

4-2021

**THE IMPACT OF STRATEGIC ALLIANCES ON CORPORATE
PERFORMANCE: EXPLORING MECHANISMS AND CONDITIONS
IN THE CONTEXT OF OIL AND GAS INDUSTRY IN THE UAE**

Khalid A. Al Kindi

Follow this and additional works at: https://scholarworks.uaeu.ac.ae/all_dissertations



Part of the [Leadership Commons](#)

United Arab Emirates University

College of Business and Economics

THE IMPACT OF STRATEGIC ALLIANCES ON CORPORATE
PERFORMANCE: EXPLORING MECHANISMS AND CONDITIONS
IN THE CONTEXT OF OIL AND GAS INDUSTRY IN THE UAE

Khalid A.M. Al Kindi

This dissertation is submitted in partial fulfilment of the requirements for the degree
of Doctorate of Business Administration

Under the Supervision of Prof. Riyad Eid

April 2021

Declaration of Original Work

I, Khalid A.M. Al Kindi, the undersigned, a graduate student at the United Arab Emirates University (UAEU), and the author of this dissertation entitled “*The Impact of Strategic Alliances on Corporate Performance: Exploring Mechanisms and Conditions in the Context of Oil and Gas Industry in the UAE*”, hereby, solemnly declare that this dissertation is my own original research work that has been done and prepared by me under the supervision of Dr. Riyad Eid, in the College of Business and Economics at UAEU. This work has not previously been presented or published, or formed the basis for the award of any academic degree, diploma or a similar title at this or any other university. Any materials borrowed from other sources (whether published or unpublished) and relied upon or included in my dissertation have been properly cited and acknowledged in accordance with appropriate academic conventions. I further declare that there is no potential conflict of interest with respect to the research, data collection, authorship, presentation and/or publication of this dissertation.

Student's Signature:  _____

Date: 27-4-2021

Copyright © 2021 Khalid A.M. Al Kindi
All Rights Reserved

Advisory Committee

1) Advisor: Prof. Riyad Eid

Title: Professor

Department of Innovation, Technology and Entrepreneurship

College of Business and Economics

2) Co-advisor: Omar Farooq

Title: Associate Professor

Department of Leadership and Organizational Agility

College of Business and Economics

Approval of the Doctorate Dissertation

This Doctorate Dissertation is approved by the following Examining Committee Members:

- 1) Advisor (Committee Chair): Riyad Eid

Title: Professor

Department of Innovation, Technology and Entrepreneurship

College of Business and Economic


Signature  _____ Date 6/4/2021

- 2) Member: Rashed A. Alzahmi

Title: Associate Professor

Department of Leadership and Organizational Agility

College of Business and Economic

Signature  _____ Date 6/4/2021

- 3) Member: Fathalla A. Rihan

Title: Professor

Department of Mathematical Sciences

College of Science

Signature  _____ Date 6/4/2021

- 4) Member (External Examiner): Nur Naha Binti Abu Mansor

Title: Professor

Department of Business Administration

Institution: Universiti Teknologi, Malaysia

Signature Nur _____ Date 6/4/2021

This Doctorate Dissertation is accepted by:

Dean of the College of Business and Economics: Professor Mohamed Madi

Signature  Date 24/5/2021

Dean of the College of Graduate Studies: Professor Ali Al-Marzouqi

Signature  Date 24/5/2021

Copy ____ of ____

Abstract

Strategic Alliances are fast gaining traction in the oil and gas Drilling Industry in the World and the UAE in particular, in contrast to the challenges that arise in the markets as a result of globalization and as a business strategy to enhance the corporate performance of the firms involved in the alliances. The alliances are also in the focus of academic and business researchers and interest in Strategic Alliances has significantly increased over the past decades. This research aims to study to what extent do strategic alliances impact the corporate performance of the firms involved in these alliances in the oil and gas Industry of UAE. It also aims at identifying the factors determining the success of the strategic alliances in the UAE oil and gas industry. A thorough literature review was carried out through which three overarching factors determining SA success have been identified: SA success Strategic Factors, Operational Factors, and Tactical Factors. To address the research questions a structured questionnaire was developed using a 5-point Likert scale and 275 questionnaires were collected from key informants working in the firms involved in the strategic alliance in the Abu Dhabi oil and gas industry. Multidimensional data analysis methods have been applied to test the a priori model of Strategic alliance success factors impacting corporate performance. Particularly, Structural Equation Modeling was applied, in addition to correlations analysis exploratory factor analysis, as well as reliability, validity, and adequacy tests. In general, the research findings were consistent with the literature indicating that engagement in Strategic Alliances positively impacts the corporate performance of the firms involved. The results suggest that Strategic Alliance success operational factors are critically important which include establishing a formalized mechanism that supports alliance operations and daily management. Strategic Alliance success is not preconditioned to the existence or absence of dominance by one partner or dominance in resources controlled, but rather depends on the appropriateness of the form of cooperation for alliance and the degree of commitment between the partners. Furthermore, the research suggests that though disparities in management style and culture between the companies are important factors of SA success, operational control and coordination play a more important role and when properly implemented may mitigate the negative impact of existing organizational disparities between the partners. Finally, Strategic Alliance success

factors positively impact Corporate Performance and improves engagement in firms as well as quality of marketing, access to new markets, and usage of information technologies. This research provides quantified evidence that Strategic Alliance does add value to the firms concerned. Among the practical implications of this research are that the identified list of the SA success factors may be used by the companies involved in the strategic alliances during SA performance and implementation monitoring and evaluation process. Furthermore, the research provides policymakers in GCC countries with adequate information on the significance of the strategic alliances in the diversification of their economies. Based on research outputs recommendations for the corporations intending to engage in SA or currently involved in SAs are as follows: the companies are recommended to pay remarkable attention to the operational factors of SA operations ensuring that formalized mechanisms supporting alliance operation and daily management are properly established and maintained, e.g., ensuring that clear rules, policies, and procedures that guide cooperation procedures are in place, roles and responsibilities within the alliance are properly distributed, etc. Last but not least, the companies are recommended to ensure proper operational control and coordination, as well as ensure that the form of the alliance is appropriate and the degree of commitment between the partners is sufficient.

Keywords: Strategic alliances, Corporate performance, Strategic alliance success, oil and gas industry, Measurement model, Structural equation modeling.

Title and Abstract (in Arabic)

تأثير التحالفات الاستراتيجية على أداء الشركات: استكشاف الآليات والظروف في سياق صناعة النفط والغاز في دولة الإمارات العربية المتحدة

الملخص

تكتسب التحالفات الاستراتيجية زخمًا سريعًا في صناعة حفر النفط والغاز في العالم والإمارات على وجه الخصوص، على عكس التحديات التي تنشأ في الأسواق نتيجة للعولمة. تقع التحالفات أيضًا في بؤرة اهتمام الأكاديميين والباحثين في مجال الأعمال، وقد ازداد الاهتمام بالتحالفات الإستراتيجية بشكل ملحوظ خلال العقود الماضية. يهدف هذا البحث إلى دراسة مدى تؤثر التحالفات الاستراتيجية على أداء الشركات المشاركة في هذه التحالفات في صناعة النفط والغاز في دولة الإمارات العربية المتحدة. كما يهدف إلى تحديد العوامل التي تحدد نجاح التحالفات الاستراتيجية في صناعة النفط والغاز الإماراتية. تم إجراء مراجعة شاملة التي تم من خلالها تحديد ثلاثة عوامل شاملة تحدد نجاح: العوامل الاستراتيجية لنجاح SA، والعوامل التشغيلية، والعوامل التكتيكية. لمعالجة أسئلة البحث، تم تطوير استبيان منظم باستخدام مقياس ليكرت المكون من 5 نقاط وتم جمع 275 استبيانًا من المخبرين الرئيسيين العاملين في الشركات المشاركة في التحالفات الاستراتيجية في صناعة النفط والغاز في أبوظبي. تم تطبيق طرق تحليل البيانات متعددة الأبعاد لاختبار النموذج الأولي لعوامل نجاح التحالفات الاستراتيجية التي تؤثر على أداء الشركة. على وجه الخصوص، تم تطبيق نمذجة المعادلات الهيكلية، بالإضافة إلى تحليل الارتباط وتحليل العوامل الاستكشافية، وكذلك اختبارات الموثوقية والصلاحية والكفاية. بشكل عام، كانت نتائج البحث متسقة مع المراجع التي تشير إلى أن المشاركة في التحالفات الإستراتيجية تؤثر بشكل إيجابي على أداء الشركات للشركات المعنية. تشير النتائج إلى أن العوامل التشغيلية لنجاح التحالفات الاستراتيجية مهمة للغاية والتي تشمل إنشاء آلية رسمية تدعم عمليات التحالف والإدارة اليومية. إن نجاح التحالفات الاستراتيجية ليس شرطًا مسبقًا لوجود أو عدم هيمنة شريك واحد أو هيمنة على الموارد الخاضعة للرقابة، بل يعتمد على مدى ملاءمة شكل التعاون للتحالف ودرجة الالتزام بين الشركاء. علاوة على ذلك، يشير البحث إلى أنه على الرغم من أن التباينات في أسلوب الإدارة والثقافة بين الشركات هي عوامل مهمة لنجاح SA، إلا أن الرقابة التشغيلية والتنسيق يلعبان دورًا أكثر أهمية، وعندما يتم التنفيذ بشكل صحيح قد يخفف التأثير السلبي للتفاوتات التنظيمية الموجودة بين الشركاء. أخيرًا، تؤثر عوامل نجاح التحالفات الاستراتيجية بشكل إيجابي على أداء الشركات

وتحسن المشاركة في الشركات بالإضافة إلى جودة التسويق والوصول إلى أسواق جديدة واستخدام تقنيات المعلومات. يقدم هذا البحث دليلاً كميًا على أن التحالف الاستراتيجي يضيف قيمة للشركات المعنية. من بين الآثار العملية لهذا البحث أنه يمكن استخدام القائمة المحددة لعوامل نجاح ضمان البرنامج من قبل الشركات المشاركة في التحالفات الإستراتيجية أثناء عملية مراقبة الأداء والتنفيذ والتقييم. علاوة على ذلك، يزود البحث صانعي السياسات في دول مجلس التعاون الخليجي بمعلومات كافية عن أهمية التحالفات الاستراتيجية في تنويع اقتصاداتهم. بناءً على توصيات مخرجات البحث للشركات التي تعتزم المشاركة في ضمان البرنامج أو المشاركة حاليًا في ضمان البرنامج، هي كما يلي: يُنصح الشركات باهتمام على العوامل التشغيلية لعمليات ضمان البرنامج لضمان إنشاء آليات رسمية تدعم عمليات التحالف والإدارة اليومية بشكل صحيح وصيانتها وتوزيع الأدوار والمسؤوليات داخل التحالف بشكل صحيح، وما إلى ذلك. أخيرًا وليس آخرًا، يوصى الشركات لضمان الرقابة التشغيلية والتنسيق المناسبين، فضلاً عن ضمان أن شكل التحالف مناسب وأن درجة الالتزام بين الشركاء كافية.

مفاهيم البحث الرئيسية: التحالفات الاستراتيجية، أداء الشركات، نجاح التحالف الاستراتيجي، صناعة النفط والغاز، نموذج القياس، نمذجة المعادلات الهيكلية.

Acknowledgement

Writing a thesis takes a lot of hard work and dedication but is by no means an individual effort and requires great support from numerous individuals to help it come to fruition. I would like to thank my family for their belief and patience in me and especially my father, who has always been the homing beacon to achieving any of my ambitions. I also acknowledge His Excellency Dr. Sultan Al Jaber whose words of encouragement when we first met helped me take the first step to enrolling in the DBA program and last but not least, I acknowledge my DBA advisor Prof Riyad Eid for his unwavering support and dedication towards seeing me succeed. His valuable insights and wealth of experience have helped guide me through many hurdles throughout the research duration.

Dedication

To my family

Table of Contents

Title	i
Declaration of Original Work	ii
Copyright	iii
Advisory Committee	iv
Approval of the Doctorate Dissertation	v
Abstract	vii
Title and Abstract (in Arabic)	ix
Acknowledgement.....	xi
Dedication	xii
Table of Contents	xiii
List of Tables.....	xvii
List of Figures	xxi
List of Abbreviations.....	xxii
Chapter 1: Introduction	1
1.1 Background to the Study	5
1.2 Gap Analysis.....	6
1.3 Justification for the Study.....	7
1.4 Research Objectives.....	8
1.5 Research Questions.....	9
Chapter 2: Literature Review and Hypotheses Testing.....	11
2.1 Introduction.....	11
2.2 Strategic Alliances	11
2.2.1 Strategy and Alliances	12
2.2.2 Defining Strategic Alliances	15
2.2.3 Theoretical Perspectives of the Formation of Strategic Alliances	21
2.2.4 Summary of Alliance Formation Perspectives.....	28
2.3 Corporate Performance	30
2.3.1 The Concept of Corporate Performance	30
2.3.2 Measurement of Corporate Performance	31
2.4 Success of the Strategic Alliances	33

2.4.1 Measurement of Performance of the Strategic Alliances.....	34
2.4.2 Success factors of the Strategic Alliances	38
2.4.3 Summary of Success Factors and Hypothesis	51
2.5 Impact of the Strategic Alliances on Corporate Performance of the Firms	53
2.5.1 General Overview of Impact Direction.....	53
2.5.2 Strategic Alliances and Performance of oil and gas Corporations in the UAE	59
2.5.3 Summary of Impact Areas and Research Hypothesis	65
2.6 Summary of Hypotheses.....	66
2.6.1 Corporate Performance	67
2.6.2 Success of the Strategic Alliances	68
2.6.3 Strategic Alliance Success Factors	70
Chapter 3: Research Methodology.....	73
3.1 Introduction.....	73
3.2 Research Questions.....	74
3.3 Research Paradigms.....	75
3.3.1 Quantitative Research Methods	78
3.3.2 Qualitative Research Methods	80
3.3.3 Mixed Methods Research.....	81
3.3.4 Exploratory and Empirical Research	82
3.3.5 Research Methodology Adopted in this Study	83
3.4 Research Method, Tools and Measures	86
3.4.1 Questionnaire Design.....	88
3.4.2 Scaling.....	89
3.4.3 Structure and Sequencing	89
3.4.4 Pretesting.....	99
3.5 Sample Selection	101
3.5.1 Unit of Analysis	101
3.5.2 Informants	102
3.5.3 Population	102
3.5.4 Sampling Strategy and Sample Size	103
3.6 Data Collection Procedures	103
3.7 Ethical Considerations	105
3.8 Data Analysis.....	106
3.8.1 Descriptive Statistics and Correlations	107
3.8.2 Reliability and Validity Analysis.....	108
3.8.3 Exploratory and Confirmatory Factor Analysis Methods.....	109
3.8.4 Missing Data	111

3.9 Chapter Summary	111
Chapter 4: Data Analysis and Findings.....	113
4.1 Introduction.....	113
4.2 Data Preparation and Statistical Software	114
4.3 Descriptive Analysis of the Sample.....	114
4.4 Descriptive Statistics and Correlations among the Study Variables.....	115
4.4.1 Strategic Alliance Success	116
4.4.2 Strategic Goals	116
4.4.3 Strategic Alliance Success Factors	117
4.4.4 Corporate Performance	123
4.5 Reliability Testing	125
4.5.1 Reliability Testing.....	126
4.5.2 Summary of Reliability Analysis.....	154
4.6 Data Preparation for Structural Equation Modeling.....	154
4.6.1 Handling Missing Data	154
4.6.2 Identification of the Multivariate Outliers	156
4.6.3 Unengaged Responses.....	156
4.6.4 Description of Final Database.....	157
4.7 Study of the Underlying Structure of the Variables (Exploratory Factor Analysis)	157
4.7.1 SA Success Strategic Factors.....	157
4.7.2 SA Success Tactical Factors	159
4.7.3 SA Success Operational Factors	163
4.7.4 Corporate Performance	166
4.7.5 Summary of Exploratory Factor Analysis	168
4.8 Validity and Adequacy Testing	169
4.8.1 Kaiser Meyer Olkin Measure (KMO) Measure of Sampling Adequacy.....	170
4.8.2 Bartlett Test for Sphericity.....	171
4.8.3 Communalities	172
4.8.4 Summary of the Validity and Adequacy Testing.....	176
4.9 Confirmatory Factor Analyses and Testing of the Research Model.....	176
4.9.1 Testing of the Research Model and Hypotheses.....	177
4.9.2 Model Estimation Procedure.....	180
4.9.3 Model Fit.....	183
4.9.4 Convergent and Discriminant Validity of the Model.....	185
4.9.5 Direct, Indirect and Total Effects.....	191
4.9.6 Structural Model and Path Relationships.....	192

4.10 Summary of Confirmatory Factor Analysis and Hypothesis Testing.....	194
Chapter 5: Discussion and Conclusions.....	196
5.1 Introduction.....	196
5.2 Discussion of Findings	196
5.2.1 General Impact of the SA Success Factors on Corporate Performance and SA Overall Success	198
5.2.2 SA Success Strategic Factors	199
5.2.3 SA Success Tactical Factors	201
5.2.4 SA Success Operational Factors	202
5.2.5 SA Corporate Performance	203
5.2.6 SA Strategic Alliance Success	205
5.3 Theoretical Contributions	205
5.4 Practical Implications	206
5.5 Limitations and Suggestions for Future Research.....	208
5.6 Conclusions	210
References	212

List of Tables

Table 2.1: Types of Inter-Organizational Relations.....	19
Table 2.2: Reasons of Formation Strategic Alliances and Key Success Factors for Theoretical Perspective	29
Table 2.3: Measures of Corporate Performance	32
Table 2.4: Measures of “Success of Strategic Alliance”.....	38
Table 2.5: Variables and Indicators of the Future Measurement Constructs	41
Table 2.6: Measures of “Success Factors”	51
Table 2.7: Assets, Needs and Constraints of the Major NOCs in MENA Region.....	61
Table 2.8: Individual Items to Assess Subjective Measures of Corporate Performance.....	68
Table 2.9: Individual Items to Measure Success of the Strategic Alliances	70
Table 2.10: Individual Items to Measure Strategic Factors	71
Table 2.11: Individual Items to Measure Tactical Factors.....	72
Table 2.12: Individual Items to Measure Operational Factors.....	72
Table 3.1: Strategic Alliance Success Items	92
Table 3.2: Goal Accomplishment Items.....	92
Table 3.3: Strategic Alliance Success Strategic Factors Measurement Items	94
Table 3.4: Strategic Alliance Success Tactical Factors Measurement Items	96
Table 3.5: Strategic Alliance Success Operational Factors Measurement Items	97
Table 3.6: Corporate Performance Measurement Items	99
Table 4.1: Descriptive Statistics for the Study Population	115
Table 4.2: Descriptive Statistics and Correlations among Strategic Alliance Success Variables.....	116
Table 4.3: Descriptive Statistics and Correlations among SA Goals Variables	117
Table 4.4: Descriptive Statistics and Correlations among Items of Mutual Objectives and Strategies	118
Table 4.5: Descriptive Statistics and Correlations among Items of Power and Contribution	119
Table 4.6: Descriptive Statistics and Correlations among Items of Trust and Commitment	119
Table 4.7: Descriptive Statistics and Correlations among Items of Transparency, Communication and Information Exchange	120
Table 4.8: Descriptive Statistics and Correlations among Items of Learning.....	121
Table 4.9: Descriptive Statistics and Correlations among Items of Cultural Fit.....	121
Table 4.10: Descriptive Statistics and Correlations among Items of Operational Control and Coordination.....	122

Table 4.11: Descriptive Statistics and Correlations among Items of Organizational Fit.....	123
Table 4.12: Descriptive Statistics and Correlations among Items of Operational Efficiency	124
Table 4.13: Descriptive Statistics and Correlations among Items of Capacity Building.....	125
Table 4.14: Cronbach's Alpha for Internal Consistency of the Strategic Alliance Success.....	127
Table 4.15: Cronbach's Alpha for Measurement Items for the Strategic Alliance Success.....	127
Table 4.16: Cronbach's Alpha for Internal Consistency of the Strategic Goals.....	128
Table 4.17: Cronbach's Alpha for Measurement Items for the Strategic Goals.....	129
Table 4.18: Cronbach's Alpha for Internal Consistency of the Mutual Objectives and Strategies	130
Table 4.19: Cronbach's Alpha for Measurement Items for the Mutual Objectives and Strategies	131
Table 4.20: Cronbach's Alpha for Internal Consistency of the Power and Contribution	131
Table 4.21: Cronbach's Alpha for Measurement Items for the Power and Contribution	132
Table 4.22: Cronbach's Alpha for Internal Consistency of the Trust and Commitment.....	133
Table 4.23: Cronbach's Alpha for Measurement Items for the Trust and Commitment.....	134
Table 4.24: Cronbach's Alpha for Internal Consistency of the SA Success Strategic Factors	134
Table 4.25: Cronbach's Alpha for Measurement Items for the SA Success Strategic Factors	136
Table 4.26: Cronbach's Alpha for Internal Consistency of the Transparency, Communication and Information Exchange.....	137
Table 4.27: Cronbach's Alpha for Measurement Items for the Transparency, Communication and Information Exchange.....	138
Table 4.28: Cronbach's Alpha for Internal Consistency of the Learning	138
Table 4.29: Cronbach's Alpha for Measurement Items for the Learning	139
Table 4.30: Cronbach's Alpha for Internal Consistency of the Cultural Fit.....	140
Table 4.31: Cronbach's Alpha for Measurement Items for the Cultural Fit.....	141
Table 4.32: Cronbach's Alpha for Internal Consistency of the SA Success Tactical Factors	142
Table 4.33: Cronbach's Alpha for Measurement Items for the SA Success Tactical Factors	143
Table 4.34: Cronbach's Alpha for Internal Consistency of the Operational Control and Coordination	144
Table 4.35: Cronbach's Alpha for Measurement Items for the Operational Control and Coordination	145

