the researcher's study could be modified in future research by including corporate performance as the dependent variable to fully validate the claims embedded in the DOCS to study the relationship between RBFOT, organisational culture, and organisational

effectiveness in a setting similar to the one covered in this study. In corporate performance, it is not just product and service results that matter (the area covered in this study), but also other facets such as financial, market/customer performance, workforce results, and even leadership and sustainability results that do matter.

8.7.2 Panel / longitudinal studies

This study used cross-sectional data collected via a self-administered strategy (data were gathered on a single occasion) for model testing on the cause-effect relationship. These snapshot data only indicate the level of the link between scale constructs and causal relationships at a particular time of data collection, and the internal validity of such a study can be questioned. A cross-sectional study will not show emerging patterns and possible changes in the organisational culture of the RBFOTs, and also results, be it business results or just manufacturing performance. Consequently, it is suggested that future researchers may adopt a longitudinal approach (more specifically a panel study) to investigate the effect of RBFOT on performance, via organisational culture.

8.7.3 Include more levels to the categorical variable RBFOT and test the model in new contexts

In the present study, RBFOT appeared as a three-level categorical variable, the levels being Western, East Asian, and South Asian. However, in culture studies, regions across the world are divided into ten culture clusters, based on the widely used GLOBE study (House *et al.*, 2002). The inclusion of more regions to fit data into the theoretical model posited in the study (i.e., include more levels to the categorical variable of RBFOT) would likely provide more insights into how different regional cultures across the world affect (mediate) manufacturing performance and corporate performance. Thus, it is suggested that a future study could be conducted in a setting other than Sri Lanka (e.g. India, Bangladesh, and Pakistan), where apparel (or similar) manufacturing businesses from many region-based foreign-owned firms operate under the same ground rules as the ones operating in Sri Lanka. The challenge though of such a study would be to obtain matching sub-samples (regional samples).

8.7.4 Other model modifications

8.7.4.1 Alternative culture constructs

While DOCS, along with its accompanying model, the DCM is a widely accepted tool to operationalise organisational culture, there are equally accepted frameworks and culture measurement instruments (e.g. CVF and CVCAS) to operationalise organisational culture (see sections 2.5.1 and 2.5.2). Therefore, there is a case to replicate the present study by replacing DCM and DOCS with other culture measurement frameworks and associated instruments to test the nature of the mediation role being played by the organisational culture.

8.7.4.2 Aligning with the process approach and other theorisations

One of the important conceptualisations in operations management is the process approach associated with the systems theory (Daellenbach *et al.*, 2012; Prajogo, D. & McDermott, C., 2005). All work that is taking place within the factory as well as upstream as well as downstream supply chain activities[31] is viewed as a system of (often complex) interconnected processes. Thus, it could be argued that the RBFOT → manufacturing performance relationship is mediated by these processes (e.g. Porter's primary value chain activities — inbound logistics, operations, outbound logistics, marketing and sales, and customer service (Porter, 2001). Organisational culture is well and truly embedded in these processes as management practice orientations. A future study could examine the RBFOT → manufacturing performance relationship by examining the role played by the organisational culture in affecting the interconnected processes that mediate the relationship between RBFOT and manufacturing performance.

8.8 Final Thought

Looking back at the researcher's PhD journey, it is felt that some things could have been done a little bit better. This is not common for a PhD but for any substantial project. Sometimes, even if the researcher wanted to do some work, the situational factors stood against the researcher. After the initial industry scoping in the first year of the PhD, the researcher missed the opportunity to engage with the industry (the study participants) because of the New Zealand border closure due to COVID-19. The researcher learned the hard way of collecting online data from respondents — even though they are compatriots — is a very difficult proposition. In the

[31] More modern terms for supply chains could be value chains or value networks.

researcher's culture, there would be plenty of corporations between the two parties when they meet and come to know each other. This, in the opinion of the researcher, is partly due to a lack of participants' understanding of the value of industrial research.

The famous statistician George Box once said that "all models are wrong, but some models are useful" (Box, 1976, p. 792). Here the term "wrong" means not perfect. The causality embedded in the model comes from theory and this theory has no connection with statistics. Statistics merely show whether the hypothesised relationships can be supported or not. The theory underpinning the present study (the mediation model) is based on a comprehensive literature review and the fact that the statistical analysis corroborated the theory (the hypotheses) suggests that the researcher's new knowledge claim is justifiable. Having said this, there is no denial of the fact that alternative explanations to the phenomenon covered in the study in explaining the manufacturing performance differences of RBFOTs could exist.

REFERENCES

Adler, N. J., & Gunderson, A. (2008). *International Dimensions of Organizational Behavior* (5th ed.): Thomson/South-Western.

Adler, N. J., & Jelinek, M. (1986). Is 'Organization Culture' Culture-Bound? *Human Resource Management, 25*(1), 73-90.

Aitken, B., & Harrison, A. (1999). Do domestic firms benefit from direct foreign investment? Evidence from Venezuela. *The American Economic Review, 83*(3), 605-617.

Alotaibi, E. A., Yusoff, R. Z., Al-Swidi, A. K., Al-Matari, E. M., & AlSharqi, O. Z. (2015). The mediating effect of organizational climate on the relationship between transformational leadership and patient safety: A study on Saudi hospitals. *Mediterranean Journal of Social Sciences, 6*(2S1), 117-126.

Alsaawi, A. (2014). A critical review of qualitative interviews. *European Journal of Business and Social Sciences, 3*(4)

Anderson, J. C., & Rungtusanatham, M. (1994). A theory of quality management underlying Deming's management method. *Academy of Management Review, 19*(3), 472-509.

Ansah, M. O., & Louw, L. (2019). The influence of national culture on the organizational culture of multinational companies. *Cogent Social Sciences, 5*(1), 1-15.

Antony, J., & Banuelas, R. (2002). Key ingredients for the effective implementation of Six Sigma program. *Measuring Business Excellence, 6*(4), 20-27.

Antony, J., & Coronado, R. B. (2002). Design for Six Sigma. *Manufacturing Engineer, 81*(1), 24-26.

Appleton, J. V. (1995). Analysing qualitative interview data: addressing issues of validity and reliability. *Journal of advanced nursing, 22*(5), 993-997.

Ashkanasy, N., Broadfoot, L., & Falkus, S. (2000). *Handbook of Organizational Culture and Climate: Questionnaire Measures of Organizational Culture* (2nd ed.). Thousand Oaks, CA: Sage.

Australian Manufacturing Council. (1994). *Leading the Way: A Study of Best Manufacturing Practices in Australia and New Zealand*. Melbourne, Australia: AMC.

Aydin, N., Sayim, M., & Yalama, A. (2007). Foreign ownership and firm performance: Evidence from Turkey. *International Research Journal of Finance and Economics, 11*(1), 103-110.

Barney, J. B. (1986). Organizational culture: Can it be a source of sustained competitive advantage? *Academy of Management Review, 11*(3), 656-665.

Basa-Martinez, D. D. F., Cabrera, J. Y., Dionaldo, L. G., Orillo, J. G. R., Ramos, P. J. M., & Ocampo, L. A. (2018). An exploration of a respondent pre-qualifying framework to increase response rates in social media initiated online surveys. *Australasian Marketing Journal, 26*(3), 239-261.

Becker, T. E. (2005). Potential problems in the statistical control of variables in organizational research: A qualitative analysis with recommendations. *Organizational Research Methods, 8*(3), 274-289.

Besser, T. L. (1996). *Team Toyota: Transplanting the Toyota Culture to the Camry Plant in Kentucky*. Albany: Sunny Press.

Blomtrom, M., & Sjoholm, F. (1998). Technology transfers and spillovers: Does local participation with multinationals matter? *European Economic Review, 43* (4-6), 915-923.

Board of Investments of Sri Lanka. (2018). *Garment Projects in Commercial Operation*. Research and Advocacy Division, MIS Database, Sri Lanka: Government press.

Board, S. L. E. D. (2020). *Export Development Performance for Apparel Sector*. Colombo, Sri Lanka: Government press.

Bodrožić, Z., & Adler, P. S. (2018). The Evolution of Management Models: A Neo-Schumpeterian Theory. *Administrative Science Quarterly, 63*(1), 85-129.

Box, G. E. (1976). Science and statistics. *Journal of the American Statistical Association, 71*(356), 791-799.

Boyer, K. K., & Leong, G. K. (1996). Manufacturing flexibility at the plant level. *Omega, 24*(5), 495-510.

Boyer, K. K., Leong, G. K., & Ward, P. T. (1994). Manufacturing Proactiveness and Performance. *Decision Sciences, 25*(3), 337-358.

Bridoux, F. (2004). A resource-based approach to performance and competition: An overview of the connections between resources and competition. *Luvain, Belgium Institut et de Gestion, Universite Catholique de Louvain, 2*(1), 1-21.

Brown, A. (2013). Quality: Where have we come from and what can we expect? *Total Quality Management Journal, 25*(6), 585-596.

Bryman, A. (2016). *Social Research Methods* (5th ed ed.): Oxford University Press.

Buckingham, M., & Coffman, C. (2000). *First Break all the Rules,* (2nd ed. Vol. 1). London: Simon and Schuster.

Cameron, K. S., & Freeman, S. (1991). Culture, congruence, strength and type: Relationship to effectiveness. *Research in Organizational Change and Development, 5*(1), 23-58.

Cameron, K. S., & Quinn, R. E. (1999). *Diagnosing and Changing the Organizational Culture: Based on the Competing Values Framework*. CA: A Wiley Imprint: Jossey-Bass.

Carpenter, M., Bauer, T., Erdogan, B., & Erdogan, B. (2009). *Principles of Management* (4 ed.). Cambridge, MA: Flat World Knowledge, Inc.

Castañeda-Navarrete, J., Hauge, J., & López-Gómez, C. (2020). COVID-19's impacts on global value chains, as seen in the apparel industry. *Development Policy Review*, CA; Colombia Inc.

Caves, R. E. (2007). *Multinational Enterprise and Economic Analysis* (3rd ed.). Cambridge: Cambridge University Press.

Central Bank of Sri Lanka. (2017-2020). *Annual Reports*. Colombo, Sri Lanka: Government Press. Retrieved from https://www.cbsl.gov.lk/en/publications/economic-and-financial-reports/annual-reports

Central Bank of Sri Lanka. (2020). *Annual Report*. Colombo, Sri Lanka: Government Press. Retrieved from https://www.cbsl.gov.lk/en/publications/economic-and-financial-reports/annual-reports

Chen, M., & Miller, D. (2011). The Relational Perspective as a Business Mindset: Managerial Implications for East and West. *Academy of Management Perspectives, 25*(3), 6-18.

Chiarini, A. (2013). The Seven Wastes of Lean Organization. In Chiarini, A. (Ed.), *Lean Organization: from the Tools of the Toyota Production System to Lean Office* (pp. 15-30). Milano: Springer Milan.

Chin, W. W. (1998). The Partial Least Squares Approach to Structural Equation Modeling, edited by G. A. Marcoulides. In (pp. 295–336): Mahwah, NJ: Lawrence Erlbaum Associates.

Chow, C. W., Haddad, K. M., & Wu, A. (2003). Corporate culture and its relation to performance - a comparative study of Taiwanese and US manufacturing firms. *Managerial Finance, 29*(12), 65-76.

Clark, A. M. (1998). The qualitative-quantitative debate: moving from positivism and confrontation to post-positivism and reconciliation. *Journal of advanced nursing, 27*(6), 1242-1249.

Cohen, J. (1992). A power premier: Quantitative methods in psychology. *Psychological bulletin, 112*(1), 155-159.

Cooke, R., & Lafferty, J. (1987). *Organizational Culture Inventory*. Plymouth, MI: Human Snergistics.

Cool, A. L. (2000). A Review of Methods for Dealing with Missing Data. In. New York, USA: Petroband.

Corbett, L. M., & Rastrick, K. N. (2000). Quality performance and organizational culture: A New Zealand study. *International Journal of Quality and Reliability Management, 17*(1), 14-26.

Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and Conducting Mixed Methods Research* (3rd ed.): SAGE.

Cua, K. O., McKone, K. E., & Schroeder, R. G. (2001). Relationships between the implementation of TQM, JIT, and TPM and manufacturing performance. *Journal of Operations Management, 19*(6), 675-694.

Daellenbach, H. G., McNickle, D. C., & Dye, S. (2012). *Management Science: Decision-making through systems thinking* (2nd ed ed.): Palgrave Macmillan.

Dahlgaard-Park, S. M. (2011). The quality movement: Where are you going? *Journal of Total Quality Management and Business Excellence, 22*(5), 493-516.

Dahlgaard, J., Chen, C.-K., Jang, J.-Y., Banegas, L., & Dahlgaard-Park, S. (2013). Business excellence models: limitations, reflections and further development. *Total Quality Management & Business Excellence, 24*(5/6), 519-538.

Dahlgaard, J., Kristensen, K., Kanji, G. K., Juhl, H. J., & Sohal, A. S. (1998). Quality management practices; a comparative study between East and West. *International Journal of Quality & Reliability Management, 15*(8/9), 812-826.

Daniel, P., & Brian, C. (2017). The individual and organizational level effects of TQM practices on job satisfaction. *International Journal of Manpower, 38*(2), 215-225.

Dastmalchian, A., Lee, S., & Ng, I. (2000). The interplay between organizational and national cultures: A comparison of organizational practices in Canada and South Korea using the Competing Values Framework. *International Journal of Human Resource Management, 11*(2), 388-412.

De Carvalho, A. G., Gallucci Netto, H., & Sampaio, J. O. (2012). Private equity and venture capital in Brazil: An analysis of its recent evolution. *SSRN abstracts*. http://papers.ssrn.Com/sol3/papers.cfm?abstract_id=1996729.

Deal, T., & Kennedy, A. (1982). *Corporate Cultures: Readings*. MA: Addison-Wesley.

DeCarlo, M. (2018). *Scientific inquiry in social work*: Open Social Work Education.

Deming, W. E. (2018). *Out of the Crisis, reissue*: MIT Press.

Denison, D. R. (1996). What is the difference between organizational culture and organizational climate? A native's point of view on a decade of paradigm wars. *Academy of Management Review, 7*(5), 55-87.

Denison, D. R., Haaland, S., & Goelzer, P. (2003). *Corporate culture and organizational effectiveness: Is there a similar pattern around the world?* (Vol. 3).

Denison, D. R., Haaland, S., & Goelzer, P. (2004). Corporate culture and organizational effectiveness: Is Asia different from the rest of the World? *Journal of Organizational Dynamics, 33*(1), 98-109.

Denison, D. R., & Mishra, A. K. (1995). Toward a theory of organizational culture and effectiveness. *Journal of Organizational Science, 6*(2), 204-223.

Denison, D. R., & Neale, W. S. (1996). *Denison Organization Culture Survey: Facilitator Guide*. Ann Harbor, MI: Aviat.

Denison, D. R., Nieminen, L., & Kotrba, L. (2014). Diagnosing organizational cultures: A conceptual and empirical review of culture effectiveness surveys. *European Journal of Work and Organizational Psychology, 23*(1), 145–161.

Denk, N., Kaufmann, L., & Roesch, J.-F. (2012). Liabilities of foreignness revisited: A review of contemporary studies and recommendations for future research. *Journal of International Management, 18*(4), 322-334.

Deresky, H. (2017). *International management: managing across borders and cultures: text and cases* (Global ed.): Pearson.

Dess, G. G., & Robinson, R. B. (1984). Measuring Organizational Performance in the Absence of Objective Measures: The Case of the Privately-Held Firm and Conglomerate Business Unit. *Strategic Management Journal, 5*(3), 265-273.

DeVellis, R. F. (2017). *Scale development : theory and applications* (Fourth ed.): SAGE.

Devkumar, S., Callychurn, K., Soobhug, D., & Hurreeram, K. (2014, July 2-4). *Key success factors for the apparel manufacturing industry.* Paper presented at the Proceedings of the World Congress on Engineering, London, U.K.

Dickson Marsha, A., Waters, Y., & López-Gydosh, D. (2012). Stakeholder Expectations for Environmental Performance within the Apparel Industry: The Urgency of Business Response. *Journal of Corporate Citizenship*(45), 37-51.

Dissanayaka, D. M. I. K., Ranasinghe, T., & Senanayake, C. D. (2016). Analysis of efficiency ladders used in apparel manufacturing line performance forecasting. In (pp. 1-4): IEEE.

Doms, M., & Jenson, J. (1995). *Comparing wages, skills, and productivity between domestically and foreign-owned manufacturing establishments in the United States*. Chicago, USA: University of Chicago Press.

Doty, D. H., & Glick, W. H. (1998). Common methods bias: Does common methods variance really bias results? *Organizational Research Methods, 1*(4), 374-406.

Dubey, R. (2015). An insight on soft TQM practices and their impact on cement manufacturing firm's performance: Does the size of the cement manufacturing firm matter? *Business Process Management Journal, 21*(1), 2-24.

Dunning, H. (2008). *Multinational Enterprises and the Global Economy* (2nd ed.). CA, USA: Edward Elgar Publishing.

Dunning, J. H. (2015). *The globalization of business: The challenge of the 1990s*: Routledge.

Durairatnam, S., Chong, S. C., & Jusoh, M. (2020). Measuring determinants of quality performance: Pilot study in Sri Lankan apparel industry. *International Journal of Scientific and Technology Research, 9*(1), 1291-1302.

Ebersberger, B., & Lööf, H. (2005). Innovation behaviour and productivity performance in the Nordic region does foreign ownership matter? *Royal Institute of Technology, CESIS—Centre of Excellence for Science and Innovation Studies*

Eisenhardt, K. M. (1989). Building Theories from Case Study Research. *Academy of Management Review, 14*(4), 532-550.

Emmanuel, J., & Rene, P. (2022). An operational excellence strategy implementation model for growth in a volatile, uncertain, complex, and ambiguous environment. *Journal of Production and Operations Management, 22*(1), e1-e11.

Fairchild, A. J., Mackinnon, D. P., Taborga, M. P., & Taylor, A. B. (2009). R2 effect-size measures for mediation analysis. *Behavior Research Methods, 41*(2), 486-498.

Fathi Mohamed, D., Kamal, H., & Mohmad, S. (2017). The mediating effect of organizational climate on the relationship between HRM practices and HR outcomes in the Libyan public sector. *Journal of Management Development, 36*(5), 626-643.

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*(2), 175-191.

Feng, M., Matthew, W. F., & James, R. E. (2018). An empirical investigation of the Baldrige framework using applicant scoring data. *International Journal of Quality & Reliability Management, 35*(8), 1599-1616.

Ferdows, K., & De Meyer, A. (1990). Lasting Improvements in manufacturing performance: In search of a new theory. *Journal of Operations Management, 9*(2), 169-184.

Fey, C., & Denison, D. R. (2003). Organizational culture and effectiveness: Can American theory be applied in Russia? *Organization Science, 14*(1), 686-706.

Finney, S. J., & DiStefano, C. (2006). Non-normal and categorical data in structural equation modeling. *Structural equation modeling: A second course, 10*(6), 269-314.

Fitzpatrick, A. R. (1983). The Meaning of Content Validity. *Applied Psychological Measurement, 7*(1), 3-13.

Flynn, B. B., & Saladin, B. (2001). Further evidence on the validity of the theoretical models underlying the Baldrige criteria. *Journal of Operations Management, 19*(6), 617-652.

Flynn, B. B., & Saladin, B. (2006). Relevance of Baldrige constructs in an international context: A study of national culture. *Journal of Operations Management, 24*(5), 583-603.

Flynn, B. B., Schroeder, R. G., & Sakakibara, S. (1995). The impact of quality management practices on performance and competitive advantage. *Journal of Decision Sciences, 26*(5), 659–669.

Fornell, C., & Larcker, D., F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research, 18*(1), 39-50.

Gamage, P., Jayamaha, N. P., & Grigg, N. P. (2017). Acceptance of Taguchi's Quality Philosophy and Practice by Lean practitioners in apparel manufacturing. *Total Quality Management and Business Excellence, 28*(11-12), 1322-1338.

Gefen, D., & Straub, D. (2005). A practical guide to factorial validity using PLS-Graph: Tutorial and annotated example. *Communications of the Association for Information systems, 16*(1), 5-28.

Ghasem, R., Abbas, M., Aslan, A., Kuan, Y., Laleh, S., Manoochehr, N., & Awaluddin, M. (2018). The relationship between the culture of excellence and organisational performance in Iranian manufacturing companies. *Journal of Total Quality Management and Business Excellence, 29*(1-2), 94-115.

Ghazo, R. H., Alnuaimi, M., & Suifan, T. S. (2019). Emotional intelligence and counterproductive work behavior: The mediating role of organizational climate. *Journal of Human Behavior in the Social Environment, 29*(3), 333-345.

Gholamhossein, M., Mohammad, P., Maryam, R., & Hamed, A. (2020). Managerial skills and performance in small businesses: the mediating role of organizational climate. *Journal of Asia Business Studies, 14*(3), 361-377.

Glaser, S., Zamanou, S., & Hacker, K. (1987). Measuring and interpreting organizational culture. *Management Communication Quarterly, 1*(2), 173-198.

Gomes, C. F., Yasin, M. M., & Lisboa, J. V. (2004). A literature review of manufacturing performance measures and measurement in an organizational context: a framework and direction for future research. *Journal of Manufacturing Technology Management, 15*(6), 511-530.

Gómez-Mejia, L. R., & Palich, L. E. (1997). Cultural diversity and the performance of multinational firms. *Journal of International Business Studies, 28*(2), 309-335.

Grant, J. S., & Davis, L. L. (1997). Selection and use of content experts for instrument development. *Research in Nursing & Health, 20*(3), 269-274.

Hackman, J. R., & Wageman, R. (1995). Total quality management: Empirical, conceptual and practical issues. *Administrative Science Quarterly, 40*(1), 309-342.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2013). Partial least squares structural equation modeling: Rigorous applications, better results and higher acceptance. *Long range planning, 46*(1-2), 1-12.

Hallgren, M., & Olhager, J. (2009). Flexibility configurations: an empirical analysis of volume and product mix flexibility *Omega-International Journal of Management Science, 37*(4), 746-756.

Harrison, R. (1975). Understanding your organization's character. *Harvard Business Review, 5*(3), 119-128.

Hartnell, C. A., Ou, A. Y., & Kinicki, A. (2011). Organizational culture and organizational effectiveness: A meta-analytic investigation of the Competing Values Framework's theoretical suppositions. *Journal of Applied Psychology, 96*(1), 677-694.

Hayes, A. F. (2018). *Introduction to Mediation, Moderation and Conditional Process Analysis: A Regression-based Approach* (3 ed.). New York, USA: The Guildford Press.

Haynes, S. N., Richard, D. C. S., & Kubany, E. S. (1995). Content Validity in Psychological Assessment: A Functional Approach to Concepts and Methods. *Psychological Assessment, 7*(3), 238-247.

Hayton, J. C., Allen, D. G., & Scarpello, V. (2004). Factor retention decisions in exploratory factor analysis: A tutorial on parallel analysis. *Organizational Research Methods, 7*(2), 191-205.

Hennart, J. F. (2011). A Theoretical assessment of the empirical literature on the impact of multinationality on performance. *Global Strategy Journal, 1*(1-2), 135-151.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science: Official Publication of the Academy of Marketing Science, 43*(1), 115.

Hensley, R. L. (1999). A review of operations management studies using scale development techniques. *Journal of Operations Management, 17*(3), 343-358.

Herath, H. (2015). Place of women in Sri Lankan society: measures for their empowerment for development and good governance. *Vidyodaya Journal of Management, 1*(1), 45-67.

Hesse-Biber, S. N., & Johnson, B. (2016). *The Oxford Handbook of Multimethod and Mixed Methods Research Inquiry*: Oxford University Press.

Hesse-Biber, S. N., & Johnson, R. B. (2015). *The Oxford handbook of multimethod and mixed methods research inquiry*: Oxford University Press.

Hilman, H., Ali, G. A., & Gorondutse, A. H. (2020). The relationship between TQM and SMEs' performance: The mediating role of organizational culture. *International Journal of Productivity & Performance Management, 69*(1), 61-84.

Hofstede, G. (1980). *Culture's Consequences: International Differences in Work-related Values*. Beverly Hills CA, USA: Sage.

Hofstede, G., Neuijen, B., Ohayv, D., & Sanders, T. (1990). Measuring organizational cultures: A qualitative and quantitative study across twenty cases,. *Administrative Science Quarterly, 35*(5), 286-316.

Hofstede, G. H., Minkov, M., & Hofstede, G. J. (2010). *Cultures and organizations : software of the mind : intercultural cooperation and its importance for survival* (3rd ed.): McGraw-Hill.

Hooper, D., Coughlan, J., & Mullen, M. R. (2008). Structural equation modelling: Guidelines for determining model fit. *Electronic journal of business research methods, 6*(1), 53-60.

House, R., Javidan, M., Hanges, P., & Dorfman, P. (2002). Understanding the cultures and implicit leadership theories across the globe: An introduction to Project Globe. *Journal of World Business, 37*(1), 3-10.

Hristov, I., & Chirico, A. (2019). The role of sustainability key performance indicators (KPIs) in implementing sustainable strategies. *Sustainability, 11*(20), 42 - 67.

Huang, R. D., & Shiu, C. Y. (2009). Local effects of foreign ownership in an emerging financial market: Evidence from qualified foreign institutional investors in Taiwan. *Journal of Financial Management, 38* (4), 567-602.

Huenermund, P., Louw, B., & Rönkkö, M. (2022). *The Choice of Control Variables: How Causal Graphs Can Inform the Decision.* Paper presented at the Academy of Management Proceedings.

Hui, C. L., & Ng, S. F. (2005). A new approach for prediction of sewing performance of fabrics in apparel manufacturing using artificial neural networks. *Journal of the Textile Institute, 96*(6), 401-405.