Table 4.36: Cronbach's Alpha for Internal Consistency of the Organizational Fit	145
Table 4.37: Cronbach's Alpha for Measurement Items for the Organizational Fit	146
Table 4.38: Cronbach's Alpha for Internal Consistency of the SA Success Operational Factors	147
Table 4.39: Cronbach's Alpha for Measurement Items for the SA Success Operational Factors	148
Table 4.40: Cronbach's Alpha for Internal Consistency of the Operational Efficiency	149
Table 4.41: Cronbach's Alpha for Measurement Items for the Operational Efficiency	150
Table 4.42: Cronbach's Alpha for Internal Consistency of the Capacity Building	150
Table 4.43: Cronbach's Alpha for Measurement Items for the Capacity Building	151
Table 4.44: Cronbach's Alpha for Internal Consistency of the Corporate Performance	152
Table 4.45: Cronbach's Alpha for Measurement Items for the Corporate Performance	153
Table 4.46: Collective Percentages for Total Variance Explained for SA Success Strategic Factors	158
Table 4.47: Component Matrix of SA Success Strategic Factors	159
Table 4.48: Collective Percentages for Total Variance Explained for SA Success Tactical Factors	160
Table 4.49: Component Matrix of SA Success Tactical Factors	161
Table 4.50: Collective Percentages for Total Variance Explained for SA Success Tactical Factors (Excluding 2 Variables).....	162
Table 4.51: Component Matrix of SA Success Tactical Factors (Excluding 2 Variables)	163
Table 4.52: Collective Percentages for Total Variance Explained for SA Success Operational Factors	164
Table 4.53: Component Matrix of SA Success Operational Factors	164
Table 4.54: Collective Percentages for Total Variance Explained for SA Success Operational Factors (Excluding 2 Variables).....	165
Table 4.55: Component Matrix of SA Success Operational Factors (Excluding 2 Variables)	166
Table 4.56: Collective Percentages for Total Variance Explained for Corporate Performance	167
Table 4.57: Component Matrix of Corporate Performance	168
Table 4.58: KMO Measure of Sampling Adequacy for Research Components	171
Table 4.59: Bartlett Test for Sphericity	172
Table 4.60: Communalities for SA Success Strategic Factors.....	173
Table 4.61: Communalities for SA Success Tactical Factors	174
Table 4.62: Communalities for SA Success Operational Factors	175
Table 4.63: Communalities for SA Overall Success.....	175
Table 4.64: Communalities for Corporate Performance	176
Table 4.65: List of the Variables Included in the Final Model	179

Table 4.66: Research Hypothesis Underlying the Structural Equation Model	180
Table 4.67: Fit Indices for the CFA Model	184
Table 4.68: Calculation of AVE and Square Root of AVE of the Latent Variables	188
Table 4.69: Reliability and Validity of first Order Latent Variables (First Run)	190
Table 4.70: Standardized Total, Direct and Indirect Effects of the Latent Variables	192
Table 4.71: Standardized Regression Weights and Estimations of the Latent Variables	193
Table 4.72: Results of Hypothesis Testing	194

List of Figures

Figure 2.1: Strategic Alliances Dimensions	20
Figure 2.2: Conceptual Model.....	66
Figure 3.1: Qualitative and Quantitative Research Design	77
Figure 3.2: Ideal-Typical Outline of the Stages of Quantitative Research	86
Figure 4.1: Structural Model to be Tested	180
Figure 4.2: Final Estimated Structural Equation Model	182
Figure 4.3: Confirmatory Factor Analysis Loadings for First-Order Factors	186
Figure 4.4: Diagrammatic Representation of Mediation	191

List of Abbreviations

Abu Dhabi National Oil Company	ADNOC
Baker Hughes	BHGE
China National Petroleum Corporation	CNPC
Comparative Fit Index	CFI
Composite Reliability	CR
Confirmatory Factor Analysis	CFA
Dynamic Capabilities	DC
Earning per Share	EPS
Exploratory Factor Analysis methods	EFA
International Oil Corporation	IOCs
Kaiser Meyer Olkin	KMO
Kuwait Petroleum Corporation	KPC
Mahalanobis Distance	MD
Missing at Random	MAR
Missing Completely at Random	MCAR
Mixed Methods Research	MMR
National Oil Company	NOC
Non-Normed Fit Index	NNFI
Not Missing at Random	NMAR
Petroliam Nasional Berhad	PETRONAS
Residual Income	RI
Return on Assets	ROA
Root Mean Square Error of Approximation	RMSEA
Sharjah National Oil Company	SNOC
Standard Deviations	SD
Structural Equation Modeling	SEM
Tucker Lewis index	TLI

Chapter 1: Introduction

Strategic Alliances are fast gaining traction in the oil and gas Drilling Industry as a promising business strategy to enhance corporate performance. The academic and business literature has keen interest in the alliances and other forms of cooperation between different companies in recent years. The number of studies on strategic alliances has significantly increased enabling its distinct room in management and business research (López-Duarte, 2016). Disruptive digital technologies, fierce competitive rivalry, falling revenue and profit margin, and increasing demand for sustainable operational processes from the civil society and government, makes it mandatory that oil and gas drilling companies make a pivotal shift towards strategic alliances for their survival in the industry and to improve their performance. Moreover, strategic alliances enable the top management of a firm to be in constant pursuit of its strategic goals of the company and its business interest (Kohtamäki et al., 2018). Strategic alliances can bring financial, technological, managerial and physical resources to the table and enable the firms in creating synergy to achieve better products and processes (Russo & Ceserani, 2017; O'Dwyer & Gilmore, 2018; Mamédio et al., 2019). Furthermore, Strategic Alliances help in improving the efficiency and productivity of the employees coupled with attaining higher cost advantage (Lee, 2007; Todeva & Knoke, 2003).

The maturity of the industry in the region poses the complex challenge of having to increase the yield per barrel produced for many oil and gas firms while the clamor for renewable energy sources instead of fossil fuel propels many of these national jewels to diversify their activities and reduce the adverse environmental impact. The adoption and integration of innovative technology can boost yield and

mitigate the environmental damage, but it requires huge capital expenditure. A quick and easy solution is to enter well-thought-out Strategic Alliances with the internationally acclaimed technology solution providers and share the responsibilities and benefits. Strategic alliances are not without their limitations though and can bring significant impact on the culture, values and employees of an organization (Todeva & Knoke, 2003). Identity crisis, resistance from the employees, and an uncertain future are some of the major challenges that any firm entering a strategic alliance must grapple with. Robust and transparent cooperation between the strategic partners can help in finding a way around the challenges while benefiting all the alliance partners and stakeholders.

The oil and gas drilling industries are undergoing many technological breakthroughs, and innovative processes and practices. Business relationships evolve due to the relative strengths and weaknesses of firms in capital, resources, and technology; and Strategic Alliance (SA) can help capitalize on the benefits in these areas. SA among firms in the drilling industry can have considerable impact on the macroeconomic conditions, environment and the profitability of the organizations concerned due to their vast amount of assets, capital, technical knowhow, experience and economies of scale. The oil and gas drilling industry has undergone huge transformation as a result of the SA globally in this age of tepid global growth and falling profit margins. The ability of the firms in the industry to explore and drill economically for Shale Oil, Deep Ocean drilling and, above all, transportation of the oil through mountain and underwater pipelines have become both viable and stronger due to Strategic Alliances. Furthermore, higher cost efficiency, larger market share, competitiveness over rivals, and sustainability of profits are some of the hallmarks of SA in the oil and gas drilling industry. Strategic Alliances and the cooperation of firms

has been identified by modern era managers as central to their strategic management process resulting in dramatic increase in many such alliances across many industries (Das & Teng, 2003). Furthermore, Doz and Hamel (1998) expounds that the firms will be vying with each other for creating alliances in the future to improve their core competencies and to acquire new capabilities. Globalization, technological advancement and the exposure of the consumers to the new products and processes will further expedite the cooperation and alliances between firms as the ability of a firm to be world-class at all technology is an impossible and insurmountable task.

The UAE is a part of the Gas Exporting Countries Forum (GECF), as well as is a member at the Organization of the Petroleum Exporting Countries (OPEC). The country has significant role in the international oil and gas market (The U.S. U.A.E. Business Council, 2019). There are many companies operating in the UAE oil and gas market due to which the market is moderately fragmented. Several companies may be considered as leaders among them are Abu Dhabi National Oil Company (ADNOC), Al Masood Oil Industry Supplies and Service Co, Exxon Mobil Corporation, Halliburton Company, Schlumberger Limited, etc. There are multiple national oil companies operating at the UAE oil and gas sector. As a National Oil Company (NOC) Abu Dhabi National Oil Company (ADNOC) as the biggest local player, in addition it is also one of the world's largest company in oil and gas production sector. The other considerable large NOCs include Sharjah National Oil Company (SNOC); Emirates National Oil Company (ENOC), Dubai's NOC; RAK Gas, of Ras al Khaimah (The U.S. U.A.E. Business Council, 2019).

One of the outstanding illustrations of strategic alliance in the region is Abu Dhabi National Oil Company (ADNOC) alliance with Baker Hughes (BHGE), an

industry leader that has strong technical expertise, capabilities and the equipment portfolio (Bakerhughes, 2018). As informed through press release, ADNOC and BHGE formed a strategic partnership aiming at improvement of the drilling capacities and enhancement of ADNOC Drilling efficiency, as well as to expand BHGE's presence in the UAE.

Abu Dhabi National Oil Company (ADNOC) is a state-owned Oil Company that was founded in 1971 in UAE. The company is the national jewel that helped the nation to transition from a traditional fishing and pearl industry to an advanced city state with unparalleled amenities and social welfare for the citizens. The major objectives of the SA of ADNOC are a) to achieve greater growth and value in its conventional and unconventional hydrocarbon resources, b) development of local human resources c) to enhance drilling efficiencies and shortage the drilling time and, above all, d) capitalize on the new business opportunities in the wider world by being the industry leader. This partnership agreement is valued at approximately \$11 billion. This SA can be monumental for the firms concerned with respect to creating value for the stakeholders and achieving growth rapidly by utilizing the innovative technology solutions and experience of the region. The ability of the firms to generate long-term revenue streams and attain a higher cost advantage by capturing value from each barrel of oil produced will be beneficial to both organizations. Moreover, SA aims at increasing the number of unconventional wells, improving the drilling efficiency and providing a better value proposition for their customers. Furthermore, the strategic partnership with BHGE will help reduce the drilling time of ADNOC by 30 percent by 2019 and help in fulfilling the long-term vision and financial objectives of the organization.

For this current research quantitative approach is adopted. This approach enables us to assess general trends and common features through collection of representative data from the field, and accordingly enables us to verify the defined hypothesis making a step forward to theory contribution. The research combines both approaches - exploratory and empirical in nature. Based on deductive methods of reasoning established hypotheses will be verified using data collected directly from the strategic partners involved in the transaction. A high degree of formalization and objectivity involved in the quantitative method is suitable for obtaining comprehensive and systematic knowledge on this industry through survey among the firms involved in strategic alliances.

1.1 Background to the Study

The UAE was established in 1971 and now is one of the most reach countries in the world. Most of the companies in the USE are new compared with the companies in other countries which have experience of working for more than ten or even hundreds of years (Shaikh, 2007). Oil and gas industry has an outstanding contribution to the country's GDP.

The entire oil and gas industry is highly transformative. This industry is being transformed at a much faster pace internationally with new technology, the clamor for environmental sustainability, and protection of the ecology. Embrace of the new technologies, globalization and structural changes in business models in the industry are forcing The National Oil Companies (NOC), government and the entire oil and gas firms to be highly flexible to address the structural challenges taking place in the industry.

Oil and gas organizations in this region are familiar with the SA concept which is not a new concept in the region. Many firms from Saudi Arabia, Iran, Kuwait and UAE have experience in entering into many such alliances in the past. Currently, the oil and gas strategic partnership in UAE is experiencing a shift from West to East more and more collaboration and partnership agreements involving firms from China and Japan.

The global landscape for the energy industry is undergoing rapid changes with new technology and development of alternative energy solutions and it is imperative that companies involved in the oil and gas sector give much focus on ‘Continuous Improvement’ of their processes to better their corporate performance. Building strategic alliances are easier to implement and it demands less financial and capital commitment from the participating firms. Better access to capital and technology, improve market share, defining, hedging and mitigating strategic risks, utilizing better managerial talent, adopting the best practices of the competitors and, ultimately, improving the productivity, efficiency and profitability of the organization are the advantages of SA and this research will shed light on how SA in the oil and gas drilling sector of UAE will improve the corporate performance of the energy firms.

1.2 Gap Analysis

Though SA in the energy industry of the UAE has received tremendous support from the scholars of strategic management in the past, still there is a considerable gap in the literature. Mintzberg et al. (1998, p. 256-257) argue that the 1980’s and 1990’s witnessed many creative forms of alliances in different industries. Similarly, Das and Teng (2003) has tried to investigate the life cycle and different aspects of strategic alliances while Gulati et al. (2012) has explored the various risk elements associated

with the SA. Butler (2007) argues that the literature on strategic alliances involving the UAE firms in general is not sufficient. Furthermore, the impact of SA on the performance of the firms and yield of oil companies is also unknown in the region and more research based on actual project experience is integral to understand the effectiveness of these alliances and their success.

The International oil and gas Drilling Industry is at a cross roads in the history of the energy market and, though many studies exist in the literature as far as the oil and gas industry is concerned, there is serious dearth of valuable research into the perspectives of Strategic Alliances in UAE and its impact on the corporate performance. Most of the research in this field adopted a qualitative approach lacking quantitative interpretation of casual relationships, estimation of impacts and hypothesis testing. This research can provide quantified evidence to confirm the existing qualitative studies that SA do add value to the firms concerned and support improvement of their corporate performance.

1.3 Justification for the Study

Strategic Alliances bring together the resources, technologies, and core competencies of firms to make them leaner and more efficient. Moreover, the alliances can help in improving the productivity in their production and operational process not to mention the increased market share. Mintzberg et al. (1998) suggest that all the activities in a company should be directed to execute the strategic intent of an organization. Furthermore, strategic alliances are considered as a major means of competitive differentiation in this age of disruptive technologies, and the alliance taps into their technical know-how and expertise to improve the per barrel yield and attain cost advantage. On the other hand, the National Oil Companies (NOCs) must build a

sustainable competitive advantage in this age of unstable oil prices to ensure their survival and relevance in their national economies.

The significance of the present research arises to provide evidence on how strategic alliances can improve the corporate performance of the firms. The current research helps find the prerequisites to successful SA in the oil and gas industry and their effective management to assure joint benefits. The current research gives insight on the question of to what extent the strategic alliances enable firms involved in these alliances to improve their corporate performance by pooling their core strengths, resources and proprietary technologies. The research also gives insight into the current state of the strategic alliances, their future potential and factors underlying the success of the alliances in the oil and gas drilling industry of the UAE. The performance of the strategic alliances, success factors and corporate performance of the firms are analyzed in a single research model enabling identification and estimation of the existing casual relationships and interrelations among these hypothesized concepts. The study helps the industry participants realize the potential to improve their corporate performance and boost profitability by entering into new Strategic Alliances. Last but not least the research helps stakeholders and policymakers adopt the best approach when pursuing SAs and capitalizes on the rapidly evolving opportunities in the oil and gas industry.

1.4 Research Objectives

The major objectives of the current research are as follows:

Objective: To identify and assess the underlying factors of strategic alliance success in the UAE oil and gas industry.

Sub-objective 1.1: To assess the degree of importance of the factors determining strategic alliance success as perceived by firms involved in the strategic alliances.

Objective 2: Assess the impact of strategic alliances on the corporate performance of the firms involved in those alliances in the UAE oil and gas industry.

Sub-objective 2.1: Study how corporate performance is impacted by strategic alliance success distinct factors.

Objective 3: Through analysis of the strategic alliance success factors identify the key factors that help the companies to maximize the positive impact of SA on corporate performance.

1.5 Research Questions

The following research questions have been formulated to address the research objectives:

Primary Research Questions: To what extent do the strategic alliances impact on the corporate performance of the firms engaged in these alliances in the oil and gas Industry of UAE?

Secondary Research Questions: What are the factors determining success of the strategic alliances in the UAE oil and gas industry?

Specific Research Question 1: What is the current state of strategic alliances and companies involved in these alliances in terms of their interrelation in the oil and gas Industry of UAE?

Specific Research Question 2: How can the impact of strategic alliance on corporate performance be measured?

Specific Research Question 3: To what extent does strategic alliance impact on corporate performance of the firms involved in these alliances?

Specific Research Question 4: What are the success factors underlying the positive impact of strategic alliances on corporate performance of the firms?

Chapter 2: Literature Review and Hypotheses Testing

2.1 Introduction

The present review of the literature will try to explore the theoretical foundations underpinning the interrelations between companies' corporate performance and their involvement in the strategic alliances. The research literature appears with a broad range of definitions on the key concepts targeted in this study. Under this chapter a review of the key literature on the main concepts employed in this study is also presented and the research hypotheses are developed.

The current review of the literature will be subdivided into six major areas namely: Strategic Alliances, Corporate Performance, Success of the Strategic Alliances, Impact of the Strategic Alliances on Corporate Performance of the firms, Strategic alliances and performance of oil and gas corporations.

The Chapter begins with the description of strategic alliances and theoretical perspectives of their formation. Then theoretical background on the corporate performance of the firms is introduced which is followed by the strategic alliance success factors. The relationships of the strategic alliance success and corporate performance is explained subsequently. Industrial specific inter-ralltions of the SAs and corporate performance are also discussed. Finally, at the end of the chapter the above reviews are summerized in a conceptual framework that comprises the research model and hypotheses are formulated accordingly.

2.2 Strategic Alliances

The attention towards Strategic Alliances has significantly increased over the past decades in contrast to the challenges that arise in the markets as a result of

globalization (Russo & Cesarani, 2017). Modern corporations are large entities with disparate capabilities both tangible and intangible and some of them can be behemoth in their realm of activity such as buyers, suppliers, competitors, financial institutions and production or technology leaders in their industry. Strategic alliance is not a recent phenomenon and there were inter-organizational relationship and linkages ever since the establishment of the private firms as production units and Dutch Guilds, the relationship between the banks and production units, the participating family farms and craftsmen relationships are some of them (Todeva & Knoke, 2003).

In the below sections review on strategic alliances is presented. The first part “Strategy and Alliance” enables us to understand how SAs has evolved as a central part of today’s business environment. Afterwards, the definition of the strategic alliances is presented which are followed with the theoretical perspectives of the formation of the Strategic Alliances central to this study. Finally, in the end of the sub-chapter summary of the theoretical perspectives of the formation of SAs is presented.

2.2.1 Strategy and Alliances

‘Strategy’ has been in existence in the military parlance since time immemorial and Sun Tzu argues that physical strength and size of the army alone is not enough to overcome the enemy and strategy and intellectual acumen is integral for sustaining the military superiority (Giles, 2001, p. 40-49). Similarly, alliance is defined as a formal or informal agreement among different parties to share their resources towards the fulfillment of a common objective and it can be both short-term and long term (Forrest, 1998). Alliances assume complex organizational structures with quite big range of configurations of commitment, goal partners, and investment (Albers et al., 2013). They can be defined as interorganizational relationships wherein partners make

agreement to share benefits and burdens and implement joint actions (Bruyaka et al., 2018). Accordingly, SA is a broader term as it includes all the elements of both strategy and alliances with special relevance to the interest of a company in their attempt to fulfill their strategic intent.

The strategic intent is formed from the current strategic context or the business environment of a firm and it is important to bear in mind that the strategic context of every firm in the digital age is on a flux due to the rapid changes. Strategic Management as an academic discipline took complete form in the late 1980's due to the works of Porter and Mintzberg (Porter, 1996; Mintzberg et al., 1998, p. 18). Porter (1979) argues that the strategy is formulated by firms to cope with the new environment of competitions and strategic positioning is at the heart of strategy formulation. At the same time, Wright et al. (1992, p. 3) explains that the strategy is adopted by top management of a firm to attain the expected outcome that is consistent with their organizational goals and objectives. On the contrary, Mintzberg et al. (1998, p. 3) provided a much more inclusive definition as far as the strategic planning is concerned and advocated that the strategic management includes the cultural, human and the organizational performance as well.

The strategic theories provide differing views as far as the need for strategic planning and management is concerned. Porter (1980) states that strategy becomes essential to derive the competitive advantage over the rivals in any industry for a firm and this is possible only by gaining competitive edge by way of better products, processes or positioning. Mintzberg (1987) have, in turn, advocated that the strategy can be deliberately created to derive superior results in an industry and creating

alliance is one such form of strategy. The alliance effectiveness can be quantified by comparing the results before and after the alliance formation.

The Resources Based View has received much traction in the subsequent years with Mintzberg et al. (1998, p. 276), Hamel and Prahalad (1990, p. 82) stating that the competitive edge is derived from the core capabilities and competencies of a firm. There are different tests that help us in identifying the core competencies and capacities of a firm. For example, the ability of a firm to provide access to different variety of markets and better customer value proposition provided to the end-users are some forms of competencies. Hamel and Prahalad (1990, p. 82-90) further state that the strategic intent aims at the sustainable and the leading position that firm wants to establish in an industry to ensure its progress and survival.

Strategic approaches are often influenced by the external forces as well and the evolutionary perspectives on strategy deals with these market forces and external pressures for the new alliance and strategic partnership formulation. Nelson and Winter (1982) suggests that there are certain routines and patterns that lead to the evolution of certain organizations. Alliances evolve over time, but this theory has received widespread criticism due to its greater emphasis on environment rather than the strategic choice a firm can make in any environment. Another major theoretical approach to the Strategic Alliance can be found on the Transaction Cost Economics. Williamson (1985) claims that every market provides an ideal platform to exchange and the organizations will be more efficient when they engage in these kinds of transactions for the benefit of the firms. The relative efficiency of the firms determines what kind of transactions the firm engages in and what strategic options they possess.

Organizations are exploring continuously to enhance their efficiency and competitive advantage in the backdrop of uncertainty in the market, industry and the global economy. The rigidities in the hierarchy of the organization are another major factor that prevents the firms from keeping pace with the technological advancement and competitiveness. Todeva and Knoke (2003) argue that collaboration, integration and internationalization of the business relations will enable many firms to acquire the latest technology and best practices to better their process, operations and the products. In addition, internal and external processes of the firms may be improved regards to coordination and integration of the alliances which in addition enhances the value of cooperating companies (Mamédio et al., 2019).

2.2.2 Defining Strategic Alliances

Research literature suggests various definitions of the Strategic Alliances, however most of them share common features central to the strategic alliances. Hamel and Prahalad (1989) notice that strategic intent is a key aspect for an alliance to be considered as strategic. Ariño (2002) define SA as a formal agreement between two or more partners which aim at reaching private and common interests implemented through sharing of resources. Yoshino and Rangan (1995) highlight three factors that need to be in place when forming strategic alliances, including remaining legally independent after alliance formation, sharing benefits and managerial control over the performance of assigned tasks and conational contributions in one or more strategic areas, which may include technology or products.

Ireland et al. (2002) define Strategic alliances as cooperative arrangements between two or more business organizations, which aim at realizing competitive performance through share of reciprocal inputs and resources, and meanwhile the own

cooperate identities of the firms should be ensured. Wassmer (2010) defines two types of alliances: horizontal, generally including functional, geographic or business area (e.g., with competitors) and vertical, which may be between partners of different levels (e.g., with clients, suppliers, agents, distributors). Horizontal alliances may improve competitive advantage of a firm engaged in the alliance enabling reduction of the number of potential competitors, while vertical alliances enforce the relationships within its network and promotes competitive advantage (Albers et al., 2013; Ozdemira et al., 2017).