Iacobucci, D. (2012). Mediation analysis and categorical variables: The final frontier. *Journal of Consumer Psychology, 22*(4), 582-594.

Imai, M. (1986). *Kaizen (Ky'zen), the key to Japan's competitive success* (1st ed.): Random House Business Division.

International Labour Organisation. (2018). Asia's Export Garment Industry: From obligations to opportunities. *Development Review Report.* Retrieved on 15.03.2021 from https://www.ilo.org › publication › wcms_628430

Jacob, S., & Furgerson, S. (2012). Writing interview protocols and conducting interviews: Tips for students new to the field of qualitative research. The Qualitative Reports, 17 (42), 1-10.

James, W. D., Jr., & Scott, A. S. (1996). The Strategic Use of Integrated Manufacturing: An Empirical Examination. *Strategic Management Journal, 17*(6), 459-480.

Jana, P., & Tiwari, M. (2021). *Lean Tools in Apparel Manufacturing*: Woodhead Publishing.

Jayamaha, N. P., Grigg, N. P., & Mann, R. S. (2008). Empirical validity of Baldrige criteria; New Zealand evidence. *International Journal of Quality & Reliability Management, 25*(5), 477-493.

Jayamaha, N. P., Wagner, J. P., Grigg, N. P., Campbell-Allen, N. M., & Harvie, W. (2014). Testing a theoretical model underlying the 'Toyota Way' – an empirical study involving a large global sample of Toyota facilities. *International Journal of Production Research., 52*(14), 4332-4350.

Jayaram, J., Droge, C., & Vickery, S. K. (1999). Impact of human resource management practices on manufacturing performance. *Journal of Operations Management, 18*(1), 1-20.

Jennifer, W. S. (2008). The Impact of Multinational Enterprise Strategy on Indigenous Enterprises: Horizontal Spillovers and Crowding out in Developing Countries. *The Academy of Management Review, 33*(2), 341-361.

Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of Mixed Methods Research, 1*(2), 112-133.

Joshi, R. N., & Singh, S. P. (2009). Comparative Performance of the Indian Apparel Firms. *IUP Journal of Managerial Economics, 7*(3/4), 19-39.

Judd, C. M., & Kenny, D. A. (2010). Data analysis in social psychology: Recent and recurring issues.

Julmi, C. (2017). Organisational atmospheres: The missing link between organisational culture and climate. *International Journal of Work Organisation and Emotions, 8*(2), 131-147.

Jung, J., Su, X., Baeza, M., & Hong, S. (2008). The effect of organizational culture stemming from national culture towards quality management deployment. *The TQM Journal, 20*(6), 622-635.

Jung, T., Scott, T., Davies, H., Bower, P., Whalley, D., & Mannion, R. (2009). Instruments for exploring organizational culture: A review of the literature. *Public Administration Review, 69*(1), 1087–1096.

Kane-Urrabasso, C. (2006). Management's role in shaping organizational culture. *Journal of nursing management, 14*(3), 188-194.

Kang, B., & Nabeshima, K. (2021). National origin diversity and innovation performance: the case of Japan. *Scientometrics: An International Journal for all Quantitative Aspects of the Science of Science, Communication in Science and Science Policy, 126*(6), 51-78

Kanji, G. K., & Yui, H. (1997). Total quality culture. *Total Quality Management, 8*(6), 417-428.

Kaplan, R. S., & Norton, D. P. (2007). Balanced Scorecard. In *Das summa summarum des management* (pp. 137-148): Springer.

Karabay, G., & Kurumer, G. (2012). Managing Through Strategic Performance Management in Apparel Companies. *Fibers & Textiles in Eastern Europe, 20*(4), 13-19.

Khan, M. S. R., & Rattanawiboonsom, V. (2019). The effects of inbound logistics capability on firm performance: a study on the garment industry in Bangladesh. *Journal of Entrepreneurship Education, 22*(2), 1-10.

Kim, W. S., & Lyn, E. O. (1990). FDI theories and the performance of foreign multinationals operating in the U.S. *Journal of International Business Studies, 21*(1), 41-54.

Kirkham, L., Garza-Reyes, J. A., Kumar, V., & Antony, J. (2014). Prioritisation of operations improvement projects in the European manufacturing industry. *International Journal of Production Research, 52*(18), 5323-5345.

Konings, J. (2000). The effects of foreign direct investment in the domestic firm. *Economics of Transition, 9*(3), 619-633.

Kotrba, L. M., Gillespie, M. A., Schmidt, A. M., Smerek, R. E., Ritchie, S. A., & Denison, D. R. (2012). Do consistent corporate cultures have better business performance? exploring the interaction effects. *Human Relations, 65*(2), 241-262.

Kotter, J. P., & Heskett, J. L. (1999). *Corporate Culture and Performance*. New York, USA: Free Press

Krajewski, L. J., & Ritzman, L. P. (1987). *Operations Management: Strategy and Analysis* Addison-Wesly Publishing, MA.

Kruger, D. J., & Ramdass, K. (2010). *Assessment of the reasons for failure and critical success factors implementing clothing industry projects: Case study results from the South Asian apparel and manufacturing industry*. Paper presented at the 17th International Conference on Industrial Engineering and Engineering Management, Bangkok, Thailand.

Kuo, T. C., Hsu, N. Y., Li, T. Y., & Chao, C. J. (2021). Industry 4.0 enabling manufacturing competitiveness: Delivery performance improvement based on the theory of constraints. *Journal of Manufacturing Systems, 60*, 152-161.

Lagrosen, S. (2003). Exploring the impact of culture on quality management. *International Journal of Quality & Reliability Management, 20*(4), 473-487.

Lakmali, E., Vidanagamachchi, K., & Nanayakkara, J. (2020). Industry 4.0 readiness assessment for apparel industry: A study in the Sri Lankan context. In (pp. 174-181): IEEE.

Leachman, C., Pegels, C., & Kyoon Shin, S. (2005). Manufacturing performance: Evaluation and determinants. *International Journal of Operations & Production Management, 25*(9), 851-874.

LeBreton, J. M., & Senter, J. L. (2008). Answers to 20 questions about interrater reliability and interrater agreement. *Organizational Research Methods, 11*(4), 815-852.

Lee, A., Ji, L.-J., & Bu, N. (2022). The Impact of Self-Construals and Thinking Styles on Business and Management Practices: A Comparison of East Asia and North America. In *International Business in the New Asia-Pacific* (pp. 127-157): Springer.

Liu, X. (2000). Comparative performance of foreign and local firms in Chinese industry. *Research Policy, 32*(6), 945-953.

Liverani, A., Caligiana, G., Frizziero, L., Francia, D., Donnici, G., & Dhaimini, K. (2019). Design for Six Sigma (DFSS) for additive manufacturing applied to an innovative multifunctional fan. *International Journal on Interactive Design and Manufacturing (IJIDeM), 13*(1), 309-330.

Lukman, S., Hafizah, A., & Nurlisa, L. A. (2014). The impact of world-class manufacturing practices on company performance: A critical review. *Journal of Applied Mechanics and Materials, 564*(5), 727-732.

Luthans, F., Luthans, B. C., & Luthans, K. W. (2021). *Organizational Behavior: An Evidence-Based Approach Fourteenth Edition*: IAP.

Machek, O. (2016). Comparative performance of foreign and domestic family firms in the Czech Republic. *Journal of International Studies, 9*(1)

MacKenzie, S. (1995). Surveying the organizational culture in an NHS Trust. *Journal of Management in Medicine, 9*(6), 69-77.

Marin, D., Rousova, L., & Verdier, T. (2019). Do Multinationals Transplant their Business Model?

Mata, J., & Portugal, P. (2002). The survival of new domestic and foreign-owned firms. *Strategic Management Journal 23*(4), 323.

Mathrani, A., Wickramasinghe, S., & Jayamaha, N. P. (2021). An evaluation of documentation requirements for ISO 9001 compliance in scrum projects. *The TQM Journal*, (ahead-of-print) 10.1108/TQM-08-2020-0177

Mathrani, S. (2022). Enhancing production agility using enterprise systems. *Knowledge Management Research & Practice, 20*(1), 91-103.

Matthew, T., Robin, M., & Dotun, A. (2016). Deploying business excellence – success factors for high performance. *International Journal of Quality & Reliability Management, 33*(2), 197-230.

McGregor, N., Isaksson, A., & Kaulich, F. (2015). Foreign ownership and performance in Sub-Saharan African manufacturing and Services. *Journal of International Development, 27*(7), 1197-1222.

Metwally, D., Ruiz-Palomino, P., Metwally, M., & Gartzia, L. (2019). How Ethical Leadership Shapes Employees' Readiness to Change: The Mediating Role of an Organizational Culture of Effectiveness. *Frontiers in Psychology, 10*

Mihai, L. O. (2014). A literature review of foreign ownership and company performance. *Economics and Applied Informatics 20*(2), 75-82.

Miller Stewart, R., & Eden, L. (2006). Local and Foreign Subsidiary Performance. *The Academy of Management Journal, 49*(2), 341-355.

Mohammad, M., Mann, R., Grigg, N., & Wagner, J. (2011). Business Excellence Model: An overarching framework for managing and aligning multiple organisational improvement initiatives. *Total Quality Management & Business Excellence, 22*(11), 1213-1236.

Mohammad, M., Osman, M. R., Yusuff, R. M., & Ismail, N. (2006). *Strategies and critical success factors for integrated management systems implementation.* Paper presented at the Conference on Computers and Industrial Engineering-CC&IE.

Mohammad Mosadeghrad, A. (2014). Essentials of total quality management: a meta-analysis. *International Journal of Health Care Quality Assurance, 27*(6), 544-558.

Morgado, F. F. R., Meireles, J. F. F., Neves, C. M., Amaral, A. C. S., & Ferreira, M. E. C. (2018). Scale development: ten main limitations and recommendations to improve future research practices. *Psicologia: Reflexão e Crítica: Psychology: Research and Review, 30*(1), 16-31.

Morgan, S., Ram, N., & Soo, W. K. (2005). Manufacturing practices and strategy integration: Effects on cost efficiency, flexibility and Market-based performance. *Journal of Decision Sciences, 36*(3), 78-96.

Muhammad Ibrahim, A., Dechun, H., Muddassar, S., Junaid, N., & Muhammad Waqas, S. (2021). Signifying the relationship between counterproductive work behavior and firm's performance: the mediating role of organizational culture. *Business Process Management Journal, 27*(6), 1892-1911.

Munday, M., Peel, M. J., & Taylor, K. (2003). The performance of the foreign-owned sector of UK manufacturing: Some evidence and implications for UK inward investment policy. *Fiscal Studies, 24*(3), 501-521.

Nair, A. (2006). A meta-analysis of the relationship between quality management practices and firm performance: implications for quality management theory development. *Journal of Operations Management, 24*(6), 948-975.

Naor, M. (2006). *The relationship between culture, quality management practices, and manufacturing performance.* (Doctor of Philosophy Thesis), University of Minnesota, USA, Massey University Library Catalogue.

Naor, M., Linderman, K., & Schroeder, R. (2010). The globalization of operations in Eastern and Western countries: Unpacking the relationship between national and organizational culture and its impact on manufacturing performance. *Journal of Operations Management, 28*(3), 194-205.

Naveed, K., Alessio, I., & Andrea, G. (2021). A Framework for Evaluating the Supply Chain Performance of Apparel Manufacturing Organizations. *International Journal of Supply and Operations Management, 8*(2), 134-164.

Niromi, S., Julian, N., & Gamini, L. (2021). Significance of operational capabilities of suppliers on the front-end decision making in apparel product innovation in Sri Lanka. *Research Journal of Textile and Apparel, 25*(3), 274-291.

Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.): McGraw-Hill.

O'Reilly, C., Chatman, J., & Caldwell, D. (1991). People and organizational culture: A profile comparison approach to assessing person-organization fit. *Academy of Management Journal, 34*(1), 487-516.

Okoshi, C. Y., Pinheiro de Lima, E., & Gouvea Da Costa, S. E. (2019). Performance cause and effect studies: Analyzing high-performance manufacturing companies. *International Journal of Production Economics, 210*, 27-41.

Pallant, J. (2020). *SPSS survival manual: A step-by-step guide to data analysis using IBM SPSS*: Routledge.

Pasali, S. S., & Chaudhary, A. (2020). Assessing the impact of foreign ownership on firm performance by size: evidence from firms in developed and developing countries. *Transnational Corporations Journal, 27*(2)

Patterson, M. G., West, M. A., Shackleton, V. J., Dawson, J. F., Lawthom, R., Maitlis, S., & Wallance, A. M. (2005). Validating the organizational climate measures: links to managerial practices, productivity and innovation. *Journal of Organisational Behaviour, 26*(1), 379-408.

Peters, T. (2011). McKinsey 7-S Model. *Leadership Excellence, 28*(10), 7.

Peters, T. & Waterman, R. H. (1984). *In Search of Excellence: Lessons from America's Best-run Companies* (Warner Books ed ed.): Warner Books.

Porter, M. E. (2001). The value chain and competitive advantage. *Understanding business processes, 2*, 50-66.

Porter, M. E. (2004). *Competitive strategy: techniques for analyzing industries and competitors* (New ed.): Free.

Prajogo, D., & Brian, C. (2017). The individual and organizational level effects of TQM practices on job satisfaction. *International Journal of Manpower, 38*(2), 215-225.

Prajogo, D., & McDermott, C. (2005). The relationship between total quality management practices and organisational culture. *International Journal of Operations and Production Management, 25*(11), 1101-1122.

Prajogo, D., & McDermott, C. (2011). The relationship between multidimensional organizational culture and performance. *International Journal of Operations and Production Management, 31*(7), 712-735.

Puppatz, M., Burmeister, A., & Deller, J. (2017). The assessment of organizational culture in cross-cultural settings: Investigating the psychometric quality and cultural equivalence of three quantitative instruments. *International Journal of Selection and Assessment, 25*(1), 43-60.

Queirós, A., Faria, D., & Almeida, F. (2017). Strengths and limitations of qualitative and quantitative research methods. *European journal of education studies*

Raja, J., & Kumar, A. S. (2005). Influence of Age and Size on Firm Performance-A Comparative Study of Manufacturing and Service Sectors. *Asia Pacific Journal of Management Research and Innovation, 1*(2), 91-103.

Rasiah, R., & Krishnan, G. (2008). Economic performance and technological intensities of manufacturing firms in Malaysia: Does size matter? *Asian Journal of Technology Innovation, 16*(1), 63-82.

Ravindra, O., Anil, V., & Vrat, P. (2014). Manufacturing excellence and its critical factors. *Journal of Advances in Management Research, 11*(3), 312-332.

Reamer, F. (1993). The place of empiricism and positivism in social work. *Journal of Social Work Education, 4*(2), 22-36.

Roger, C. Y. (1990). Inductive and deduction reasoning applied in cultural studies. *Journal of Organisational Psychology, 6*(3), 44-58.

Rossano, E., Joan Llonch, A., & Belbeze, M. P. L. p. (2007). Internal key factors in export performance: A comparative analysis in the Italian and Spanish textile-clothing sector (part 1). *Journal of Fashion Marketing & Management, 11*(1), 9-23.

Roulston, K. (2014). *Analysing interviews*: The SAGE handbook of qualitative data analysis.

Sakakibara, S., Flynn, B. B., Schroeder, R. G., & Morris, W. T. (1997). The impact of just-in-time manufacturing and its infrastructure on manufacturing performance. *Journal of Management Science, 43*(9), 1246-1257.

Saleh, A., & Bista, K. (2017). Examining factors impacting online survey response rates in educational research: Perceptions of graduate students. *Journal of MultiDisciplinary Evaluation, 13*(2), 63-74.

Sarah, J. W. (2015). The impact of quality culture on quality management practices and performance in Chinese manufacturing firms. *International Journal of Quality & Reliability Management, 32*(8), 799-814.

Saunders, M., Lewis, P., & Thornhill, A. (2016). *Research methods for business students* (7th ed.): Pearson Education.

Schein, E. H. (1985). *Organizational Culture and Leadership*. San Francisco, USA: Josey-Bass.

Schein, E. H. (1990). Organizational culture. *American Psychologist, 45*(2), 109-119.

Schein, E. H. (2010). *Organizational culture and leadership* (Vol. 2): John Wiley & Sons.

Schiffauerova, A., & Thomson, V. (2006). A review of research on cost of quality models and best practices. *International Journal of Quality & Reliability Management, 23*(6), 647-669.

Schneider, B., Ehrhart, M. G., & Macey, W. H. (2013). Organizational Climate and Culture. *Annual Review of Psychology, 64*(1), 361-388.

Schneider, B., Salvaggio, A. N., & Subirats, M. (2002). Climate strength: A new direction for climate research. *Journal of Applied Psychology, 87*(2), 220-229.

Schneider, B., White, S. S., & Paul, M. C. (1998). Linking service climate and customer perceptions of service quality: Tests of a causal model. *Journal of Applied Psychology, 83*(1), 50-63.

Schneider, S. C. (1988). National vs Corporate culture: Implications for human resource management. *Human Resource Management, 27*(2), 231-246.

Schroeder, R. G., Anderson, J. C., & Cleveland, G. (1986). The Content of Manufacturing Strategy: An Empirical Study. *Journal of Operations Management, 6*(4), 405-415.

Scott, T., Mannion, R., Davies, H., & Marshall, M. I. (2001). *Organisational Culture and Healthcare Performance: A Review of the Theory, Instruments and Evidence*. York: University of York: Centre for Health Economics.

Shah, R., & Ward, P. T. (2007). Defining and developing measures of lean production. *Journal of Operations Management, 25*(4), 785-805.

Shahbazpour, M., & Rainer, H. (2006, 31st May - 2nd Jun). *Using sustainability for competitive advantage.* Paper presented at the Proceedings of LCE 2006, 13th CIRP International Conference on Life Cycle Engineering, Leuven, Belgium.

Shumpei, I., & Mihail, M. (2018). Linking continuous improvement to manufacturing performance. *Benchmarking: An International Journal, 25*(5), 1319-1332.

Singh, S., Darwish, T. K., & Potočnik, K. (2016). Measuring Organizational Performance: A Case for Subjective Measures. *British Journal of Management, 27*(1), 214-224.

Sjoholm, F. (2004). Foreign-owned firms: Are they different? *WORLD ECONOMY, 27*(1), 112-113.

Skinner, W. (1974). The focused factory. *Harvard Business Review, 52*(3), 113-121.

Skinner, W. (1986). The Productivity Paradox. *Harvard Business Review, 64*(4), 55-59.

Sousa, R., & Voss, C. A. (2002). Quality management re-visited: a reflective review and agenda for future research. *Journal of Operations Management, 20*(1), 91-109.

Spear, S., & Bowen, H. K. (1999). Decoding the DNA of the Toyota Production System. *Harvard Business Review, 77*(5), 96-106.

Spector, P. E. (1992). *Summated rating scale construction : an introduction*: Sage Publications.

Srivastava, S., Singh, S., & Dhir, S. (2020). Culture and International business research: A review and research agenda. *International Business Review, 29*(4) 101-122.

Steininger, D. M., Huntgeburth, J. C., & Veit, D. J. (2011). Conceptualizing business models for competitive advantage research by integrating resource and market-based views.

Su, H. C., & Linderman, K. (2016). An Empirical Investigation in Sustaining High-Quality Performance. *Decision Sciences, 47*(5), 787-819.

Sundar, R., Balaji, A. N., & Kumar, R. M. S. (2014). A Review on Lean Manufacturing Implementation Techniques. *Procedia Engineering, 97*, 1875-1885.

Swamidass, P. M., & Kotha, S. (1998). Explaining manufacturing technology used, firm size on performance using a multidimensional view of technology. *Journal of Operations Management, 17*(1), 23-37.

Swink, M., Narasimhan, R., & Kim, S. W. (2005). Manufacturing practices and strategy integration: Effects on cost efficiency, flexibility, and market-based performance. *Decision Sciences, 36*(3), 427-457.

Taplin, I. M. (1996). Rethinking flexibility: the case of the apparel industry. *Review of Social Economy, 54*, 191-220.

Temouri, Y., Driffield, N. L., & Añón Higón, D. (2008). Analysis of productivity differences among foreign and domestic firms: evidence from Germany. *Review of World Economics, 144*(1), 32-54.

Textiles & Apparel Intelligence Ltd. (2018). Performance Apparel Markets Report 2018: Product Developments and Innovations In.

Trompenaars, F., & Hampden-Turner. (1998). *Riding the Waves of Culture: Understanding Cultural Diversity in Global Business* (2nd ed.). New York, USA: McGraw-Hill.

Valmohammadi, C., & Roshanzamir, S. (2015). The guidelines of improvement: Relations among organizational culture, TQM and performance. *International Journal of Production Economics, 164*(1), 167-178.

Van Muijen, J. J., & Koopman, P. L. (1994). The influence of national culture on organizational culture: A comparative study of 10 countries. *European work and organizational psychologist, 4*(4), 367-380.

Wadho, W., & Chaudhry, A. (2018). Innovation and firm performance in developing countries: The case of Pakistani textile and apparel manufacturers. *Research Policy, 47*(7), 1283-1294.

Wang, J., Liu, X., Wei, Y., & Wang, C. (2014). Cultural Proximity and Local Firms' catch up with Multinational Enterprises. *World Development, 60*, 1-13.

Ward, P. T., McCreery, J. K., Ritzman, L. P., & Sharma, D. (1998). Competitive priorities in operations management. *Decision Sciences, 29*(4), 1035-1046.

Wickramasinghe, G. L. D., & Perera, A. (2016). Effect of total productive maintenance practices on manufacturing performance. *Journal of Manufacturing Technology Management, 27*(5), 713-729.

Willmore, L. (1986). The comparative performance of foreign and domestic firms in Brazil. *World Development, 14*(4), 489-502.

Woodcock, M., & Francis, D. (1989). *Clarifying Organizational Values*. Aldershot, UK: Gower.

Xia, Y., & Yang, Y. (2019). RMSEA, CFI, and TLI in structural equation modeling with ordered categorical data: The story they tell depends on the estimation methods. *Behavior Research Methods, 51*(1), 409-428.

Yeung, A. H. W., Lo, V. H. Y., Yeung, A. C. L., & Cheng, T. C. E. (2008). Specific customer knowledge and operational performance in apparel manufacturing. *International Journal of Production Economics, 114*(2), 520-533.

Yilmaz, C., & Ergun, E. (2008). Organizational culture and firm effectiveness: An examination of relative effects of culture traits and the balanced culture hypothesis in an emerging economy. *Journal of World Business, 43*(3), 290-306.

Yin, R. (2014). *Case study research: design and methods* (5th ed ed.): SAGE.

Youndt, M., A. , Scott, A. S., James W. Dean, Jr., & David, P. L. (1996). Human Resource Management, Manufacturing Strategy, and Firm Performance. *The Academy of Management Journal, 39*(4), 836-866.

Yudaeva, K., Kozlov, K., Melentieva, N., & Ponomareva, N. (2003). Does foreign ownership matter? The Russian experience. *Economic Transition, 11*(6), 383-409

Zaharie, B., Dehelean, C., Islak, G., & Miclea, L. (2017). A hierarchical approach of order acceptance and delivery date setting problems in the apparel industry. In (pp. 267-272): IEEE.

Zeng, K., & Luo, X. (2013). Impact of ownership type and firm size on organizational culture and organizational culture-effectiveness linkage. *Journal of Business Economics and Management, 14*(1), 96-111.

Zhang, M. (2003). Transferring human resource management across national boundaries: The case of Chinese multinational companies in the UK. *Employee Relations*

Zhang, Y., Li, H., Li, Y., & Zhou, L. A. (2010). FDI spillovers in an emerging market: the role of foreign firms' country origin diversity and domestic firms' absorptive capacity. *Strategic Management Journal, 31*(9), 969-989.

APPENDIX A: DETAILS OF THE INTERVIEW PROGRAMME

Details of the interviews held with senior BOISL Officers

Name of Officer	Designation	Department	Date	Time	ARFN
1. Person1	Senior Manager8	Investment Promotion	15/3/2019	3.30 pm 4.10 pm	08
2. Person2	Senior Manager9	Project Monitoring	15/3/2019	4.30 pm 5.10 pm	09
3. Person3	Senior Manager11	Industrial Zones	19/3/2019	10.00 am 10.30 am	11
4. Person4	Senior Manager12	Investment Appraisal	19/3/2019	11.00 am 11.30 am	12

ARFN = Audio Recording File Number

Permission from BOISL to conduct the Interviews

The permission to conduct the interviews was obtained from the Executive Director – Head of Zones and Industrial Parks of the BOISL with a Massey University request letter issued by the primary supervisor. The interviews programme was coordinated and arranged by Director – Legal and Industrial Relations – KEPZ under the direction of the Head of Zones and Industrial Parks.

Details of the interviews held with senior managers of foreign-owned firms

Name of the firm	Country	Person/Position	Date	Time	ARFN
1. Firm2	UK	Managing Director	4/3/2019	11.15 am 12.05 pm	02
2. Firm4	China	Operations Manager	6/3/2019	4.00 pm 4.45 pm	04
3. Firm6	USA	Operations Manager	11/3/2019	11.45 am 12.30 pm	06
4. Firm8	Germany	Managing Director	18/3/2019	2.00 pm 2.45 pm	10
5. Firm3	Singapore	Managing Director	4/3/2019	1.30 pm 2.15 pm	03

ARFN = Audio Recording File Number

Details of the interviews held with senior managers of locally owned firms

Name of the firm	Country	Person/Position	Date	Time	ARFN
6. Firm1	Sri Lanka	Operations Manager	4/3/2019	9.30 am 11.15 am	01
7. Firm5	Sri Lanka	Managing Director	11/3/2019	10.00 am 10.45 am	05
8. Firm7	Sri Lanka	General Manager – Operations	11/3/2019	11.00 am 11.50 am	07
9. Firm9	Sri Lanka	General Manager – Operations	19/3/2019	6.00 pm 6.50 pm	13

ARFN – Audio Recording File Number

APPENDIX B: INTERVIEW PROTOCOL OF BOISL OFFICERS

Introduction

I am a senior lecturer attached to the University of Sri Jayewardenepura and currently reading for my PhD at Massey University, New Zealand. For my PhD thesis, I am examining what contributes to the differences in the manufacturing performance of foreign and local apparel firms in Sri Lanka.