Based on a comprehensive review of key literature Wassmer (2010) summarizes the scope of an alliances described by different scholars including a) the functional dimension (which may include marketing, research, and/or production), b) the value-chain dimension (i.e. horizontal or vertical value chains) c) learning dimension (covering exploration or exploitation aspects) d) capacity of contribution (may differ as similar or different capabilities) e) the knowledge management dimension (which may happen as knowledge accessing or knowledge acquiring). In addition, based on another broad literature review Albers et al. (2013) identified three criteria for SA classifications a) criteria related to activity-domain (in this case the criteria for classification is based on the different tasks the collaborating firms are pursuing together, e.g., joint research, production, etc.) b) criteria related the characteristics of the firms which collaborate (this may include the status of the firms which engage in the partnership, industry affiliation, position in the industry value-chain, etc.), c) criteria related to the alliance structure (this includes the structure of the relationships between the partners, how they are organized, governed, etc.).

The SA is not about creating partnership for the sake of enhancing effectiveness or productivity by pooling each other's resources rather it is all-encompassing and involves the creation of long term business relations in their industry to sustain and control the business for the long run (Tsang, 1998). The better access for market and the economies arising from expanded operations are not without its difficulties and may lead to many challenges and disappointing performance if the collective learning process is not managed effectively (Larsson et al., 1998). Oliver (1990) argues that SA is explored by the collaborating firms to take control over each other organization and resources creating a sort of asymmetry. Furthermore, the institutionalization of the contracts may run into roadblocks derailing mutual cooperation (Oliver, 1990). Strategic Alliances are a sort of hybrid organizational arrangement between the firms and they can differ per their duration (long term and short term), structure (the scales in vertical integration), etc. (Borys, 1989).

Various names are used to call strategic alliances: joint ventures, collaborative ventures, interfirm partnerships and networks in both practical research and academic writings (Culpan, 2009). Cooper and Gardner (1993) posit that strategic alliances are not only tools for bringing corporate entities together but work to create influential networks that improve the performance of the collaborating corporate entities. Kinderis and Jucevicius (2013) specify several motives for formation of SAs, among them are better and faster access to technologies, ability to establish in new markets, reduction financial and political risks, profit and added value generation.

Culpan (2009) differentiates two principal dimensions ease the simple classification of the SAs a) how many business organizations are participating in partnership (e. g. dyadic relationships, multiple relationships, etc.) b) what type of

commitments do the partners have in terms of resources in a SA (i.e., equal or non-equal allocation of resources, the extent capabilities are shared between the partners).

As Todeva and Knoke (2003) note SAs mostly are promoted as formal interorganizational collaborations and a collaboration is a mean which enables the firms engaged in a strategic alliance to achieve their organizational objectives better than in may happen in case of competition. Figure 2.1 displays the different types of market transactions among the participating firms and the Hierarchical Relations on the top is about one firm taking full control over other firms' assets and employees to form a single unit. In the case of the Strategic Alliance, the firms continue to operate as separate legal entities even after the alliance is established and the partners will share the benefits of the tasks as per the agreement while monitoring and managing the tasks as predetermined by the parties and SA can involve two or more parties. Table 2.1 shows different types of inter-organizational relations.

Table 2.1: Types of Inter-Organizational Relations

Inter-organizational	Details
HIERARCHICAL RELATIONS	Through acquisition or merger, one firm takes full control of another's assets and coordinates actions by the <u>ownership rights mechanism</u>
JOINT VENTURES	Two or more firms create a jointly owned legal organization that serves a limited purpose for its parents, such as R&D or marketing
EQUITY INVESTMENTS	A majority or minority equity holding by one firm through a direct stock purchase of shares in another firm
COOPERATIVES	A coalition of small enterprises that combine, coordinate, and manage their collective resources
R&D CONSORTIA	Inter-firm agreements for research and development collaboration, typically formed in fast-changing technological fields
STRATEGIC COOPERATIVE AGREEMENTS	Contractual business networks based on joint multi-party strategic control, with the partners collaborating over key strategic decisions and sharing responsibilities for performance outcomes
CARTELS	Large corporations collude to constrain competition by cooperatively controlling production and/or prices within a specific industry
FRANCHISING	A franchiser grants a franchisee the use of a brand-name identity within a geographic area, but retains control over pricing, marketing, and standardized service norms
LICENSING	One company grants another the right to use patented technologies or production processes in return for royalties and fees
SUBCONTRACTOR NETWORKS	Inter-linked firms where a subcontractor negotiates its suppliers' long-term prices, production runs, and delivery schedules
INDUSTRY STANDARDS GROUPS	Committees that seek the member organizations' agreements on the adoption of technical standards for manufacturing and trade
ACTION SETS	Short-lived organizational coalitions whose members coordinate their lobbying efforts to influence public policy making
MARKET RELATIONS	Arm's-length transactions between organizations coordinated only through the price mechanism

Source: (Todeva & Knoke, 2003)

Vyas et al. (1995) state that SA crops up across the globe due to structural changes in many industries. The authors are of the opinion that most of the traditional industries have matured and new technology and innovative ideas are needed to maintain competitiveness and to enter the foreign market for business sustainability (Vyas et al., 1995). The authors identified six dimensions (see Figure 2.1) for the

fulfillment of the SA and to keep pace with the evolving management styles of the modern corporations. The mutual sharing of the resources, capital and the technology will allow the firms across the entire spectrum of the industries from apparel to the aerospace to reap the rewards of SA if it is based on mutual trust and collective management and monitoring of the tasks.

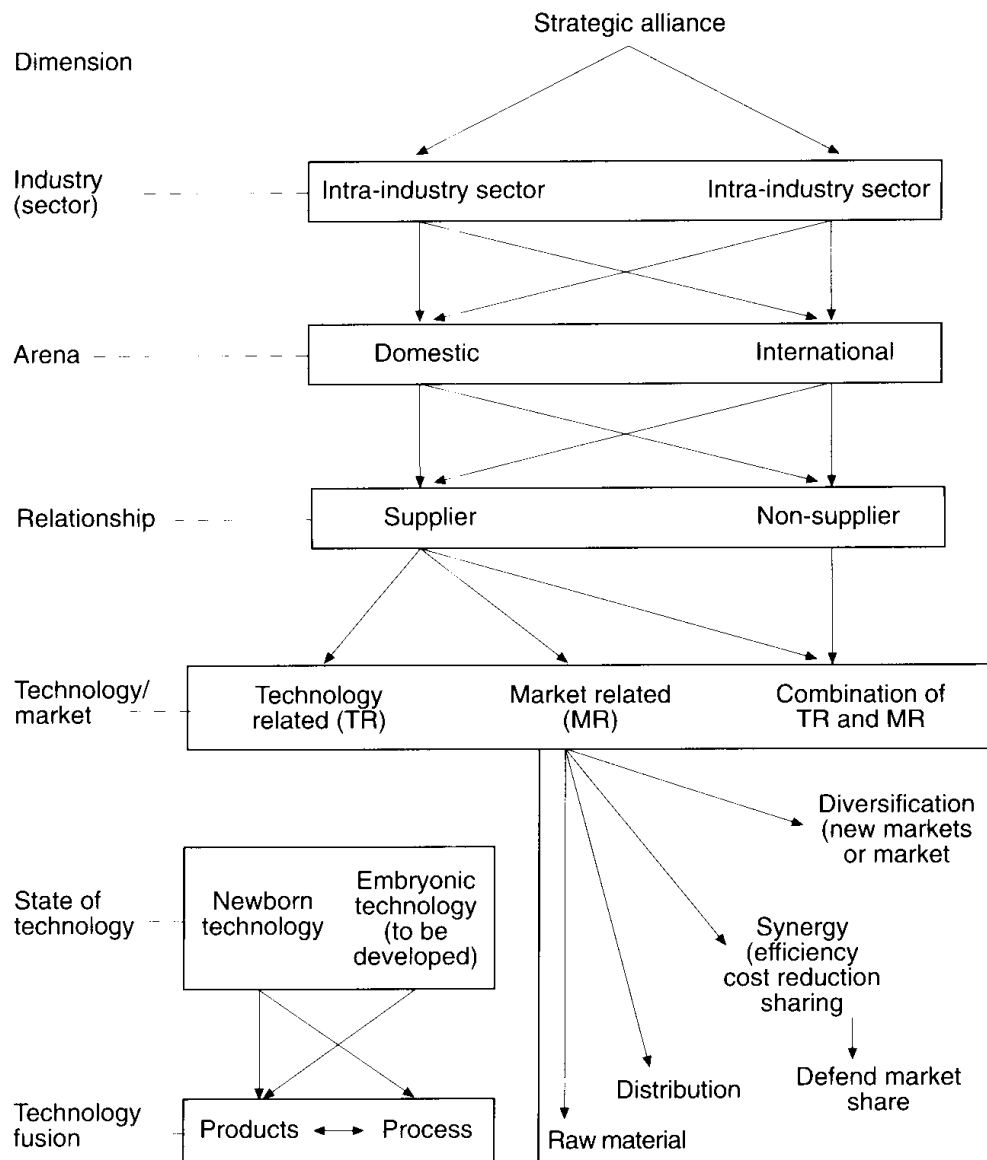


Figure 2.1: Strategic Alliances Dimensions
 Source: Vyas et al. (1995)

In this study, the strategic alliances is defined as voluntarily collaborative arrangements (which can be formal or informal) between two or more firms in which “firms pool their resources in an effort to achieve mutually compatible goals that they could not easily achieve alone” (Franco, 2011) involving exchange, sharing, or co-development of products, technologies, or services (Gulati, 1998). The key characteristics of strategic alliances include common/shared objectives and they can be both short-term and long term (Forrest, 1998). The conditions required to form a strategic alliance includes the following: maintenance of the own independence of the firms engaged in the partnership, and sharing of the benefits as well as control (Shaikh, 2007). The collaborative structure may differ including but not limited to joint ventures, licensing and unstructured co-operation, consortia, etc. (Butler, 2007).

2.2.3 Theoretical Perspectives of the Formation of Strategic Alliances

Organizations constantly strive to achieve new efficiencies and gain competitive advantage over their rivals, to provide a higher value proposition to their valued customers, and to optimize the shareholders returns. The general strategic challenges and opportunities are key drivers for SA formation (Child & Faunkler, 1998).

Strategic Management literature is replete with interesting schools of thought that provides a rare insight into the alliance creation. There are many theoretical perspectives that can give us the basis on which the firms pursue the cooperative strategies. The present chapter gives emphasis on discussing these schools of thought and perspectives and how they contribute to the alliance formation and strategic thinking. Strategic alliances are integral to the realization of various objectives by the partners. The dynamic nature of the contemporary markets and industries has created

the need for corporate entities to engage in cooperative arrangements with defined goals in focus (Gulati et al., 2012). Corporate entities enter alliances to ensure they have solutions to challenges of various kinds that may include but not limited to quality, resources, costs and competitiveness. The diverse forms of factors leading to the formation of alliances gives rise to the theories of strategic alliances (Grant & Baden-Fuller, 2004). The theories on strategic alliances are vital in giving an insight to the concept on various aspects and defining the features that create a distinction between one type of a strategic alliance and the other. The schools of thought regarding the issue of strategic alliances are wide and resourceful. Indeed, there exists no theory that exclusively explains the concept and practice of strategic alliances (Tjemkes et al., 2017). The existence of various perspectives concerning to the solitary issue of strategic alliances has ensured that several theories are recalled to explain the concept of strategic alliances (Grant & Baden-Fuller, 2004). A good number of theories have been investigated by a diversified range of literature and they include resource-based theory, game theory, transaction-cost theory as well as knowledge-based theory (Porter, 1991). The aim of this part is to investigate and commend on the various rationales that surround the concept of strategic alliances by organizing literature and bring into perspective various theories that enlighten on strategic alliances.

2.2.3.1 Positioning in Industrial Organization

The industry that a firm is involved in, and the external environment have a greater say and impact on the strategy of the firm and so does relative performance of the firm in that industry. Porter (1991) states that industry analysis of a firm gives emphasis on the concept of positioning or industry organization as it provides a systematic and rigorous approach to evaluating the relative strength and weakness of

a firm (p. 611). Similarly, Culpan (2002) claims that barrier to entry and exit in the industry, the differentiation of the product, and the power of the suppliers can also affect the performance of a firm to great degree (p0.21). Positioning strategy received widespread acceptance after the introduction of Porter's competitive forces (1980) and Mintzberg strategies (1998). The premise of Industrial Organization is since firms are blessed with only few strategies or positions in any industry and gaining an edge over the rivals is integral to maintaining their positions in the industry. Mintzberg et al. (1998) argue that the strategy formation of a company is a deliberate process involving well thought-out strategies. The IO or positioning perspective view the strategy of alliance to gain the competitive edge over the rivals in any industry or ensure their strategic position by making use of deliberate strategic planning and processes. Alliance creation is premised on the quantifiable gains by at least one strategic alliance partner, without taking into consideration the inefficiencies that may arise from the strategic alliance (Mintzberg et al., 1998).

2.2.3.2 Resource Based Theory

This theory has its foundations in the works of Penrose in the mid-20th Century (Kor & Mahoney, 2004). Since its formulation, the resource-based theory has become increasingly popular strategy for gaining competitive advantage in various markets both locally and internationally (Porter, 1991). The theory posits that an organization is a combination of resources both human and non-human towards the accomplishment of defined objectives. The theory asserts that to any organization, the resources are always limited, lack perfect substitutes and are imperfectly imitable (Andersen & Kheam, 1998). The foregoing factors thus create the need to have alliances which

enables the organizations to create a pool of resources which aid the accomplishment of their individual objectives (Das & Teng, 2003).

The resource-based theory considers a strategic alliance as a mechanism by which organizations seek to benefit from the resources of other organizations thus making the decision to partner (Tjemkes et al., 2017). To maximize the value of the unique resources the firms move towards building strategic relationships in which resource configuration takes place (Robson et al., 2018). When combined, the resources allow the firms to achieve a strong competitive advantage difficult to be replicated by the competitors (Russo & Cesarani, 2017).

The resource-based theory asserts that the resources available to an organization is key to its performance in the market. The theory assumes that the firms in an industry exhibit high levels of heterogeneity in terms of the resources at their disposal with the resources being highly immobile across the firms in the same industry. The heterogeneity of resources is crucial for each firm in the industry to be competitive. It is the assertion that organizations and corporate entities would lack basis of competition if they had in their disposal homogenous pool of resources that ensured they were equal or equal (Barney, 1991). The more heterogeneous an organization is in the industry the more it can effectively and sustainably gain competitive advantages. Superior resources accessible to an organization in the industry improves its chances of being competitive (Das & Teng, 2000). Outsourcing has gradually become one of the decisions that firms have relied on in order to form SA. Outsourcing is in line with the resource-based theory as it ensures that partnering an organization can widen its scope of resources as well as the achieving high levels of heterogeneity (Espino-Rodríguez & Padrón-Robaina, 2006). Finally, according to

the Resource based view alliance success is linked to “crucial role of complementary and idiosyncratic resources”, achieved through SAs (Russo & Cesarani, 2017).

The resource-based theory is subject to several criticisms the most popular being that it only defines the competitive advantage by creating a nexus to the resources. The theory fails to enunciate on sufficiently define the resources and establish their independence (Foss & Knudsen, 2003).

2.2.3.3 The Transaction Cost Theory

The Transaction Based Theory is perhaps the most dominant theory when it comes to the explanations relating to the existence of corporate SAs (Das & Teng, 2003). This theory has been widely used to explain and analyze strategic alliance and joint venture by international scholars in business administration (Meyer & Wang, 2015). The Transaction Based Theory explains the background of transactions between the firms engaged in Strategic Alliances through analyzing their managerial structure, e.g., how there different for example in case of joint venture or other forms of collaborative agreements (Meyer & Wang, 2015).

The minimization of cost is the key element of this theory. A firm or an organization will prefer transactions and operations that cut down on costs thus enhancing their financial performance levels. Whereas the concept of zero transaction costs is a mere fiction, the organizations are keen on ensuring that the costs of transactions are as low as possible (Macher & Richman, 2008). Studies have established that the organizations that take into consideration the transactions costs perform better economically compared to those that do not factors in the transaction costs. Further, the transaction cost theory comes in place to enhance the control an

organization has on its operations and finances (Brouthers, 2013). Russo and Cesarani (2017) describe the logic of transactions cost through illustrating SAs as located between hierarchy and markets as intermediate or hybrid organizations. According to their logic transaction cost supports the selection of equity joint venture where creation of a situation of “mutual hostage” enables to minimize to some extent the risk associated with the partners’ opportunistic behavior. Accordingly, “the choice of an appropriate governance structure” is described to be a main factor for alliance success.

The bid of the transaction cost theory to explain the existence of strategic alliances is faced with various criticisms. There exists a gap in the operationalization of the outcomes of a strategic alliance when it comes to transaction cost economies as there is great variation. Further, the outcomes based on the transaction cost theory can only be assessed by taking a view at just one side of the collaboration (Mjoen & Tallman, 1997). Finally, trust and control which are established to be vital components of the theory fail to be requisitely be analyzed in their contribution to affecting the performance of the collaborating organizations. Lui and Ngo (2004) established that it remains close to impossible to ascertain the levels of trust and control within the alliances.

2.2.3.4 Knowledge based Theory

The knowledge-based theory is another concept of explaining why corporate entities enter alliances and offers an alternative perspective for the reasons of creation and management of alliances engaging different firms (Grant & Baden-Fuller, 2004). Learning, sharing and transfer of knowledge is key to the foundation of strategic alliances based on the knowledge theory.

The theory is derived from the resource-based theory that explains why firms are keen to ensure they collaborate with other with a purpose to gain a competitive advantage and enhance their levels of performance. It is the assertion of the knowledge-based theory that alliances provide the partnering entities with a learning environment. The organizational learning perspective in place ensures that the partnering entities are able have better knowledge of the markets and enhance their positions through competition learning (Hamel, 1991).

March (1991) identified two main dimensions that knowledge based theory focuses on when it comes to alliances. The first dimension is the activities and interactions between organizations that facilitate the expansion of knowledge of a company also referred to as exploration. The dimension involves generating knowledge on various aspects of operation, production and the markets. The second dimension focuses on the execution of decisions based on the already existing information in order to generate value. The foregoing reflects that there exists the knowledge generation and application dimensions that make it possible for the collaborating firms to acquire and make value out of the information within their scope with the use of diversified mechanisms (Hamel , 1991). The interest of the partnering corporations is to learn from the core competencies of each other subsequently taking initiatives to improve their own to enhance their performance levels (March, 1991). According to Russo and Cesarani (2017) knowledge based view SA foster mutual learning and promotion of new skills and capacities based on high degree of trust and commitment developing “social capital”, a key factor for SA success.

The theory is criticized for the dynamics that surround the organizations in both the internal and external environments. Jiang et al. (2016) for example claim that

though SAs may become a popular vehicle for organization learning and knowledge exchange, they also have a risk of knowledge outflow to partner. Knowledge is fast changing and growing thus the reliance on the knowledge from a partner creates uncertainties that taint the concept of knowledge-based theory in the formation of SAs (Grant & Baden-Fuller, 2004).

2.2.3.5 Dynamic Capability and Alliance Capability View

Dynamic Capabilities (DC) is a view derived from Resource-Based theory and it gives another type of perspective to analyze and introduce the conditions underlying SA creation. Currently DC is of broad interest for researches of engaged in the field of management and strategic management and this view is widely used to explain the conditions underlying SA success (Mamédo et al., 2019). It suggests that firms exist in a dynamic environment and due to this they need to identify the most suitable ways to integrate, renew, reconfigure and recreate their resources to be able to compete with the other firms through enhancement of their productivity and resources (Russo & Cesarani, 2017). In addition to the relationships between the partners, alliance management capabilities also become a key factor for alliance success (Duysters et al., 2011; Schilke & Goerzen, 2010). This suggests that alliance management capabilities are not homogenous and are distributed differently across the firms. For this reason, the performance among the firms is different and “alliance management capabilities” become key factor for SA success (Russo & Cesarani, 2017).

2.2.4 Summary of Alliance Formation Perspectives

Different theoretical perspectives give different views to the conditions and driving factors for the creation and success of the Strategic alliances and a single theory or view is not enough to capture the full picture underlying the complex relationships

in the field of Strategic Alliance (Russo & Cesarani, 2017). For this reason, to have a clear understanding, Russo and Cesarani (2017) recommend to combine the existing theories and views when explaining and analyzing the complex phenomenon of SAs in the global markets. The reasons underlying each perspective of formation of the strategic alliances and key success factors central to them are introduced on Table 2.2.

Table 2.2: Reasons of Formation Strategic Alliances and Key Success Factors for Theoretical Perspective

Theoretical Perspective	Reasons	Success Factors
Transaction Cost Theory	Reducing the sum of transaction and production costs	Choice of the appropriate governance structure that limits the threat of partner's opportunistic behavior
<i>Knowledge Based View & Social Exchange Theory</i>	Knowledge sharing: Knowledge acquisition & Knowledge access	Alliance know-how on alliance management, gained from prior alliance experience. Developing of "relational capital" such as trust, mutual commitment and power-sharing
<i>Resource Based View</i>	Potential value creation of partners' resources, which are pooled together. Partner firms opportunities to access unviable resources and to develop jointly new resources	Partner's complementary resources and development of idiosyncratic ones, during the alliance lifecycle
<i>Dynamic Capability View & Alliance Management Capability View</i>	Reconfiguration of the existing resources. Identification of the best way ,through which partner firms can integrate, renew and reconfigure the bundle of their base resources.	Partner firms organizational and managerial capabilities, which are termed "Alliance management capabilities". Importance of developing "Alliance management capabilities" as a high-order of resources in managing alliance relationship

2.3 Corporate Performance

In this study, it expects that corporate performance of the firms are influenced by the success of the focal strategic alliances in which they are engaged in. There are several conceptual interpretations of “corporate performance” in terms of impact sphere of the strategic alliances, among them are increased profits of the companies (Williamson, 1985), productivity and Return on Assets (ROA) (Goerzen & Beamish, 2005), innovation and synergy (Arora & Gambardella, 1990; Deeds & Hill, 1996), productivity and profitability (Koka & Prescott, 2008), firm’s stock price (Kale et al., 2002), improvement in the decision-making abilities (Eisenhardt, 1999), etc.

It portrays corporate performance from subjective perspective. From the perspective of this study, it is key to understand how corporate performance can be measured and how empirical data on corporate performance can be obtained. Accordingly, the introduction to the concept of corporate performance is followed by several methodological indications on how corporate performance is measured.

2.3.1 The Concept of Corporate Performance

There are different ways to explain and introduce what corporate performance of a firms is denoting, among them is organizations capacity to achieve the market-oriented goals and financial goals set forward (Yamin et al., 1999). Two elements may be critical when explaining the corporate performance of a firm and those include growth and profitability (Antoncic & Prodan, 2008).