The main purpose of this interview programme is to understand the study context, scope, and background of my study. Therefore, I wish to understand the process by which foreign firms are established in Sri Lanka and how they go about doing things during the formative years and beyond. I would also like to gather performance-related information from foreign and local firms to clarify my research problem.

To facilitate my note-taking and the trustworthiness of the information I report in my thesis, I would like to audio record our conversation. However, if you do not like to audio record, please allow me to record your responses manually with few extra times. For your information, only the researcher and the supervisors on the project will be privy to the recorded data which will be eventually destroyed after they are transcribed. Data collection will be done strictly by the human ethics standards of Massey University, New Zealand. Hence, it is guaranteed that: (1) all information will be held confidential and used only for this study, (2) The names of the firms and interviewees will not be revealed (except for supervisors), and (3) your participation is voluntary, and you may stop and withdraw at any time if you feel uncomfortable.

To minimise the disruption to your official work, I have planned this interview to last no longer than thirty (30) minutes. If time begins to run short, please allow me to interrupt you to push ahead and complete only the relevant questions.

Interview Date: Interview Time:

i) Department for which you attached:

ii) Position of the Interviewee:

iii) How long have been working?

iv) In your present position?
v) At this institution?
vi) Relating to the apparel sector?

AQ.1 What are the investment options permitted by the BOISL? Which are the most commonly applied in the apparel industry?

AQ.2 What are the main regions/countries from which you mostly received foreign direct investment for the apparel industry?

AQ.3 Can you please describe the process followed to establish foreign apparel firms in Sri Lanka under section 17 of the BOI Law?

AQ.4 What are the main firm ownership types available in the Apparel Industry? What are the most common types?

AQ.5 What incentives and benefits are offered to foreign apparel investors and how those are made available to the firms?

AQ.6 How do you monitor the performance of these firms and what actions do you take regarding the performance non-compliance?

AQ.7 What is your general opinion about the performance of BOI-approved apparel firms in Sri Lanka?

APPENDIX C: INTERVIEW PROTOCOL OF APPAREL FIRM MANAGERS

Introduction

I am a senior lecturer attached to the University of Sri Jayewardenepura and currently reading for my PhD at Massey University, New Zealand. For my PhD thesis, I am examining what contributes to the differences in the manufacturing performance of foreign and local apparel firms in Sri Lanka.

The main purpose of this interview programme is to understand the study context, scope, and background of my study. Therefore, I wish to understand the process by which foreign firms are established in Sri Lanka and how they go about doing things during the formative years and beyond. I would also like to gather performance-related information from foreign and local firms to clarify my research problem.

To facilitate my note-taking and the trustworthiness of the information I report in my thesis, I would like to audio record our conversation. However, if you do not like to audio record, please allow me to record your responses manually with few extra times. For your information, only the researcher and the supervisors on the project will be privy to the recorded data which will be eventually destroyed after they are transcribed. Data collection will be done strictly by the human ethics standards of Massey University, New Zealand. Hence, it is guaranteed that: (1) all information will be held confidential and used only for this study, (2) The names of the firms and interviewees will not be revealed (except for supervisors), and (3) your participation is voluntary, and you may stop and withdraw at any time if you feel uncomfortable.

To minimise the disruption to your official work, I have planned this interview to last no longer than thirty (30) minutes. If time begins to run short, please allow me to interrupt you to push ahead and complete only the relevant questions.

Interview Date: Interview Time:

vii) Firm ownership type:

viii) Position of the Interviewee:

ix) How long have you been working?

x) In your present position? xi) At this firm xii) In the Apparel Industry

Experience you have working with

xiii) 100% Foreign-owned firms:

xiv) 100% Locally owned firms:

xv) Joint-venture firms:

BQ.1 Do you think that foreign and local apparel manufacturing firms are operating on a level playing field (with the same investment incentives and benefits) under section 17 of the BOI Law of Sri Lanka?

BQ.2 Do you see a difference in performance between foreign and local apparel manufacturing firms? If so, what do you mainly attribute to that difference?

BQ.3 What manufacturing performance criteria do you think are critical for the survival and growth of apparel firms in the present-day business environment?

BQ.4 What do you consider the most critical manufacturing performance criteria in your firm?

BQ.5 How do you measure the critical manufacturing performance criteria in your firm? What indicators do you use to measure these criteria?

BQ.6 In what way do you prefer to reveal your manufacturing performance data to researchers? As direct statistics or using rating scales.

BQ.7 Can you describe the process your firm adopts to establish and maintain the management practices, systems, techniques, norms, and values of your parent company?

APPENDIX D: PERMISSION REQUEST LETTER TO HOLD INTERVIEWS

MASSEY UNIVERSITY
COLLEGE OF SCIENCES
TE WĀHANGA PŪTAIAO

My No: PhD Candidates/Marlon/4

Date: 27 February 2019

Ms Himali S. Urugodawatte
Director (Legal) - Industrial Relations
BOARD OF INVESTMENT OF SRI LANKA
Katunayake Export Processing Zone (KEPZ)
Katunayake
SRI LANKA

Dear Madam,

Interviewing Senior Managers in the Apparel Industry that Comes Under the Purview of Board of Investment of Sri Lanka

I wish to introduce Mr Marlon Gunasekara, a PhD student of Massey University, who is being supervised me and my colleague Dr Jeffrey Kennedy in the School of Business. Marlon is conducting a multidisciplinary (organisational theory and technology) study on the locally-owned and foreign-owned apparel firms in Sri Lanka, to explain how organisational factors in manufacturing environments in apparel firms in Sri Lanka relate to quality and productivity of the outputs. The study involves both local and foreign firms.

An important requirement of Marlon's study, before fully fledged data collection to validate his theory with quantitative data, is "industry scoping". This is to obtain a practical basis for Marlon's propositions on manufacturing quality and productivity. For this, Marlon needs to conduct some interviews from a small sample of senior managers in locally owned and foreign owed apparel firms. My colleague and I shall be thankful if you could arrange some opportunities for Marlon to interview managers to obtain the information he needs for his PhD. We have vetted/approved Marlon's interview protocol.

Thanking You,

Yours Faithfully,

Dr Nihal Jayamaha
Senior Lecturer
E: N.P.Jayamaha@massey.ac.nz
DDI: +6463505604: Mob: +64212656719

Cc: Dr Jeffrey Kennedy

Te Kunenga ki Pūrehuroa
School of Food & Advanced Technology
Private Bag 11222, Palmerston North 4442, New Zealand T +64 6 356 9099 www.massey.ac.nz

APPENDIX E: ONLINE SURVEY DISTRIBUTION PLAN & RESPONSES FOR MPS

Manufacturing Performance Survey (MPS) - Survey distribution and responses on Phase I - online data collection in Sri Lanka - Up to 31st of January 2021

40 Western Region Origin BOI approved garment manufacturing firms operate in Sri Lanka for more than 5 years

No.	Name of the Firm	Country of Investment	Region of Origin	No. of Factories	Name of the selected Factory	FactoryID	Min. no. of Invitations	No. of Resp. Recieved	Initial invitation sent date	Initial resp. last received date	1st reminder sent date	2nd reminder sent date	3rd reminder sent date	Post-reminder resp. last received date	Contact Person	Primary e-mail	Secondary e-mail
1	Firm1	Luxembourg	Western	4	Factory1	WROF-001	3	1	16/11/2020		30/11/2020			5/12/2020			
2	Firm2	United Kingdom	Western	1	Factory2	WROF-002	3	1	16/11/2020	20/11/2020							
3	Firm3	Canada	Western	2	Factory3	WROF-003	3	0	16/11/2020		30/11/2020	14/12/2020	28/12/2020				
4	Firm4	United States	Western	10	Factory4	WROF-004	3	1	16/11/2020	24/11/2020							
5	Firm5	Italy	Western	2	Factory5	WROF-005	3	1	18/11/2020		2/12/2020	16/12/2020		20/12/2020			
6	Firm6	Australia	Western	1	Factory6	WROF-006	3	0	18/11/2020		2/12/2020	16/12/2020	30/12/2021				
7	Firm7	Australia	Western	3	Factory7	WROF-007	3	0	18/11/2020		2/12/2020	16/12/2020	30/12/2021				
8	Firm8	Sweden	Western	1	Factory8	WROF-008	3	1	18/11/2020		2/12/2020	16/12/2020	30/12/2021	5/1/2021			
9	Firm9	Denmark	Western	1	Factory9	WROF-009	3	1	20/11/2020	25/11/2020							
10	Firm10	Australia	Western	8	Factory10	WROF-010	3	1	20/11/2020	23/11/2020							
11	Firm11	United Kingdom	Western	1	Factory11	WROF-011	3	1	20/11/2020		4/12/2020	18/12/2020	2/1/2021	7/1/2021			
12	Firm12	Italy	Western	2	Factory12	WROF-012	3	0	20/11/2020		4/12/2020	18/12/2020	2/1/2021				
13	Firm13	Germany	Western	4	Factory13	WROF-013	3	1	22/11/2020		6/12/2020			8/12/2020			
14	Firm14	United Kingdom	Western	2	Factory14	WROF-014	3	0	22/11/2020		6/12/2020	20/12/2020	4/1/2021				
15	Firm15	Germany	Western	2	Factory15	WROF-015	3	2	22/11/2020	28/11/2020							
16	Firm16	Sweden	Western	1	Factory16	WROF-016	3	0	22/11/2020		6/12/2020	20/12/2020	4/1/2021				
17	Firm17	United Kingdom	Western	1	Factory17	WROF-017	3	1	23/11/2020		7/12/2020			9/12/2020			
18	Firm18	Sweden	Western	1	Factory18	WROF-018	3	1	23/11/2020	28/11/2020							
19	Firm19	Switzerland	Western	1	Factory19	WROF-019	3	1	23/11/2020		7/12/2020	21/12/2020	5/1/2021	8/1/2021			
20	Firm20	United States	Western	1	Factory20	WROF-020	3	0	23/11/2020		7/12/2020	21/12/2020	5/1/2021				
21	Firm21	United Kingdom	Western	1	Factory21	WROF-021	3	1	24/11/2020	26/11/2020							
22	Firm22	United Kingdom	Western	1	Factory22	WROF-022	3	1	24/11/2020		8/12/2020	22/12/2020	6/1/2021	12/1/2021			
23	Firm23	Australia	Western	1	Factory23	WROF-023	3	1	24/11/2020		8/12/2020			11/12/2020			
24	Firm24	Australia	Western	1	Factory24	WROF-024	3	0	24/11/2020		8/12/2020	22/12/2020	6/1/2021				
25	Firm25	Australia	Western	2	Factory25	WROF-025	3	0	25/11/2020		10/12/2020	28/12/2020	6/1/2021				
26	Firm26	United Kingdom	Western	1	Factory26	WROF-026	3	1	25/11/2020	29/11/2020							
27	Firm27	United Kingdom	Western	2	Factory27	WROF-027	3	1	25/11/2020		10/12/2020	28/12/2020		3/1/2021			
28	Firm28	United Kingdom	Western	3	Factory28	WROF-028	3	1	25/11/2020		10/12/2020			13/12/2020			
29	Firm29	France	Western	1	Factory29	WROF-029	3	0	27/11/2020		12/12/2020	30/12/2020	14/1/2021				
30	Firm30	United Kingdom	Western	1	Factory30	WROF-030	3	1	27/11/2020	30/11/2020							
31	Firm31	United States	Western	5	Factory31	WROF-031	3	1	27/11/2020		12/12/2020	30/12/2020	14/1/2021	18/1/2021			
32	Firm32	United Kingdom	Western	1	Factory32	WROF-032	3	1	27/11/2020		12/12/2020			19/12/2020			
33	Firm33	France	Western	3	Factory33	WROF-033	3	0	29/11/2020		14/12/2020	30/12/2020	14/1/2021				
34	Firm34	United Kingdom	Western	1	Factory34	WROF-034	3	1	29/11/2020		14/12/2020	30/12/2020		5/1/2021			
35	Firm35	Germany	Western	1	Factory35	WROF-035	3	1	29/11/2020	4/12/2020							
36	Firm36	United Kingdom	Western	1	Factory36	WROF-036	3	1	29/11/2020		14/12/2020			18/12/2020			
37	Firm37	United Kingdom	Western	3	Factory37	WROF-037	3	0	30/11/2020		16/12/2020	2/1/2021	18/1/2021				
38	Firm38	United Kingdom	Western	1	Factory38	WROF-038	3	0	30/11/2020		16/12/2020	2/1/2021	18/1/2021				
39	Firm39	United Kingdom	Western	1	Factory39	WROF-039	3	1	30/11/2020		16/12/2020	2/1/2021		7/1/2021			
40	Firm40	Sweden	Western	1	Factory40	WROF-040	3	0	30/11/2020		16/12/2020	2/1/2021	18/1/2021				
							120	27									

40 East Asian Region Origin BOI approved garment manufacturing firms operate in Sri Lanka for more than 5 years

No.	Name of the Firm	Country of Investment	Region of Origin	No. of Factories	Name of the selected Factory	FactoryID	Min. no. of Invitations	No. of Resp. Recieved	Initial invitation sent date	Initial resp. last received date	1st reminder sent date	2nd reminder sent date	3rd reminder sent date	Post-reminder resp. last received date	Contact Person	Primary e-mail	Secondary e-mail
1	Firm1	Hong Kong	East-Asian	1	Factory1	EAROF-001	3	0	1/12/2020		17/12/2020	3/1/2021	19/1/2021				
2	Firm2	China	East-Asian	6	Factory2	EAROF-002	3	1	1/12/2020		17/12/2020			20/12/2020			
3	Firm3	Hong Kong	East-Asian	1	Factory3	EAROF-003	3	1	1/12/2020	6/12/2020							
4	Firm4	Hong Kong	East-Asian	3	Factory4	EAROF-004	3	0	1/12/2020		17/12/2020	3/1/2021	19/1/2021				
5	Firm5	Japan	East-Asian	1	Factory5	EAROF-005	3	1	1/12/2020		17/12/2020			27/12/2020			
6	Firm6	South Korea	East-Asian	1	Factory6	EAROF-006	3	0	3/12/2020		18/12/2020	4/1/2021	20/1/2021				
7	Firm7	Thailand	East-Asian	2	Factory7	EAROF-007	3	1	3/12/2020	7/12/2020							
8	Firm8	Malaysia	East-Asian	1	Factory8	EAROF-008	3	0	3/12/2020		18/12/2020	4/1/2021	20/1/2021				
9	Firm9	Taiwan	East-Asian	1	Factory9	EAROF-009	3	1	3/12/2020		18/12/2020			21/12/2020			
10	Firm10	Hong Kong	East-Asian	1	Factory10	EAROF-010	3	1	3/12/2020		18/12/2020	4/1/2021		8/1/2021			
11	Firm11	Hong Kong	East-Asian	1	Factory11	EAROF-011	3	1	5/12/2020	10/12/2020							
12	Firm12	China	East-Asian	3	Factory12	EAROF-012	3	0	5/12/2020		19/12/2020	5/1/2021	21/1/2021				
13	Firm13	Hong Kong	East-Asian	4	Factory13	EAROF-013	3	1	5/12/2020		19/12/2020			28/12/2020			
14	Firm14	Hong Kong	East-Asian	1	Factory14	EAROF-014	3	1	5/12/2020	8/12/2020							
15	Firm15	South Korea	East-Asian	1	Factory15	EAROF-015	3	1	6/12/2020		20/12/2020	6/1/2021		10/1/2021			
16	Firm16	Hong Kong	East-Asian	1	Factory16	EAROF-016	3	0	6/12/2020		20/12/2020	6/1/2021	22/1/2021				
17	Firm17	Taiwan	East-Asian	1	Factory17	EAROF-017	3	0	6/12/2020		20/12/2020	6/1/2021	22/1/2021				
18	Firm18	Singapore	East-Asian	1	Factory18	EAROF-018	3	1	6/12/2020	13/12/2020							
19	Firm19	Hong Kong	East-Asian	1	Factory19	EAROF-019	3	0	7/12/2020		21/12/2020	7/1/2021	23/1/2021				
20	Firm20	Malaysia	East-Asian	1	Factory20	EAROF-020	3	0	7/12/2020		21/12/2020	7/1/2021	23/1/2021				
21	Firm21	South Korea	East-Asian	1	Factory21	EAROF-021	3	1	7/12/2020	12/12/2020							
22	Firm22	Taiwan	East-Asian	2	Factory22	EAROF-022	3	0	7/12/2020		21/12/2020	7/1/2021	23/1/2021				
23	Firm23	Malaysia	East-Asian	1	Factory23	EAROF-023	3	1	7/12/2020	11/12/2020							
24	Firm24	China	East-Asian	1	Factory24	EAROF-024	3	1	8/12/2020		22/12/2020	8/1/2021		13/1/2021			
25	Firm25	South Korea	East-Asian	1	Factory25	EAROF-025	3	0	8/12/2020		22/12/2020	8/1/2021	24/1/2021				
26	Firm26	Singapore	East-Asian	1	Factory26	EAROF-026	3	0	8/12/2020		22/12/2020	8/1/2021	24/1/2021				
27	Firm27	China	East-Asian	1	Factory27	EAROF-027	3	1	8/12/2020	15/12/2020							
28	Firm28	China	East-Asian	1	Factory28	EAROF-028	3	1	9/12/2020		22/12/2020	8/1/2021		11/1/2021			
29	Firm29	China	East-Asian	1	Factory29	EAROF-029	3	0	9/12/2020		22/12/2020	8/1/2021	24/1/2021				
30	Firm30	Hong Kong	East-Asian	1	Factory30	EAROF-030	3	1	9/12/2020	14/12/2020							
31	Firm31	Malaysia	East-Asian	1	Factory31	EAROF-031	3	1	9/12/2020		22/12/2020	8/1/2021		10/1/2021			
32	Firm32	Hong Kong	East-Asian	1	Factory32	EAROF-032	3	1	11/12/2020		28/12/2020	12/1/2021		15/1/2021			
33	Firm33	Hong Kong	East-Asian	3	Factory33	EAROF-033	3	0	11/12/2020		28/12/2020	12/1/2021	26/1/2021				
34	Firm34	Hong Kong	East-Asian	2	Factory34	EAROF-034	3	1	11/12/2020	17/12/2020							
35	Firm35	South Korea	East-Asian	2	Factory35	EAROF-035	3	1	11/12/2020		28/12/2020			3/1/2021			
36	Firm36	Taiwan	East-Asian	1	Factory36	EAROF-036	3	0	12/12/2020		29/12/2020	13/1/2021	27/1/2021				
37	Firm37	Hong Kong	East-Asian	1	Factory37	EAROF-037	3	0	12/12/2020		29/12/2020	13/1/2021	27/1/2021				
38	Firm38	Malaysia	East-Asian	1	Factory38	EAROF-038	3	1	12/12/2020		29/12/2020			5/1/2021			
39	Firm39	Hong Kong	East-Asian	1	Factory39	EAROF-039	3	1	12/12/2020		29/12/2020	13/1/2021		17/1/2021			
40	Firm40	Malaysia	East-Asian	1	Factory40	EAROF-040	3	1	12/12/2020		29/12/2020	13/1/2021		20/1/2021			
							120	24									

40 South Asian Region Origin BOI approved Sri Lankan garment manufacturing firms operate in Sri Lanka for more than 5 years

No.	Name of the Firm	Country of Investment	Region of Origin	No. of Factories	Name of the selected Factory	FactoryID	Min. no. of Invitations	No. of Resp. Recieved	Initial invitation sent date	Initial resp. last received date	1st reminder sent date	2nd reminder sent date	3rd reminder sent date	Post-reminder resp. last received date	Contact Person	Primary e-mail	Secondary e-mail
1	Firm1	Sri Lankan	South-Asian	5	Factory1	SAROF-001	3	1	14/12/2020		30/12/2020	14/1/2021		17/1/2021			
2	Firm2	Sri Lankan	South-Asian	27	Factory2	SAROF-002	3	0	14/12/2020		30/12/2020	14/1/2021	28/1/2021				
3	Firm3	Sri Lankan	South-Asian	7	Factory3	SAROF-003	3	1	14/12/2020	19/12/2020							
4	Firm4	Sri Lankan	South-Asian	18	Factory4	SAROF-004	3	1	14/12/2020		30/12/2020	14/1/2021		22/1/2021			
5	Firm5	Sri Lankan	South-Asian	6	Factory5	SAROF-005	3	0	14/12/2020		30/12/2020	14/1/2021	28/1/2021				
6	Firm6	Sri Lankan	South-Asian	2	Factory6	SAROF-006	3	0	14/12/2020		30/12/2020	14/1/2021	28/1/2021				
7	Firm7	Sri Lankan	South-Asian	2	Factory7	SAROF-007	3	1	15/12/2020	20/12/2020							
8	Firm8	Sri Lankan	South-Asian	4	Factory8	SAROF-008	3	1	15/12/2020		2/1/2021			6/1/2021			
9	Firm9	Sri Lankan	South-Asian	10	Factory9	SAROF-009	3	0	15/12/2020		2/1/2021	18/1/2021					
10	Firm10	Sri Lankan	South Asian	2	Factory10	SAROF-010	3	0	15/12/2020		2/1/2021	18/1/2021					
11	Firm11	Sri Lankan	South-Asian	2	Factory11	SAROF-011	3	1	15/12/2020	17/12/2020							
12	Firm12	Sri Lankan	South-Asian	4	Factory12	SAROF-012	3	0	15/12/2020		2/1/2021	18/1/2021					
13	Firm13	Sri Lankan	South-Asian	1	Factory13	SAROF-013	3	1	16/12/2020	18/12/2020							
14	Firm14	Sri Lankan	South-Asian	4	Factory14	SAROF-014	3	0	16/12/2020		3/1/2021	19/1/2021					
15	Firm15	Sri Lankan	South-Asian	2	Factory15	SAROF-015	3	1	16/12/2020	21/12/2020							
16	Firm16	Sri Lankan	South-Asian	2	Factory16	SAROF-016	3	1	16/12/2020		3/1/2021			9/1/2021			
17	Firm17	Sri Lankan	South-Asian	2	Factory17	SAROF-017	3	0	16/12/2020		3/1/2021	19/1/2021					
18	Firm18	Sri Lankan	South-Asian	1	Factory18	SAROF-018	3	1	16/12/2020		3/1/2021	19/1/2021		22/1/2021			
19	Firm19	Sri Lankan	South-Asian	2	Factory19	SAROF-019	3	1	17/12/2020		4/1/2021			11/1/2021			
20	Firm20	Sri Lankan	South-Asian	1	Factory20	SAROF-020	3	1	17/12/2020	22/12/2020							
21	Firm21	Sri Lankan	South-Asian	4	Factory21	SAROF-021	3	0	17/12/2020		4/1/2021	20/1/2021					
22	Firm22	Sri Lankan	South-Asian	1	Factory22	SAROF-022	3	1	17/12/2020		4/1/2021			12/1/2021			
23	Firm23	Sri Lankan	South-Asian	1	Factory23	SAROF-023	3	0	17/12/2020		4/1/2021	20/1/2021					
24	Firm24	Sri Lankan	South-Asian	1	Factory24	SAROF-024	3	1	17/12/2020		4/1/2021	20/1/2021		24/1/2021			
25	Firm25	Sri Lankan	South-Asian	1	Factory25	SAROF-025	3	0	18/12/2020		5/1/2021	21/1/2021					
26	Firm26	Sri Lankan	South-Asian	1	Factory26	SAROF-026	3	1	18/12/2020	27/12/2020							
27	Firm27	Sri Lankan	South-Asian	2	Factory27	SAROF-027	3	0	18/12/2020		5/1/2021	21/1/2021					
28	Firm28	Sri Lankan	South-Asian	1	Factory28	SAROF-028	3	1	18/12/2020	23/12/2020							
29	Firm29	Sri Lankan	South-Asian	1	Factory29	SAROF-029	3	0	18/12/2020		5/1/2021	21/1/2021					
30	Firm30	Sri Lankan	South-Asian	1	Factory30	SAROF-030	3	1	18/12/2020		5/1/2021	21/1/2021		27/1/2021			
31	Firm31	Sri Lankan	South-Asian	1	Factory31	SAROF-031	3	0	19/12/2020		6/1/2021	22/1/2021					
32	Firm32	Sri Lankan	South-Asian	1	Factory32	SAROF-032	3	0	19/12/2020		6/1/2021	22/1/2021					
33	Firm33	Sri Lankan	South-Asian	4	Factory33	SAROF-033	3	1	19/12/2020		6/1/2021			9/1/2021			
34	Firm34	Sri Lankan	South-Asian	2	Factory34	SAROF-034	3	1	19/12/2020	22/12/2020							
35	Firm35	Sri Lankan	South-Asian	1	Factory35	SAROF-035	3	1	19/12/2020		6/1/2021	22/1/2021		26/1/2021			
36	Firm36	Sri Lankan	South-Asian	1	Factory36	SAROF-036	3	0	20/12/2020		7/1/2021	23/1/2021					
37	Firm37	Sri Lankan	South-Asian	1	Factory37	SAROF-037	3	0	20/12/2020		7/1/2021	23/1/2021					
38	Firm38	Sri Lankan	South-Asian	1	Factory38	SAROF-038	3	0	20/12/2020		7/1/2021	23/1/2021					
39	Firm39	Sri Lankan	South-Asian	1	Factory39	SAROF-039	3	1	20/12/2020		7/1/2021			12/1/2021			
40	Firm40	Sri Lankan	South-Asian	1	Factory40	SAROF-040	3	0	20/12/2020		7/1/2021	23/1/2021					
							120	21									

MPS Overall Summary - Phase I of online data collection

	Number	Percentage
Responded firms	71	59.2%
Non-responded firms	49	40.8%
	120	100%
Firms responded with zero response	49	40.8%
Firms responded with one response	70	58.3%
Firms responded with two responses	1	0.8%
	120	100.0%

MPS Overall Summary - Phase I of online data collection

	Number	Percentage
No. of firms responded for the initial invitation	29	24.2%
No. of firms responded after first reminder	19	15.8%
No. of firms responded after second reminder	18	15.0%
No. of firms responded after third reminder	5	4.2%
* No. of firms not responded after 3 reminders as at 31/1/2021	49	40.8%
Total	120	100.0%
* Responses are pending		

Phase I of Online Data Collection (Considered period: 15/10/2020 - 31/1/2021)

Survey Participants of the MPS: Senior Managers holding positions directly involved with the production and operations functions of the garment manufacturing firms.