Generally corporate performance of a firm is discussed within a framework of corporate performance management perspective. Corporate performance management is a set of managerial and analytical views which enables firms to set their strategic

goals and provides them with tools to measure the progress and performance against the defined goals. Corporate performance management includes several processes that the business should undertake, among them are financial planning, operational planning, internal studies and reporting, business analytics and forecasting, monitoring and evaluation, progress reporting, strategy goal achievement reporting, etc. (Hagos & Pal, 2010).

2.3.2 Measurement of Corporate Performance

As among the research questions is to assess the impact of the strategic alliances on the corporate performance of the firms engaged in these types of alliances in the oil and gas drilling industry in UAE, a question on how to assess improvement or advancement in the corporate performance among the firms arises. There are broad range of studies on corporate performance, among them various measures of corporate performance are proposed. Phillips and Moutinho (2000) suggest to classify corporate performance measures into two broad categories: financial measures, which generally are linked to information related to accounting and are expressed in monetary terms and nonfinancial measures, which are not related to the accounting and are not measured in monetary unit.

The different CP measurement tools may be categorized onto two groups: traditional measures, which include financial measures, such as Return on Investment (ROI), Residual Income (RI), Earning per Share (EPS), Dividend Yield, Price Earning Ratio, Growth in Sales, Market Capitalization and non - traditional measures, which include non-financial performance indicators (Ghosh & Mukherjee, 2006).

Research literature suggest to consider not only financial measures, but rather interpret corporate performance as a composite concept encompassing different measures (Brown, 2006). Kaplan and Norton (1992) for example suggest ‘balanced scorecard’ technique composing financial measures with some other subjective measures, which may include indicators on customer satisfaction, the degree of IT development, innovativeness and progressiveness of the company’s activities, etc. Osborn and Hagedoorn (1997) suggest to consider different measures including but not limited to the product quality, partner satisfaction levels, the market and financial performance. UK Most Admired Companies adopted approach to assess corporate performance in perspective of different stakeholder groups differentiating the following measures: 1) Shareholders perspective (which may include management quality, financial indicators etc.), 2) Customer perspective (which may include marketing, quality of product and services), 3) Employee perspective (top talent recruitment capacities, etc.), 4) Community perspective (Community and environmental responsibility) (Brown & Laverick, 1994).

Based on the above discussion, it is suggested to use subjective indicators to measure corporate performance. Under subjective measures, it is suggested to use two groups of indicators: operational efficiency; capacity building and learning. These indicators can be analyzed in a joint model or interpreted individually in the future processing (Table 2.3).

Table 2.3: Measures of Corporate Performance

Factors	Sources	Components
Subjective measures	Osborn and Hagedoorn (1997), Brown and Laverick (1994)	<ul style="list-style-type: none"> ▪ Operational efficiency ▪ Capacity building and learning

2.4 Success of the Strategic Alliances

The alliance literature and research are characterized by remarkable number of the conceptual frameworks, application of different methods, as well as with different findings and evidences (Lee, 2007). Over the last decade the research literature widely acknowledges the importance as well as complication of identification and analysis of the factors underlying strategic alliance performance, which is partially due to the lack of quantified performance-related data (Zollo et al., 2002).

Despite the perception and practicability of strategic alliances being tools of success for corporations, various studies have estimated that most of the strategic alliances formed end up being dissolved. In global perspective, failure rate of the alliances is quite high and according to some estimates it comprises over 50% (Russo & Cesarani, 2017). The dissolution of a good number of strategic alliances is a clear indication that it does not guarantee corporate entities success. Bruyaka et al. (2018) for example asserts that close to two-thirds of the strategic alliances formed 2002 and 2015 suffered the fate of being dissolved. Further, the fallout between parties to a strategic alliance is a phenomenon that is experienced in the contemporary markets and it is estimated that most of the strategic alliances end up in parties to them parting ways (Bakker, 2015).

Though current theories, e.g., transaction-cost theory, resource-based theory, knowledge-based theory, and positioning perspective view provide explanations for interfirm collaboration formation and existence, the success factors underlying these collaborations still need further investigation. The research literature acknowledges that study of success factors of SA is an interesting and “worth-mentioning” research

topic (Franco, 2011). The sections below introduce the analysis and identification of the factors which may be critical to the SA success.

2.4.1 Measurement of Performance of the Strategic Alliances

Similar to Corporate Performance, the measurement of performance or success of the SAs is a remarkable research topic in international management sphere (Venkatraman & Ramanujam, 1986; Geringer & Hebert, 1991; Yan & Zeng, 1999). The research literature provides us with the wide range of definitions of the SA performance and various types of measures corresponding to distinct levels of performance.

There are different ways to understand and classify whether an alliance between two or more firms may be considered as a successful one or not (Ramaseshan & Loo, 1998). Franko (1971) suggested to use the level of satisfaction of the partners with the SA performance which means an alliance should not be considered to be successful if partners are not satisfied with its performance. There is another term used in research literature to describe SA performance, which is “instability”, however, over the years other criteria of assessment was preferred, particularly, subjective assessment of the all partners perspective on alliance performance (Ramaseshan & Loo, 1998). According to Marxt and Link (2002) SA may be considered to be successful if it supports generation of new business ideas even though the goals set for the cooperations is not achieved.

Venkatraman and Ramanujam (1986) differentiated three dimensions of SA performance: financial, operational performance and organizational effectiveness and the measures found in the literature may also be classified into financial (Baradzich

2017; Geringer & Hebert, 1991), operational (Geringer & Hebert, 1991; Yan & Zeng, 1999) and organizational effectiveness (Geringer & Hebert, 1991; Beamish, 1988) measures.

Under financial measures different types of financial indicators are included such as profitability, growth, return of assets, etc. (Ramaswamy et. al., 1998; Geringer & Hebert, 1991). Ariño (2002) notices that financial performance measures are adequate in case firms engage in SA pursue some concrete financial goals. Operational measures refer to the stability aspects of the SA and include measures which refer to the life duration of the SA, contract sustainability and viability (Yan & Zeng, 1999). However, as Yan and Zeng (1999) note the life-duration of the strategic alliances is not the key factor to determine whether the alliance is successful or not. Ariño (2002) also indicates that its stability-related measures are not always valid and adequate measures of the strategic alliance performance. The third types of measure are organizational effectiveness measures, which refer to the overall satisfaction of the business organization with SA performance (Geringer & Hebert, 1991; Parkhe, 1993; Ozorhon, 2008) and the goal accomplishment (Beamish, 1988; Ariño, 2002). Ariño (2002) outlines that the organizational effectiveness is the most profound dimension of the above mentioned three and among this measure the researchers most frequently use measures relating to the partner's satisfaction with the SA performance. Another aspect of this dimension is the degree of achievement of strategic goals (Beamish, 1988; Parkhe, 1993; Ariño, 2002; Hoang, 2005), be these common or private (Ariño, 2002). Last but not least, Ariño (2002) suggests another measure under organizational effectiveness dimension - net spillover impact of the SA on the company's other operations which is measured as a difference between positive spillover effects and negative spillover effects referring to the non-SA operations.

To evaluate SA's performance Zollo et al. (2002) focus on two factors: 1) The overall achievement of its targets by the business in the alliance and 2) The degree to which the relationship leads to the acquisition of expertise by the company and the development of new opportunities for the company. Baird et al. (1990) describe alliance success as organization's ability to survive through a partnership as well as the improvement of profitability the partnership impacted on.

Based on comprehensive literature review Baradzich (2017) differentiated four general approaches of the existing definitions of SA performance as follows: 1) Multidimensional performance which include subjective consideration of different aspects of an alliance's success 2) Overall performance which include Subjective measurement of an alliance's overall performance (as a rule measured on a 5 to 7 point Likert scale), 3) financial results of an alliance's perceived financial performance (as a rule measured on a 7 point Likert scale or is measured via objective measures of profitability 4) Goal achievement which is a subjective evaluation of achievement of objectives (as a rule measured on a 5 to 6 point Likert scale, or as a dichotomy measure).

In overall, the approaches found in the literature regarding assessment of SA success, it can be grouped onto two general groups: objective measures and subjective measures. Objective measures include quantified indicators, such as instability, survival and duration rates financial performance indicators, etc. Subjective indicators include the degree of performance satisfaction, goal achievement, assessment of the partner's level of satisfaction, etc. Though there is distinction between the objective and subjective measures, some of the research found a positive interrelation between these two groups of measures and one could be used in place of the other (Ramaseshan

& Loo, 1998). Generally, five or seven-point Likert scales are used to assess the subjective measures of SA performance (Ramaseshan & Loo, 1998; Ariño, 2002; Baradzich, 2017).

Given the above discussion, it is proposed to rely on subjective measures for alliances' success measurement which can be interpreted through the perceived efficacy of the partnership by the partner. It is suggested to rely on organizational effectiveness measures (Beamish, 1988; Ariño, 2002; Geringer & Hebert, 1991) expecting that these measures are more comprehensive compared to the others. This will enable us to use simple Likert-scale variables and combine several measures with comparable dimensionality into a single measurement model tapping the same hypothetical construct. Accordingly, the following subjective measures have been integrated into a single measurement scale: firms' overall satisfaction with SA performance (Franko, 1971; Geringer & Hebert, 1991; Parkhe, 1993), subjective assessment of goal accomplishment (Beamish, 1988; Parkhe, 1993; Ariño, 2002; Hoang, 2005), subjective assessment of the firm's improved knowledge contributed through a collaboration (Zollo et al., 2002), subjective assessment of the degree to which the collaboration contributes to creation of new opportunities for the firm (Zollo et al., 2002), subjective evaluation of general success of a SA (Baradzich, 2017; Ozorhon, 2008).

The variables involved in the measurement scale are introduced on Table 2.4. These identified variables will be used while developing a quantitative survey questionnaire.

Table 2.4: Measures of “Success of Strategic Alliance”

Measure	Sources	Specification
SA overall performance	Franko (1971), Geringer and Hebert (1991), Parkhe (1993)	Subjective assessment of the degree to which the firms involved in the SA are satisfied with its overall performance
Goal accomplishment	Beamish (1988), Parkhe (1993), Ariño (2002), Hoang (2005)	Subjective assessment of the degree to which the objectives and goals defined for SA are accomplished
Accumulation of knowledge	Zollo et al. (2002)	Subjective assessment of the degree to which the collaboration contributes to the firm's accumulation of knowledge
New opportunities	Zollo et al. (2002)	Subjective assessment of the degree to which the collaboration contributes to creation of new opportunities for the firm
Overall success	Ozorhon (2008), Baradzich (2017)	Subjective evaluation of overall success of an alliance

It is assumed that it is possible to measure SA success through the identified variables introduced on Table 2.4. To verify this assumption statistical tests will be performed, such as Chronbachs’ Alfa reliability test. In case the variables perform poor ability to tap the same measurement construct a single variable will be identified to introduce SA success measure.

2.4.2 Success factors of the Strategic Alliances

The research literature appears with different approaches on classification and categorization of the strategic alliance’s success factors. There are several worthy

empirical researches on underlying success factors of alliance-partners' interrelations key findings of which are introduced subsequently.

Todeva and Knoke (2003) outline the factors which are essential to strategic alliance success including trust, shared understanding, unlimited learning, and knowledge-sharing between organizations, which enable achieving a high degree of collective decision making at both strategic and organizational levels. Hoffman and Schlosser (2001) categorized the independent factors which affect the success of alliances into two groups: content-orientated measures and process-orientated measures. The first group of characteristics refer to the alliance substance ("what") which reveal themselves during strategy implementations, refers to the structure and systems such as orientation and system configuration of the alliance. The second group of the factors are linked to the inter-organizational partnership creation processes ("how") covering such matters as trust-building and shared understanding. 1) A strategic review and partnership decision 2) Search for a partner, 3) Relationship design, 4) Partnership implementation and management, 5) Partnership termination.

Baradzich (2017) categorized the variables that define the features of the collaborative process and its tools of informal governance based on the meta-analytical study into the following dimensions: 1) the dimension of collective engagement (unilateral control by one partner, equal participation and formalization); 2) the dimension of joint enterprise (transparency, commitment and disagreement); 3) the dimension of shared repertoire: learning and trust. Charles et al. (2007) outlined three factors underlying success of strategic alliance: assisting the partner company to achieve its long-term aims and objectives, shared vision regarding the role and purpose of alliance by the partners, trust between the partners. Albers et al. (2013) Indicate five

elements of the organizational structure of the Alliance: a) interface and b) intraface dimensions (i.e. involvement of organizations members and their connection with each other, as well as across the businesses involved in the partnership c) specialization (i.e. to the extent to which alliance organizational participants focus solely on alliance management targets) d) formalization (i.e. codification and standardization of alliance activities) e) centralization of alliance activities (i.e. decision-making authority allocation within the partnership). Schilke and Goerzen (2010) suggest 5 dimensions to measure alliance management capability including the following sub-dimensions: organizational routines of inter-organizational cooperation, coordination of the alliance portfolio, inter-organizational learning, constructive alliance and transformation of the alliance.

Franco (2011) advises to study four dimensions when examining strategic alliance success: (a) relationships and fit, (b) balance and organizational culture, (c) interaction between the partners and (d) governmental policies and past experience. He also identified and clustered the two types of determinant factors important to the performance of alliances: structural and process factors. Structural variables encompassed three dimensions: Compatibility, Partner selection, Government policies. Under process factors four dimensions are included: Human resources, Trust and commitment, Control and power, Interfirm culture. Under those dimensions a list of factors that can impact to SA success have been withdrawn which can be interpreted as variables and indicators of the future measurement constructs (Table 2.5).

Table 2.5: Variables and Indicators of the Future Measurement Constructs

Factor	Variable	Indicator
Structural	Compatibility	<ul style="list-style-type: none"> ▪ <i>Mutual objectives and strategies</i> ▪ <i>Equitable contributions</i> ▪ <i>Communication and reward policies</i> ▪ <i>Organizational structure</i> ▪ <i>Management styles</i>
	Partner selection	<ul style="list-style-type: none"> ▪ <i>Complementary of resources</i> ▪ <i>Personality of the entrepreneur</i> ▪ <i>Previous experience of alliances</i> ▪ <i>Trustworthy collaborators</i> ▪ <i>Professionalism, honesty and responsibility</i> ▪ <i>Knowledge of market conditions</i>
	Government policies	<ul style="list-style-type: none"> ▪ <i>Government incentives and support</i> ▪ <i>Action from European Union</i>
Process	Trust and commitment	<ul style="list-style-type: none"> ▪ <i>Mutual Trust</i> ▪ <i>Planning</i> ▪ <i>Prior history</i> ▪ <i>Commitment</i>
	Human resources	<ul style="list-style-type: none"> ▪ <i>Good and personal relationships</i> ▪ <i>Frequent contacts</i> ▪ <i>Informal bonds</i> ▪ <i>Relational capital</i> ▪ <i>Recruitment and selection</i>
	Control and power	<ul style="list-style-type: none"> ▪ <i>Balance of power</i> ▪ <i>Identical control</i> ▪ <i>Balance of partner's strengths</i> ▪ <i>Firm's size</i>
	<u>Interfirm culture</u>	<ul style="list-style-type: none"> ▪ <i>Nationality</i> ▪ <i>Communication mechanisms</i> ▪ <i>Information systems</i> ▪ <i>Learning</i>

Source: Franco (2011) "Determining Factors in the Success of Strategic Alliances"

Ramaseshan and Loo (1998) identified and investigated five factors underlying the success of SA: 1) inter-organizational trust, 2) partnership engagement and commitment, 3) inter-organizational coordination, 4) unstable conflict and 5) power imbalances to determine the factors shaping the views of a partner about the efficacy of their strategic alliances. The alliance lifecycle has been divided into three main phases by Russo and Cesarani (2017), which are establishment, operational and evaluation phases. The also identified the key factors underlying the SA success as

follows: choosing the appropriate form of alliance governance; social capital development; complementary resources; alliance management capacities. According to Russo and Cesarani (2017) the companies involved in partner selection activities have to consider three basic criteria: partner complementarity, which refers to the concept of strategic fit and complementary resource coordination to bridge the gap between partners; partner congruence, which refers to the coordination of the priorities and goals of the partners; and partners compatibility, which refers to the cultural and organizational fit of partners.

With the aim to identify the key factors relevant for the success of alliances, it is built on the strategic alliance theories and views, including Transaction-Cost theory, the Resource-Based, Knowledge-Based strategic theory, Dynamic Capability and Alliance Capability View, Positioning in Industrial Organization view. Russo and Cesarani (2017) propose that each theory is useful to explain a success factor during the lifecycle of the alliance, and it is important and useful to incorporate all the theories found to provide a better picture of the competitive alliance phenomena in global markets. Any of the three analytical viewpoints adds to the system and presents its own list of the independent variables that impact the effectiveness of partnerships (Hoffman & Schlosser, 2001).

Under this study a group of key factors that are associated with the success of alliances, identified building on the SA theories and literature review, are clustered around three categories: strategic factors, tactical factors and operational factors. Each of these factors capture different levels and different aspects of SA success. The factors are introduced in the subsequent sections in more detail.

2.4.2.1 Strategic Factors

Strategic factors are overarching factors which generally are considered during strategic alliance formation stage and underlie the company's strategic analysis and decision to co-operate. During strategic alliance formation phase the companies demonstrate their interest in creating a strategic alliance; they evaluate the motives and possible advantages of the alliance, pick partners and choose the most suitable form of alliance management cooperation. (Russo & Cesarani, 2017). As Kohtamäki et al. (2018) suggest, alliances are usually established at the firm level to develop and enhance core competencies and to advance corporate priorities rather than aim at resolving tactical and organizational problems.

Russo and Cesarani (2017) suggest two key factors critical for this phase: selection of a partner and choosing of the most effective governance method for alliance management. Thus, strategic factors may be viewed as some kind of primary variables or given factors taken into strategic alliances when forming it.

Under strategic factors, it identified three key dimensions: Mutual objectives and strategies, Power and contribution, Trust and Commitment. Each of this dimension is explained in detail subsequently.

- Mutual objectives and strategies

Companies engaged in SAs need to strive at a certain degree of fit between each other during the formation and for the overall partnership lifecycle and a high degree of fit among the partners contributes to the success of the strategic alliance (Russo & Cesarani, 2017). The partners will be more devoted to the alliance in case common vision is in place (Spralls et al., 2001). Understanding and alignment of

priorities between partners participating in strategic partnerships are crucial criteria for the effectiveness of inter-organizational relationships (Taylor, 2005). Partner alignment refers to the compatibility of partners' priorities and expectations, and partners must identify consistent and compatible goals in order to achieve success (Russo & Cesarani, 2017). Difficulties can occur when parties do not completely agree on the intent of a partnership and the mechanism by which its aims should be accomplished (Rai et al., 1996).

- Power and contribution

Several researchers outline that the disparities in the resources that each partner organization contributes and manages may lead to organizational power imbalances in the strategic alliances. Thompson (1967) claims that one of the most critical aspects of choosing partners is complementarity of the contributed resources. Accordingly, the choice of a partner has a huge effect on the success of an alliance, as that choice dictates the alliance's combination of expertise and capital (Harrigan, 1985). On the other hand, disproportionate superiority by a partner may lead to failure of the alliance as the other partner, merely limited with technician role, will become less motivated and committed to ensure high level of alliance performance (Rai et al., 1996).

Under power and contribution dimension, the alliance governance form is also equally important. The second core task of the forming process is the identification of the most suitable governance form for alliance management, which decreases the likelihood of opportunistic actions (Russo & Cesarani, 2017).

- Trust and Commitment

The soft side of partnership management is trust and dedication (Russo & Cesarani, 2017). At the company level, trust is correlated with the positive experiences in the past and adequate expectations for the future among the transacting companies; trust typically decreases potential risks while carrying out potential transactions (Todeva & Knoke, 2003). Hofmman and Schlosser (2001) suggest that sociological theories and the principle of transaction costs theory show the value of existing trust relationships between the partners engaged in cooperation, and if businesses can expand on an established trust-based relationship, the likelihood of a new joint venture succeeding will improve. Trust among alliance partners is important to address the initial concerns of competitive rivals regarding potential partner opportunism, which can hinder the effective execution of their collaborative targets; trust and reciprocity requirements have proven to be critical for SA success (Todeva & Knoke, 2003). Das and Teng (1998) state that the performance of the firms in the SA will be dependent on the trust. They further argue that the opportunistic behavior of the partners can imperil the projects. Butler (2005) outlines that trust and confidence is critically important especially for the firms in the Middle East where effectiveness of cross-border strategic partnerships is build on trust and the styles of arrangement preferred by parties. Another factor is commitment. Anand and Khanna (2000) claim that rrThe working and cohesion of the partnership will be more effective in case high level of commitment is in place between the partners (Anand & Khanna, 2000). On the other hand the level of commitment demanded by other party company should be reasonable and adequate (Franco, 2011).

2.4.2.2 Tactical Factors

Tactical Factors are generally those which reveal themselves during operational phase and are closely related to the interactions between the partners. They evolve and reveal during alliance implementation process and gradually influence on strategic alliance success. In this stage, according to Das and Teng (2003) partners are actively interacting with each other and a risk of conflicts or misunderstanding increases, accordingly communication becomes a very critical factor for alliance success. Under tactical factors the following three dimension have been identified: Transparency and information exchange, Learning, Cultural Fit.

- Transparency, communication and information exchange

Research literature suggest that transparency, communication and information-sharing is a remarkable element of the success of SA. Larsson et al. (1998) emphasize that the nontransparent withholding of information prevents mutual learning, and that one partner's non-reciprocal intent undermines the other partners' willingness to cooperate. Both sharing and accusation of knowledge assumes some level of simultaneous openness and receptivity within the organization at any stage. For inter-company cooperative relationships, free and prompt communication is important (Das & Teng, 1998). Russo and Cesarani (2017) claim that communication is a significant and important aspect for SA success; it collects data on each partner's trustworthiness, helps to resolve potential disputes, integrates potential differences and facilitates cooperation between different hierarchical levels. The authors also emphasize that in order to increase the probability of alliance success, it is important that information exchange between partners happens in timely manner and is accessible, and that feedback is reliable and accurate.

- Learning

Access to expertise is the primary and key benefit of strategic alliances. SAs may enhance knowledge specialization (Grant & Baden-Fuller, 2004). The research literature emphasises importance of inter-organizational learning as a primary goal and motive of formation of strategic alliances. Todeva and Knoke (2003) mentioned that with great expectations, most of the companies enter into partnerships to learn from their partners, to create new products and technologies, to learn about the new markets and this can be a primary goal of creation of alliance. Lin and Wu (2014) suggest that external resources that the firms involved in an alliance own and manage are transformed through the knowledge sharing process, obtained during alliance implementation.

According to some perspectives interorganizational learning is a mutual accumulation of knowledge between the organizations engaged in partnership, and this form of learning differs from organizational learning as it also assumes synergetic learning as well as interaction impacts between organizations that would not have occurred if no interaction had occurred (Larsson et al., 1998). Grant and Baden-Fuller (2004) suggest that through strategic alliances the firms have advantage in “accessing” more than “acquiring” knowledge and gain advantage in application of knowledge.