Main Tasks performed in Phase I: Designing the data collection tool for MPS using Qualtrics, Preparation of the online survey distribution plan for MPS with contact details and firm-specific online survey links, Distributing the initial invitations to participate for the MPS, Sending the intermittant reminders based on the response for the initial invitations.

During Phase I, the factory-specific anonymous survey links were distributed among the primary and secondary contact persons of each firm with intermittant reminders.

The data bases of garment firms operated in Sri Lanka by the BOISL, JAAFSL, SLAEA and SLEDB along with FourSource e-commerce web site were used to obtain the primary and secondary contact details.

Key - BOISL: Board of Investment of Sri Lanka
JAAFSL: Joint Apparel Association Forum of Sri Lanka
SLAEA: Sri Lanka Apparel Exporters Association
SLEDB: Sri Lanka Export Development Board

A minimum of 3 invitations were sent for each firm using the snowbowling technique. The expected number of resonse was 1 from each firm. If two or more responses received, it is decided to select the most experienced respondent.

When selecting a particular facotry of a multi-factory gament firm, it is decided to select the average performing factory considering the relative performance of other factories of the firms and other firms in the industry.

Manufacturing Performance Survey (MPS) - Survey distribution and responses on Phase II - online data collection in Sri Lanka - Up to 28th of February 2021

14 Non-responded Western Region Origin BOI approved garment manufacturing firms operate in Sri Lanka for more than 5 years (identified based on Phase I online data collection)

No.	Name of the Firm	Country of Investment	Region of Origin	No. of Factories	Name of the selected Factory	FactoryID	Min. no. of Invitations	No of Resp. Recieved	Initial invitation sent date	Last reminder sent date in Phase I	Phase I Post Reminder Resp. last received date	4th reminder sent date	5th reminder sent date	6th reminder sent date	Phase II Post Reminder Resp. last received date	Contact Person	Primary e-mail	Secondary e-mail	Tertiary e-mail
3	Firm3	Canada	Western	2	Factory3	WROF-003	3	1	16/11/2020	28/12/2020		4/2/2021	20/2/2021		24/2/2021				
6	Firm6	Australia	Western	1	Factory6	WROF-006	3	1	18/11/2020	30/12/2021		6/2/2021			9/2/2021				
7	Firm7	Australia	Western	3	Factory7	WROF-007	3	0	18/11/2020	30/12/2021		6/2/2021	22/2/2021						
12	Firm12	Italy	Western	2	Factory12	WROF-012	3	0	20/11/2020	2/1/2021		8/2/2021	24/2/2021						
14	Firm14	United Kingdom	Western	2	Factory14	WROF-014	3	1	22/11/2020	4/1/2021		8/2/2021			13/2/2021				
16	Firm16	Sweden	Western	1	Factory16	WROF-016	3	0	22/11/2020	4/1/2021		8/2/2021	24/2/2021						
20	Firm20	United States	Western	1	Factory20	WROF-020	3	0	23/11/2020	5/1/2021		12/1/2021	27/2/2021						
24	Firm24	Australia	Western	1	Factory24	WROF-024	3	0	24/11/2020	6/1/2021		12/2/2021	27/2/2021						
25	Firm25	Australia	Western	2	Factory25	WROF-025	3	1	25/11/2020	6/1/2021		12/2/2021			15/2/2021				
29	Firm29	France	Western	1	Factory29	WROF-029	3	0	27/11/2020	14/1/2021		2/2/2021	17/2/2021						
33	Firm33	France	Western	3	Factory33	WROF-033	3	1	29/11/2020	14.1/2021		2/2/2021	17/2/2021		20/2/2021				
37	Firm37	United Kingdom	Western	3	Factory37	WROF-037	3	1	30/11/2020	18/1/2021		4/2/2021			8/2/2021				
38	Firm38	United Kingdom	Western	1	Factory38	WROF-038	3	0	30/11/2020	18/1/2021		4/2/2021	19/2/2021						
40	Firm40	Sweden	Western	1	Factory40	WROF-040	3	1	30/11/2020	18/1/2021		4/1/2021			9/2/2021				
							42	7											

16 Non-responded East Asian Region Origin BOI approved garment manufacturing firms operate in Sri Lanka for more than 5 years (identified based on Phase I online data collection)

No.	Name of the Firm	Country of Investment	Region of Origin	No. of Factories	Name of the selected Factory	FactoryID	Min. no. of Invitations	No of Resps. Recieved	Initial invitation sent date	Last reminder sent date in Phase I	Phase I Post Reminder Resp. last received date	4th reminder sent date	5th reminder sent date	6th reminder sent date	Phase II Post Reminder Resp. last received date	Contact Person	Primary e-mail	Secondary e-mail	Tertiary e-mail
1	Firm1	Hong Kong	East-Asian	1	Factory1	EAROF-001	3	1	1/12/2020	19/1/2021		5/2/2021	20/2/2021		25/2/2021				
4	Firm4	Hong Kong	East-Asian	3	Factory4	EAROF-004	3	0	1/12/2020	19/1/2021		5/2/2021	20/2/2021						
6	Firm6	South Korea	East-Asian	1	Factory6	EAROF-006	3	0	3/12/2020	20/1/2021		6/2/2021	22/2/2021						
8	Firm8	Malaysia	East-Asian	1	Factory8	EAROF-008	3	0	3/12/2020	20/1/2021		6/2/2021	22/2/2021						
12	Firm12	China	East-Asian	3	Factory12	EAROF-012	3	0	6/12/2020	22/1/2021		7/2/2021	22/2/2021						
16	Firm16	Hong Kong	East-Asian	1	Factory16	EAROF-016	3	0	6/12/2020	22/1/2021		7/2/2021	22/2/2021						
17	Firm17	Taiwan	East-Asian	1	Factory17	EAROF-017	3	1	6/12/2020	23/1/2021		8/2/2021			12/2/2021				
19	Firm19	Hong Kong	East-Asian	1	Factory19	EAROF-019	3	1	7/12/2020	23/1/2021	1/2/2021								
20	Firm20	Malaysia	East-Asian	1	Factory20	EAROF-020	3	1	7/12/2020	23/1/2021	2/2/2021								
22	Firm22	Taiwan	East-Asian	2	Factory22	EAROF-022	3	1	7/12/2020	24/1/2021		9/2/2021	26/2/2021		28/2/2021				
25	Firm25	South Korea	East-Asian	1	Factory25	EAROF-025	3	1	8/12/2020	24/1/2021		9/2/2021			14/2/2021				
26	Firm26	Singapore	East-Asian	1	Factory26	EAROF-026	3	0	8/12/2020	24/1/2021		9/2/2021	26/2/2021						
29	Firm29	China	East-Asian	1	Factory29	EAROF-029	3	0	9/12/2020	26/1/2021		10/2/2021	28/2/2021						
33	Firm33	Hong Kong	East-Asian	3	Factory33	EAROF-033	3	0	11/12/2020	26/1/2021		10/2/2021	28/2/2021						
36	Firm36	Taiwan	East-Asian	1	Factory36	EAROF-036	3	1	12/12/2020	27/1/2021		12/2/2021			16/2/2021				
37	Firm37	Hong Kong	East-Asian	1	Factory37	EAROF-037	3	1	12/12/2020	27/1/2021		12/2/2021			18/2/2021				
							48	8											

19 Non-responded South Asian Region Origin BOI approved Sri Lankan garment manufacturing firms operate in Sri Lanka for more than 5 years (identified based on Phase I online data collection)

No.	Name of the Firm	Country of Investment	Region of Origin	No. of Factories	Name of the selected Factory	FactoryID	Min. no. of Invitations	No of Resps. Recieved	Initial invitation sent date	Last reminder sent date in Phase I	Phase I Post Reminder Resp. last received date	4th reminder sent date	5th reminder sent date	6th reminder sent date	Phase II Post Reminder Resp. last received date	Contact Person	Primary e-mail	Secondary e-mail	Tertiary e-mail
2	Frim2	Sri Lankan	South-Asian	27	Factory2	SAROF-002	3	1	14/12/2020	28/1/2021	5/2/2021								
5	Frim5	Sri Lankan	South-Asian	6	Factory5	SAROF-005	3	0	14/12/2020	28/1/2021		14/2/2021							
6	Firm6	Sri Lankan	South-Asian	2	Factory6	SAROF-006	3	0	14/12/2020	28/1/2021		14/2/2021							
9	Firm9	Sri Lankan	South-Asian	10	Factory9	SAROF-009	3	0	15/12/2020	30/1/2021		16/2/2021							
10	Firm10	Sri Lankan	South Asian	2	Factory10	SAROF-010	3	1	15/12/2020	30/1/2021	7/2/2021								
12	Firm12	Sri Lankan	South-Asian	4	Factory12	SAROF-012	3	0	15/12/2020	30/1/2021			16/2/2021						
14	Firm14	Sri Lankan	South-Asian	4	Factory14	SAROF-014	3	0	16/12/2020			1/2/2021	17/2/2021						
17	Firm17	Sri Lankan	South-Asian	2	Factory17	SAROF-017	3	1	16/12/2020			1/2/2021	17/2/2021		21/2/2021				
21	Firm21	Sri Lankan	South-Asian	4	Factory21	SAROF-021	3	0	17/12/2020			2/2/2021	18/2/2021						
23	Firm23	Sri Lankan	South-Asian	1	Factory23	SAROF-023	3	0	17/12/2020			2/2/2021	18/2/2021						
25	Firm25	Sri Lankan	South-Asian	1	Factory25	SAROF-025	3	0	18/12/2020			3/2/2021	19/2/2021						
27	Firm27	Sri Lankan	South-Asian	2	Factory27	SAROF-027	3	0	18/12/2020			3/2/2021	19/2/2021						
29	Firm29	Sri Lankan	South-Asian	1	Factory29	SAROF-029	3	0	18/12/2020			3/2/2021	19/2/2021						
31	Firm31	Sri Lankan	South-Asian	1	Factory31	SAROF-031	3	1	19/12/2020			4/2/2021	20/2/2021		23/2/2021				
32	Firm32	Sri Lankan	South-Asian	1	Factory32	SAROF-032	3	1	19/12/2020			4/2/2021			6/2/2021				
36	Firm36	Sri Lankan	South-Asian	1	Factory36	SAROF-036	3	0	20/12/2020			6/2/2021	22/2/2021						
37	Firm37	Sri Lankan	South-Asian	1	Factory37	SAROF-037	3	1	20/12/2020			6/2/2021	22/2/2021		26/2/2021				
38	Firm38	Sri Lankan	South-Asian	1	Factory38	SAROF-038	3	1	20/12/2020			6/2/2021			10/2/2021				
40	Firm40	Sri Lankan	South-Asian	1	Factory40	SAROF-040	3	0											
							57	7											

MPS Overall Summary - Phase II of online data collection as

	Number	Percentage
Responded firms	22	44.9%
Non-responded firms	27	55.1%
	49	100%
Firms responded with 0 response	27	55.1%
Firms responded with 1 response	22	44.9%
Firms responded with 2 responses	0	0.0%
	49	100.0%

MPS Overall Summary - Phase II of online data collection as at 28-02-2021

	Number	Percentage
No. of firms responded for the last reminder - Phase 1	4	8.2%
No. of firms responded after fourth reminder	11	22.4%
No. of firms responded after fifth reminder	7	14.3%
No. of firms responded after sixth reminder	0	0.0%
No. of firms not responded as at 28/2/2021	27	55.1%
Total	49	100.0%

Phase II of Online Data Collection (Considered period: 1/2/2021 - 28/2/2021)

Survey Participants of the MPS: Senior Managers holding positions directly involved with the production and operations functions of the garment manufacturing firms.

Main tasks performed in Phase II: Preparation of a revised online survey distribution plan for MPS based on the responses received in Phase I of online data collection, Sending the invitations to the new firms and participants of the survey, Sending the intermittant reminders for the new and non-responded and inadequately responded firms/participants based on the responses for the invitations.

During Phase II, the factory-specific anonymous survey links were sent to identified survey participants using the LinkedIn, Facebook and Personal contact details based on the adequacy of responses recieved from each firm in Phase I, The anonymous survey links were also be sent to new firms/participants and different factories of non-responded firms which is not included in the phase I based on the number of non-responded firms in phase I.

At Phase II, the support of the infuencial people (BOISL officials: Former Head of Zones, Present Head of Zones, Director - Legal and Industriial Relations, Assistant Director - Research and Advocacy, Director General of BOISL, Industry people: Academics who involve in the garment industry, General Secretary of JAAFSL, General Secretary of SLAEA, Director General of SLEDB, CEO's or MD's of the garment firms were obtained.

In addition, friends and students who have contacts with the non-responded, inadequately responded and new firms were also obtained.

The data bases of garment firms operated in Sri Lanka by the BOISL, JAAFSL, SLAEA and SLEDB along with FourSource e-commerce web site used to obtain the tertiary contact details in addition to the available primary and secondary contact details.

Key - BOISL: Board of Investment of Sri Lanka
JAAFSL: Joint Apparel Association Forum of Sri Lanka
SLAEA: Sri Lanka Apparel Exporters Association
SLEDB: Sri Lanka Export Development Board

APPENDIX F: ONLINE SURVEY DISTRIBUTION PLAN & RESPONSES FOR DOCS

Denison's Organisational Climate Survey (DOCS) - Survey distribution and responses on Phase I online data collection in Sri Lanka - Up to 31st of January 2021

40 Western Region Origin BOI approved garment manufacturing firms operate in Sri Lanka for more than 5 years

No.	Name of the Firm	Country of Investment	Region of Origin	No. of Factories	Name of the selected Factory	FactoryID	Min. no. of Invitations	No. of Resp. Recieved	Initial invitation sent date	Initial resp. last received date	1st reminder sent date	2nd reminder sent date	3rd reminder sent date	Post-reminder resp. last received date	Contact Person	Primary e-mail	Secondary e-mail
1	Firm1	Luxembourg	Western	4	Factory1	WROF-001	5	2	16/11/2020		30/11/2020	14/12/2020		19/12/2020			
2	Firm2	United Kingdom	Western	1	Factory2	WROF-002	5	3	16/11/2020		30/11/2020			5/12/2020			
3	Firm3	Canada	Western	2	Factory3	WROF-003	5	0	16/11/2020		30/11/2020	14/12/2020	28/12/2020				
4	Firm4	United States	Western	10	Factory4	WROF-004	5	3	16/11/2020	23/11/2020							
5	Firm5	Italy	Western	2	Factory5	WROF-005	5	2	18/11/2020		2/12/2020	16/12/2020		22/12/2020			
6	Firm6	Australia	Western	1	Factory6	WROF-006	5	0	18/11/2020		2/12/2020	16/12/2020	30/12/2020				
7	Firm7	Australia	Western	3	Factory7	WROF-007	5	0	18/11/2020		2/12/2020	16/12/2020	30/12/2020				
8	Firm8	Sweden	Western	1	Factory8	WROF-008	5	0	18/11/2020		2/12/2020	16/12/2020	30/12/2020				
9	Firm9	Denmark	Western	1	Factory9	WROF-009	5	3	20/11/2020		4/12/2020			8/12/2020			
10	Firm10	Australia	Western	8	Factory10	WROF-010	5	4	20/11/2020	27/11/2020							
11	Firm11	United Kingdom	Western	1	Factory11	WROF-011	5	1	20/11/2020		4/12/2020	18/12/2020	2/1/2021	5/1/2021			
12	Firm12	Italy	Western	2	Factory12	WROF-012	5	0	20/11/2020		4/12/2020	18/12/2020	2/1/2021				
13	Firm13	Germany	Western	4	Factory13	WROF-013	5	3	22/11/2020	28/11/2020							
14	Firm14	United Kingdom	Western	2	Factory14	WROF-014	5	4	22/11/2020		6/12/2020			13/12/2020			
15	Firm15	Germany	Western	2	Factory15	WROF-015	5	2	22/11/2020		6/12/2020	20/12/2020		29/12/2020			
16	Firm16	Sweden	Western	1	Factory16	WROF-016	5	0	22/11/2020		6/12/2020	20/12/2020	4/1/2021				
17	Firm17	United Kingdom	Western	1	Factory17	WROF-017	5	1	23/11/2020		7/12/2020	20/12/2020	4/1/2021	7/1/2021			
18	Firm18	Sweden	Western	1	Factory18	WROF-018	5	3	23/11/2020	29/11/2020							
19	Firm19	Switzerland	Western	1	Factory19	WROF-019	5	0	23/11/2020		7/12/2020	21/12/2020	5/1/2021				
20	Firm20	United States	Western	1	Factory20	WROF-020	5	0	23/11/2020		7/12/2020	21/12/2020	5/1/2021				
21	Firm21	United Kingdom	Western	1	Factory21	WROF-021	5	4	24/11/2020	1/12/2020							
22	Firm22	United Kingdom	Western	1	Factory22	WROF-022	5	1	24/11/2020		8/12/2020	22/12/2020	6/1/2021	9/1/2021			
23	Firm23	Australia	Western	1	Factory23	WROF-023	5	3	24/11/2020		8/12/2020			11/12/2020			
24	Firm24	Australia	Western	1	Factory24	WROF-024	5	0	24/11/2020		8/12/2020	22/12/2020	6/1/2021				
25	Firm25	Australia	Western	2	Factory25	WROF-025	5	0	24/11/2020		10/12/2020	28/12/2020	6/1/2021				
26	Firm26	United Kingdom	Western	1	Factory26	WROF-026	5	3	25/11/2020	30/11/2020							
27	Firm27	United Kingdom	Western	2	Factory27	WROF-027	5	3	25/11/2020		10/12/2020			15/12/2020			
28	Firm28	United Kingdom	Western	3	Factory28	WROF-028	5	3	25/11/2020		10/12/2020			14/12/2020			
29	Firm29	France	Western	1	Factory29	WROF-029	5	0	27/11/2020		12/12/2020	30/12/2020	14/1/2021				
30	Firm30	United Kingdom	Western	1	Factory30	WROF-030	5	4	27/11/2020	3/12/2020							
31	Firm31	United States	Western	5	Factory31	WROF-031	5	2	27/11/2020		12/12/2020	30/12/2020		4/1/2021			
32	Firm32	United Kingdom	Western	1	Factory32	WROF-032	5	3	27/11/2020		12/12/2020			19/12/2020			
33	Firm33	France	Western	3	Factory33	WROF-033	5	0	29/11/2020		14/12/2020	30/12/2020	14/1/2021				
34	Firm34	United Kingdom	Western	1	Factory34	WROF-034	5	2	29/11/2020		14/12/2020	30/12/2020		6/1/2021			
35	Firm35	Germany	Western	1	Factory35	WROF-035	5	5	29/11/2020	8/12/2020							
36	Firm36	United Kingdom	Western	1	Factory36	WROF-036	5	4	29/11/2020		14/12/2020			21/12/2020			
37	Firm37	United Kingdom	Western	3	Factory37	WROF-037	5	0	30/11/2020		16/12/2020	2/1/2021	18/1/2021				
38	Firm38	United Kingdom	Western	1	Factory38	WROF-038	5	0	30/11/2020		16/12/2020	2/1/2021	18/1/2021				
39	Firm39	United Kingdom	Western	1	Factory39	WROF-039	5	2	30/11/2020		16/12/2020	2/1/2021		9/1/2021			
40	Firm40	Sweden	Western	1	Factory40	WROF-040	5	0	30/11/2020		16/12/2020	2/1/2021	18/1/2021				
							200	70									

40 East Asian Region Origin BOI approved garment manufacturing firms operate in Sri Lanka for more than 5 years

No.	Name of the Firm	Country of Investment	Region of Origin	No. of Factories	Name of the selected Factory	FactoryID	Min. no. of Invitations	No. of Resp. Recieved	Initial invitation sent date	Initial resp. last received date	1st reminder sent date	2nd reminder sent date	3rd reminder sent date	Post-reminder resp. last received date	Contact Person	Primary e-mail	Secondary e-mail
1	Firm1	Hong Kong	East-Asian	1	Factory1	EAROF-001	5	0	1/12/2020		17/12/2020	3/1/2021	19/1/2021				
2	Firm2	China	East-Asian	6	Factory2	EAROF-002	5	1	1/12/2020		17/12/2020	3/1/2021	19/1/2021	22/1/2021			
3	Firm3	Hong Kong	East-Asian	1	Factory3	EAROF-003	5	3	1/12/2020	7/12/2020							
4	Firm4	Hong Kong	East-Asian	3	Factory4	EAROF-004	5	0	1/12/2020		17/12/2020	3/1/2021	19/1/2021				
5	Firm5	Japan	East-Asian	1	Factory5	EAROF-005	5	3	1/12/2020		17/12/2020			21/12/2020			
6	Firm6	South Korea	East-Asian	1	Factory6	EAROF-006	5	0	3/12/2020		18/12/2020	4/1/2021	20/1/2021				
7	Firm7	Thailand	East-Asian	2	Factory7	EAROF-007	5	3	3/12/2020	10/12/2020							
8	Firm8	Malaysia	East-Asian	1	Factory8	EAROF-008	5	0	3/12/2020		18/12/2020	4/1/2021	20/1/2021				
9	Firm9	Taiwan	East-Asian	1	Factory9	EAROF-009	5	3	3/12/2020		18/12/2020			22/12/2020			
10	Firm10	Hong Kong	East-Asian	1	Factory10	EAROF-010	5	1	3/12/2020		18/12/2020	4/1/2021	20/1/2021	24/1/2021			
11	Firm11	Hong Kong	East-Asian	1	Factory11	EAROF-011	5	0	5/12/2020		19/12/2020	5/1/2021	21/1/2021				
12	Firm12	China	East-Asian	3	Factory12	EAROF-012	5	0	5/12/2020		19/12/2020	5/1/2021	21/1/2021				
13	Firm13	Hong Kong	East-Asian	4	Factory13	EAROF-013	5	3	5/12/2020		19/12/2020			21/12/2020			
14	Firm14	Hong Kong	East-Asian	1	Factory14	EAROF-014	5	4	5/12/2020	11/12/2020							
15	Firm15	South Korea	East-Asian	1	Factory15	EAROF-015	5	2	6/12/2020		20/12/2020	6/1/2021		10/1/2021			
16	Firm16	Hong Kong	East-Asian	1	Factory16	EAROF-016	5	0	6/12/2020		20/12/2020	6/1/2021	22/1/2021				
17	Firm17	Taiwan	East-Asian	1	Factory17	EAROF-017	5	0	6/12/2020		20/12/2020	6/1/2021	22/1/2021				
18	Firm18	Singapore	East-Asian	1	Factory18	EAROF-018	5	4	6/12/2020	14/12/2020							
19	Firm19	Hong Kong	East-Asian	1	Factory19	EAROF-019	5	2	7/12/2020		21/12/2020	7/1/2021		12/1/2021			
20	Firm20	Malaysia	East-Asian	1	Factory20	EAROF-020	5	2	7/12/2020		21/12/2020	7/1/2021		14/1/2021			
21	Firm21	South Korea	East-Asian	1	Factory21	EAROF-021	5	5	7/12/2020	17/12/2020							
22	Firm22	Taiwan	East-Asian	2	Factory22	EAROF-022	5	0	7/12/2020		21/12/2020	7/1/2021	23/1/2021				
23	Firm23	Malaysia	East-Asian	1	Factory23	EAROF-023	5	4	7/12/2020	13/12/2020							
24	Firm24	China	East-Asian	1	Factory24	EAROF-024	5	2	8/12/2020		22/12/2020	8/1/2021		15/1/2021			
25	Firm25	South Korea	East-Asian	1	Factory25	EAROF-025	5	0	8/12/2020		22/12/2020	8/1/2021	24/1/2021				
26	Firm26	Singapore	East-Asian	1	Factory26	EAROF-026	5	0	8/12/2020		22/12/2020	8/1/2021	24/1/2021				
27	Firm27	China	East-Asian	1	Factory27	EAROF-027	5	3	8/12/2020	11/12/2020							
28	Firm28	China	East-Asian	1	Factory28	EAROF-028	5	2	9/12/2020		22/12/2020	8/1/2021		13/1/2021			
29	Firm29	China	East-Asian	1	Factory29	EAROF-029	5	0	9/12/2020		22/12/2020	8/1/2021	24/1/2021				
30	Firm30	Hong Kong	East-Asian	1	Factory30	EAROF-030	5	4	9/12/2020	14/12/2020							
31	Firm31	Malaysia	East-Asian	1	Factory31	EAROF-031	5	0	9/12/2020		22/12/2020	8/1/2021	24/1/2021				
32	Firm32	Hong Kong	East-Asian	1	Factory32	EAROF-032	5	2	11/12/2020		28/12/2020	12/1/2021		18/1/2021			
33	Firm33	Hong Kong	East-Asian	3	Factory33	EAROF-033	5	0	11/12/2020		28/12/2020	12/1/2021	26/1/2021				
34	Firm34	Hong Kong	East-Asian	2	Factory34	EAROF-034	5	3	11/12/2020	15/12/2020							
35	Firm35	South Korea	East-Asian	2	Factory35	EAROF-035	5	2	11/12/2020		28/12/2020	12/1/2021		17/1/2020			
36	Firm36	Taiwan	East-Asian	1	Factory36	EAROF-036	5	0	12/12/2020		29/12/2020	13/1/2021	27/1/2021				
37	Firm37	Hong Kong	East-Asian	1	Factory37	EAROF-037	5	0	12/12/2020		29/12/2020	13/1/2021	27/1/2021				
38	Firm38	Malaysia	East-Asian	1	Factory38	EAROF-038	5	0	12/12/2020		29/12/2020	13/1/2021	27/1/2021				
39	Firm39	Hong Kong	East-Asian	1	Factory39	EAROF-039	5	5	12/12/2020		29/12/2020			7/1/2021			
40	Firm40	Malaysia	East-Asian	1	Factory40	EAROF-040	5	3	12/12/2020		29/12/2020			5/1/2021			
							200	66									