Organizational learning takes place when an organization obtains, assimilates and uses new data, expertise and skills that strengthen its long-term success and competitive advantage (Todeva & Knoke, 2003). Inter-organizational learning assumes transfer of knowledge from one organization to another during the interaction process and in addition completely new knowledge may be generated as a result of interaction among the organizations (Larsson et al., 1998). Larsson et al. (1998) argue

that the management of the joint learning process by collaborators plays a crucial role in the success or failure of a strategic partnership, and organizations are likely to learn more collectively when both select highly open and responsive shared learning techniques.

- Cultural Fit

Based on integrative literature review approach López-Duarte (2016) outline the importance of cultural factors or shared cultural framework when analyzing the features, management and evolution of strategic alliances: In the absence of a common cultural context, governance challenges in collaboration relationships are exacerbated, communication mechanisms are hampered, and partners have the potential to establish and sustain trust within the coalition. Lack of common culture hinders flows of knowledge and mechanisms of organizational learning.

When introducing partners' compatibility Russo and Cesarani (2017), Russo and Cesarani (2017) refer to 'cultural fit' among the partners couples. Cultural fit ensures that the partners are sensible towards each other's diverse cultures and want to incorporate these disparities in the interaction process (Child et al., 2005).

In case the partners engaged in an alliance do not have much common features, implicit understandings and expectations taken for granted can be seriously broken (Todeva & Knoke, 2003).

Meirovich (2010) also highlights that common cultural features and a common language between partners positively impact the degree of alliance success and success of SA is more possible for the partners which are from the same nationality, have common cultural belongings and there are no linguistic barriers.

Butler (2007) argues that in the UAE, interpersonal communication, common values, and corporate culture are essential pillars of business, and are essential in terms of relationships between firms. Meanwhile he found out that communication is the biggest problem in strategic alliances for Emirati firms which is followed by Decision-Making Authority, Cultural Disparities, Confidence Abuse and Disputes about Equipment Requirements. Where there are a lot of partners engaged in joint projects and/or strategic partnership is between large firms with complicated hierarchic management communication can be less efficient.

2.4.2.3 Operational Factors

Operational factors are generally process-orientated factors which are driven from the theories of interorganisation and general concepts of management and leadership. Those factors involve two dimensions: Operational control and Organizational fit. They are distinct from the tactical factors in way that they refer more to the management patterns that unfolds during the alliance operation rather than communication patterns. Thus, operational factors generally include established formalized mechanism which support alliance operation and daily management.

- Operational control and coordination

Operational control and coordination factors refer to those which allows efficient daily management of strategic alliances and enable companies to reach stability and balance in alliance interactions regards to the established procedures and defined roles and responsibilities within the alliance. Control is defined as a range of rules and procedures which enables to mitigate opportunistic behavior of a partner and make it more predictable and direct the actions to the benefits of the alliance. For the

sustainability of the partnership, it is important for organizations to set an acceptable degree of control that enables participants to align collaboration aspects with competitive aspects (Russo & Cesarani, 2017). Coordination is characterized as a series of activities that each participant wants the other to undertake in order to accomplish mutual goals (Mohr & Spekman, 1994) and an effective structure for their continuing relationships should be established by firms and companies, consisting of guidelines, policies and procedures that govern cooperation (Varma et al., 2015). As Schilke and Goerzen (2010) suggest not only relationship among partners is important for alliance success but also each firms' alliance management capabilities.

Among the operational control and coordination factors alliance performance monitoring and evaluation is another important factor for SA success (Tjemkes et al., 2017). The success evaluation of an alliance is a very important aspect because it reflects improvement over the life span of the Alliance. (Russo & Cesarani, 2017) and it gives information to the partners to consider whether an alliance needs improvements or dissolution. (Tjemkes et al., 2017). Systematic analysis could be more critical in case there is no background of collaboration between different firms which want to collaborate (Rai et al., 1996).

- **Organizational fit**

Other chief aspect of success or loose of an alliance is the level of organizational compatibility between the cooperating firms. It is important for the organizations to have mutual mental compass on business assumptions and operating procedures (Kanter, 1994). Through organizational fit, it means that partners are able to adapt to different management strategies of other firms, organizational culture, processes and working practices of each other (Park & Ungson, 1997). Poor

performance of a SA may be due to divergences in management style and culture (Hennart & Zeng, 2002).

2.4.3 Summary of Success Factors and Hypothesis

As introduced above, it is proposed to group success factors into three dimensions: strategic factors, tactical factors, operational factors. These dimensions, in turn, consist of sub-dimension which are introduced on Table 2.6.

Table 2.6: Measures of “Success Factors”

Factors	Sources	Components
Strategic factors	Butler (2007), Franco (2011), López-Duarte (2016), Russo and Cesarani (2017)	<ul style="list-style-type: none"> ▪ Mutual objectives and strategies ▪ Power and contribution ▪ Trust and Commitment
Tactical factors	Butler (2007), Franco (2011), Baradzich (2017), Russo and Cesarani (2017)	<ul style="list-style-type: none"> ▪ Transparency, communication and information exchange ▪ Learning ▪ Cultural Fit
Operational factors	Franco (2011), Russo and Cesarani (2017)	<ul style="list-style-type: none"> ▪ Operational control ▪ Organizational fit

The list of the success factors to be engaged in the analysis is constructed in a way to cover all potential aspects which may underlie the success of the strategic alliances. These factors will be integrated into the research questionnaire and analyzed through statistical analysis. According to the obtained empiric data and statistical analysis “critical” success factors of success will be determined. Those factors apply to factors that significantly affect success (Hoffmann & Schlosser, 2001). Internal consistency of the strategic factors, tactical factors and operational factors will be determined through Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) methods. According to the results, the variables/measures which

worsen the model estimation parameters will be eliminated from the further analysis. The statistical analysis will enable more thorough understanding of the factors which are critical for the SA success.

As discussed above study attempts view the alliance success as affected by strategic, tactical and operational factors, accordingly it is assumed that SA success is dependent by strategic, tactical and operational factors. Accordingly, it defines the strategic alliance success factors as independent variables, while a strategic alliance performance or success variable introduced in 2.4.2 section as a dependent variable. Given that the variables will be engaged in Structural Equation Model, it defines the strategic alliance success factors as exogenous (exploratory) variables while strategic alliance success is endogenous variable. It is assumed that multiple specific dimensions (strategic, tactical, operational factors) work together conceptually but perform best results when measured distinctly which means it propose an a priori model of strategic alliance success defined as correlated unidimensional factors model. Accordingly, it can define H1, H2 and H3 research hypothesis as follows:

H1. Strategic alliance success is positively related to the alliance success Strategic factors.

H2. Strategic alliance success is positively related to the alliance success Tactical factors.

H3. Strategic alliance success positively related to the alliance success Operational factors.

2.5 Impact of the Strategic Alliances on Corporate Performance of the Firms

2.5.1 General Overview of Impact Direction

The establishment of strategic alliances has been one of the efficient contemporary management strategies for corporate entities globally (Russo & Ceserani, 2017; O'Dwyer & Gilmore, 2018; Mamédio et al., 2019). Corporate institution especially those operating in fast growing international markets are in dire need of working together to achieve their goals thus creating the relevance of establishment of SA in enhancing the chances of enhancing performance and achieving goals as noted by Holmlund and Fulton (1999). Strategic alliances in some instances referred to as coalitions or collaborations have been key amongst the strategies available for corporate entities to implement in order to ensure they are competitive and generate revenues for the shareholders in a sustainable manner. Prior studies have been keen to establish the need for adoption of relevant and contemporary strategies in the management of corporate institutions in order to achieve market competitiveness as well as reduce the costs of operations and production.

As several research show, strategic alliances add to the strategic advantage of the organization through improvement of performance results in several aspects (Musarra, 2016; Cacciolattia et al., 2020). The interorganizational partnerships promote the sharing of resources aiming at development of processes, products or services (Pangarkar et al., 2017), it gives significant competitive advantage to the partner companies (Leischnig, 2014) and propose remarkable opportunities to organizations, among them the opportunity to extend their capacities and maximize value (O'Dwyer & Gilmore, 2018). It is also a sound organizational form to ensure access to emerging technologies for technology conglomerates (Li et al., 2019).

Strategic partnerships are an essential source of capital, learning, and strategic advantage, as Ireland et al. (2002) observed, help businesses to leverage resources required to perform successfully in the current diverse environment.

The choice of the strategic alliance a corporate entity decides to be a partner in greatly dictate the levels of performance (Dussauge et al., 2000). The strategic alliances provide the business with the opportunity to learn as well as enhance their performance thus the type of alliance is crucial when making strategic management decisions. Child et al. (2005) for example observe that equity and joint venture alliances operate in a manner that ensures that the partners are concerned with the performance of each other and not only that of their own while non-equity strategic alliances leave each partner seeking their own improvement in terms of performance. Through strategic alliances the small companies gain opportunity to operate with the capacity of a multinational or large company with improved access to essential tools such as customers, networks, skills, knowledge, financing and supply chains (O'Dwyer et al., 2011).

Goerzen and Beamish (2005) claim that productivity and Return on Assets (ROA) will be better off as a result of the right alliance formations. This financial metrics are not the only advantages that are derived from the strategic alliance formations of major national and international firms in the oil and gas industry. For instance, Deeds and Hill (1996) argues that metrics like innovation and synergy arising from these strategic partnerships can catapult the firms concerned into greater growth trajectory. The performance of a firm's stock price is often considered by financial market participants as a parameter of the success of many strategic alliances (Kale et al., 2002). Productivity and profitability can also be considered as major variables that

displays the impact of the alliance formation on the corporate performance of a firm (Koka & Prescott, 2008).

Studies have claimed that the SAs have positive impacts on organizations. Goerzen (2007) has asserted that the formation of alliances enables corporate entities to enhance their performance in most aspects. Mamédio et al. (2019) conclude that through alliance decisions company's declining resources are replaced, new skills are integrated and resources are accumulated to handle challenges related to the environment. Different measures have been put in place by researchers to determine whether a strategic alliance positively impacts the parties involved including but not limited to the product quality, partner satisfaction levels, the market and financial performance (Osborn & Hagedoorn, 1997). Perry and Sengupta (2004) found out that there is a significant nexus between the performance of corporate entities and their participation in strategic alliances. It is the conclusion of Tebrani (2003) that regardless of the competitive strategies in place, the country or the industry, the strategic alliances indeed enhance the performance of business entities.

Performance and efficiency evaluations are riddled with conceptual and calculation challenges, whether they use quantitative result metrics (e.g., financial gains, innovations) or subjective indicators (e.g., partner satisfaction with the collaboration) (Todeva & Knoke, 2003). A more complicated task is to provide evidence that alliances produce substantial nonfinancial, or transformational, outcomes such as enhanced organizational credibility (Human & Provan, 1997).

In Chapter 2.3.2, the corporate performance measures is discussed grouping them into subjective measures, which may include operational efficiency, capacity building, etc. The following sections include description of the interrelationships of

the distinct aspects of the corporate performance and SAs, after which research hypothesis are introduced.

2.5.1.1 Financial measures and Profitability

Several empirical researches revealed positive interrelations between involvement in strategic alliances and corporate performance of the firms associated with their financial progress and profitability. Based on a study with a sample comprising of 346 business from the USA, Japan and Europe.

Hagedoorn and Schakenraad (1994) revealed that in many industrial sectors and companies' engagement in SAs significantly and positively impact the profitability of the firms, as well as companies' capacities to attract new technologies: based on this they argue that companies focused on R and D cooperation have remarkable higher profit rates. They present the economic performance of the business organization through net income ratio of the sales or profit rates.

Antoncic and Prodan (2008) concluded that positive and significant interrelation exists between corporate technological entrepreneurship and organizational performance in terms of growth and profitability of the firms, given the research data from a random sample survey among the manufacturing firms in Slovenia. Williamson (1985) has argued at length how the profits of the companies are increased referring to the transaction cost theory. Tully (1993) proposes evidence to justify that firms engaged in strategic alliances are more profitable compared to the other firms integrated vertically.

2.5.1.2 Productivity

Another measure of corporate performance is productivity which generally is discussed along with the profitability of the firms. Koka and Prescott (2008) suggest that productivity of the firms, along with profitability should be considered as major variables which are impacted by the alliance formation. Goerzen and Beamish (2005) claimed that alliance formation positively impacts productivity and Return on Assets (ROA) of the firms engaged in the right alliance. Ireland et al. (2002) claim that a SAs are critical sources to gain competitive advantages and to improve the growth.

Accordingly, based on the literature suggestions, in general it would expect a positive relationship between success of the strategic alliances and corporate performance associated with productivity and growth.

2.5.1.3 Operational efficiency

The other important component of operational efficiency is decision making. Decision making is key to the performance of an organization. As Eisenhardt (1999) suggests strategic alliances improve the decision-making abilities of the corporate entities thus having impact on the levels of performance of such organizations.

According to the resource-based theory of strategic management, corporate entities come together and create a pool for their resources that are on a complimentary basis. The alliance is aimed at ensuring that the performance of a company is improved regardless of its lack of certain resources as the same are availed by the other partner. As per the findings of Eisenhardt and Schoonhoven (1996), corporate entities benefit from the resources of each other and it is crucial that the partners have different but complimentary resources in order to realize performance as a result of the strategic

collaboration. According to the principles of the resource-based theory, the corporations create an alliance or alliances to ensure that they improve their performances by way of having a wide range of resources that facilitate value creation and competitiveness in the markets.

The other impact area of the strategic alliances is access to the resources which is also a key factor to increase of operational efficiency. Alliance formation is an efficient alternative instead of investing huge resources allowing the firms to minimize the cost wherever there are inefficiencies and imperfections. Eisenhardt and Schoonhoven (1996) argue that the firms will be able to develop their strategic position in their respective industries by alliance creation thereby enabling them to better their performance. Arora and Gambardella (1990) states innovation is possible in all the activities and process, when there is collaboration among many firms. The complexity of the resources makes it complicated for a single business to innovate on all necessary resources as well.

2.5.1.4 Capacity building and mutual learning

Organizational capacities of the firms engaged in strategic alliance may increase regards to strategic alliances serving as institutionalized channels for capacity creation and transfer (Todeva & Knoke, 2003). Learning can take place through two ways: one way is through manipulation, during which one company acquires the know-how of another, another way is synergistically learning through a shared experience whenever collaborative agreement is introduced (Tsang, 1998). In particular, businesses acting in high uncertain environmental may use partnerships to strengthen and enhance organizational learning, improve their atmosphere and minimize strategic uncertainty to extent possible (Lee, 2007). Alliances lead to the

improvement of knowledge management through improvement of the quality of the incorporation of information into the development of complex goods and services, as well as through increase of the productivity in which knowledge is utilized (Grant & Baden-Fuller, 2004). As Mamédio et al. (2019) conclude alliances may become a versatile learning vehicle, enabling effective exchange of knowledge between the collaborating firms and access to technological capabilities and other complex capabilities through generated combination of the resources.

2.5.2 Strategic Alliances and Performance of Oil and Gas Corporations in the UAE

The National Oil Companies (NOC), government and the entire oil and gas industries are on a transformative path gearing up to embrace the new technologies and business models to address the structural challenges taking place in the industry. SA are not a new concept for the oil and gas organizations in the region and Many firms from Saudi Arabia, Iran, Kuwait and UAE has entered many such alliances in the past. The strategic realignment of the US-Saudi relationship has engendered a rethink on the Oil policy of Saudi Arabia in recent years and this is visible in their recent efforts to form strategic ties with China. Similarly, Iran has entered into much strategic partnership with organizations from Japan, China and India to circumvent the sanctions imposed by the US administration (Gal, 2004).

British Petroleum has formed an international SA with 7 contractors for the implementation of the Andrew Project in 1996 for their North Sea project (Jake, 2015). The structure of the alliance was linked to the cost and the rewards were mutually covered by the alliance participants based on the cost of the project. Brown and Root, Santa Fe, Saipem, Highlands Fabricators, Allseas, Trafalgar House and Emtunga were

the alliance members. Shell's FLNG Alliance and BG Group and KBR are some of the other upstream SA that the Global oil and gas industry witnessed in the past (Jake, 2015).

The NOCs in the Middle are evolving their BM and SA is explored as a major means to adopt the innovative technology and to achieve more efficiency in their mature fields. Many of these NOCs has expanded their business processes during the last few decades and further integration is required to improve their value chain to embark on greater internationalization of their business (Marcel, 2006). Furthermore, the recent pivotal shift in the energy industry has forced many of them to achieve competitiveness to stay relevant in their national economies. The Table 2.7 represents the relative strength of their asset base and constraints of these organizations and the BM they can opt based on these core strengths and constraints.

Table 2.7: Assets, Needs and Constraints of the Major NOCs in MENA Region

	Assets	Needs	Constraints
Saudi Aramco	<ul style="list-style-type: none"> · Efficient · Large oil and gas reserves · Multiple grades of crude · Long-term strategic view · Investment in technology · Human resources 	<ul style="list-style-type: none"> · Capital for refining and petrochemicals · Promote local economy · Ownership of technology · Outlets for its crude (international refineries) · Develop gas value chain 	<ul style="list-style-type: none"> · Upstream oil closed · Political sensitivity · Domestic energy subsidies · Future rent needs of government
KPC	<ul style="list-style-type: none"> · Efficient refining, retail and petrochemicals business · International marketing skills · Large oil reserves 	<ul style="list-style-type: none"> · Experience of technology · Management practices · Clarity of relations with government · Employment for nationals 	<ul style="list-style-type: none"> · Parliamentary opposition to FDI · Heavy/sour grade of crude · Small domestic market · Bureaucratic internal processes · Local employment quotas
Sonatrach	<ul style="list-style-type: none"> · Oil and gas reserves · LNG expertise · Capitalization on NOC status abroad · Geography · Relatively transparent accounting 	<ul style="list-style-type: none"> · Management practices · Access to distant and new markets · New oil and gas reserves · Investment in technology 	<ul style="list-style-type: none"> · Heavy labour costs · Bureaucratic internal processes
NIOC	<ul style="list-style-type: none"> · Large oil and gas reserves · Experience with carbonate reservoirs · Local capacity in private service companies · Geography 	<ul style="list-style-type: none"> · Capital · Clarity of relations with government · Technology · Management practices · Investment in refining, exploration & development · Employment for nationals · Marketing skills for gas 	<ul style="list-style-type: none"> · Sanctions · Parliamentary opposition to FDI · Domestic energy subsidies · Bureaucratic internal processes
ADNOC	<ul style="list-style-type: none"> · High ratio of oil and gas reserves to production and to population · Cooperative relations with foreign partners · Management processes 	<ul style="list-style-type: none"> · Develop HR skills · Capacity to manage large projects · Ownership of technology · Investment in difficult reservoirs · Marketing capacity for products · Investment in gas (for re-injection) 	<ul style="list-style-type: none"> · Political reticence to develop gas for export · Reliance on consultants

Source: (Marcel, 2006)

Petroleum Nasional Berhad (PETRONAS), Malaysia's domestic oil firm and the Saudi Aramco, the NOC of the Kingdom of Saudi Arabia, has recently signed the establishment of two joint ventures for the Refinery and Petrochemical Integrated Development Project and the SA of this nature is expected to bring the resources, technology and the expertise of both the firms to establish commercial presence in the wider world (Aramco, 2018). Furthermore, there are recent efforts to join hands with the ADNOC, the NOC of UAE by ARAMCO and this type of alliance will be first of its kind in the region (Gamal, 2018). ARAMCO is strengthening their position in

China and India as well as part of their diversification. The refining venture with the Sinopec, Exxon and CNPC are the latest news from the ARAMCO and the building of 300,000 bpd refinery in China with the cooperation of Norinco will be completed by 2019.

Kuwait Petroleum Corporation (KPC) has entered into a strategic partnership for refining and petrochemical projects in China and the project consists of developing 300,000 bpd full-conversion refinery in partnership with the Sinopec (TOTAL, 2012). Likewise, the cooperation of the Oman Oil and the KPC for the development of the Duqm Refinery and the Petrochemical Complex is further evidence to the growing partnership between the NOCs in the region (Europetrole, 2017). Sonatrach, the Algerian State Energy Company, and Total has entered a strategic alliance to expand their upstream projects. The Timimoun project and the TFT field will be jointed developed and operated by the firms (TOTAL, 2017). Furthermore, the strategic partnering of Sonatrach with Eni, the Italian oil and gas giant is another step in the right direction for the oil and gas industry in the region (ENI, 2019).

Another major player in the oil and gas industry of MENA region is the NIOC, National Iranian Oil Company. NIOC has partnered with many organizations in the past and the recent alliance with the Rosneft, the Russian oil and gas Company, deserves special attention especially under the sanction's environment for both the companies. The 30 billion dollars oil and gas projects that the alliance aims at will be monumental in scale and size for both Iran and the MENA region (Reuters, 2017). Furthermore, this deal will strengthen the position of Rosneft in the coming years as a strategic partner worthy of having for the technical expertise and diversification away from the Western counterparts.

The oil and gas strategic partnership in UAE has undergone a pivotal shift from West to East in recent years with more and more collaboration and partnership agreements involving firms from China and Japan. The Strategic Cooperation Framework signed between China and UAE will provide an opportunity to the China National Petroleum Corporation (CNPC) and ADNOC to explore their upstream and downstream business opportunities in the coming years (Rahman, 2018). The new framework was preceded by another major contract to the tune of \$ 1.6 billion to an affiliate of the CNPC for conducting the largest 3D onshore and offshore seismic survey to investigate the oil and gas reserve in UAE (Rahman, 2018). Total has consolidated its strategic partnership during this period with another 40 years concession agreement with ADNOC and, as part of this partnership, will be given a twenty percent of interest in the Umm Shaif and Nasr concession (TOTAL, 2018).

The latest SA of ADNOC with BHGE, a General Electric company, will continue to promote the growth of the ADNOC subsidiary, the ADNOC Drilling. The five percent stake of BHGE in the transaction value amounting to \$11 billion of ADNOC Drilling will provide the later with the necessary technology and tools to transform it as the leading complete integration of drilling and efficient construction provider in the MENA region (ENI, 2018). ADNOC Drilling is the biggest drilling company in the Middle East and enjoys the exclusive rights to provide the drilling rigs and related services to the ADNOC group of companies. This strategic alliance is the first of its kind that ADNOC has entered with an international strategic cooperator allowing them acquisition of a direct ownership stake in the current corporate facilities business (ADNOC, 2018).

Fossil fuel is considered as the contemporary vital element that steers and facilitates the growth of various economies (Shelley, 2005). However, corporations dealing in oil and gas are faced with unlimited number of challenges ranging from unfavorable government policies to price fluctuations. The dynamic nature of the challenges has created the need for the corporations in the oil and gas sector to come up with strategies that enhance their performance in various markets (Mirani, 2009). Various studies have recommended that for the oil and gas corporations to realize high levels of performance especially in cost reduction and gaining competitive advantage, they must adopt the use of strategic alliances (Toft & Duero, 2011). James (2011) observes that based on the recommendations, corporations in the oil and gas industry have been keen to enter into collaborations to increase their levels of performance by creating value through their strengths and minimizing risks and uncertainties. The strategic alliances have different impacts on the levels of performance when it comes to the National Oil Corporations (NOCs) and the International Oil Corporation (IOCs) despite that both operate in technical the same industry and market due to the differences in the challenges faced (Ledesma, 2009). The nature of the NOCs and the IOCs have evolved over the years and the creation of strategic alliances to beat the changes of various markets by these types of corporations is an emerging trend that is seen to increase the levels of performance (Aroyyo et al., 2014).

In view of the foregoing review, it can be established that strategic alliances greatly influence on the performance of corporations. The energy industry precisely gas and oil sector are rapidly developing with unlimited number of challenges which creates the need to have effective strategies that enhance competitiveness, cuts down on the costs and ensure sustainability. Strategic alliances as a tool come to the aid of various corporations in their quests to overcome various barriers to performance.

Garcia et al. (2014) claims that a firm's strategy is defined by its position in the industry coupled with its assets, capabilities and competitive advantages (Garcia et al., 2014). The oil and gas industry firms have both tangible and intangible assets like reputation and Intellectual Property to bring the competitive advantage. The intangible assets like IP can be very complex and, as a result, bring competitive advantage to the business organizations in the oil and gas industry. The capabilities of these firms can be integrative, dynamic or integrative dynamic and partnering firms can leverage this to attain greater growth and profitability (Garcia et al., 2014). The authors further claim that the differentiation of the SA and relative strength can come from either their assets or their dynamic integrative capabilities to solve a challenge (Garcia et al., 2014).

2.5.3 Summary of Impact Areas and Research Hypothesis

Based on the literature suggestions discussed in the 2.5.1.1 and 2.5.1.2 Sections, general positive relationship between success of the strategic alliances and corporate performance is expected, particularly related to the financial measures, profitability and productivity. The discussion in the Sections 2.5.1.3 and 2.5.1.4 suggest that engagement in a strategic alliance positively impacts operational efficiency and capacities of the firms. These dimensions have been grouped into subjective measures of corporate performance, discussed in the Section 2.3.2, accordingly, a research hypothesis is formulated as follows:

H4: Corporate performance of the firms engaged in the alliances is positively related to the Strategic alliance success.

2.6 Summary of Hypotheses

Based on the literature review analysis, the Conceptual Model proposed for this study is introduced below (see Figure 2.2):

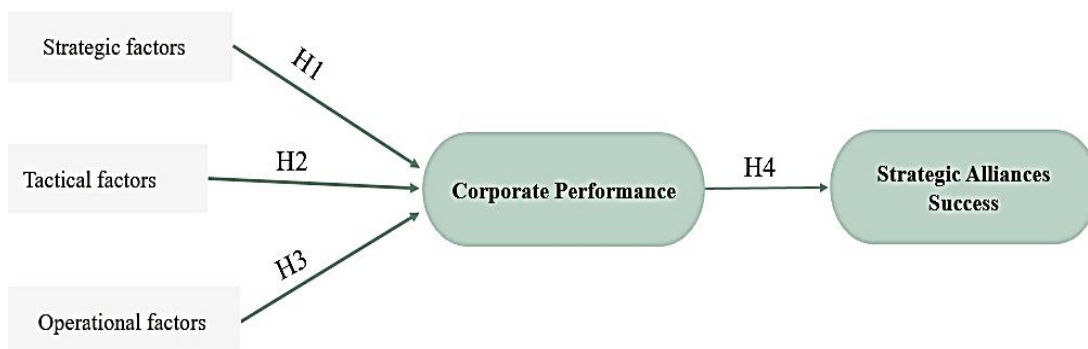


Figure 2.2: Conceptual Model

As can be seen, in this model, Strategic, Tactical and Operational factors and strategic alliance success are engaged in a correlated unidimensional factors model. Corporate performance, which is measured through two dimensions: objective dimension and subjective dimension, is impacted by Strategic Alliance Success.

In sum, the hypotheses to be tested in this study are the following

H1. Strategic alliance success Strategic factors positively impact corporate performance of the firms

H2. Strategic alliance success Tactical factors positively impact corporate performance of the firms

H3. Strategic alliance success Operational factors positively impact corporate performance of the firms

H4: Corporate performance of the firms engaged in the alliances is positively related to the Strategic alliance success.

The key constructs employed in the study include: performance of the Strategic Alliances, corporate performance and success factors of SAs. The following section introduces the measurement items for each construct engaged under this study in detail.

2.6.1 Corporate Performance

Corporate performance is defined as a dependent variable in this research and as mentioned in the Section 2.3.2 it can be measured through subjective measures. It is proposed to measure subjective aspects of organizational performance through informants' subjective assessments, using two general groups of measures: operational efficiency; capacity building and learning. The informants will be asked to assess whether there is any improvement regarding different corporate performance aspects compared to the situation before joining the focal SA. Statements introduced to the informants were to be placed on a five-point scale with the following graduation 1. Much worse than before 2. Worse than before, 3. Similar/no changes, 4. Better than before and 5. Much better than before. The items under each group of measure have been newly developed in line of the studies by Osborn and Hagedoorn (1997), Eisenhardt (1999), Kaplan and Norton (1992). 7 individual items are involved in operational efficiency and capacity building and learning measures each (Table 2.8).

Table 2.8: Individual Items to Assess Subjective Measures of Corporate Performance

Variable	Sources	Items
Operational efficiency	Osborn and Hagedoorn (1997), Kaplan and Norton (1992)	Quality of management
		Employee's satisfaction
		Product/service quality
		Customers/partners' satisfaction
		Firm's Quality of Marketing
		Improvement of Corporate Culture
		Access to new markets
Capacity building and learning	Eisenhardt (1999), Kaplan and Norton (1992)	Firm's decision-making abilities
		Usage of information technologies
		Firm's Capacity to Innovate
		Firm's Capacity of adapting to the changes
		Firm's Capacity to accumulate new knowledge
		Companies' ability to attract, develop and retain Top Talent
		Firm's Project and risk management capabilities

2.6.2 Success of the Strategic Alliances

As introduced in the Section 2.4, it is proposed to measure success of the Strategic Alliance through a combination of the following measures: SA overall performance, Goal accomplishment, Accumulation of knowledge, new opportunities and Overall success. For the SA overall performance assessment usage of one five point scale measure is proposed with the following gradation - very unsatisfied, unsatisfied, somewhat satisfied, satisfied, very satisfied (Ariño, 2002). For Strategic goals Parkhe (1993) suggests to multiply the importance and satisfaction of the strategic goals of the partner with the SA. The list of SA goals is presented as developed by Ariño (2002). For each of this SA goal importance and fulfillment will be assessed. Afterwards a composite indicator will be calculated through multiplying importance assessments by fulfillment assessments. Assessment scale will also include "not applicable" option, while "other" open-ended option will be added for the goal accomplishment list in case informants see some additional goals which are not included in the list. Ariño (2002) proposed the following list of Strategic Alliance goals

which will be used for the assessment of SA Goal accomplishment 1) Reducing costs/obtaining scale economies 2) Gaining access to a market in the same industry 3) Gaining access to a market in another industry 4) Development of new technologies 5) Ability to meet the government requirements 6) Ability to block the competition 7) Development of new skills 8) Reduction of the risks.

Both for the importance and fulfilment assessment, it propose application of a five-point Likert scale. Importance is defined as an estimation by informants of how relevant each of the potential targets adopted by the organization for a SA are to their company and the fulfilment of an evaluation of how far each of the strategic goals established for the SA has been reached (Parkhe, 1993). Another measure of Strategic Alliance performance includes informants Satisfaction with the experience acquired by taking part in the collective agreement which is measured through 5-point single variable (Zollo et al., 2002). After the respondents will be asked to indicate the degree to which the alliance generated new opportunities for their firms (Table 2.9). Finally overall success of SA is assessed through an individual variable with the following scale 1. Not successful at all 2. Not successful to some extent 3. Nor successful neither not successful 4. Successful to some extent 5. Very successful.

Table 2.9: Individual Items to Measure Success of the Strategic Alliances

Variable	Sources	Items
SA overall performance	Ariño (2002)	Informants' assessment of how far their firm is satisfied with the overall performance of the SA
Goal accomplishment	Parkhe (1993), Ariño (2002)	How far each of the possible goals embraced by the firm for an SA was important to their firm
		Informants' assessment of how far each of the identified strategic goals for the SA was fulfilled
Accumulation of knowledge	Zollo et al. (2002)	Informants satisfaction with the knowledge accumulated from participating in the collaborative agreement
New opportunities	Zollo et al. (2002)	Informants subjective assessment on the extent alliance created new opportunities for their firms

2.6.3 Strategic Alliance Success Factors

As introduced in the Section 2.4.2 strategic alliance success factors are categorized into three groups: strategic factors, tactical factors and operational factors. For each group of success factors sub-factors or components have been identified based on literature review. In this section, a list of individual items to measure each sub-factor/component is presented. The list has been developed through literature review in line with the following authors Rai et al. (1996), Russo and Cesarani (2017), Taylor (2005), Spralls et al. (2001), Johnston (1991), Todeva and Knoke (2003), Franco (2011), etc. On tables below sources and individual items for each sub-factor/component is presented.

The informants will be asked to assess the importance of each individual item in overall success of strategic alliance through the following scale 1. Not important at all, 2. Slightly important 3. Important 4. Fairly Important 5. Very Important. Afterwards the informants will be asked to assess the current state of SAs that their organization is engaged in through the following scale 1. Extremely poor 2. Poor 3. Neutral 4. Good 5. Extremely good.

Under strategic factors, it identified three key dimensions: Mutual objectives and strategies, Power and contribution, Trust and Commitment. Individual items to measure each sub-component have been developed based on existing literature presented on Table 2.10.

Table 2.10: Individual Items to Measure Strategic Factors

Variable	Sources	Items
Mutual objectives and strategies	Rai et al. (1996), Russo and Cesarani (2017), Taylor (2005), Spralls et al. (2001)	Overall fit between the partners and existence of shared vision
		Defined clear and compatible goals and objectives
		Comprehension and compatibility of objectives and goals between the partners
		Existence of agreement on the process by which SA goals can be achieved
Power and contribution	Russo and Cesarani (2017), Thompson (1967), Johnston (1991)	Appropriateness of the form of cooperation for alliance management
		Appropriateness of the alliance governance form
		Absence of disparities in the resources contributed and controlled by each partner organization
		Absence of excessive dominance by one partner
Trust and Commitment	Todeva and Knoke (2003), Franco (2011)	Existence of a positive previous experience among the partners
		Extent to which future expectations from the partners are positive
		The degree of commitment between the partners
		The degree the commitment between the partners is guaranteed and reasonable

Tactical factors are measured through three components - Transparency and information exchange, Learning, Cultural Fit. Individual items to measure each component is presented on Table 2.11.

Table 2.11: Individual Items to Measure Tactical Factors

Variable	Sources	Items
Transparency, communication and information exchange	Larsson et al. (1998), Russo and Cesarani (2017)	Absence of non-transparent withholding of information
		Simultaneous transparency and receptivity among the organizations
		Openness and timeliness of communication
		Quality of information exchanged between the partners
Learning	Larsson et al. (1998), Todeva and Knoke (2003)	Simultaneous and receptivity of collective acquisition of knowledge among the organizations
		The level of learning synergy or interaction effect between the organizations
		Creation of new knowledge through interaction among the organizations
Cultural Fit	Russo and Cesarani (2017), Meirovich (2010), Todeva and Knoke (2003)	Partner sensibility toward different cultures
		Absence of cultural differences between the partners
		Absence of language barriers between the partners

Operational factors involve two sub-dimensions - Operational control and coordination and Organizational fit. Individual items to measure each sub-dimension and their sources are presented on Table 2.12.

Table 2.12: Individual Items to Measure Operational Factors

Variable	Sources	Items
Operational control and coordination	Russo and Cesarani (2017), Tjemkes et al. (2013),	Existence of rules, policies and procedures that guide cooperation
		Distribution of clear roles and responsibilities within the alliance
		Existence of alliance performance monitoring and evaluation mechanisms
Organizational fit	Hennart and Zeng (2002), Park and Ungson (1997)	Partners willingness to adapt to each other management practices, organizational culture, procedures, and working
		Existence of divergences in management style and corporate culture

Chapter 3: Research Methodology

3.1 Introduction

Chapter 2 included a literature review on the research topic covering the main constructs involved in the research, including strategic alliance success, the factors underlying SA success, and corporate performance. The research problem to be addressed under this study is also formulated. Based on the comprehensive literature review, a research model including strategic alliance success factors and their relation to corporate performance and strategic alliance success was developed.

Research methods are systematic processes of inquiry applied in such a manner as to investigate this social environment and obtain new knowledge about it (Saylor Academy, 2012). Undertaking research is a systematic process (Sheppard, 2020) and it assumes the application of special techniques and tools, which may include questionnaires, case studies, observations, interviews, etc. (Bryman, 2016). The development of research methodology includes also a sampling of the study, description of data collection procedure, data processing, and analysis.

This chapter will describe and discuss the research implementation procedures. The Chapter discusses the research paradigms and selection of the research paradigm under this study, will provide details on the research instrument and how it was developed, scaled and structure. Afterward, research sampling details are presented. And finally, the chapter introduces the key approaches used during the data analysis process.

3.2 Research Questions

This thesis aims to study to what extent the strategic alliances' impact the corporate performance of the firms engaged in these alliances in the oil and gas Industry of UAE. The secondary research question was to understand what are the factors determining the success of the strategic alliances in the UAE oil and gas industry.

Based on the gap revealed in the research literature, the discussions in Chapter 2, and the review of the related literature, the following research questions have been formulated to address the research objectives:

1. What is the current state of strategic alliances and companies involved in these alliances in terms of their interrelation in the oil and gas Industry of UAE?
2. How can the impact of strategic alliance on corporate performance be measured?
3. To what extent does strategic alliance impact on corporate performance of the firms involved in these alliances?
4. What are the success factors underlying the positive impact of strategic alliances on the corporate performance of the firms?

As Sheppard (2020) introduce the quantitative approach to research is the most popular approach which enables the researcher to describe the patterns of the relationships about the phenomenon under study through data aggregation techniques. In this study, it aims at understanding the relationships between the different unobservable variables, test the established hypothesis and determine the significant

factors that impact strategic alliance success in terms of its relation to the corporate performance

To answer the research questions, several SA success factors have been identified based on a thorough literature review. The SA factors have been grouped under three measures: Strategic factors, tactical factors, and operational factors. The potential measures of corporate performance were also investigated and grouped under two measures: operational performance and capacity building. Strategic alliance success was described through several variables. The research questions were answered by study if the path relationships between those selected unobservable variables and further investigating their underlying structure.

3.3 Research Paradigms

In 1962, American philosopher Thomas Kuhn first used the word paradigm to mean a philosophical way of thinking in the *Structure of Scientific Revolutions* (Kivunja & Kuyini, 2017). In social science, there are several predominant paradigms, each with its own distinct ontological and epistemological perspective (Sheppard, 2020). The dominant paradigms governing the social science include positivism, which bears inside objectivity, know ability, and deductive logic; interpretivist paradigm, which focuses on differences amongst humans as social actors; social constructionism, which assume that the “truth” is varying, socially constructed, and ever-changing notion; critical paradigm, which focuses on the power, inequality, and social change; and finally the postmodernism, which ideally is very difficult to describe (Sheppard, 2020).

The main issues related to paradigms concern their ontology, epistemology, methodology and axiology. Those four elements refer to the basic assumptions, beliefs, norms and values that each paradigm holds (Kivunja & Kuyini, 2017).

Ontology and epistemology are to explore what 'footings' are to a house: they structure the establishments of the entire building. Ontology alludes to “the idea of our convictions about the real world” (Richards, 2003). Ontological perspective suggests that researchers have ideas about the real world, how it exists and what can be thought about it and it is the ontological inquiry that drives a specialist to ask what sort of reality exists, such as about a solitary, evident reality and truth, socially built various real factors, etc. (Patton, 2002).

Epistemology refers to the part of the theory that analyses the idea of knowledge and the cycle by which knowledge is gained and authorized (Jatmiko, 2018). The essence and mechanisms of information, how it can be acquired and how it can be communicated to other people are concerned. An observer is motivated by an epistemological investigation to address the opportunity and desirable consistency of objectivity, subjectivity, causality, validity, generalizability (Patton, 2002, p. 134).

The methodology is “an explained, hypothetically educated way to deal with the creation regarding information” (Ellen, 1984, p. 9). It alludes to the investigation and basic examination of information creation methods. It is the “procedure, strategy, cycle or plan” that educates one's decision regarding research techniques (Crotty, 1998, p. 3). “It is worried about the conversation of how a specific piece of exploration ought to be attempted” (Rehman & Alharthi, 2016). It controls the scientist in choosing what kind of information is needed for an examination and which information assortment instruments will be generally suitable with the end goal of his/her

investigation. It is the methodological inquiry that drives the scientist to pose to how the world ought to be examined.

The successful completion of social research is dependent on the choice of the appropriate research design and there are three major alternative research methods: quantitative, qualitative, and the Mixed Methods Research (MMR). The graph in Figure 3.1 provides a guideline for the researchers concerning his decision making in the selection of the ontology, epistemology, and the methodology for any type of social research. While the qualitative methodology is ideographic and is described to be subjective, the quantitative methodology is nomothetic and is described to follow an objective approach (Figure 3.1). The quantitative approach is used when one begins with a theory (or hypothesis) and tests for confirmation or dis-conformation of the hypotheses, while the qualitative, naturalistic approach is used when observing and interpreting reality to develop a theory that will explain what was experienced (Newman, 1998).

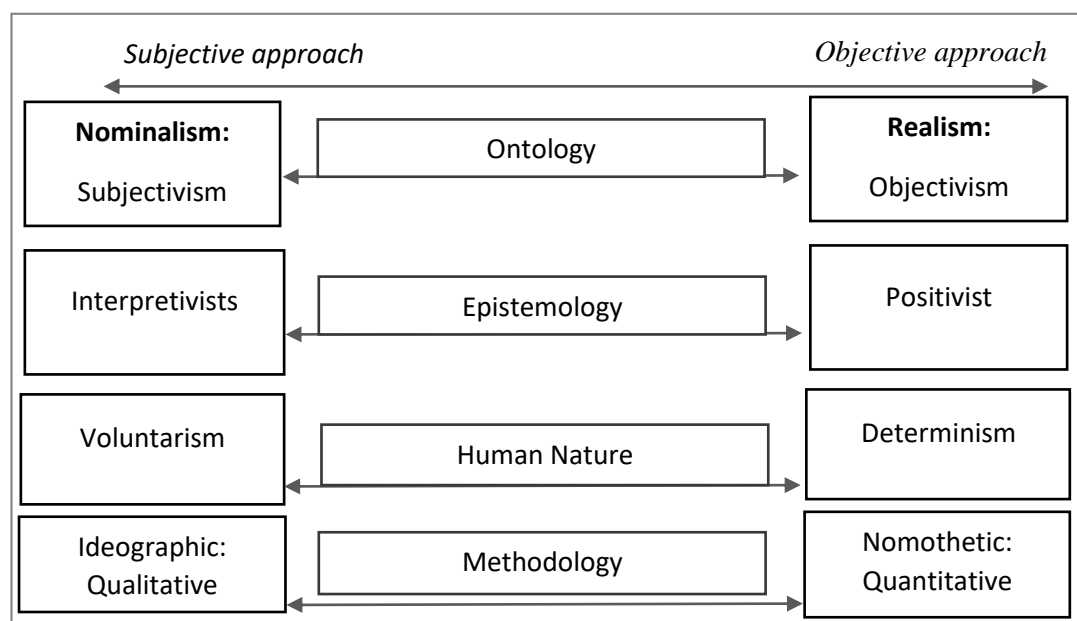


Figure 3.1: Qualitative and Quantitative Research Design
Source: (Morgan & Smircich, 1980)

In the following sections quantitative, qualitative, and mixed methodological approaches to undertaking research are discussed which is followed by description of exploratory and empirical researches. Finally, the research methodology adopted for this study is introduced.

3.3.1 Quantitative Research Methods

Quantitative research falls under the category of empirical studies or statistical studies, and have been the dominant methods of research in social science (Newman, 1998). Quantitative methodology is also a powerful tool for management and business-related research topics. It enables us to quantify the constructs under study, withdraw findings that can be arrived at by statistical procedures and verify the established hypothesis. Among the quantitative designs are experimental studies, quasi-experimental studies, pre-test post-test designs (Campbell, 1963) etc. As quantitative research is theory-driven a priori operational schemes and standardized definitions are critically important enabling valid and reliable measurements and quantifications for the concepts under study.

Apuke (2017) portray the exploration procedure as a comprehensive procedure a specialist undergo to do a research. Quantitative exploration technique assumes measuring and examination of the factors to get results. It includes the usage and examination of mathematical information utilizing explicit factual procedures to respond to questions like who, how much, what, where, when, the number of, and how. Expounding on this definition Aliaga and Gunderson (2002) portrays quantitative exploration strategies as the clarifying of an issue or marvel through social event information in the mathematical structure and investigating with the guide of numerical techniques; specific measurements.

López-Duarte (2016) highlight that though research based on qualitative methods can play a role in uncovering paradoxes and developing theoretical framework, the lack of quantitative studies in strategic alliance field is a methodological issue. The current innovative business environments in the rapidly evolving new energy industry are heavily influenced by the various factors. Conduction of a quantitative research for this fiercely competitive industry, often influenced by many variables, is not an easy-solvable task. Quantitative research considers a systematic approach when designing research tools and data collection procedures. Empirical findings from individual studies/observations allows for better estimates of true population correlations enabling certain degree of generalizability of the given empirical results.

During the quantitative exploration through special methods numeral information is gathered and investigated. Quantitative analysis involves series of tools that enable analyzing and measuring social phenomena to support or reject research hypothesis. Williams (2011) claim that quantitative exploration begins with an assertion of an issue, development of the research questions and objectives, development of research tools, sampling and finally, quantitative investigation of information. Quantitative methods use request structures, such as inquiries and overviews, and collect information based on pre-ordained instruments that produce statistical information (Creswell, 2014; Williams, 2011).

Sukamolson (2007) differentiates four types of quantitative exploration which include 1) survey research, 2) correlational examination, 3) trial exploration and 4) causal-relative examination. Study research as per Sukamolson (2007) includes quantification of a given populace's attributes through the usage of measurable

techniques further enables statistical testing and description of study population through sample population. Furthermore, in study research information is gathered from the sample population and information gathered from a segment of a population is inspected to describe the entire populace qualities (Kraemer, 1991).