40 South Asian Region Origin BOI approved Sri Lankan garment manufacturing firms operate in Sri Lanka for more than 5 years

No.	Name of the Firm	Country of Investment	Region of Origin	No. of Factories	Name of the selected Factory	FactoryID	Min. no. of Invitations	No. of Resp. Recieved	Initial invitation sent date	Initial resp. last received date	1st reminder sent date	2nd reminder sent date	3rd reminder sent date	Post-reminder resp. last received date	Contact Person	Primary e-mail	Secondary e-mail
1	Firm1	Sri Lankan	South-Asian	5	Factory1	SAROF-001	5	2	14/12/2020		30/12/2020	14/1/2021		17/1/2021			
2	Firm2	Sri Lankan	South-Asian	27	Factory2	SAROF-002	5	0	14/12/2020		30/12/2020	14/1/2021	28/1/2021				
3	Firm3	Sri Lankan	South-Asian	7	Factory3	SAROF-003	5	3	14/12/2020	17/12/2020							
4	Firm4	Sri Lankan	South-Asian	18	Factory4	SAROF-004	5	2	14/12/2020		30/12/2020	14/1/2021		20/1/2021			
5	Firm5	Sri Lankan	South-Asian	6	Factory5	SAROF-005	5	0	14/12/2020		30/12/2020	14/1/2021	28/1/2021				
6	Firm6	Sri Lankan	South-Asian	2	Factory6	SAROF-006	5	0	14/12/2020		30/12/2020	14/1/2021	28/1/2021				
7	Firm7	Sri Lankan	South-Asian	2	Factory7	SAROF-007	5	3	15/12/2020	20/12/2020							
8	Firm8	Sri Lankan	South-Asian	4	Factory8	SAROF-008	5	2	15/12/2020		2/1/2021	18/1/2021		22/1/2021			
9	Firm9	Sri Lankan	South-Asian	10	Factory9	SAROF-009	5	0	15/12/2020		2/1/2021	18/1/2021					
10	Firm10	Sri Lankan	South Asian	2	Factory10	SAROF-010	5	0	15/12/2020		2/1/2021	18/1/2021					
11	Firm11	Sri Lankan	South-Asian	2	Factory11	SAROF-011	5	3	15/12/2020	23/12/2020							
12	Firm12	Sri Lankan	South-Asian	4	Factory12	SAROF-012	5	0	15/12/2020		2/1/2021	18/1/2021					
13	Firm13	Sri Lankan	South-Asian	1	Factory13	SAROF-013	5	4	16/12/2020		3/1/2021			9/1/2021			
14	Firm14	Sri Lankan	South-Asian	4	Factory14	SAROF-014	5	0	16/12/2020		3/1/2021	19/1/2021					
15	Firm15	Sri Lankan	South-Asian	2	Factory15	SAROF-015	5	3	16/12/2020	21/12/2020							
16	Firm16	Sri Lankan	South-Asian	2	Factory16	SAROF-016	5	2	16/12/2020		3/1/2021	19/1/2021		26/1/2021			
17	Firm17	Sri Lankan	South-Asian	2	Factory17	SAROF-017	5	0	16/12/2020		3/1/2021	19/1/2021					
18	Firm18	Sri Lankan	South-Asian	1	Factory18	SAROF-018	5	4	16/12/2020		3/1/2021			11/1/2021			
19	Firm19	Sri Lankan	South-Asian	2	Factory19	SAROF-019	5	0	17/12/2020		4/1/2021	19/1/2021					
20	Firm20	Sri Lankan	South-Asian	1	Factory20	SAROF-020	5	3	17/12/2020	27/12/2020							
21	Firm21	Sri Lankan	South-Asian	4	Factory21	SAROF-021	5	0	17/12/2020		4/1/2021	20/1/2021					
22	Firm22	Sri Lankan	South-Asian	1	Factory22	SAROF-022	5	0	17/12/2020		4/1/2021	20/1/2021					
23	Firm23	Sri Lankan	South-Asian	1	Factory23	SAROF-023	5	0	17/12/2020		4/1/2021	20/1/2021					
24	Firm24	Sri Lankan	South-Asian	1	Factory24	SAROF-024	5	2	17/12/2020		4/1/2021	20/1/2021		26/1/2021			
25	Firm25	Sri Lankan	South-Asian	1	Factory25	SAROF-025	5	0	18/12/2020		5/1/2021	21/1/2021					
26	Firm26	Sri Lankan	South-Asian	1	Factory26	SAROF-026	5	2	18/12/2020		5/1/2021	21/1/2021		28/1/2021			
27	Firm27	Sri Lankan	South-Asian	2	Factory27	SAROF-027	5	0	18/12/2020		5/1/2021	21/1/2021					
28	Firm28	Sri Lankan	South-Asian	1	Factory28	SAROF-028	5	3	18/12/2020	29/12/2020							
29	Firm29	Sri Lankan	South-Asian	1	Factory29	SAROF-029	5	0	18/12/2020		5/1/2021	21/1/2021					
30	Firm30	Sri Lankan	South-Asian	1	Factory30	SAROF-030	5	3	18/12/2020		5/1/2021			10/1/2021			
31	Firm31	Sri Lankan	South-Asian	1	Factory31	SAROF-031	5	0	19/12/2020		6/1/2021	22/1/2021					
32	Firm32	Sri Lankan	South-Asian	1	Factory32	SAROF-032	5	0	19/12/2020		6/1/2021	22/1/2021					
33	Firm33	Sri Lankan	South-Asian	4	Factory33	SAROF-033	5	4	19/12/2020		6/1/2021			15/1/2021			
34	Firm34	Sri Lankan	South-Asian	2	Factory34	SAROF-034	5	3	19/12/2020	30/12/2020							
35	Firm35	Sri Lankan	South-Asian	1	Factory35	SAROF-035	5	3	19/12/2020		6/1/2021			17/1/2021			
36	Firm36	Sri Lankan	South-Asian	1	Factory36	SAROF-036	5	0	20/12/2020		7/1/2021	23/1/2021					
37	Firm37	Sri Lankan	South-Asian	1	Factory37	SAROF-037	5	0	20/12/2020		7/1/2021	23/1/2021					
38	Firm38	Sri Lankan	South-Asian	1	Factory38	SAROF-038	5	0	20/12/2020		7/1/2021	23/1/2021					
39	Firm39	Sri Lankan	South-Asian	1	Factory39	SAROF-039	5	3	20/12/2020		7/1/2021			15/1/2021			
40	Firm40	Sri Lankan	South-Asian	1	Factory40	SAROF-040	5	0	20/12/2020		7/1/2021	23/1/2021					
							200	54									

DOCS Overall Response Summary - Phase I		
	Number	Percentage
Responded firms	67	55.8%
Non-responded firms	53	44.2%
	120	100%
Firms responded with zero response	53	44.2%
Firms responded with one response	5	4.2%
Firms responded with two responses	19	15.8%
Firms responded with three responses	27	22.5%
Firms responded with four responses	13	10.8%
Firms responded with five responses	3	2.5%
	120	100.0%

DOCS Overall Response Summary - Phase I - Online data collection		
	Number	Percentage
No. of firms responded for the initial invitation	24	20.0%
No. of firms responded after first reminder	19	15.8%
No. of firms responded after second reminder	19	15.8%
No. of firms responded after third reminder	5	4.2%
* No. of firms not responded after 3 reminders as at 31/1/2021	53	44.2%
Total	120	100.0%
* Responses are pending		

Phase I of Online Data Collection (Considered period: 15/10/2020 - 31/1/2021)

Survey Participants of the DOCS: Middle level managers and executives holding positions in various sections, divisions, units or departments of the garment manufacturing firms.

Main tasks performed in Phase I: Designing the data collection tool for DOCS using Qualtrics, Preparation of the online survey distribution plan for DOCS with contact details, Distributing the initial invitations to participate for the DOCS, Sending the intermittant reminders based on the response for the initial invitations.

During Phase I, the factory-specific anonymous survey links were distributed among the primary and secondary contact persons of each firm with intermittant reminders.

The data bases of garment firms operated in Sri Lanka by the BOISL, JAAFSL, SLAEA and SLEDB along with FourSource e-commerce web site were used to obtain the primary and secondary contact details.

Key - BOISL: Board of Investment of Sri Lanka
JAAFSL: Joint Apparel Association Forum of Sri Lanka
SLAEA: Sri Lanka Apparel Exporters Association
SLEDB: Sri Lanka Export Development Board

A minimum of 5-10 invitations were sent for each firm using the snowbowling technique. The expected number of responses were 2-4 from each firm.

When selecting a particular facotry of a multi-factory gament firm, it is decided to select the average performing factory considering the relative performance of other factories of the firms and other firms in the industry.

Denison's Organisational Climate Survey (DOCS) - Survey distribution and responses on Phase II - online data collection in Sri Lanka - Up to 28th of Feb. 2021

15 Non-responded and 3 Inadequately responded Western Region Origin BOI approved garment manufacturing firms operate in Sri Lanka for more than 5 years (identified based on Phase I)

No.	Name of the Firm	Country of Investment	Region of Origin	No. of Factories	Name of the selected Factory	FactoryID	Min. no. of Invitations	No. of resp recieved in Phase I	Number of new responses received	Initial invitation sent date	Last reminder sent date in Phase I	4th reminder sent date	5th reminder sent date	Phase II Post Reminder Resp. last received date	Contact Person	Primary e-mail	Secondary e-mail	Tertiary e-mail
3	Firm3	Canada	Western	2	Factory3	WROF-003	5	0	2	16/11/2020	28/12/2020	2/2/2021	16/2/2021	21/2/2021				
6	Firm6	Australia	Western	1	Factory6	WROF-006	5	0	2	18/11/2020	30/12/2020	4/2/2021		9/2/2021				
7	Firm7	Australia	Western	3	Factory7	WROF-007	5	0		18/11/2020	30/12/2020	4/2/2021	18/2/2021					
8	Firm8	Sweden	Western	1	Factory8	WROF-008	5	0	3	18/11/2020	30/12/2020	4/2/2021	18/2/2021	23/2/2021				
11	Firm11	United Kingdom	Western	1	Factory11	WROF-011	5	1		20/11/2020	2/1/2021	6/2/2021	20/2/2021					
12	Firm12	Italy	Western	2	Factory12	WROF-012	5	0		20/11/2020	2/1/2021	6/2/2021	20/2/2021					
16	Firm16	Sweden	Western	1	Factory16	WROF-016	5	0		22/11/2020	2/1/2021	6/2/2021	20/2/2021					
17	Firm17	United Kingdom	Western	1	Factory17	WROF-017	5	1	1	23/11/2020	4/1/2021	6/2/2021	20/2/2021	23/2/2021				
19	Firm19	Switzerland	Western	1	Factory19	WROF-019	5	0	3	23/11/2020	4/1/2021	7/2/2021		10/2/2021				
20	Firm20	United States	Western	1	Factory20	WROF-020	5	0		23/11/2020	4/1/2021	7/2/2021	20/2/2021					
22	Firm22	United Kingdom	Western	1	Factory22	WROF-022	5	1	2	24/11/2020	6/1/2021	8/2/2021		13/2/2021				
24	Firm24	Australia	Western	1	Factory24	WROF-024	5	0		24/11/2020	6/1/2021	8/2/2021	22/2/2021					
25	Firm25	Australia	Western	2	Factory25	WROF-025	5	0	1	24/11/2020	6/1/2021	8/2/2021	22/2/2021	24/2/24				
29	Firm29	France	Western	1	Factory29	WROF-029	5	0		27/11/2020	14/1/2021	4/2/2021	18/2/2021					
33	Firm33	France	Western	3	Factory33	WROF-033	5	0	2	29/11/2020	14/1/2021	4/2/2021	18/2/2021	25/2/2021				
37	Firm37	United Kingdom	Western	3	Factory37	WROF-037	5	0	2	30/11/2020	18/1/2021	5/2/2021	19/2/2021	24/2/2021				
38	Firm38	United Kingdom	Western	1	Factory38	WROF-038	5	0		30/11/2020	18/1/2021	5/2/2021	19/2/2021					
40	Firm40	Sweden	Western	1	Factory40	WROF-040	5	0	3	30/11/2020	18/1/2021	5/2/2021	19/2/2021	27/2/2021				
							90	3	21									

17 Non-responded and 2 Inadequately responded East Asian Region Origin BOI approved garment manufacturing firms operate in Sri Lanka for more than 5 years (identified based on Phase I)

No.	Name of the Firm	Country of Investment	Region of Origin	No. of Factories	Name of the selected Factory	FactoryID	Min. no. of Invitations	No. of resp recieved in Phase I	Number of new responses received	Initial invitation sent date	Last reminder sent date in Phase I	4th reminder sent date	5th reminder sent date	Phase II Post Reminder Resp. last received date	Contact Person	Primary e-mail	Secondary e-mail	Tertiary e-mail
1	Firm1	Hong Kong	East-Asian	1	Factory1	EAROF-001	5	0	2	1/12/2020	19/1/2021	6/2/2021	21/2/2021	26/2/2021				
2	Firm2	China	East-Asian	6	Factory2	EAROF-002	5	1	2	1/12/2020	19/1/2021	6/2/2021		9/2/2021				
4	Firm4	Hong Kong	East-Asian	3	Factory4	EAROF-004	5	0		1/12/2020	19/1/2021	6/2/2021	21/2/2021					
6	Firm6	South Korea	East-Asian	1	Factory6	EAROF-006	5	0		3/12/2020	20/1/2021	7/2/2021	23/2/2021					
8	Firm8	Malaysia	East-Asian	1	Factory8	EAROF-008	5	0		3/12/2020	20/1/2021	7/2/2021	23/2/2021					
10	Firm10	Hong Kong	East-Asian	1	Factory10	EAROF-010	5	1		3/12/2020	20/1/2021	7/2/2021	23/2/2021					
11	Firm11	Hong Kong	East-Asian	1	Factory11	EAROF-011	5	0	2	5/12/2020	21/1/2021	8/2/2021		14/2/2021				
12	Firm12	China	East-Asian	3	Factory12	EAROF-012	5	0		5/12/2020	21/1/2021	8/2/2021	25/2/2021					
16	Firm16	Hong Kong	East-Asian	1	Factory16	EAROF-016	5	0		6/12/2020	22/1/2021	9/2/2021	26/2/2021					
17	Firm17	Taiwan	East-Asian	1	Factory17	EAROF-017	5	0	2	6/12/2020	22/1/2021	9/2/2021		12/2/2021				
22	Firm22	Taiwan	East-Asian	2	Factory22	EAROF-022	5	0	2	7/12/2020	22/1/2021	9/2/2021		14/2/2021				
25	Firm25	South Korea	East-Asian	1	Factory25	EAROF-025	5	0	3	8/12/2020	24/1/2021	11/2/2021		18/2/2021				
26	Firm26	Singapore	East-Asian	1	Factory26	EAROF-026	5	0		8/12/2020	24/1/2021	11/2/2021	28/2/2021					
29	Firm29	China	East-Asian	1	Factory29	EAROF-029	5	0		9/12/2020	24/1/2021	11/2/2021	28/2/2021					
31	Firm31	Malaysia	East-Asian	1	Factory31	EAROF-031	5	0	2	9/12/2020	24/1/2021	11/2/2021		16/2/2021				
33	Firm33	Hong Kong	East-Asian	3	Factory33	EAROF-033	5	0		11/12/2020	27/1/2021	13/2/2021	28/2/2021					
36	Firm36	Taiwan	East-Asian	1	Factory36	EAROF-036	5	0	1	12/12/2020	27/1/2021	13/2/2021		15/2/2021				
37	Firm37	Hong Kong	East-Asian	1	Factory37	EAROF-037	5	0	3	12/12/2020	27/1/2021	13/2/2021		21/2/2021				
38	Firm38	Malaysia	East-Asian	1	Factory38	EAROF-038	5	0	2	12/12/2020	27/1/2021	13/2/2021		17/2/2021				
							95	2	21									

21 Non-responded South Asian Region Origin BOI approved Sri Lankan garment manufacturing firms operate in Sri Lanka for more than 5 years (identified based on Phase I)

No.	Name of the Firm	Country of Investment	Region of Origin	No. of Factories	Name of the selected Factory	FactoryID	Min. no. of Invitations	No. of resp recieved in Phase I	Number of new responses received	Initial invitation sent date	Last reminder sent date in Phase I	4th reminder sent date	5th reminder sent date	Phase II Post Reminder Resp. last received date	Contact Person	Primary e-mail	Secondary e-mail	Tertiary e-mail	
2	Firm2	Sri Lankan	South-Asian	27	Factory2	SAROF-002	5	0	3	14/12/2020	28/1/2021	14/2/2021		18/2/2021					
5	Firm5	Sri Lankan	South-Asian	6	Factory5	SAROF-005	5	0		14/12/2020	28/1/2021	14/2/2021	28/2/2021						
6	Firm6	Sri Lankan	South-Asian	2	Factory6	SAROF-006	5	0		14/12/2020	28/1/2021	14/2/2021	28/2/2021						
9	Firm9	Sri Lankan	South-Asian	10	Factory9	SAROF-009	5	0		15/12/2020		15/2/2021	2/3/2021						
10	Firm10	Sri Lankan	South Asian	2	Factory10	SAROF-010	5	0	2	15/12/2020		15/2/2021		19/2/2021					
12	Firm12	Sri Lankan	South-Asian	4	Factory12	SAROF-012	5	0		15/12/2020		15/2/2021	2/3/2021						
14	Firm14	Sri Lankan	South-Asian	4	Factory14	SAROF-014	5	0		16/12/2020		16/2/2021	2/3/2021						
17	Firm17	Sri Lankan	South-Asian	2	Factory17	SAROF-017	5	0	4	16/12/2020		16/2/2021		25/2/2021					
19	Firm19	Sri Lankan	South-Asian	2	Factory19	SAROF-019	5	0	1	17/12/2020		17/2/2021		21/2/2021					
21	Firm21	Sri Lankan	South-Asian	4	Factory21	SAROF-021	5	0		17/12/2020		17/2/2021	4/3/2021						
22	Firm22	Sri Lankan	South-Asian	1	Factory22	SAROF-022	5	0	3	17/12/2020		17/2/2021		23/2/2021					
23	Firm23	Sri Lankan	South-Asian	1	Factory23	SAROF-023	5	0		17/12/2020		17/2/2021	4/3/2021						
25	Firm25	Sri Lankan	South-Asian	1	Factory25	SAROF-025	5	0		18/12/2020		18/2/2021	5/3/2021						
27	Firm27	Sri Lankan	South-Asian	2	Factory27	SAROF-027	5	0		18/12/2020		18/2/2021	5/3/2021						
29	Firm29	Sri Lankan	South-Asian	1	Factory29	SAROF-029	5	0		18/12/2020		18/2/2021	5/3/2021						
31	Firm31	Sri Lankan	South-Asian	1	Factory31	SAROF-031	5	0	2	19/12/2020		19/2/2021		24/2/2021					
32	Firm32	Sri Lankan	South-Asian	1	Factory32	SAROF-032	5	0	2	19/12/2020		19/2/2021		26/2/2021					
36	Firm36	Sri Lankan	South-Asian	1	Factory36	SAROF-036	5	0		20/12/2020		20/2/2021	7/3/2021						
37	Firm37	Sri Lankan	South-Asian	1	Factory37	SAROF-037	5	0	2	20/12/2020		20/2/2021		25/2/2021					
38	Firm38	Sri Lankan	South-Asian	1	Factory38	SAROF-038	5	0	1	20/12/2020		20/2/2021		22/2/2021					
40	Firm40	Sri Lankan	South-Asian	1	Factory40	SAROF-040	5	0		20/12/2020		20/2/2021	7/3/2021						
							105	0	20										

DOCS Overall Response Summary - Phase II as at 28-2-2021		
	Number	Percentage
Phase I responded firms	3	5.2%
Phase II responded firms	26	44.8%
Non-responded firms	29	50.0%
	58	100%
Firms with zero response	29	50.0%
Firms responded with one response	5	8.6%
Firms responded with two responses	16	27.6%
Firms responded with three responses	7	12.1%
Firms responded with four responses	1	1.7%
Firms responded with five responses	0	0.0%
	58	100.0%

DOCS Overall Response Summary - Phase II of online data collection as at 28-2-2021		
	Number	Percentage
No. of firms responded for the last reminder - Phase 1	3	5.2%
No. of firms responded after fourth reminder of phase II	20	34.5%
No. of firms responded after fifth reminder of phase II	6	10.3%
No. of firms responded after sixth reminder of pahse II	0	0.0%
No. of firms not responded as at 28/2/2021	29	50.0%
Total	58	100.0%

Phase II of Online Data Collection (Considered period: 1/2/2021 - 28/2/2021)

Survey Participants of the DOCS: Middle level managers and executives holding positions in various sections, divisions, units or departments of the garment manufacturing firms.

Main taska performed in Phase II: Preparation of a revised online survey distribution plan for DOCS based on the responses received in Phase I of online data collection, firms/participants based on the responses for the invitations.
Sending the invitations to the new firms and participants for the survey, Sending the intermittant reminders for the new and non-responded and inadequately responded

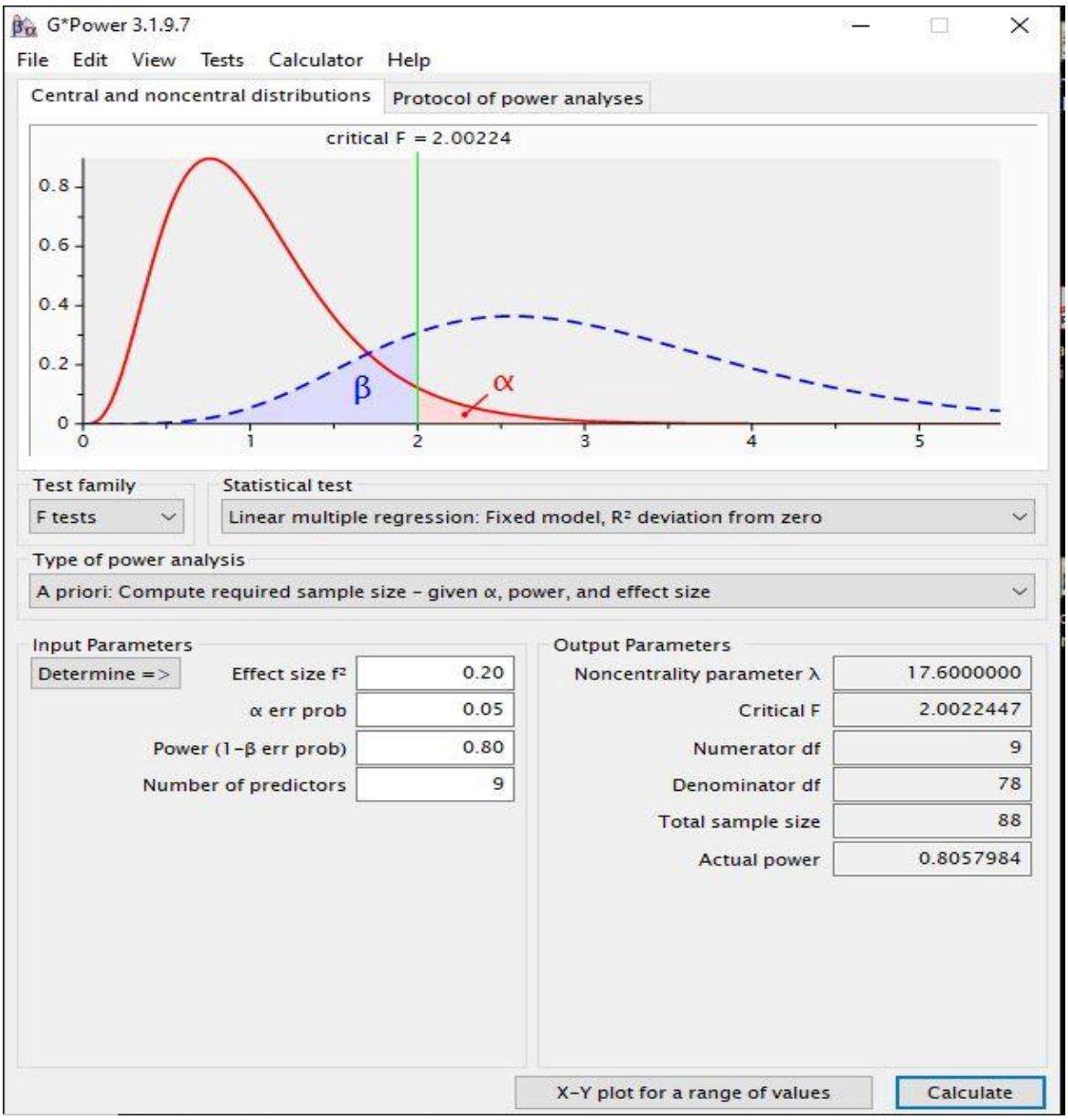
During Phase II, the support of the infuencial people (BOISL officials: Former Head of Zones, Present Head of Zones, Director - Legal and Industriial Relations, Assistant Director - Research and Advocacy, Director General of BOISL)
Industry people: Academics who involve in the garment industry, General Secretary of JAAFSL, General Secretary of SLAEA, Director General of SLEDB, CEO's or MD's of the garment firms were obtained.
In addition, friends and students who have contacts with the non-responded, inadequately responded and new firms were also obtained.