3.3.2 Qualitative Research Methods

On the other side of research approaches opposite to the quantitative research is the qualitative approach. Similar to quantitative research, qualitative methodology is also a powerful tool for management and business-related research topics, and strategic alliance creation is a subjective decision made by the present management of a firm by aligning their actions with that of the business strategy. Strauss and Corbin (1998) define qualitative research as a form of research that can produce the findings that can be arrived at by the statistical procedures or that cannot be quantified in any other way. Furthermore, Maxwell and Kaplan (1994) argue that qualitative research can give focus on real life contents in a natural setting and interpret subjectively what is happening. The inductive reasoning is the strong foundation on which the qualitative strategy is built on, and this approach places importance on the people and situations as well. The differing attitudes and the behavior of the numerous participants and the way different variables impacting the events can be investigated and explored using the qualitative inductive reasoning.

As Maxwell and Kaplan (1994) claims that qualitative strategy and research helps the researchers to understand the specific context in which the firm takes a particular action or behave. Moreover, the qualitative research enables the participants to take into considerations different variables and try to understand how variable A and B are connected to each other and their causal relationship. Qualitative research

takes the form of explorative, explanatory and descriptive studies and these kinds of research are undertaken when the not much is not about the situation at hand, differentiating and anticipating the problems and the issues that can pop up in the run up to the project is an unknown and uncertain affair. Extensive work on the preliminary stage is to be done to get acquainted with the problems at hand in the exploratory research. During the qualitative research it evolves around the question of ‘how’ ‘what’ and ‘why’ questions. to gain deeper understanding of the problem at hand and theories will be developed based on the data collected

3.3.3 Mixed Methods Research

Though many researchers oppose quantitative and qualitative methods and perceive them as extreme ends of two approaches, most of them recognize the value and usefulness of combination of both methods. In research practice it is known as Mixed Method Research approach (MMR). This research approach is becoming common among researchers in addition to qualitative research and quantitative research approaches. This type of research represents more of an approach to examining a research problem than a methodology (Sheppard, 2020). Mixed methods are characterized by a focus on research problems that require analysis of multi-level views, cultural factors, to study construct magnitude and frequency, to build a comprehensive interpretive framework for potential solutions, etc. Mixed methods research draws on potential strengths of both qualitative and quantitative methods, meanwhile research design must be based on a theory that can substantially direct the design and implementation of mixed-method assessments (Greene et al., 1989). Triangulation is the practice of using a mixture of several and distinct research

methods. The researcher must take advantage of the strengths of the various approaches and resolve some of the disadvantages at the same time (Sheppard, 2020).

3.3.4 Exploratory and Empirical Research

Quantitative research is defined as social research that employs empirical methods and empirical statements (Cohen & Manion, 1980). It explains phenomena by collecting numerical data that are analyzed using mathematically based methods (Creswell, 1994). Quantitative research presumes deductive processes and it is applied when there is a need to study causes and effects, as well as to do “generalizations leading to prediction, explanation, and understanding” (Creswell, 1994). Accordingly, an empirical research approach will be adopted under this study.

Another research approach to be adopted is the exploratory approach. Extensive work on the preliminary stage is to be done to get acquainted with the problems at hand in the exploratory research. Differentiating and anticipating the problems and the issues that can pop up in the run-up to the project is an unknown and uncertain affair. Mapping of the existing strategic alliances and firms involved in these alliances will be undertaken. This kind of approach is undertaken when not much is known about the situation at hand, e.g., SA of the ADNOC Drilling and Baker Hughes is a recent phenomenon in the region and the energy industry of the country.

Quantitative research methods enable the assessment of general trends and common features through the collection of representative data from the field and accordingly enables verification of the defined hypothesis making a step forward to theory contribution. This research will revolve around the question of ‘what’ ‘how many’ and ‘how often’ questions. The emphasis of the research will be quantification

and assessment of the problem at hand which will further contribute to the theory development. New knowledge is sought in the present study based on meaningful assessment and comparison.

3.3.5 Research Methodology Adopted in this Study

Quantitative research is defined as social research that employs empirical methods and empirical statements (Cohen & Manion, 1980). It explains phenomena by collecting numerical data that are analyzed using mathematically based methods (Creswell, 1994). Quantitative research presumes deductive processes and it is applied when there is a need to study causes and effects, as well as to do a “generalizations leading to prediction, explanation, and understanding” (Creswell, 1994). Accordingly empirical research approach is adopted under this study.

The present research focuses on Realism as that is objective in nature compared to subjective analysis involved in Nominalism. Positivist epistemology and quantitative methodology is an integral to the current research aimed at studying strategic alliances and firms involved in those alliances in the oil and gas Drilling industry of UAE. Many research in Strategic alliance field have chosen qualitative approach, which however enabled one-perspective study and investigation of the field generally focusing on subjective assessment and judgments. Accordingly, quantitative positivist research is selected, as it assumes application of the principles of objectivity, knowability, and deductive logic and which assumes that social phenomena can and should be studied empirically and scientifically (Sheppard, 2020). It is also called value-free which means that the research is less biased by the researcher values and point of views and there is more room for objective, empirical, and knowable truth. Accordingly, quantitative data collection and analysis is undertaken by the researcher

to shed light on the effectiveness of SAs, and their impact on the performance of the firms involved in those alliances.

The major methodological considerations are discussed at length in this part of the current thesis. Deductive approach is selected which means research hypothesis have been defined based on literature review and their implications have been tested through data obtained from the field. The selection of deductive research approach gives an opportunity to test established hypotheses which is a step forward for thorough understanding of the strategic alliances' success, performance and operation in the oil and gas drilling industry. Practical methodology based on quantitative approach helps us to gather more systematic and comprehensive data on research units and, thereby, enables us to test hypothesis and draw the findings conclusively.

Another research approach is exploratory approach. This kind of approach is undertaken when not much is known about the situation at hand, e.g., SA of the ADNOC Drilling and Baker Hughes is a recent phenomenon in the region and the energy industry of the country. Extensive work on the preliminary stage is to be done to get acquainted with the problems at hand in the exploratory research. Differentiating and anticipating the problems and the issues that can pop up in the run up to the project is an unknown and uncertain affair.

Quantitative research methods enable to assess general trends and common feature through collection of representative data from the field, and accordingly enables to verify the defined hypothesis making a step forward to theory contribution. This research revolves around the question of 'what' 'how many' and 'how often' questions. The emphasis of the research is quantification and assessment of the problem at hand which will further contribute to the theory development. New

knowledge is sought in the present study based on meaningful assessment and comparison.

The performance of the firms involved in the strategic alliances must be understood considering also factor of rapidly evolving technological landscape in the energy industry. Furthermore, the urge to transition to the new energy sources and the introduction of the shale oil in the last few years has necessitated that the firms having operations in the energy industry must be competitive to survive and sustain their operations. Qualitative research is therefore helpful to analyze the current state of research objectively though encompassing different variables and study of causal relationship among them.

Bryman (2016) introduced an ideal-typical outline of the stages of quantitative research which starts off with theory and establishment of hypotheses and continues with selection of a research design, operationalizing concepts, selection of a research site or sites and sampling. Those stages are followed by data collection, data processing and analysis. On the basis of data analysis findings and conclusions are introduced and research is written up (Figure 3.2). This research followed the introduced stages starting with theory and literature review, establishment of research hypothesis, development of the research design and operationalization of the concept. The further processes are described in the sections below.

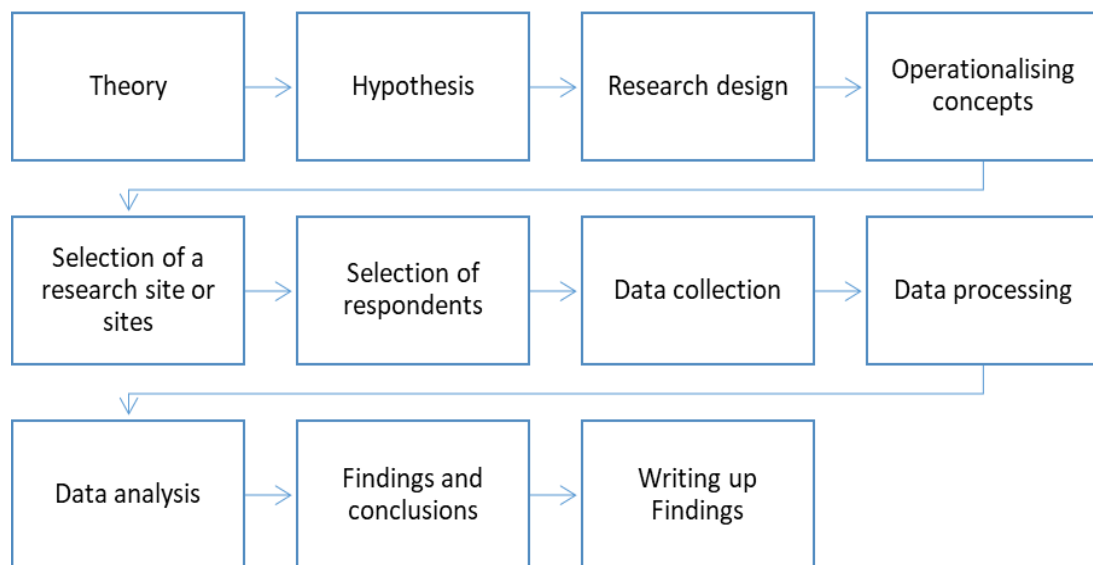


Figure 3.2: Ideal-Typical Outline of the Stages of Quantitative Research
Source: Bryman (2016)

To sum up this section, quantitative positivist approach is adopted for this study which assumes generation of the research hypothesis, the introduction of the concepts in the forms of distinct variables, creation of the measures, and their standardization. In any qualitative research data is in the form of numbers and theory is mainly casual and deductive. The data collection is standard and should be replicable. Data collected from the field is generally amassed through statistical methods and statistical software. Data visualization, reductions, and aggregation methods are used, such as the creation of tables, charts, the introduction of descriptive statistics, calculation of the correlations, hypothesis testing, etc.

3.4 Research Method, Tools and Measures

As already introduced, research methods are used to investigate this social world in a systematic manner (Saylor Academy, 2012). To address the research questions formulated under this study quantitative research approach is followed, particularly the key informants working in the firms involved in any strategic alliance

in oil and gas industry filled-in questionnaires. Primary data was collected from the field.

Survey research method is chosen which assumes collecting information from large group or groups of people asking them predetermined questions in a structured manner. Bryman and Bell (2011) categorize the interviews into three types: unstructured, semi-structured and structured. Yin (2009) has attempted to categorize interview into in-depth interview, focused and structured types. For this research the respondents have been asked to fill-in the questionnaire by their own. Structured questionnaires with Likert-scale measures and items were used. Key informants approached to fill-in the questionnaire were the persons in each target company most directly related to the management of strategic alliance relations i.e., alliance managers and/or project managers, designated by their position to have significant responsibilities regarding alliance operation.

Quantitative data were obtained through a structured questionnaire which was developed based on operational scheme and constructs defined in this Proposal. Individual variables were designed in a way to measure latent factors and directly unobservable variables. Five-point Likert scale was used to evaluate items under each dimension which is easy-understandable and more precise. Ordinal classification of perceptions was given rather than a simple application of interval scales or ratios, e.g., 1 = 'of no importance' to 5 = 'of major importance' or 1 = 'of completely disagree' to 5 = 'completely agree'.

The below sections describe the questionnaire design, scaling, structure, and sequencing. Afterward the sections and individual questions involved in the research are introduced based on the operationalization of the constructs introduced in the 2nd

Chapter of the thesis. Finally, pretesting produces are described in the final part of the section introducing the changes made in the survey questionnaire based on pilot testing results.

3.4.1 Questionnaire Design

As Goertzen (2017) introduces, quantitative research methods enable obtaining and analyzing data that is structured and can be represented numerically. Accordingly, the construction of reliable and valid measurement tools is critically important for meaningful interpretation and analysis of data collected from the field. The questions involved in the questionnaire should be direct, quantifiable, and easy-understandable for the respondents. To obtain quantitative data researchers most frequently use semi-structured or structured questionnaires which is one of the popular tools for social science research. Given that this research adopts a quantitative approach to collect and analyze data on SA impact on firms' corporate performance, a structured questionnaire is developed and applied under this research.

In the quantitative research the key role plays the variables involved in the study. A variable is defined as a property if the observed objects or and individuals that fluctuate in quality and amount (Apuke, 2017). As already introduced, quantitative data have been obtained through a structured questionnaire which was developed based on the operational scheme and constructs defined in the Literature Review section. The questionnaire was designed to reflect the research model, which was developed based on the literature review. Individual variables were designed in a way to measure latent factors and directly unobservable variables. The scaling, structure, and sequencing of the questionnaire's sections are introduced below.

3.4.2 Scaling

Likert-scale is one of the most popular response scales used in survey design (Chyung et al., 2017), and many people are familiar with this type of scale (Allen & Seaman, 2007). It has been introduced by Rensis Likert, an American social psychologist, in the 1930s to measure the propositions of the respondents regarding their attitudes. The wording used in the initial Likert scale was: Strongly Approve, Approve, Undecided, Disapprove, and Strongly Disapprove; and currently, different variations of the wording is used (Chyung et al., 2017). The debates over the validity of the Likert-scale include whether include or not include a midpoint in the scale, use descending order vs. ascending order of the scale options, measuring positively or negatively stated survey items with the Likert scale, etc.. (Chyung et al., 2017). An alternative to 5-point Likert-scale is slider scales with 0 to 10 gradation where 0 stands for “completely dissatisfied / disagree” and 10 stands for “completely satisfied / agree”.

The questionnaire has been designed to include variables measured with a 5-point Likert Scale with a mid-point. This scale is easy-understandable for the respondents and is more precise. Ordinal classification of perceptions is given rather than a simple application of interval scales or ratios, e.g., 1 = ‘Not important at all’ to 5 = ‘Very Important’ or 1 = ‘Very unsatisfied’ to 5 = ‘Very satisfied’.

3.4.3 Structure and Sequencing

The survey questionnaire was developed based on the literature review, operational definitions of the concept, and the conceptual model introduced in Chapter 2. It consisted of five body sections, an introduction, and a demographic section. The main body sections include Strategic Alliance Success, SA Success factors including

strategic factors, tactical factors, operational factors, and corporate performance. Each section has been designed based on the research model and operational definition of research contracts.

The first part of the questionnaire includes general information about the research project and the rules of participation in the survey. The demographic section of the questionnaire includes lines for the respondents' gender, age, and education, which is sequenced by the main sections of the questionnaire. Under the Strategic Alliance Success Section, the respondents have been asked to assess their level of satisfaction with the SA success based on different components, goal accomplishment, and overall success of the SA. Under the subsequent three sections, the respondents have been asked to assess the importance of each item which refers to the success factors of SA including strategic factors, tactical factors, and operational factors. The last section of the questionnaire includes an assessment of Corporate Performance. Particularly, the respondents have been asked to assess to what extent did the corporate performance areas changes after joining/starting SA. All of the variables (except demographic variables) have been measured through a 5-point Likert scale introducing the same scale of measurement with different wording.

The following sections explain the variables involved in each measurement construct which include SA success, SA success factors including strategic factors, tactical factors and operational factors, and corporate performance

3.4.3.1 General Information

The survey contained one part related to general information. This section focused on companies' information (name of the company and location) and

participants' profiles (age, gender, and education). The following age groups have been used for the analyses 1) less than 35 years 2) 36 to 40 years 2) 41 to 45 years 3) 46 to 50 years 4) 51 years or more. The education level was expressed through the following groups 1) High school or Diploma 2) Bachelor Degree or equivalent 3) Graduate degree (master and above). To encourage potential respondents to participate in the survey and to increase their engagement during the questionnaire fill-in, the respondents have been asked to provide their email addresses in case they are interested to receive a review of the study results.

The next sections will explain the questions related to the research constructs: SA success factors, including strategic, tactical, and operational factors, corporate performance, and strategic alliance success.

3.4.3.2 Strategic alliance success

This section of the questionnaire included questions about the Strategic alliance success which has been measured through the combination of the following measures: SA overall performance, Accumulation of knowledge, and New Opportunities. A five-point Likert scale was used to measure respondents' satisfaction with each of the items including the following graduations: "Very unsatisfied, Unsatisfied, Somewhat satisfied, Satisfied and Very satisfied". Participants were asked to identify to what extent they think their firms are satisfied with SA's overall performance, Accumulation of knowledge, and New Opportunities.

Table 3.1 summarizes the items related to the strategic alliance success referred to by Parkhe (1993), Ariño (2002) and Zollo et al. (2002).

Table 3.1: Strategic Alliance Success Items

Question formulation: Please Identify to what extend do you think your firms is satisfied with:	
Measurement Item	Variables Source
Q1.1 SA overall performance	(Parkhe, 1993; Ariño, 2002; Zollo et al., 2002)
Q1.2 Knowledge accumulated from participating in the collaborative agreement	
Q1.3 New opportunities the alliance created for their firm	

The supportive items have also been involved under this section including assessment of the overall success of SA (Ariño, 2002) through a 5-point scale where the demarcation was as follows: “Not successful at all, Not successful to some extent, nor successful neither not successful, Successful to some extent, Very successful”. Another supportive question included an assessment of the importance of the defined SA strategic goals when the SA agreement was signed. The individual variables used to assess goal accomplishment items are introduced in Table 3.2 referred to by Parkhe (1993) and Ariño (2002).

Table 3.2: Goal Accomplishment Items

Question formulation: SA can be aimed at different strategic goals. How would you describe the importance for YOUR FIRM of each of the following strategic goals when the SA agreement WAS SIGNED?	
Measurement Item	Variables Source
Q2.1 Reducing costs/obtaining scale economies	(Parkhe, 1993; Ariño, 2002)
Q2.2 Gaining access to a market in the same industry	
Q2.3 Gaining access to a market in another industry	
Q2.4 Developing new technologies	
Q2.5 Blocking the competition	
Q2.6 Meeting government requirements	
Q2.7 Developing new skills	
Q2.8 Reducing risks	
Q2.9 Other	

3.4.3.3 Strategic alliance success Strategic Factors

The next section of the questionnaire included questions about the Strategic alliance success strategic factors which has been measured through the combination of the following sub-factors: Mutual objectives and strategies referred to by Rai et al. (1996), Russo and Cesarani (2017), Taylor (2005), Spralls et al. (2001), Power and contribution referred to by Russo and Cesarani (2017), Thompson (1967), Johnston (1991) and Trust and Commitment referred to by Todeva and Knoke (2003), Franco (2011). Overall, 12 individual variables have been measured under this section. The general question was formulated as follows: “What do you think, to what extent are the following factors important for SA success?” A five-point Likert scale was used to measure respondents’ assessment of the importance of the factors as follows: Not important at all, Slightly Important, Important, Fairly Important and Very Important

Table 3.3 summarizes the items related to the strategic alliance success strategic alliance factors referred to by Rai et al. (1996), Russo and Cesarani (2017), Taylor (2005), Spralls et al. (2001), Thompson (1967), Johnston (1991), etc.

Table 3.3: Strategic Alliance Success Strategic Factors Measurement Items

Question formulation: What do you think, to what extent are the following factors important for SA success?		
Sub-Factor	Measurement Item	Variables Source
Mutual objectives and strategies	Q4.1 Overall fit between the partners and existence of shared vision	Rai et al. (1996), Russo and Cesarani (2017), Taylor (2005), Spralls et al. (2001)
	Q4.2 Defined clear and compatible goals and objectives	
	Q4.3 Comprehension and compatibility of objectives and goals between the partners	
	Q4.4 Existence of agreement on the process by which SA goals can be achieved	
Power and contribution	Q4.5 Appropriateness of the form of cooperation for alliance management	Russo and Cesarani (2017), Thompson (1967), Johnston (1991)
	Q4.6 Appropriateness of the alliance governance form	
	Q4.7 Absence of disparities in the resources contributed and controlled by each partner organization	
	Q4.8 Absence of excessive dominance by one partner	
Trust and Commitment	Q4.9 Existence of a positive previous experience among the partners	Todeva and Knoke (2003), Franco (2011)
	Q4.10 Extent to which future expectations from the partners are positive	
	Q4.11 The degree of commitment between the partners	
	Q4.12 The degree the commitment between the partners is guaranteed and reasonable	

3.4.3.4 Strategic alliance success Tactical Factors

The strategic alliance success Strategic factor section is followed by the questions involved under Strategic alliance success Tactical factors which has been measured through the combination of the following sub-factors: Transparency, communication and information exchange referred to by Larsson et al. (1998), Russo and Cesarani (2017); Learning, referred to by Larsson et al. (1998), Todeva and Knoke

(2003); Cultural Fit referred to by Russo and Cesarani (2017), Meirovich (2010), Todeva and Knoke (2003). Overall, another 12 individual variables have been measured under this section. The general question was formulated as follows: “What do you think, to what extent are the following factors important for SA success?” A five-point Likert scale was used to measure respondents’ assessment of the importance of the factors as follows: Not important at all, Slightly Important, Important, Fairly Important and Very Important

Table 3.4 summarizes the items related to the strategic alliance success strategic alliance factors referred to by Larsson et al. (1998), Russo and Cesarani (2017), Todeva and Knoke (2003), Russo and Cesarani (2017), Meirovich (2010).

Table 3.4: Strategic Alliance Success Tactical Factors Measurement Items

Question formulation: What do you think, to what extent are the following factors important for SA success?		
Sub-Factor	Measurement Item	Variables Source
Transparency, communication and information exchange	Q5.1 Simultaneous transparency and receptivity among the organizations	Larsson et al. (1998), Russo and Cesarani (2017)
	Q5.2 Openness and timeliness of communication	
	Q5.3 Quality of information exchanged between the partners	
	Q5.4 Established efficient communication channels between the partners	
Learning	Q5.5 Simultaneous and receptivity of collective acquisition of knowledge among the organizations	Larsson et al. (1998), Todeva and Knoke (2003)
	Q5.6 The level of learning synergy and interaction effect between the organizations	
	Q5.7 Creation of new knowledge through interaction among the organizations	
	Q5.8 Continuity of learning	
Cultural Fit	Q5.9 Partners sensibility toward different cultures	Russo and Cesarani (2017), Meirovich (2010), Todeva and Knoke (2003)
	Q5.10 Absence of cultural differences between the partners	
	Q5.11 Absence of language barriers between the partners	
	Q5.12 Partners willingness to adapt to each other's' management practices, organizational culture, procedures	

3.4.3.5 Strategic alliance success Operational Factors

The strategic alliance success Tactical factor section is followed by the questions involved under Strategic alliance success Operational factors which has been measured through the combination of the following two sub-factors: Operational control and coordination referred to by Russo and Cesarani (2017), Tjemkes et al. (2017), Russo and Cesarani (2017); Organizational fit, referred to by Hennart and Zeng (2002), Park and Ungson (1997). Overall, 8 individual variables have been measured

under this section. The general question was formulated as follows: “What do you think, to what extent are the following factors important for SA success?” A five-point Likert scale was used to measure respondents’ assessment of the importance of the factors as follows: Not important at all, Slightly Important, Important, Fairly Important and Very Important.