The data bases of garment firms operated in Sri Lanka by the BOISL, JAAFSL, SLAEA and SLEDB along with FourSource e-commerce web site used to obtain the tertiary contact details in addition
to the available primary and secondary contact details.

Key - BOISL: Board of Investment of Sri Lanka
JAAFSL: Joint Apparel Association Forum of Sri Lanka
SLAEA: Sri Lanka Apparel Exporters Association
SLEDB: Sri Lanka Export Development Board

APPENDIX G: ESTIMATION OF SAMPLE SIZE FOR MEDIATION MODEL

Using G*Power multiple regression-based sample size estimation software



APPENDIX H: DENISON'S ORGANISATIONAL CULTURE SURVEY (FINALISED)

I am a Senior Lecturer attached to the University of Sri Jayewardenepura, Sri Lanka. This survey is carried out as part of my doctoral thesis at Massey University, New Zealand. Hence, the collection and use of this survey data will be done following the code of research ethics of Massey University. As a doctoral candidate, I abide by this code to fully protect the anonymity and confidentiality of your responses. This survey data will be utilized only for the intended purpose of my study. No names of respondents, firms, or any other identifying data will be revealed. You have the right to withdraw from the survey at any time at your discretion.

By participating in this survey, you will be helping me towards developing new knowledge on improving the organisational culture and manufacturing performance of the apparel industry in Sri Lanka. Your participation in this survey goes a long way in my being able to successfully complete the doctoral study in contributing toward this purpose.

You have been selected as a survey participant because you have knowledge and experience in the apparel industry and will have valuable insights into the ways in which apparel firms do things. This survey shall not take more than 15 minutes to complete. Please provide your candid opinion in response to all the questions.

Click the link below to view my university profile
http://mgt.sjp.ac.lk/bus/team_member/mr-marlon-gunasekera/
Marlon Gunasekera

Click on the links below to view the university profiles of my research supervisors
https://www.massey.ac.nz/massey/expertise/profile.cfm?stref=416150
Dr Nihal Jayamaha

https://www.massey.ac.nz/massey/expertise/profile.cfm?stref=781350
Dr Jeffrey Kennedy

Q1. Your Gender

Female	Male	Prefer not to answer
○	○	○

Q2. Your experience in the firm

Less than 3 years	3 – 6 years	7 – 10 years	More than 10 years
○	○	○	○

Q3. Your highest qualification

Ordinary Level	Advanced Level	Diploma	Graduate	Postgraduate
○	○	○	○	○

Q4. Please state the Section / Division / Unit / Department for which you are attached to your firm

Instructions to answer the questions in this survey

This survey presents a set of statements that describe different aspects of the way in which your organisation does things. To answer the questions, think of your organisation as a whole and the way things are usually done. Use the agreement scale given to indicate the extent to which you disagree or agree with each statement

Keys: **SD** – Strongly Disagree, D – Disagree, N – Neutral, **A** – Agree, **SA** – Strongly Agree

		Strongly Disagree				Strongly Agree
		SD	**D**	**N**	**A**	**SA**
Q5_IE1	Most employees are highly involved in their work	1	2	3	4	5
Q6_IE2	Decisions are usually made at the level where the best information is available	1	2	3	4	5
Q7_IE3	Information is widely shared so that everyone can get the information when it is needed	1	2	3	4	5
Q8_IE4	Everyone believes that he or she can have a positive impact	1	2	3	4	5
Q9_IE5	Business planning is ongoing and involves everyone in the process to some degree	1	2	3	4	5
Q10_IT1	Cooperation across different parts of the organization is actively encouraged	1	2	3	4	5
Q11_IT2	People work like they are part of a team	1	2	3	4	5
Q12_IT3	Teamwork is used to get work done, rather than hierarchy	1	2	3	4	5
Q13_IT4	Teams are our primary building blocks	1	2	3	4	5
Q14_IT5	Work is organized so that each person can see the relationship between his or her job and the goals of the organization	1	2	3	4	5
Q15_IC1	Authority is delegated so that people can act on their own	1	2	3	4	5
Q16_IC2	The “bench strength” (capability of people) is constantly improving	1	2	3	4	5
Q17_IC3	There is continuous investment in the skills of employees	1	2	3	4	5
Q18_IC4	The capabilities of people are viewed as an important source of competitive advantage	1	2	3	4	5
Q19_IC5	Problems often arise because we do not have the skills necessary to do the job	1	2	3	4	5

Q20_CC1	The leaders and managers “practice what they preach”	1	2	3	4	5
Q21_CC2	There is a unique management style and a distinct set of management practices in our organisation	1	2	3	4	5
Q22_CC3	There is a clear and consistent set of values that governs the way we do business	1	2	3	4	5
Q23_CC4	Ignoring core values will get you in trouble	1	2	3	4	5
Q24_CC5	There is an ethical code that guides our behaviour and tells us right from wrong	1	2	3	4	5
Q25_CA1	When disagreements occur, we work hard to achieve ‘‘win-win’’ solutions	1	2	3	4	5
Q26_CA2	There is a “strong” culture	1	2	3	4	5
Q27_CA3	It is easy to reach a consensus, even on difficult issues	1	2	3	4	5
Q28_CA4	We often have trouble reaching an agreement on key issues	1	2	3	4	5
Q29_CA5	There is a clear agreement about the right way and the wrong way to do things	1	2	3	4	5
Q30_CI1	Our approach to doing business is very consistent and predictable	1	2	3	4	5
Q31_CI2	People from different parts of the organization share a common perspective	1	2	3	4	5
Q32_CI3	It is easy to coordinate projects across different parts of the company	1	2	3	4	5
Q33_CI4	There is a good alignment of goals across levels	1	2	3	4	5
Q34_CI5	Working with someone from another section of this organization is like working with someone from a different organization	1	2	3	4	5
Q35_AG1	The way things are done is very flexible and easy to change	1	2	3	4	5
Q36_AG2	We respond well to competitors and other changes in the business environment	1	2	3	4	5
Q37_AG3	New and improved ways to do work are continually adopted	1	2	3	4	5
Q38_AG4	Attempts to create change usually meet with resistance	1	2	3	4	5
Q39_AG5	Different parts of the organization often cooperate to create change	1	2	3	4	5
Q40_AC1	Customer comments and suggestions often lead to changes	1	2	3	4	5
Q41_AC2	Customer input directly influences our decisions	1	2	3	4	5
Q42_AC3	All members have a deep understanding of customer expectations	1	2	3	4	5
Q43_AC4	The interests of the customer often get ignored in our decisions	1	2	3	4	5
Q44_AC5	Employees are encouraged to have direct contact with our customers	1	2	3	4	5
Q45_AO1	We view failure as an opportunity for learning and improvement	1	2	3	4	5

Q46_AO2	Innovation and risk-taking are encouraged and rewarded	1	2	3	4	5
Q47_AO3	Lots of things “fall between the cracks”	1	2	3	4	5
Q48_AO4	Learning is an important objective in our day-to-day work	1	2	3	4	5
Q49_AO5	We make certain that the “right hand knows what the left hand is doing”	1	2	3	4	5
Q50_MS1	There is a long-term purpose and direction in our organisation	1	2	3	4	5
Q51_MS2	Our strategy leads other organizations to change the way they compete in the industry	1	2	3	4	5
Q52_MS3	There is a clear mission that gives meaning and direction to our work	1	2	3	4	5
Q53_MS4	There is a clear strategy for the future of our business	1	2	3	4	5
Q54_MS5	Our strategic direction is unclear to me	1	2	3	4	5
Q55_MG1	There is widespread agreement about goals in our organisation	1	2	3	4	5
Q56_MG2	Leaders set goals that are ambitious, but realistic	1	2	3	4	5
Q57_MG3	The leadership has ‘‘gone on record’’ about the objectives we are trying to meet	1	2	3	4	5
Q58_MG4	We continuously track our progress against our stated goals	1	2	3	4	5
Q59_MG5	People understand what needs to be done for us to succeed in the long-run	1	2	3	4	5
Q60_MV1	We have a shared vision of what the organization will be like in the future	1	2	3	4	5
Q61_MV2	Leaders in our organisation have a long-term viewpoint	1	2	3	4	5
Q62_MV3	Short-term thinking often compromises our long-term vision	1	2	3	4	5
Q63_MV4	Our vision creates excitement and motivation for our employees	1	2	3	4	5
Q64_MV5	We are able to meet short-term demands without compromising our long-term vision	1	2	3	4	5

Before you click the Submit button below, please re-check any doubtfully answered questions.

THANK YOU FOR PARTICIPATING IN THIS SURVEY.

SUBMIT

***Note*: Items in the Denison Organizational Culture Survey are copyrighted and owned by Denison Consulting Group. This scale is used in this research with the due permission of the copyright owner.**

APPENDIX I: PRE-TESTING ASSESSMENT OF DOCS

I am using Denison's Organisational Culture Survey (DOCS) to collect data on the Organisational Culture of the manufacturing firms operating under the Board of Investment-approved apparel sector of Sri Lanka as part of my doctoral thesis at Massey University - New Zealand. The target respondents for this survey will be the middle-level managers of these firms.

I am pleased to select you as one of the pre-test assessors for this survey questionnaire. I kindly request from you to provide feedback on your understanding of the individual items (English and Sinhala translated) as well as your overall assessment of this survey in the following questionnaire pre-test assessment sheet. Please save the file as **"Pretesting Assessment of DOCS"** and email it to me. Your expert assessment would add value to enhance the feasibility and quality of this survey questionnaire. The anonymity of the responses will be ensured. (**Please find attached the DOCS — English and back-translated — Sinhala survey questionnaires**)

In your assessment, please pay attention to the following areas and provide your brief comments.

1. Whether the introduction and instructions to complete the questionnaire clear and appealing?
2. Any mismatching of the meaning between English and Sinhala translations
3. Any technical term or concept that has a likely effect on understanding and interpreting the questions clearly and correctly
4. Any likely effect on respondents' burden or fatigue encountered
5. Approximate duration (in minutes) that would take to complete this questionnaire
6. Any other concerns that might affect the feasibility and quality of data collection through this survey

M.A.M. Gunasekera
Doctoral Candidate – Massey University, New Zealand
Senior Lecturer
Department of Business Administration
University of Sri Jayewardenepura, Sri Lanka
Email: m.gunasekera@massey.ac.nz or marlon@sjp.ac.lk
+64211516305 or +94722165930

DOCS PRE-TEST ASSESSMENT SHEET

Since pretesting is an important cross-validation technique for this survey before its full-scale administration, please **double-click the relevant text box** and **type your comments in the space provided** for each question below.

1. Whether the introduction and instructions to complete the questionnaire clear and appealing?

2. Any mismatching of the meaning between English and Sinhala translations (Please comment with the item number if any)

3. Any technical term or concept that has a likely effect on understanding and interpreting the questions clearly and correctly (Please comment with the item number if any)

4. Any likely effect on respondents' burden or fatigue encountered (assuming you are the real respondent to this survey)

5. Approximate duration (in minutes) that would take you to complete this questionnaire (your estimation)

6. Any other concerns that might affect the feasibility and quality of data collection through this survey (Especially in the Sri Lankan Context)

Thank you very much for assessing this survey questionnaire.

APPENDIX J: DOCS SENT FOR PRE-TESTING ASSESSMENT (ATTACHMENT-1)

Instructions to answer the questions in this survey

This survey presents a set of statements that describe different aspects of the way in which your organisation does things. To answer the questions, think of your organisation as a whole and the way things are usually done. Use the agreement scale given to indicate the extent to which you disagree or agree with each statement

Keys: **SD** – Strongly Disagree, **D** – Disagree, **N** – Neutral, **A** – Agree, **SA** – Strongly Agree

Involvement (Q5 – Q19)

		Strongly Disagree				Strongly Agree
		SD	**D**	**N**	**A**	**SA**
Empowerment						
Q5_IE1	Most employees are highly involved in their work	1	2	3	4	5
Q6_IE2	Decisions are usually made at the level where the best information is available	1	2	3	4	5
Q7_IE3	Information is widely shared so that everyone can get the information when it is needed	1	2	3	4	5
Q8_IE4	Everyone believes that he or she can have a positive impact	1	2	3	4	5
Q9_IE5	Business planning is ongoing and involves everyone in the process to some degree	1	2	3	4	5
Team orientation						
Q10_IT1	Cooperation across different parts of the organization is actively encouraged	1	2	3	4	5
Q11_IT2	People work like they are part of a team	1	2	3	4	5
Q12_IT3	Teamwork is used to get work done, rather than hierarchy	1	2	3	4	5
Q13_IT4	Teams are our primary building blocks	1	2	3	4	5
Q14_IT5	Work is organized so that each person can see the relationship between his or her job and the goals of the organization	1	2	3	4	5

Capability development

Q15_IC1	Authority is delegated so that people can act on their own	1	2	3	4	5
Q16_IC2	The "bench strength" (capability of people) is constantly improving	1	2	3	4	5
Q17_IC3	There is continuous investment in the skills of employees	1	2	3	4	5
Q18_IC4	The capabilities of people are viewed as an important source of competitive advantage	1	2	3	4	5
Q19_IC5	Problems often arise because we do not have the skills necessary to do the job **(R)**	5	4	3	2	1

Consistency (Q20 – Q34)

Core values

Q20_CC1	The leaders and managers "practice what they preach"	1	2	3	4	5
Q21_CC2	There is a unique management style and a distinct set of management practices in our organisation	1	2	3	4	5
Q22_CC3	There is a clear and consistent set of values that governs the way we do business	1	2	3	4	5
Q23_CC4	Ignoring core values will get you in trouble	1	2	3	4	5
Q24_CC5	There is an ethical code that guides our behaviour and tells us right from wrong	1	2	3	4	5

Agreement

Q25_CA1	When disagreements occur, we work hard to achieve ''win-win'' solutions	1	2	3	4	5
Q26_CA2	There is a "strong" culture	1	2	3	4	5
Q27_CA3	It is easy to reach a consensus, even on difficult issues	1	2	3	4	5
Q28_CA4	We often have trouble reaching an agreement on key issues **(R)**	5	4	3	2	1
Q29_CA5	There is a clear agreement about the right way and the wrong way to do things	1	2	3	4	5

Integration and Coordination

Q30_CI1	Our approach to doing business is very consistent and predictable	1	2	3	4	5
Q31_CI2	People from different parts of the organization share a common perspective	1	2	3	4	5
Q32_CI3	It is easy to coordinate projects across different parts of the company	1	2	3	4	5
Q33_CI4	There is a good alignment of goals across levels	1	2	3	4	5
Q34_CI5	Working with someone from another section of this organization is like working with someone from a different organization **(R)**	5	4	3	2	1

Adaptability (Q35 – Q49)

Generating change

Q35_AG1	The way things are done is very flexible and easy to change	1	2	3	4	5
Q36_AG2	We respond well to competitors and other changes in the business environment	1	2	3	4	5
Q37_AG3	New and improved ways to do work are continually adopted	1	2	3	4	5
Q38_AG4	Attempts to create change usually meet with resistance **(R)**	5	4	3	2	1
Q39_AG5	Different parts of the organization often cooperate to create change	1	2	3	4	5

Customer focus

Q40_AC1	Customer comments and suggestions often lead to changes	1	2	3	4	5
Q41_AC2	Customer input directly influences our decisions	1	2	3	4	5
Q42_AC3	All members have a deep understanding of customer expectations	1	2	3	4	5
Q43_AC4	The interests of the customer often get ignored in our decisions **(R)**	5	4	3	2	1
Q44_AC5	Employees are encouraged to have direct contact with our customers	1	2	3	4	5

Organizational learning

Q45_AO1	We view failure as an opportunity for learning and improvement	1	2	3	4	5
Q46_AO2	Innovation and risk-taking are encouraged and rewarded	1	2	3	4	5
Q47_AO3	Lots of things “fall between the cracks” **(R)**	1	2	3	4	5
Q48_AO4	Learning is an important objective in our day-to-day work	1	2	3	4	5
Q49_AO5	We make certain that the “right hand knows what the left hand is doing”	1	2	3	4	5

Mission (Q50 – Q64)

Strategic Direction and Intent

Q50_MS1	There is a long-term purpose and direction in our organisation	1	2	3	4	5
Q51_MS2	Our strategy leads other organizations to change the way they compete in the industry	1	2	3	4	5
Q52_MS3	There is a clear mission that gives meaning and direction to our work	1	2	3	4	5
Q53_MS4	There is a clear strategy for the future of our business	1	2	3	4	5
Q54_MS5	Our strategic direction is unclear to me **(R)**	5	4	3	2	1

Goals and objectives

Q55_MG1	There is widespread agreement about goals in our organisation	1	2	3	4	5
Q56_MG2	Leaders set goals that are ambitious, but realistic	1	2	3	4	5
Q57_MG3	The leadership has ‘‘gone on record’’ about the objectives we are trying to meet	1	2	3	4	5
Q58_MG4	We continuously track our progress against our stated goals	1	2	3	4	5
Q59_MG5	People understand what needs to be done for us to succeed in the long-run	1	2	3	4	5

Vision

Q60_MV1	We have a shared vision of what the organization will be like in the future	1	2	3	4	5
Q61_MV2	Leaders in our organisation have a long-term viewpoint	1	2	3	4	5
Q62_MV3	Short-term thinking often compromises our long-term vision **(R)**	5	4	3	2	1
Q63_MV4	Our vision creates excitement and motivation for our employees	1	2	3	4	5
Q64_MV5	We are able to meet short-term demands without compromising our long-term vision	1	2	3	4	5

Note: Items in the Denison Organizational Culture Survey are copyrighted and owned by Denison Consulting Group. This scale is used in this research with the due permission of the copyright owner. (R) denotes reversed worded items. There are eight (8) reversed-worded items on this scale. All the reversed worded items were appropriately coded with opposite values in designing the DOCS questionnaire using the Qualtrics online survey tool.

APPENDIX K: BACK-TRANSLATED DOCS (SINHALA LANGUAGE)

මෙම සමීක්ෂණය සිදු කරනු ලබන්නේ නවසීලන්තයේ මැසේ විශ්වවිද්යාලයේ මා දැනට අධ්යයනයේ නිරත වන දර්ශනශූරී උපාධියේ කොටසක් වශයෙනි. එබැවින් මෙම සමීක්ෂණයෙන් ලබා ගන්නා දත්ත වල නිර්නාමිකත්වය හා රහස්යභාවය උපරිම ලෙස ආරක්ෂා කිරීමට දර්ශනශූරී උපාධි අපේක්ෂකයකු ලෙස මා එම විශ්වවිද්යාලයේ පර්යේෂණ සඳහා ඇති ආචාරධර්ම සංග්රහයට එකඟව කටයුතු කිරීමට බැඳී සිටී. මෙමගින් ලබා ගන්නා දත්ත පර්යේෂණ නිබන්ධනය සකස් කිරීම සඳහා පමණක් භාවිතා කරනු ලැබේ. එමෙන්ම කිසිදු නමක් හෝ ඔබගේ හා ඔබ ආයතනයේ අනන්යතාවය හඳුනා ගත හැකි කිසිදු තොරතුරක් මෙමගින් එළිදරවු නොකරනු ලැබේ. මෙම සමීක්ෂණයේ ඇති ඕනෑම ප්රශ්නයකට පිළිතුරු නොදී සිටීමට හෝ ඕනෑම අවස්ථාවක මෙම සමීක්ෂණයෙන් ඉවත් වීමට ඔබට පූර්ණ නිදහස ඇත. මේ සඳහා ඔබට විනාඩි 15 පමණ කාලයක් ගතවනු ඇත. ඔබගේ අවංක ප්රතිචාරය මෙම සමීක්ෂණයේ ඇතුළත් සියලුම ප්රශ්න වලට හැකිතාක් ලබා දෙන මෙන් කාරුණිකව ඉල්ලා සිටිමි.

එම්. ඒ. එම්. ගුණසේකර

දර්ශනශූරී උපාධි අපේක්ෂක – මැසී විශ්වවිද්යාලය, නවසීලන්තය

ජ්යෙෂ්ඨ කථිකාචාර්ය

ව්යාපාර පරිපාලන විද්යා අධ්යයනාංශය

ශ්රී ජයවර්ධනපුර විශ්වවිද්යාලය, ශ්රී ලංකාව

Email: m.gunasekera@massey.ac.nz or marlon@sjp.ac.lk

+64211516305 or +94722165930

උපදෙස්:

මෙම සමීක්ෂණය මඟින් ඔබේ සංවිධානය වැඩ කරන ආකාරය පිළිබඳව විවිධ පැතිකඩයන් විස්තර කරන ප්රකාශ මාලාවක් ඉදිරිපත් කරනු ලැබේ. පහත අයිතමවලට පිළිතුරු සැපයීම සඳහා ඔබේ සංවිධානය සමස්තයක් ලෙස සලකා එහි සාමාන්යයෙන් කටයුතු සිදුවන ආකාරය ගැන සිතන්න. එක් එක් ප්රකාශයන් සමඟ ඔබ කොතෙක් දුරට එකඟ වන්නේද නැද්ද යන්න දැක්වීම සඳහා පහත සඳහන් පරිමාණය (**SD ←→ SA**) භාවිතා කරන්න.

ඔබ තෝරාගන්නා විකල්පය සලකුණු කිරීම සඳහා කරුණාකර වෘත්තයක් යොදන්න.

සූචිය: SD – දැඩිලෙස එකඟ නොවේ, **D** – එකඟ නොවේ, **NAD** – මධ්යස්ථයි, **A** – එකඟ වේ, **SA** – දැඩිලෙස එකඟ වේ

Q1. ඔබේ ස්ත්‍රී පුරුෂ භාවය

ස්ත්‍රී	පුරුෂ	පිළිතුර දීමට අකැමැතියි
○	○	○

Q2. මෙම ආයතනයේ ඔබේ පළපුරුද්ද

අවුරුදු 3 ට අඩුයි	අවුරුදු 3 – 6 අතර	අවුරුදු 7 – 10 අතර	අවුරුදු 10 ට වැඩියි
○	○	○	○

Q3. ඔබේ ඉහළම අධ්‍යාපනික සුදුසුකම

අ.පො.ස සා.පෙ.	අ.පො.ස උ.පෙ.	ඩිප්ලොමාධාරී	උපාදිධාරී	පශ්චාත් උපාධිධාරී
○	○	○	○	○

Q4. ඔබ මෙම ආයතනයේ කුමන අංශයකට / ඒකකයකට / දෙපාර්තමේන්තුවකට / ශාඛාවකට අනුයුක්ත වන්නේදැයි පහත කොටුවේ සඳහන් කරන්න.

	SD දැඩිලෙස එකඟ නොවේ	D එකඟ නොවේ	NAD මධ්‍යස්ථයි	A එකඟ වේ	SA දැඩිලෙස එකඟ වේ
Q5 බොහෝ සේවකයන් ඔවුන්ගේ සේවාකාර්යය සමඟ ඉහළින්ම සම්බන්ධ වී සිටී.	1	2	3	4	5
Q6 සාමාන්‍යයෙන් තීරණ ගනු ලබන්නේ තොරතුරු හොඳින්ම තිබෙන අවස්ථාවලදීය.	1	2	3	4	5
Q7 තොරතුරු විමධ්‍යගත කර ඇති බැවින් සෑම කෙනෙකුටම අවශ්‍ය තොරතුරු අවශ්‍ය විටෙක ලබා ගත හැකි වේ.	1	2	3	4	5
Q8 සෑම කෙනෙකුම තම ආයතනයට ධනාත්මක බලපෑමක් ඇති කළ හැකි බව විශ්වාස කරනු ලැබේ.	1	2	3	4	5
Q9 ව්‍යාපාර සැලසුම් කිරීම අඛණ්ඩව සිදුවන ක්‍රියාවලියක් වන අතර ඒ සඳහා සෑම කෙනෙකුම යම් ප්‍රමාණයකින් සම්බන්ධ වේ.	1	2	3	4	5
Q10 ආයතනයේ විවිධ කොටස් අංශ අතර සහයෝගිතාවය සක්‍රීයව දිරිමත් කරනු ලැබේ.	1	2	3	4	5
Q11 සේවකයින්, කණ්ඩායමක පංගුකාරයන් ලෙස වැඩ කරනු ලැබේ.	1	2	3	4	5
Q12 වැඩ කර ගැනීම සඳහා ධූරාවලි (ඉහළ සිට පහළට අණ දීම) වෙනුවට කණ්ඩායම් ක්‍රියාකාරකම් යොදා ගනු ලැබේ.	1	2	3	4	5
Q13 කණ්ඩායම්, අපගේ මූලික සම්බන්ධතාවය ගොඩනැගීමේ පදනමයි.	1	2	3	4	5
Q14 කාර්යය සංවිධානය කර ඇත්තේ සෑම පුද්ගලයෙකුටම තම රාජකාරිය සහ ආයතනයේ අරමුණු අතර සම්බන්ධතාවය දැකගත හැකි වන පරිදි වේ.	1	2	3	4	5
Q15 සේවකයින්ට තම තමන් විසින්ම කාර්යය කළ හැකි වන පරිදි අධිකාරී බලය පවරා තිබේ.	1	2	3	4	5
Q16 ආයතනයේ කාර්ය මණ්ඩලය සතු හැකියාව හා කුසලතාව අඛණ්ඩව වැඩි දියුණු වේ.	1	2	3	4	5
Q17 සේවකයින්ගේ කුසලතා වැඩිදියුණු කිරීම සඳහා අඛණ්ඩ ආයෝජනයක් සිදු කරනු ලැබේ.	1	2	3	4	5
Q18 සේවකයින්ගේ හැකියාවන් තරඟකාරී වාසි ලබා දෙන වැදගත් ප්‍රභවයක් ලෙස සලකනු ලැබේ.	1	2	3	4	5
Q19 ගැටළු බොහෝ විට ඇති වන්නේ එම කාර්යය සිදු කිරීමට අවශ්‍ය කුසලතා නොමැති වීම හේතුවෙනි.	1	2	3	4	5
Q20 නායකයන් සහ කළමනාකරුවන් "ඔවුන් පවසන දේ එලෙසින්ම පිළිපදිති".	1	2	3	4	5
Q21 ආයතනයේ අනන්‍යතාවු කළමනාකරණ ශෛලියක් සහ සුවිශේෂී කළමනාකරණ පරිචයයන් සමූදායක් පවතී.	1	2	3	4	5
Q22 අප ව්‍යාපාරය සිදු කරන ආකාරය හසුරුවන පැහැදිලි සහ ස්ථාවර සාරධර්ම සමූදායක් තිබේ.	1	2	3	4	5
Q23 මූලික සාරධර්ම නොසලකා හැරීම, ඔබව ගැටළු වලට ලක් කරනු ඇත.	1	2	3	4	5

Q24	අපගේ හැසිරීමට මග පෙන්වන ආචාරධර්ම සංග්‍රහයක් අප සතුව පවතී.	1	2	3	4	5
Q25	එකඟ නොවීම් ඇති වන විට, අදාළ සෑම පාර්ශ්වයකටම ජයග්‍රහී විසඳුම් ලබා ගැනීමට අප එක්සත්ව කටයුතු කරනු ලැබේ.	1	2	3	4	5
Q26	අප ආයතනයේ "ශක්තිමත්" සංස්කෘතියක් ඇත.	1	2	3	4	5
Q27	දුෂ්කර කාරණා සම්බන්ධයෙන් වුවද එකඟතාවකට පැමිණීම පහසු වේ.	1	2	3	4	5
Q28	ප්‍රධාන කාරණා සම්බන්ධයෙන් එකඟතාවකට පැමිණීමට අපට බොහෝ විට අපහසු වේ.	1	2	3	4	5
Q29	යම් කාර්යයක් කිරීමේදී එය සිදු කලයුතු වැරදි සහ නිවැරදි මාර්ගය පිළිබඳ පැහැදිලි එකඟතාවයක් පවතී.	1	2	3	4	5
Q30	ව්‍යාපාර කිරීම පිලිබඳ අපගේ ප්‍රවේශය ඉතා ස්ථාවර සහ පුරෝකථනය කල හැකි එකක් වේ.	1	2	3	4	5
Q31	අප ආයතනයේ විවිධ අංශවල පුද්ගලයින් සතුව පොදු දෘෂ්ටි කෝණයක් තිබේ.	1	2	3	4	5
Q32	අප ආයතනයේ විවිධ අංශ සමඟ ව්‍යාපෘති සම්බන්ධීකරණය කිරීම පහසු වේ.	1	2	3	4	5
Q33	විවිධ ආයතනික මට්ටම් අතර ඉලක්ක හොඳින් පෙළගස්වා තිබේ.	1	2	3	4	5
Q34	ආයතනයේ වෙනත් අංශයක කෙනෙකු සමඟ වැඩ කිරීම හරියට වෙනත් ආයතනයක කෙනෙකු හා සමඟ වැඩ කිරීමක් වැනිය.	1	2	3	4	5
Q35	කාර්යන් කරන ආකාරය ඉතා නම්‍යශීලී වන අතර වෙනස් කිරීම් සිදුකිරීමද පහසු වේ.	1	2	3	4	5
Q36	තරඟකරුවන්ට මෙන්ම ව්‍යාපාරික පරිසරයේ අනෙකුත් වෙනස්කම් වලටද අප හොඳින් ප්‍රතිචාර දක්වනු ලැබේ.	1	2	3	4	5
Q37	වැඩ කිරීමට අවශ්‍ය නව හා වැඩිදියුණු කළ ක්‍රම අප අඛණ්ඩව අනුගමනය කරනු ලැබේ.	1	2	3	4	5
Q38	වෙනසක් ඇති කිරීමට උත්සාහ කිරීම බොහෝ අවස්ථාවල විරෝධයකට මඟපාදයි.	1	2	3	4	5
Q39	ආයතනයේ අනෙකුත් අංශ බොහෝ විට වෙනසක් ඇති කිරීම සඳහා සහයෝගය ලබා දෙනු ලැබේ.	1	2	3	4	5
Q40	පාරිභෝගික අදහස් සහ නිර්දේශ, බොහෝ විට වෙනස්කම් වලට මඟපාදයි.	1	2	3	4	5
Q41	පාරිභෝගික අදහස් සහ නිර්දේශ, ආයතනයේ තීරණ වලට සෘජුවම බලපෑම් කරනු ලැබේ.	1	2	3	4	5
Q42	පාරිභෝගික අවශ්‍යතා සහ වුවමනා පිළිබඳ ගැඹුරු අවබෝධයක් සියළුම සාමාජිකයින් සතුව තිබේ.	1	2	3	4	5
Q43	පාරිභෝගිකයාගේ අවශ්‍යතා බොහෝ විට අපගේ තීරණ වලදී නොසලකා හරිනු ලැබේ.	1	2	3	4	5
Q44	පාරිභෝගිකයින් සමග සෘජු සම්බන්ධතා පැවැත්වීමට අප ආයතනය සේවකයන් උනන්දු කරනු ලැබේ.	1	2	3	4	5
Q45	අසාර්ථකවීම්, ඉගෙනීමට හා වැඩිදියුණු කිරීම් සඳහා අවස්ථාවක් සේ සලකනු ලැබේ.	1	2	3	4	5

Q46	නවෝත්පාදන හා අවදානම් ගැනීම, දිරිමත් කරන අතර පැසසීමටද ලක් කරනු ලැබේ.	1	2	3	4	5
Q47	බොහෝ නවීය අදහස් නොසලකා හරින තත්වයට ලක්වේ.	1	2	3	4	5
Q48	ඉගෙනීම, අපගේ එදිනෙදා කටයුතුවල වැදගත් අරමුණක් වේ.	1	2	3	4	5
Q49	"වම් අත කරන්නේ කුමක්දැයි දකුණු අත දනී" යනුවෙන් අපි ස්ථීර කරන්නෙමු.	1	2	3	4	5
Q50	අප ආයතනයට දිගුකාලීන අභිමතාර්ථයක් සහ දිශාවක් තිබේ.	1	2	3	4	5
Q51	වෙනත් ආයතන කර්මාන්තය තුළ තරඟ කරන ආකාරය වෙනස් කිරීමට, අප භාවිතා කරනු ලබන උපායමාර්ග හේතු වේ.	1	2	3	4	5
Q52	අපගේ කාර්යයට අර්ථයක් සහ මග පෙන්වීමක් ලබා දෙන පැහැදිලි මෙහෙවරක් අප ආයතනය සතු වේ.	1	2	3	4	5
Q53	අනාගතය සඳහා මුහුණදීමට පැහැදිලි උපාය මාර්ගයක් අප ආයතනයට තිබේ.	1	2	3	4	5
Q54	අප ආයතනයේ උපායමාර්ගික දිශාව මට පැහැදිලි නැත.	1	2	3	4	5
Q55	ආයතනයේ අරමුණු පිළිබඳව සියලු දෙනා අතර පොදු එකඟතාවයක් පවතී.	1	2	3	4	5
Q56	නායකයින් අභිලාෂකාමී නමුත් යථාර්ථවාදී ඉලක්ක පිහිටවනු ලැබේ.	1	2	3	4	5
Q57	අප සපුරා ගැනීමට උත්සාහ කරන අරමුණු පිළිබඳව, නායකත්වය "වාර්තා සහිතව" ක්‍රියාත්මක වී ඇත.	1	2	3	4	5
Q58	ප්‍රකාශිත අරමුණු වලට අනුව අපගේ ප්‍රගතිය අඛණ්ඩව නිරීක්ෂණය කරනු ලැබේ.	1	2	3	4	5
Q59	දිගුකාලීනව සාර්ථක වීම සඳහා අප ආයතනය කළ යුක්තේ කුමක්ද පිළිබඳව සේවකයන් තේරුම් ගෙන තිබේ.	1	2	3	4	5
Q60	අනාගතයේදී සංවිධානය කෙබඳු එකක් වනු ඇත්ද යන්න පිළිබඳව අපට පොදු දැක්මක් පවතී.	1	2	3	4	5
Q61	අප ආයතනයේ නායකයින් හට දිගුකාලීන දැක්මක් තිබේ.	1	2	3	4	5
Q62	කෙටිකාලීන චින්තනය බොහෝ විට අපගේ දිගුකාලීන දැක්මට එකඟව ක්‍රියාත්මක වේ.	1	2	3	4	5
Q63	අප ආයතනයේ දැක්ම අප සේවකයින් සඳහා උද්දීපනයක් සහ පෙළඹවීමක් ඇති කරනු ලැබේ.	1	2	3	4	5
Q64	දිගුකාලීන දැක්මට පටහැනි නොවන අයුරින් කෙටිකාලීන අවශ්‍යතා සපුරාලීමට අපට හැකියාව තිබේ.	1	2	3	4	5

මෙම සමීක්ෂණය සඳහා සහභාගි වුවාට ඔබට බොහොම ස්තූතියි.

***සටහන:** මෙම සමීක්ෂණයේ අයිතම ඩෙනිසන් උපදේශන සමාගමේ ප්‍රකාශන හිමිකමට යටත්ය. මෙම ප්‍රශ්නාවලිය මෙම පර්යේෂණය සඳහා පරිහරණය හා මුද්‍රණය කිරීමට ඩෙනිසන් උපදේශන සමාගමෙන් නිසි අවසරය ලබා ගෙන තිබේ. (R) මඟින් පෙන්නුම් කරන්නේ ප්‍රතිවර්තන අයිතමයි. මෙම ප්‍රශ්නාවලිය තුළ මෙබඳු අයිතම අටක් (8) තිබේ.*

APPENDIX L: INITIALLY DEVELOPED MPS SCALE (USED FOR PRE-TESTING)

Instructions: This questionnaire presents five options reflecting how the manufacturing performance of your firm rate with the average performance of the apparel industry. For each of the following items, please indicate your opinion (circle your choice) on how the performance of your firm stands relative to the industry average.

1- Very low
2- Marginally below the industry average
3- Equal to the industry average
4- Marginally above the industry average
5- Very high

	1 **Very Low**	**2** **Below Average**	**3** **Equal**	**4** **Above Average**	**5** **Very High**
Cost Efficiency (Q1 – Q5)					
Q1 Cut to make ratio and Material efficiency of our firm is	1	2	3	4	5
Q2 Operator efficiency of our firm is	1	2	3	4	5
Q3 Line efficiency of our firm is	1	2	3	4	5
Q4 Machine efficiency of our firm is	1	2	3	4	5
Q5 Cost per minute of our firm is **(R)**	5	4	3	2	1
Delivery (Q9 – Q13)					
Q6 Procurement and processing delays in our firm are **(R)**	5	4	3	2	1
Q7 Number of shipment days the orders get delayed in our firm is **(R)**	5	4	3	2	1
Q8 Order delivery cycle time (Procurement to Shipment) of our firm is **(R)**	5	4	3	2	1
Q9 Order rejection rate due to delivery defects of our firm is **(R)**	5	4	3	2	1
Q10 Perfect order fulfilment rate in our firm is	1	2	3	4	5

Product Quality (Q14 – Q18)					
Q11 Rate of product defects in our firm is **(R)**	5	4	3	2	1
Q12 Rate of rework of our firm is **(R)**	5	4	3	2	1
Q13 Rate of sample approval of our firm is	1	2	3	4	5
Q14 Order rejection rate due to product defects of our firm is **(R)**	5	4	3	2	1
Q15 The level of customer satisfaction and repeat orders in our firm is	1	2	3	4	5
Flexibility (Q19 – Q23)					
Q16 Time taken to respond to new changes in our firm is **(R)**	5	4	3	2	1
Q17 Time taken to changeover from one product to another in our firm is **(R)**	5	4	3	2	1
Q18 Time taken by the supply chain to respond to an unplanned increase in demand without any penalty in our firm is **(R)**	5	4	3	2	1
Q19 Efforts taken to cater to the new requirements of customers in our firm are	1	2	3	4	5
Q20 Overall adaptability and agility of our firm is	1	2	3	4	5
Innovativeness (Q24 – Q28)					
Q21 Percentage of expenditure on research and development of our firm is	1	2	3	4	5
Q22 Number of new ideas implemented in our firm is	1	2	3	4	5
Q23 Number of new products introduced in our firm is	1	2	3	4	5
Q24 Percentage of expenditure on new techniques & technology of our firm is	1	2	3	4	5
Q25 The level of creativity and innovativeness of the workforce of our firm is	1	2	3	4	5

Note: **(R) indicates the reverse-worded items**

APPENDIX M: PRE-TESTING ASSESSMENT OF MPS (EXPERT OPINION SURVEY)

I designed and developed a new scale to measure the manufacturing performance of an apparel firm as part of my doctoral thesis at Massey University – New Zealand. The target respondents for this survey will be senior managers directly involved with the production and operations functions of these firms. I am pleased to select you as one of the pre-test assessors of this scale. I kindly request from you to provide feedback on the individual items and the overall quality of the scale. Please rate the construct validity of each item in the below-mentioned Questionnaire Pre-test Assessment Sheet along with your overall assessment comments. Please save the completed Pre-test Assessment Sheet as "**Pre-testing Assessment of MPS**" and email it to me. Your expert assessment would immensely be helpful to enhance the feasibility and quality of this scale. The anonymity of the responses will be ensured. (**Please find attached the initially designed and developed MPS scale for your assessment**)

In your overall scale assessment, please pay attention to the following areas and provide your brief comments.

1. Whether the introduction and instructions to complete the questions clear and appealing?
2. Any technical term or concept that has a likely effect on understanding and interpreting the questions clearly and correctly.
3. Whether the order and sequencing of the items clear and meaningful?
4. The appropriateness and relevance of the rating scale and the anchors used for the rating scale.
5. Any duplication of items to represent the sub-constructs of the scale.
6. Your opinion on the inclusion of reverse-worded items for the scale.
7. Approximate duration (in minutes) that would take to complete the questions.
8. Any likely effect on respondents' burden or fatigue encountered.
9. Any other concerns that might affect the feasibility and quality of data collection through this scale?

M.A.M. Gunasekera
Doctoral Candidate – Massey University, New Zealand
Senior Lecturer
Department of Business Administration
University of Sri Jayewardenepura, Sri Lanka
Email: m.gunasekera@massey.ac.nz or marlon@sjp.ac.lk
+64211516305 or +94722165930

PRE-TEST ASSESSMENT SHEET OF MPS - CONTENT VALIDATION

Since pre-testing is an important content validation technique of this scale, before it is pilot-tested and used for full-scale administration, this assessment aims to obtain your expert opinion on whether the individual items in the scale represent good measures of the five dimensions, namely, Cost Efficiency, Delivery, Product Quality, Flexibility, and Innovativeness. In doing so, kindly **double-click** the option you assign for each item.

1- Very weakly represent the construct (**VWRC**), **2**- Weakly represent the construct (**WRC**), **3**- Moderately represent the construct (**MRC**), **4**- Strongly represent the construct (**SRC**), **5**- Very Strongly represent the construct (**VSRC**)

	Very Weakly Represent (VWRC)	Weakly Represent (WRC)	Moderately Represent (MRC)	Strongly Represent (SRC)	Very Strongly Represent (WSRC)
Cost Efficiency					
Q1_CE Cut to make ratio and material efficiency of our firm is	1	2	3	4	5
Q2_CE Operator efficiency of our firm is	1	2	3	4	5
Q3_CE Line efficiency of our firm is	1	2	3	4	5
Q4_CE Machine efficiency of our firm is	1	2	3	4	5
Q5_CE Cost per minute of our firm is **(R)**	1	2	3	4	5
Delivery					
Q6_DE Procurement and processing delays in our firm are **(R)**	1	2	3	4	5
Q7_DE Number of shipment days the orders get delayed in our firm is **(R)**	1	2	3	4	5
Q8_DE Order delivery cycle time (Procurement to Shipment) of our firm is **(R)**	1	2	3	4	5
Q9_DE Order rejection rate due to delivery defects of our firm is **(R)**	1	2	3	4	5
Q10_DE Perfect order fulfillment rate in our firm is	1	2	3	4	5

Product Quality

Q11_PQ Rate of product defects of our firm is **(R)**	1	2	3	4	5
Q12_PQ Rate of rework of our firm is **(R)**	1	2	3	4	5
Q13_PQ Rate of sample approval of our firm is	1	2	3	4	5
Q14_PQ Order rejection rate due to product defects of our firm is **(R)**	1	2	3	4	5
Q15_PQ The level of customer satisfaction and repeat orders in our firm is	1	2	3	4	5

Flexibility

Q16_FL Time taken to respond to new changes in our firm is **(R)**	1	2	3	4	5
Q17_FL Time taken to changeover from one product to another in our firm is **(R)**	1	2	3	4	5
Q18_FL Time taken by the supply chain to respond to an unplanned increase in demand without any penalty in our firm is **(R)**	1	2	3	4	5
Q19_FL Efforts taken to cater to the new requirements of the customers in our firm are	1	2	3	4	5
Q20_FL The internal resource adaptability and agility to market changes of our firm is	1	2	3	4	5

Innovativeness

Q21_IN Percentage of expenditure on research and development of our firm is	1	2	3	4	5
Q22_IN Number of new ideas implemented in our firm is	1	2	3	4	5
Q23_IN Number of new products introduced in our firm is	1	2	3	4	5
Q24_IN Percentage of expenditure on new techniques and technology of our firm is	1	2	3	4	5
Q25_IN The level of creativity and innovativeness of the workforce of our firm is	1	2	3	4	5

Note: **(R) indicates the reverse-worded items**

Please **double-click the relevant text box** and **type your comments in the space provided** for each question below.

1. Whether the introduction and instructions to complete the questions clear and appealing?

2. Any technical term or concept that has a likely effect on understanding or interpreting the questions clearly and correctly (please specify with item number).

3. Whether the order and sequencing of the items clear and meaningful?

4. The appropriateness and relevance of the rating scale and the anchors used for the rating scale.

5. Any duplication of items to represent the sub-constructs of the scale.

6. Your opinion about the inclusion of reverse-worded items for the scale (Items Q5, Q6, Q7, Q8, Q9, Q11, Q12, Q14, Q16, Q17, and Q18).

7. Approximate duration (in minutes) that would take you to complete the questions (your estimation).

8. Any likely effect on respondents' burden or fatigue encountered (assuming you are the real respondent).

9. Any other concerns that might affect the feasibility and quality of data collection through this survey?

Thank you very much for assessing this scale.

APPENDIX N: COMPUTATION OF PRE-TESTING ASSESSMENT SCORES

Ratings of content validity of MPS scale items by the pre-test assessors

Scale Item	Expert 1	Expert 2	Expert 3	Expert 4	Mean Score	Total score	Decision
Cost Efficiency (Dimension 1)							
Q1_CE Cut to make ratio and material efficiency of our firm is	4	4	4	3	3.75	15	Accept
Q2_CE Operator efficiency of our firm is	4	3	3	4	3.5	14	Accept
Q3_CE Line efficiency of our firm is	2	2	2	2	2	8	Reject
Q4_CE Machine efficiency of our firm is	4	3	3	4	3.5	14	Accept
Q5_CE Cost per minute of our firm is (R)	4	4	4	4	4	16	Accept
Delivery (Dimension 2)							
Q6_DE Procurement and processing delays in our firm is (R)	3	4	4	3	3.5	14	Accept
Q7_DE Number of shipment days the orders get delayed in our firm is (R)	3	4	4	4	3.75	15	Accept
Q8_DE Order delivery cycle time (Procurement to Shipment) of our firm is (R)	5	4	4	4	4.25	17	Accept
Q9_DE Order rejection rate due to delivery defects of our firm is (R)	4	3	4	4	3.75	15	Accept
Q10_DE Perfect order fulfillment rate in our firm is	2	1	2	2	1.75	7	Reject
Product Quality (Dimension 3)							
Q11_PQ Rate of product defects of our firm is (R)	4	4	4	4	4	16	Accept
Q12_PQ Rate of rework of our firm is (R)	3	4	4	3	3.5	14	Accept
Q13_PQ Rate of sample approval of our firm is	4	4	5	4	4.25	17	Accept
Q14_PQ Order rejection rate due to product defects of our firm is (R)	3	4	3	4	3.5	14	Accept
Q15_PQ The level of customer satisfaction and repeat orders in our firm is	3	2	3	2	2.5	10	Reject
Flexibility (Dimension 4)							
Q16_FL Time taken to respond to new changes in our firm is (R)	3	3	3	4	3.25	13	Accept
Q17_FL Time taken to changeover from one product to another in our firm is (R)	4	4	4	4	4	16	Accept
Q18_FL Time taken by supply chain to respond an unplanned increase in demand is (R)	4	4	3	3	3.5	14	Accept
Q19_FL Efforts taken to cater to the new requirements of the customers in our firm is	3	3	4	4	3.5	14	Accept
Q20_FL Overall adaptability and agility of our firm is	2	2	2	2	2	8	Reject
Innovativeness (Dimension 5)							
Q21_IN Percentage of expenditure on research and development of our firm is	4	4	4	4	4	16	Accept
Q22_IN Number of new ideas implemented in our firm is	3	3	4	3	3.25	13	Accept
Q23_IN Number of new products introduced in our firm is	5	4	4	5	4.5	18	Accept
Q24_IN Percentage of expenditure on new techniques and technology of our firm is	4	3	3	3	3.25	13	Accept
Q25_IN The level of creativity and innovativeness of the workforce of our firm is	1	2	2	1	1.5	6	Reject

1- Very weakly represent the construct (VWRC), **2**- Weakly represent the construct (WRC), **3**- Moderately represent the construct (MRC), **4**- Strongly represent the construct, **5**- Very strongly represent the construct (VSRC)

APPENDIX O: THE SURVEY QUESTIONNAIRE FOR PILOT-TESTING

Manufacturing Performance Survey (MPS)

I am a Senior Lecturer attached to the University of Sri Jayewardenepura, Sri Lanka. This survey is carried out as part of my doctoral thesis at Massey University, New Zealand. Hence, the collection and use of this survey data will be done in accordance with the code of research ethics of Massey University. As a doctoral candidate, I abide by this code to protect the anonymity and confidentiality of your responses to the fullest extent. This survey data will be analysed and presented only for the intended purpose of my study. No names of respondents or firms or any other identifying data will be revealed. You have the right to withdraw from the survey at any time at your discretion.

By participating in this survey, you will be helping me towards developing new knowledge on improving the quality and productivity of the apparel industry in South Asia. Your participation in this survey helps to design, develop, and validate a new scale to measure manufacturing performance in the apparel industry. You have been selected as a survey participant because your internet profile shows you have significant experience in the apparel industry and will have valuable insights into the manufacturing performance of an apparel firm. This survey will take about 10 minutes to complete. Please provide your candid opinion in response to all the questions.

Click the link below to view my university profile

http://mgt.sjp.ac.lk/bus/team_member/mr-marlon-gunasekera/

Marlon Gunasekera

Click the links below to view the university profiles of my research supervisors

https://www.massey.ac.nz/massey/expertise/profile.cfm?stref=416150

Dr Nihal Jayamaha

https://www.massey.ac.nz/massey/expertise/profile.cfm?stref=781350

Dr Jeffrey Kennedy

Q1. Number of years of experience you have in the apparel industry

Less than 5 years	5 – 10 years	10 – 15 years	15 – 20 years	More than 20 years
○	○	○	○	○

Q2. Total number of employees in your factory

Less than 500	501–1000	1001–2000	2001–3000	More than 3000
○	○	○	○	○

Q3. The extent of technology used by your organisation to manufacture garments

Very low	Low	Moderate	High	Very high
○	○	○	○	○

Instructions to answer the questions of this survey

Please rate the following aspects of the manufacturing performance of your firm relative to key competitors of the apparel industry in your country over the last 3 years using the following worst to a better rating scale.

1- Very much worse (**VMW**), **2-** Much worse (**MW**), **3-** Somewhat worse (**SWW**), **4-** About same (**AS**),
5- Somewhat better (**SWB**), **6-** Much better (**MB**) **7-** Very Much Better (**VMB**)

		Very much worse				Very much better		
		VMV	**MW**	**SWW**	**AS**	**SWB**	**MB**	**VMB**
Q4_CE1	The cut-to-make ratio of our firm relative to our competitors is	1	2	3	4	5	6	7
Q5_CE2	Operator efficiency of our firm relative to our competitors is	1	2	3	4	5	6	7
Q6_CE3	Machine efficiency of our firm relative to our competitors is	1	2	3	4	5	6	7
Q7_CE4	Cost per minute of our firm relative to our competitors is	1	2	3	4	5	6	7
Q8_DL1	Procurement compliance (no supply delays & defects) in our firm relative to our competitors is	1	2	3	4	5	6	7
Q9_DL2	Order delivery compliance (no delivery delays & defects) in our firm relative to our competitors is	1	2	3	4	5	6	7
Q10_DL3	Order delivery cycle time (from procurement to shipment) in our firm relative to our competitors is	1	2	3	4	5	6	7
Q11_DL4	Order acceptance rate due to delivery compliance of our firm relative to our competitors are	1	2	3	4	5	6	7
Q12_PQ1	Rate of product defects of our firm relative to our competitors is	1	2	3	4	5	6	7
Q13_PQ2	Rate of rework of our firm relative to our competitors is	1	2	3	4	5	6	7
Q14_PQ3	Rate of sample approval of our firm relative to our competitors is	1	2	3	4	5	6	7
Q15_PQ4	Level of customer satisfaction of our firm relative to our competitors is	1	2	3	4	5	6	7

Q16_FL1 Response time to cater to the market changes in our firm relative to our competitors are	1	2	3	4	5	6	7
Q17_FL2 Changeover time from one product to another in our firm relative to our competitors are	1	2	3	4	5	6	7
Q18_FL3 Response time to meet an unplanned increase in demand in our firm relative to our competitors are	1	2	3	4	5	6	7
Q19_FL4 Extent of adaptability of our firm's resources to unexpected environmental change relative to our competitors is	1	2	3	4	5	6	7
Q20_IN1 Percentage of expenditure on research and development of our firm relative to our competitors are	1	2	3	4	5	6	7
Q21_IN2 Number of new ideas implemented in our firm relative to our competitors is	1	2	3	4	5	6	7
Q22_IN3 Number of new products introduced in our firm relative to our competitors is	1	2	3	4	5	6	7
Q23_IN4 Efforts taken to identify and satisfy the new customer requirements in our firm relative to our competitors are	1	2	3	4	5	6	7

Before you click the Submit button below, please re-check any doubtfully answered questions.

THANK YOU FOR PARTICIPATING IN THIS SURVEY.

SUBMIT 

APPENDIX P: DISTRIBUTION & RESPONSES FOR THE PILOT SURVEY OF MPS

Survey distribution and responses for the Pilot Survey of the MPS Scale - Survey period - 19th July to 31st August 2020 -						
Date	No. of Invited Participants	Country	Cumulative No. of Invited Participants	No. of Responses Received	Cumulative No. of Responses Recieved	Dates on which reminders sent
19th July	10	India	10	0	0	
20th July	10	India	20	0	0	
21st July	10	India	30	0	0	
22nd July	10	India	40	0	0	
23rd July	10	India	50	1	1	
24th July	10	India	60	0	1	
25th Jluy	10	India	70	1	2	
26th July	10	India	80	0	2	
27th July	10	India	90	4	6	
28th July	10	Bangladesh	100	3	9	
29th July	10	Bangladesh	110	2	11	
30th July	10	Bangladesh	120	0	11	
31st July	10	Bangladesh	130	5	16	
1st August	10	Bangladesh	140	2	18	
2nd August	10	Bangladesh	150	0	18	
3rd August	10	Bangladesh	160	7	25	
4th August	10	Bangladesh	170	2	27	4th August
5th August	10	Bangladesh	180	3	30	
6th August	10	Pakistan	190	5	35	
7th August	10	Pakistan	200	0	35	
8th August	10	Pakistan	210	3	38	
9th August	10	Pakistan	220	2	40	
10th August	10	Pakistan	230	2	42	
11th August	10	Pakistan	240	3	45	
12th August	10	Pakistan	250	3	48	12th August
13th August	10	Pakistan	260	2	50	
14th August	10	Vietnam	270	3	53	
15th August	10	Vietnam	280	5	58	
16th August	10	Vietnam	290	0	58	
17th August	10	Vietnam	300	2	60	
18th August	10	Vietnam	310	2	62	
19th August	10	Vietnam	320	4	66	
20th August	10	Indonesia	330	0	66	20th August
21st August	10	Indonesia	340	2	68	
22nd August	10	Indonesia	350	2	70	
23rd August	10	Indonesia	360	4	74	
24th August	10	Indonesia	370	3	77	
25th August	10	Indonesia	380	2	79	
26th August	10	Cambodia	390	6	85	
27th August	10	Cambodia	400	1	86	
28th August	10	Cambodia	410	2	88	
29th August	10	Thailand	420	3	91	
30th August	10	Thailand	430	1	92	
31st August	10	Thailand	440	1	93	
Note: The above pattern of responses are presumed to be influenced by the chain-referal messages (snowball effect) and intermitant reminder messages sent.						

APPENDIX Q: FINALISED MANUFACTURING PERFORMANCE SURVEY – MPS

Manufacturing Performance Survey (MPS)

I am a Senior Lecturer attached to the University of Sri Jayewardenepura, Sri Lanka. This survey is carried out as part of my doctoral thesis at Massey University, New Zealand. Hence, the collection and use of this survey data will be done following the code of research ethics of Massey University. As a doctoral candidate, I abide by this code to fully protect the anonymity and confidentiality of your responses. This survey data will be utilized only for the intended purpose of my study. No names of respondents, firms, or any other identifying data will be revealed. You have the right to withdraw from the survey at any time at your discretion.

By participating in this survey, you will be helping me towards developing new knowledge on improving the organisational culture and manufacturing performance of the apparel Industry in Sri Lanka. Your participation in this survey goes a long way in my being able to successfully complete the doctoral study in contributing toward this purpose.

You have been selected as a survey participant because you have significant experience in the apparel industry and will have valuable insights into the manufacturing performance of an apparel firm. This survey shall not take more than 10 minutes to complete. Please provide your candid opinion in response to all the questions.

Click the link below to view my university profile

http://mgt.sjp.ac.lk/bus/team_member/mr-marlon-gunasekera/

Marlon Gunasekera

Click on the links below to view the university profiles of my research supervisors

https://www.massey.ac.nz/massey/expertise/profile.cfm?stref=416150

Dr Nihal Jayamaha

https://www.massey.ac.nz/massey/expertise/profile.cfm?stref=781350

Dr Jeffrey Kennedy

Q1. Number of years of experience you have in the apparel industry

Less than 5 years	5 – 10 years	10 – 15 years	15 – 20 years	More than 20 years
○	○	○	○	○

Q2. Total number of employees in your factory

Less than 500	501–1000	1001–1500	1501–2000	More than 2000
○	○	○	○	○

Q3. The extent of technology used by your organisation to manufacture garments

Very low	Low	Moderate	High	Very high
○	○	○	○	○

Q4. What market does your organisation mainly caters to base on your customer's expected value proposition in terms of price, quality, and creativity?

Lowest value-seeking Market	Low-end Market	Middle range Market	High-end Market	Highest value-seeking Market
○	○	○	○	○

Instructions to answer the questions in this survey

Please rate the following aspects of the manufacturing performance of your firm relative to key competitors of the apparel industry in your country over the last three years using the following worst to a better rating scale.

1. Very much worse (**VMW**), **2.** Much worse (**MW**), **3.** Somewhat worse (**SWW**), **4.** About the same (**AS**), **5.** Somewhat better (**SWB**), **6.** Much better (**MB**) **7.** Very Much Better (**VMB**)

		Very much worse				Very much better		
		VMV	**MW**	**SWW**	**AS**	**SWB**	**MB**	**VMB**
Q5_CE1	The cut-to-make ratio of our firm relative to our competitors is	1	2	3	4	5	6	7
Q6_CE2	Operator efficiency of our firm relative to our competitors is	1	2	3	4	5	6	7
Q7_CE3	Machine efficiency of our firm relative to our competitors is	1	2	3	4	5	6	7
Q8_CE4	Cost per minute of our firm relative to our competitors is	1	2	3	4	5	6	7
Q9_DL1	Procurement compliance (no supply delays & defects) in our firm relative to our competitors is	1	2	3	4	5	6	7
Q10_DL2	Order delivery compliance (no delivery delays & defects) in our firm relative to our competitors is	1	2	3	4	5	6	7
Q11_DL3	Order delivery cycle time (from procurement to shipment) in our firm relative to our competitors is	1	2	3	4	5	6	7
Q12_DL4	Order acceptance rate due to delivery compliance of our firm relative to our competitors are	1	2	3	4	5	6	7
Q13_PQ1	Rate of product defects of our firm relative to our competitors is	1	2	3	4	5	6	7
Q14_PQ2	Rate of rework of our firm relative to our competitors is	1	2	3	4	5	6	7
Q15_PQ3	Rate of sample approval of our firm relative to our competitors is	1	2	3	4	5	6	7
Q16_PQ4	Level of customer satisfaction of our firm relative to our competitors is	1	2	3	4	5	6	7

Q17_FL1	Response time to cater to the market changes in our firm relative to our competitors are	1	2	3	4	5	6	7
Q18_FL2	Changeover time from one product to another in our firm relative to our competitors are	1	2	3	4	5	6	7
Q19_FL3	Response time to meet an unplanned increase in demand in our firm relative to our competitors are	1	2	3	4	5	6	7
Q20_FL4	Extent of adaptability of our firm's resources to unexpected environmental change relative to our competitors is	1	2	3	4	5	6	7
Q21_IN1	Percentage of expenditure on research and development of our firm relative to our competitors are	1	2	3	4	5	6	7
Q22_IN2	Number of new ideas implemented in our firm relative to our competitors is	1	2	3	4	5	6	7
Q23_IN3	Number of new products introduced in our firm relative to our competitors is	1	2	3	4	5	6	7
Q24_IN4	Efforts taken to identify and satisfy the new customer requirements in our firm relative to our competitors are	1	2	3	4	5	6	7

Before you click the Submit button below, please re-check any doubtfully answered questions.

THANK YOU FOR PARTICIPATING IN THIS SURVEY.

SUBMIT 

APPENDIX R: CODEBOOK FOR DOCS USED TO ENTER DATA IN SPSS

Variable	SPSS Variable Name	Coding Instructions
Gender	Q1_Gender	1 = Female 2 = Male 3 = Not prefer to answer
Experience	Q2_Experience	1 = < 3 years 2 = 3 – 6 years 3 = 7 – 10 years 4 = > 10 years
Qualification	Q3_Qualification	1 = Ordinary Level 2 = Advanced Level 3 = Diploma 4 = Graduate 5 = Postgraduate
Attached Work Unit	Q4_Workunit	Descriptive question
Involvement trait	Q5_IE1 – Q9_IE5 (Empowerment) Q10_IT1 – Q14_IT5 (Team Orientation) Q15_IC1 – Q19_IC5 (Capability Development)	1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree
Consistency trait	Q20_CC1 – Q24_CC5 (Core Values) Q25_CA1 – Q29_CA5 (Agreement) Q30_CI1 – Q34_CI5 (Integration)	
Adaptability trait	Q35_AG1 – Q39_AG5 (Generating Change) Q40_AC1 – Q44_AC5 (Customer-focus) Q45_AO1 – Q49_AO5 (Organisational Learning)	
Mission trait	Q50_MS1 – Q54_MS5 (Strategic Direction) Q55_MG1 – Q59_MG5 (Goals) Q60_MV1 – Q64_MV5 (Vision)	
Reversed coded items	Q19_IC5, Q28_CA4, Q34_CI5, Q38_AG4, Q43_AC4, Q47_AO3, Q54_MS5 & Q62_MV3	5 = Strongly Disagree 4 = Disagree 3 = Neutral 2 = Agree 1 = Strongly Agree

APPENDIX S: CODEBOOK FOR MPS USED TO ENTER DATA IN SPSS

Variable	SPSS Variable Name	Coding Instructions
Experience	Q1_Experience	1 = < 5 years 2 = 5 – 10 years 3 = 11 – 15 years 4 = 16 – 20 years 5 = > 20 years
No. of Employees	Q2_Employees	1 = < 500 2 = 501 – 1000 3 = 1001 – 1500 4 = 1501 – 2000 5 = > 2000
Firm technology	Q3_Technology	1 = Very low 2 = Low 3 = Moderate 4 = High 5 = Very High
Targeted market	Q4_Mainly_Served_Market	1 = Lowest value 2 = Low value 3 = Middle range 4 = High end 5 = Highest value
Cost-efficiency (MP) Delivery (MP) Product quality (MP) Flexibility (MP) Innovativeness (MP)	Q5_CE – Q8_CE Q9_DL – Q12_DL Q13_PQ – Q16_PQ Q17_FL – Q20_FL Q21_IN – Q24_IN	1 = Very much worse 2 = Much worse 3 = Somewhat worse 4 = About the same 5 = Somewhat better 6 = Much better 7 = Very much better

APPENDIX T: THE MEANINGS OF THE NATIONAL CULTURAL DIMENSIONS

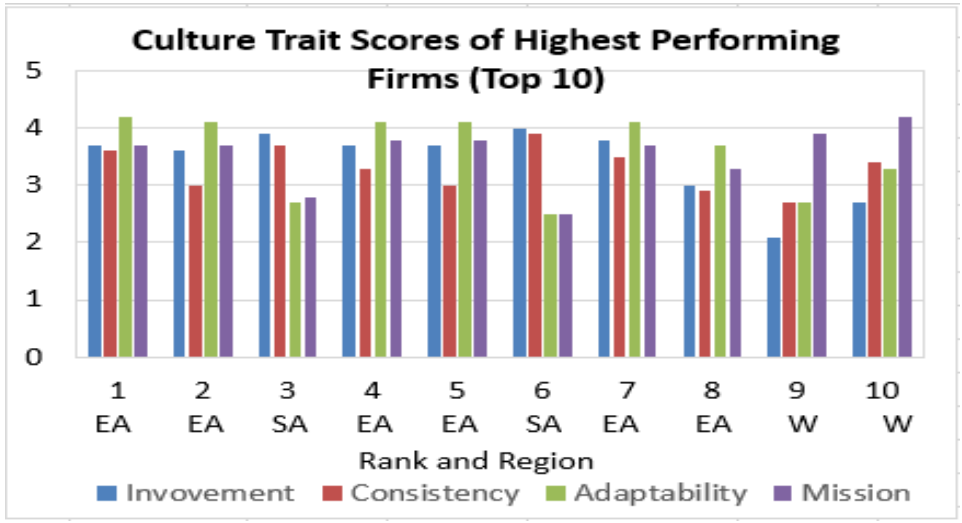
Model	Dimension	Meaning
Hofstede's Culture Model	Power Distance	The extent to which the members of society expect and accept that power should be distributed equally.
	Uncertainty Avoidance	The extent to which the members of a culture feel threatened by uncertain or unknown situations.
	Individualism-Collectivism	The extent to which the societal members are concerned with the individual interests or societal interests as groups.
	Masculinity-Femininity	The extent to which society exerts preference for achievement, heroism, assertiveness, and material rewards for success.
	Long-Term-Short-Term Orientation	The extent to which society is concerned about the future expectations and ambitions of the people.
GLOBE Culture Model	Power Distance	The degree to which members of an organisation or society expect and agree that power should be unequally shared.
	Uncertainty Avoidance	The degree to which members of an organisation or society strive to avoid uncertainty to alleviate the unpredictability of future events
	Humane Orientation	The degree to which members of an organisation or society encourage and reward individuals for being fair, altruistic, friendly, generous, caring, and kind to others.
	Institutional Collectivism	The degree to which organisational and societal institutional practices encourage and reward the collective distribution of resources and collective action.
	In-Group Collectivism	The degree to which individuals express pride, loyalty, and cohesiveness in their organisations or families.
	Assertiveness	The degree to which individuals in organisations or society are assertive, confrontational, and aggressive in their relationship with others.
	Gender Egalitarianism	The degree to which an organisation or society minimises gender role differences and gender discrimination.
	Future Orientation	The degree to which members of organisations or society engage in future-oriented behaviours such as planning, investing in the future, and delaying gratification.
	Performance Orientation	The degree to which an organisation or society encourages and rewards group members for performance improvement and excellence.

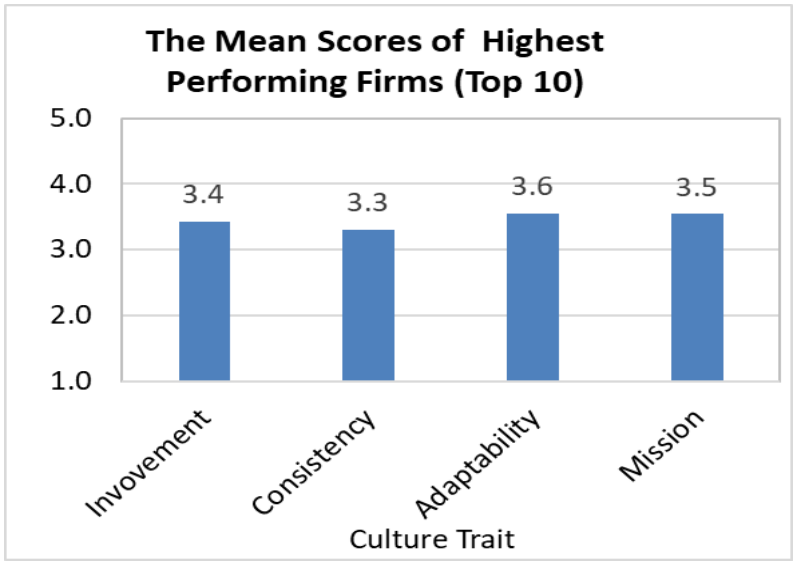
Source: (Hofstede, 1980; House *et al.*, 2002)

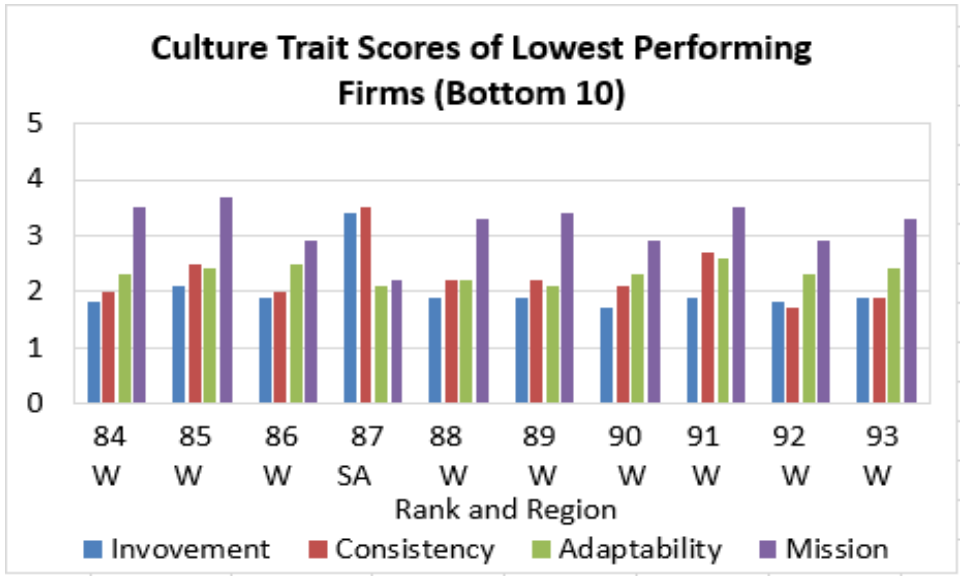
APPENDIX U: CLUSTERING OF THE COUNTRIES FOR RBFOTs

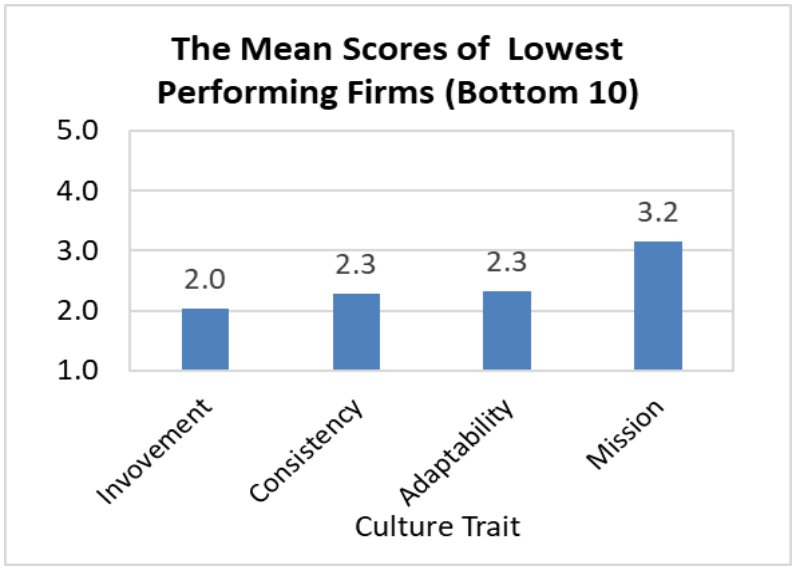
Region of Origin	Country of Investment	No. of Firms	Closest GLOBE cluster/s
Western	United Kingdom	12	
Western	USA	7	
Western	Canada	5	
Western	Germany	4	
Western	Australia	3	
Western	Sweden	3	
Western	France	3	
Western	Italy	2	
Western	Switzerland	2	
Western	Luxemburg	1	
	Denmark	1	
Western	**Total**	**43**	**Anglo & Western Europe**
East Asian	Hong Kong	14	
East Asian	China	7	
East Asian	South Korea	6	
East Asian	Taiwan	5	
East Asian	Malaysia	3	
East Asian	Singapore	3	
East Asian	Thailand	2	
East Asian	Japan	1	
East Asian	**Total**	**41**	**Confucian Asia**
South Asian	Sri Lanka	141	
South Asian	**Total**	**141**	**Southern Asian**

APPENDIX V: CULTURE TRAITS SCORES OF TOP 10 AND BOTTOM 10



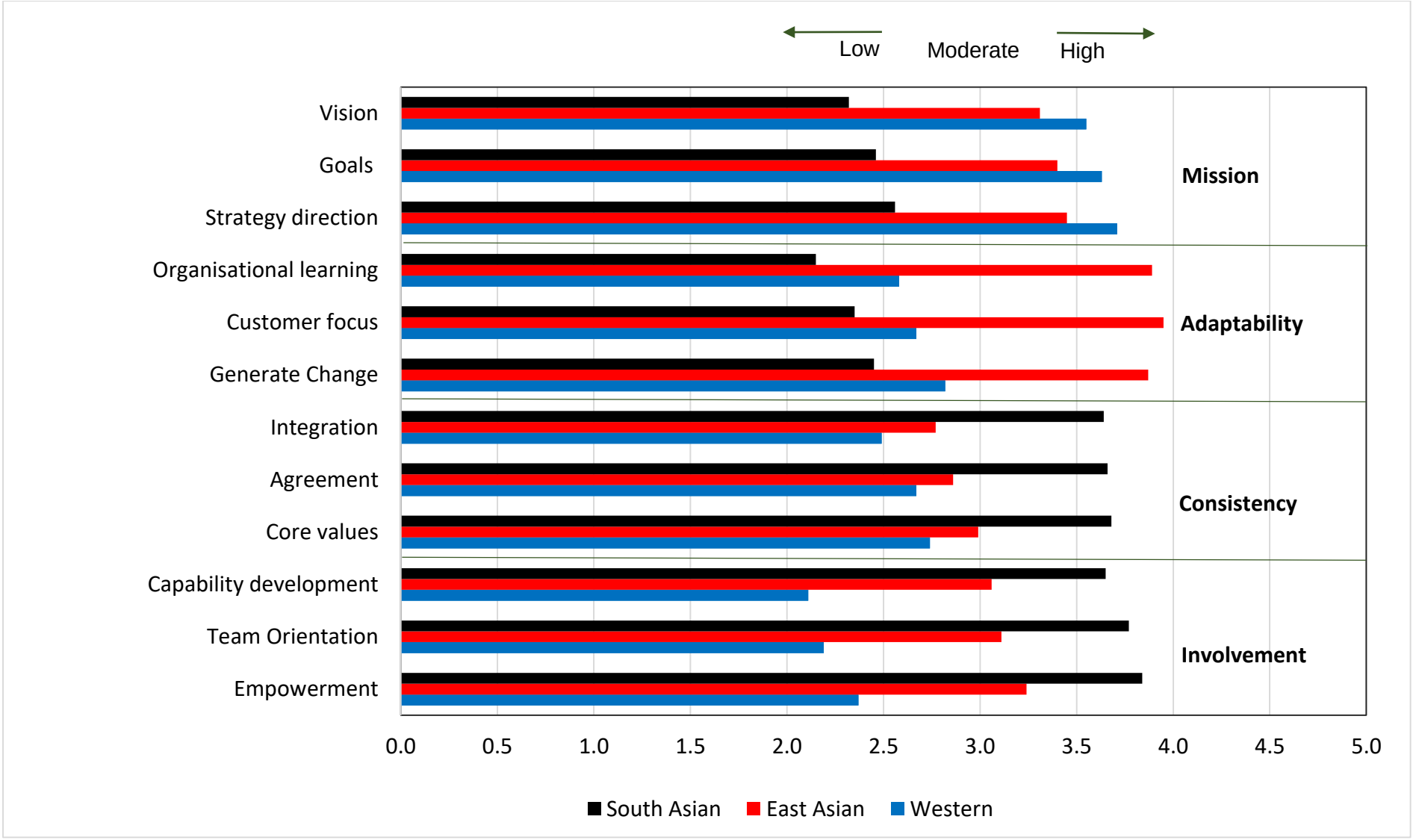






Legend: **EA – East Asian** **SA – South Asian** **W - Western**

APPENDIX W: MEAN SCORES OF MANAGEMENT PRACTICE ORIENTATIONS OF CULTURE TRAITS BY RBFOT



Low: Less than 2.50 **Moderate**: 2.51 – 3.40 **High**: Greater than 3.40