Table 3.5 summarizes the items related to the strategic alliance success strategic alliance factors referred to by Russo and Cesarani (2017), Tjemkes et al. (2017), Russo and Cesarani (2017), Hennart and Zeng (2002), Park and Ungson (1997).

Table 3.5: Strategic Alliance Success Operational Factors Measurement Items

Question formulation: What do you think, to what extent are the following factors important for SA success?		
Sub-Factor	Measurement Item	Variables Source
Operational control and coordination	Q6.1 Existence of rules, policies and procedures that guide cooperation	Russo and Cesarani (2017), Tjemkes et al. (2017), Russo and Cesarani (2017)
	Q6.2 Distribution of clear roles and responsibilities within the alliance	
	Q6.3 Existence of alliance performance monitoring and evaluation mechanisms	
	Q6.4 Existence of practices, mechanisms to handle disagreements between the partners happening in the process of collaboration	
Organizational fit	Q6.5 Absence of divergences in management style and corporate culture	Hennart and Zeng (2002), Park and Ungson (1997)
	Q6.6 Comparable management styles of the partners	
	Q6.7 Compatible sizes of the partners engaged in SA	
	Q6.8 Similar level of technical capacities of the partners engaged in SA	

3.4.3.6 Corporate performance

The final section of the questionnaire included “corporate performance” section which has been measured through the combination of the following two sub-factors: Operational efficiency referred to by Osborn and Hagedoorn (1997), Kaplan and Norton (1992); Capacity building and learning, referred to by Eisenhardt (1999), Kaplan and Norton (1992). Overall, 13 individual variables have been measured under this section. The general question was formulated as follows: “To what extent did the following corporate performance areas improved/worsened after starting/joining strategic alliances?” A five-point Likert scale was used to measure respondents’ assessment of the importance of the factors as follows: “Much worse than before, Worse than before, Similar/no changes, Better than before, Much better than before”.

Table 3.6 summarizes the items related to the strategic alliance success strategic alliance factors referred to by Osborn and Hagedoorn (1997), Kaplan and Norton (1992), Eisenhardt (1999).

Table 3.6: Corporate Performance Measurement Items

Question formulation: To what extent did the following corporate performance areas improved/worsened after starting/joining strategic alliances?		
Sub-Factor	Measurement Item	Variables Source
Operational efficiency	Q7.1 Quality of management	Osborn and Hagedoorn (1997), Kaplan and Norton (1992)
	Q7.2 Employee's satisfaction	
	Q7.3 Product/service quality	
	Q7.4 Customers/partners' satisfaction	
	Q7.5 Firm's Quality of Marketing	
	Q7.6 Improvement of Corporate Culture	
	Q7.7 Access to new markets	
Capacity building and learning	Q7.8 Usage of information technologies	Eisenhardt (1999), Kaplan and Norton (1992)
	Q7.9 Firm's Capacity to Innovate	
	Q7.10 Firm's Capacity of adapting to the changes	
	Q7.11 Firm's Capacity to accumulate new knowledge	
	Q7.12 Companies' ability to attract, develop and retain Top Talent	
	Q7.13 Firm's Project and risk management capabilities	

3.4.4 Pretesting

Pretesting is a way to validate that questions work as expected and are understood by people who are likely to respond to them (Hilton, 2015). Pretesting is a necessary procedure for questionnaire design due to several reasons among them is a misinterpretation of the questions by the respondents (Belson, 1981). Meanwhile pretesting enables to improve the quality of the questionnaire and research overall as it enables to reduce the sampling error and increase questionnaire response rates (Drennan, 2003). The feedback provided by the respondents should be properly integrated and reflected in the questionnaire ensuring its easy and universal interpretation by the respondents. As for the quantity of the pre-testing, the research literature appears with different recommendations. For example, Presser et al. (2004)

suggested from 12 to 25 pretesting cases to reveal any poorly designed parts, weaknesses, and imperfections in a questionnaire.

As already noted, pretesting is an important aspect of the research to ensure the high quality of the questionnaire and the quality of information gathered from the field. It enables to improve the wording and formulation of the questions, their meanings, structure of the questionnaire, skips, and scales of the variables (Creswell, 2014). Accordingly, special attention was paid to the pretesting of the questionnaire through which the questionnaire was further amended and improved. A one-step pretesting strategy was adopted including pilot questionnaire fill-in by the research participants. Given the limited number of key informants that may be accessed during the research, it has been decided to fill-in 20 pre-test questionnaires with the research participants to validate the research instrument.

Based on the pilot survey the questionnaire was further improved and amended, including the following: the structure of the questionnaire was clarified, sequencing of the questions was changed to make it more logical, and the wording of the several questions was changed. The raw questionnaire included more than 70 measurement items. Some of them were out of the research constructs and were included mainly as supportive variables to shed light on the different aspects of the research questions. During the pre-test, the respondents reported that the questionnaire was too long and it was hard to keep the concentration during the fill-in procedure. Based on this feedback it was decided to drop all the supportive questions (including the open questions) and left only research-construct related questions and demographic questions. In addition, two questions relating to the SA goal accomplishment and SA overall success have been left in the questionnaire. Overall, the final questionnaire

included 58 measurement items introduced in 6 sections. This amendment enabled to save the respondents' time spent to fill in the questionnaire as well as to increase the response rate and ensure high engagement of the respondents during the survey and questionnaire fill-in. The final questionnaire structure, the individual items involved in the questionnaire are introduced in the previous section.

3.5 Sample Selection

The method of choosing observations to be analyzed for testing purposes is called sampling. In other words, it includes selection of some subset of group of interest and drawing conclusions from that subset (Sheppard, 2020). It is one of the important parts of the research design and includes particular aspects that the researcher should decide and address during the sampling procedure. Those include definition of the general population, selections of the sampling type, calculation of sample size, selection of the informants, etc.

This section includes information about the general population, sampling strategy, sample size, units of analysis and sample type.

3.5.1 Unit of Analysis

Definition of a unit of analysis is an important aspect of any social research. It is defined as a final entity that the researcher aims to describe at the end of the study, accordingly, it is the main focus of the study. (Sheppard, 2020). The units of analysis may include specific geographic areas, organizations, or specific people whose input is required (Krishnaswami & Satyaprasad, 2010).

This research focuses on the strategic alliances and companies engaged in these alliances formed in the oil and gas industry operating in the geographical area of this

study. The companies that are involved in strategic alliances in the geographical area of the study which have been involved in this study included ADNOC HQ, ADNOC Onshore, ADNOC Offshore, ADNOC Drilling (contractor which conducted the SA with Baker Hughes). Those companies are engaged in strategic alliances which are the main focus of this research. Accordingly, the unit of the analysis was the strategic alliances in oil and gas industry in the geographical area of this study the targeted companies are involved in.

3.5.2 Informants

As mentioned in the previous section, the unit of analysis was the strategic alliances in oil and gas industry in the UAE where the targeted companies including ADNOC HQ, ADNOC Onshore, ADNOC Offshore, and ADNOC Drilling are members. Data required for this study has been collected from the senior staff working in the above-mentioned companies. Key informants approached for questionnaire fill-in were the persons in each target company most directly related to the management of strategic alliance relations i.e., alliance managers and/or project managers, designated by their position to have significant responsibilities regarding alliance operation. Special attention has been paid to involving a manager or senior management team members who are the most component and related to the research topic.

3.5.3 Population

In social scientific research, the population is the cluster of people, events, things, or other phenomena in which the researcher is interested and aims at conducting the study within the defined research problem (Sheppard, 2020). The population should be duly described before sample design, as a rule sample is designed based on

population characteristics. For this research, the target population are individuals working in the companies which are engaged in the strategic alliances in oil and gas industry sector in the UAE. Specifically, this study targeted organizations which are part of any strategic alliance particularly focusing on ADNOC group of companies.

3.5.4 Sampling Strategy and Sample Size

In this study selective sampling strategy is applied for which different databases including the names of the individual who might be potential respondents have been used. All the targeted individual involved the employee lists have been approached for the questionnaire fill-in. The primary reason for this sampling strategy was potential anticipation of low response rate which might finally reduce the final sample size. Accordingly, all of the units in the general population have been approached for filling-in the questionnaire and any probability sampling type is not used. The databases of the employees including a listing of employee names were used obtained from ADNOC group of companies. The final sample consisted of 275 respondents out of them 86.4% were male and 13.6% female. The demographic characteristic of the study population is introduced in the Chapter 4. Data analysis section.

3.6 Data Collection Procedures

Data was collected through approaching selected respondents (front liners/ management). The selected respondents have been asked to fill in the survey questionnaire by their own. A possible bias due to a low response rate as a result of difficulties to contact and reach the target respondents was one of the anticipated difficulties of this research. Franco (2011) for example reported a 17% of response rate among the firms engaged in strategic alliances in Portugal. Butler (2007) reported

a 15% response rate while conducting an email survey on Cross-border strategic alliances among the firms in UAE. A low response rate will lead to the small size of the sample while the measurement model of the constructs presume involvement of 46 variables and detection of statistically significant relations and constructs among these variables and measures will become trickier with the increased possibility to allow Type 1 error. To mitigate this limitation special techniques and approaches have been applied during the data collection phase enabling the collection of overall 275 responses from the field.

The first exercise under this study included mapping of the strategic alliances and firms in the field which was further used for sampling of quantitative surveys. As the number of firms was limited while the quantitative approach is efficient in case a large number of measurement units are involved, a research sample covered all identified units. Four companies involved in the strategic alliances in oil and gas industry in the UAE were targeted in the analysis including ADNOC HQ, ADNOC Onshore, ADNOC Offshore, and ADNOC Drilling are members

The implementation of the study assumes access to the employee information involved in the target companies. Special permission and written consent were needed from the top management to approach the decision-makers in the ADNOC HQ, ADNOC Onshore, ADNOC Offshore, and ADNOC Drilling to collect privileged information from the respondent concerning the SA. The study also required ample time for conducting field research, analyzing data, and preparing a report.

3.7 Ethical Considerations

Ethical considerations are an important aspect of any social research. The research should be consistent with society's ethical standards as well as should ensure that the research participants are treated ethically. This refers also to the maintenance of the confidentiality of the responses and maintenance of the respondents' anonymity (Sheppard, 2020). Where feasible, ethical principles should be incorporated in the design of the study, including data collection, analysis, and presentation phases. One of the ethical components during the research is the "do not harm" principle, which means that the research should not harm participants' feelings, dignity, or moral norms. The other principle includes "voluntary participation" and "anonymity".

Under this study, ethical considerations were duly taken into account. Firstly, the study received the informed consent of the selected sample participants before questionnaire fill-in. Particularly, the participants have been asked to tick a box indicating that "they agree to voluntarily participate in the study". Secondly, the researcher communicated the purpose of the study to the participants. The research added a specific statement to the cover letter of the survey to clarify questions that participants may have about their confidentiality and that could also influence the response rate. Particularly, the following statement was added: "There is minimal risk in participating in this study since all data collected will be anonymous. Kindly note that participation is voluntary, accordingly you may withdraw at any time from the study".

The study further maintained and will continue to maintain the anonymity of the participants and the confidentiality of the private information they provide through the survey. In addition to that, the study will also respect the privacy of the participants

by keeping personal information from being accessed by third parties. The information provided by the respondents was presented only in a generalized form.

Besides, this research gives credit to previous contributors of the knowledge who have been referred during this research. The researcher is open to sharing the results of the study with the participants involved in the survey. The research did not assume any substantial risk for the participants, their welfare, beliefs, customs, cultural heritage, and perceptions have been respected during the survey.

3.8 Data Analysis

Quantitative data collected through survey was subject to various range of statistical tests and analysis aimed at to address the following research objectives 1) construct reliable and valid measurement models for the latent unobservable constructs employed in this study 2) examine and estimate the relationships between these constructs as per research model.

Survey data analysis procedures covered both descriptive statistics and multidimensional data analysis methods. Though descriptive statistics is easy to produce and is more understandable to policy makers and analysts, yet it may be not sufficient to introduce a broad range of individual variables involved in a single statistical model. Large number of the individual variables involved in this study were encompassed into low dimensional measures which further helped to get insight into the patterns underlying the data set. During data analysis phase the following statistical packages were used: 1) Quantitative data was analyzed using SPSS statistical software. 2) Structural Equation Modeling (SEM) software AMOS was used for Confirmatory Factor Analysis (CFA).

The following sections introduce the data analysis methods employed during the data processing and analyzing phase including descriptive statistics and correlations, reliability and validity testing, Exploratory Factor Analysis methods (EFA) and Structural equation modeling (SEM).

3.8.1 Descriptive Statistics and Correlations

To explain the basic features of the data in a sample, descriptive statistics are used. Descriptive statistics offer easy summaries of the sample and aggregations. They form the basis of virtually any quantitative data analysis, along with easy graphics analysis. Among descriptive statistics, central tendency measures are discussed including mean values and standard deviation of the variables.

A quantitative technique used to decide if, and how much, a relationship exists between at least two factors inside a populace (or an example). The level of connections is communicated by correlation coefficients. Coefficients range from +1.00 to - 1.00. Higher connections (coefficients closer to +1.00 or - 1.00) show more grounded connections. Positive connections show that as the qualities related to one variable go up, so do the qualities related to the other. Negative connections demonstrate that as the qualities related with one variable go up, the qualities related with the other go down. As Creswell (2014) explain the main sort of correlational plan, logical plan, is directed when specialists need to investigate the degrees to which at least two factors co-fluctuate, that is, the place where changes in a single variable are reflected in changes in the other. The second kind of correlational plan, expectation configuration, is utilized by analysts when the reason for the examination is to anticipate certain results in a single variable from another variable that fills in as the indicator.

3.8.2 Reliability and Validity Analysis

Statistical sampling aims at generalization and study of casual relationships between the variables. Accuracy and reliability of quantitative research are ensued through validity and reliability measures that were applied through the entire circle of research implementation. The aim of the present research is to contribute to the empirical knowledge in the field of strategic alliance through verification of theory-driven hypothesis. This will further contribute to theory improvement and development. Through obtained data, conclusions can be made on the established hypothesis. Any generalization of the theory will be possible only when it provides some evidence to support that proposed theory though there does not arise a need to prove it comprehensively (Gummesson, 1991). Generalizations are linked to the validity that, in turn, connotes that the theory, model or the concept is described with a good fit. The present research had been mainly dealing with the internal validity with special emphasis on the quantitative data and its statistical generalization. Possibility to apply statistical tests based on the developed database enables us to test construct validity and reliability of the measurement scales (e.g., applying Internal Reliability Tests, Confirmatory Factor Analysis, Estimation of Composite Reliability, etc.). As the reliability of the research goes up, more and more research will reflect the same outcome. Accordingly, statistical tests using the created database were applied to ensure validity and reliability of the constructs and measures developed under this study.

The variables were measured through 5-scale Likert scale which enables their successful application in different types of statistical tests and reliability assessment. The internal consistency of the given constructs was assessed through reliability test,

particularly Tau-equivalent reliability test (Cronbach's alpha test or coefficient alpha) was applied. Variables performed poor ability to measure hypothesized constructs were excluded from the further analysis.

Validity is the degree to which the scores from a measure address the unobservable variable they are designed to address. Validity includes three general criteria 1) Content Validity 2) Construct Validity and 3) Criterion-Related Validity. Content validity is about assessing the degree of measurement tool capacity to capture the domain of a content to be measured (Martins, 2006). Content validity has been ensured during the instrument design stage through a thorough literature review and integration of the best measures identified the research literature in the measurement instrument. Content validity is one of the most important criteria of validity and it shows whether items measure what they are intended to measure (Creswell, 2014). Content validity was assessed during the Structural Equation Modeling during which Convergent validity and Discriminant Validity of the research constructs are analyzed and discussed. Criterion-related validity of the constructs has been examined through the correlations between the measurement items. Particularly, Principal Component Analysis is applied including tests for criterion-related validity among them are Kaiser Meyer Olkin (KMO) measure of sampling adequacy, Bartlett's test of sphericity and commonalities.

3.8.3 Exploratory and Confirmatory Factor Analysis Methods

Exploratory factor analysis (EFA) is a mathematical approach used to discover the underlying structure of a relatively large number of variables in multivariate statistics. EFA is a factor analysis methodology whose ultimate objective is to define the fundamental relationships between calculated variables. Exploratory Factor

Analysis (EFA) method is used for SA success factors (tactical, operational, and, strategic factors) and Corporate Performance. EFA was performed to assess the underlying structure of each potential SA success factors and Corporate Performance. Principal component analysis with Varimax rotation was used to extract factor scores for the first-order factors

The employed hypothesized concepts were defined as multidimensional latent constructs which can be measured through a combination of directly observed variables. Accordingly, a priori measurement models were developed and verified through Structural Equation Modeling and Confirmatory Factor Analysis methods. For the latent constructs correlated unidimensional or multidimensional models were developed and verified. These models assume that multiple specific dimensions of a construct fit together conceptually but are best measured distinctly (Wray, 2016). Correlated factor models along with their complexity emphasize and predict differences among dimensions of a construct (Brown, 2006). These models incorporate relationships between observed and latent variables, relationships between several latent variables and gives information on errors and disturbances. The analysis provides model estimation parameters which enable to assess the entire quality of the tested models.

Structural equation modeling enables to successfully implement path analysis and construct regression models where independent and dependent variables can be introduced as latent construct through directly observed variables. Path analysis gives estimates on the regression model coefficient and provides parameters on the entire quality of the model. For path analysis Maximum likelihood estimates (MLE) method was used.

3.8.4 Missing Data

Application of some of the methods, among them is structural equation modeling, assumes complete absence of missing data. In addition, missing data often hinder the robustness of estimation of the research model. However, as the database observation showed it was plagued with variables involving missing data. This section addresses methods widely used in survey responses to deal with missing data and describes the method chosen in the present study to deal with this problem.

As the research literature suggests there are different approaches for imputing missing values. In addition, extreme values should also be examined and treated as missing values as they can become unintended benchmarks. As the OECD handbook suggests (2008) the missing patterns may be Missing Completely at Random (MCAR), Missing at Random (MAR) and Not Missing at Random (NMAR). The handbook also suggested different approaches and methods to handle missing value issue among them are 1) case deletion, 2) single imputation or 3) multiple imputation.

3.9 Chapter Summary

This chapter introduced the research questions, research paradigms, and research methodology, and research methods used in the study. The designed research tool is duly discussed and introduced. Details on pre-testing and further questionnaire improvement are explained. A structured questionnaire is used for this study. The section also covers the sample of the study, details on the unit of analysis, selection of the informants, sampling strategy, and sample size. The unit of analysis was the strategic alliances in oil and gas industry in the UAE where the targeted companies including ADNOC HQ, ADNOC Onshore, ADNOC Offshore, and ADNOC Drilling are members. For the survey employees working in those companies are approached.

This chapter has also addressed the ethical considerations relevant to this research, including the deployment of the required ethical standards. Finally, it described the data analysis process, including descriptive and correlation analysis, the reliability and validity tests used, and exploratory factor analysis and confirmatory factor analysis. The next section includes the data analysis results based on the above-mentioned methods.

Chapter 4: Data Analysis and Findings

4.1 Introduction

This Chapter analyzes the data collected through survey among 275 different representatives of the organizations involved in the Strategic Alliances in the UAE oil and gas industry. The aim of the current analysis to assess the relationship between various strategic alliance (SA) success factors and the Corporate Performance of the organizations. The research also assesses the association between corporate performance and the overall success of SA as well as the perceived importance of various SA success factors.

The collected data was prepared, labeled, coded, and imputed into the SPSS database. Data has been screened against the absence of missing data. For Structural Equation Modeling all missing data have been treated accordingly. Data also was screened against the absence of multivariate outliers and unengaged responses. Multicollinearity of the variables engaged were also tested. To assess the internal validity of the engaged construct's reliability and validity tests were conducted. To assess the reliability of the survey measures Tau-equivalent reliability test or so-called Cronbach's alpha test was used. To check the constructs validity factor analysis method was applied.

Descriptive analyses and correlations analysis of the variables is also introduced. The Exploratory Factor Analysis (EFA) Method was applied to study the underlying structure of the involved constructs. Finally, the testing of the model hypotheses was performed through the Structural Equation Modeling method through AMOS software.

This chapter introduces a key finding of the analysis and concludes with the results of the hypothesis testing.

4.2 Data Preparation and Statistical Software

As already introduced questionnaire included 64 questions. A total of 48 Likert scale items were included to construct the structural model that was used to investigate the association between perceived SA success factors, subjective measures of performance, and overall success of SA. Five questions assessed the organization and demographic characteristics of the study respondents while all remaining questions were Likert-scale item with the possible score that can range from 1 to 5 (e.g., 1 equaling “of no importance” to 5 equaling to “of major importance” or 1 = “of completely disagree” to 5 = “completely agree”).

The collected data was imputed into SPSS statistical software database. Missing data were identified and labeled accordingly in the statistical software. The database was checked against any mistyping (e.g., extraordinary data) during the imputation process. SPSS was used for descriptive statistics, correlation analysis, exploratory factor analysis, and preparation of the variables for Structural Equation Modeling. Identification of the multivariate outliers and unengaged responses was performed through SPSS. CFA and SEM were performed using AMOS v 22.

4.3 Descriptive Analysis of the Sample

This section provides general characteristics of the respondents. The study sample included 275 respondents. Information on respondents' gender, age, and education were collected. Males and females represented 86.4% and 13.6% of the study sample, respectively. Respondents aged < 35 years represented 19.6% of the

study sample while respondents aged 36 – 40, and 41 – 45 years represented 33.8% and 27.3% of the study sample, respectively. Respondents with a bachelor's degree or higher represented 66.2% of the study sample. The other demographic parameters of the study sample are presented in Table 4.1. Only valid data is presented for gender, therefore the sum of N data for the gender groups is lower than the total number of the respondents.

Table 4.1: Descriptive Statistics for the Study Population

Descriptive statistics for the study sample, n=275	N (%)
Gender:	
Female	35 (13.6%)
Male	223 (86.4%)
Age:	
less than 35 years	54 (19.6%)
36 to 40 years	93 (33.8%)
41 to 45 years	75 (27.3%)
46 to 50 years	34 (12.4%)
51 years or more	15 (5.5%)
Refused to answer	4 (1.5%)
Education:	
High school or Diploma	6 (2.2%)
Bachelor Degree or equivalent	182 (66.2%)
Graduate degree (master and above)	44 (16.0%)
Refused to answer/missing data	43 (15.6%)

4.4 Descriptive Statistics and Correlations among the Study Variables

This section provides descriptive statistics data for the variables involved in the study, including means, Standard Deviations (SD) and correlation coefficients for the entire sample (N = 275). Data analysis results are presented as per each research component.

4.4.1 Strategic Alliance Success

The Table 4.2 presents the means, standard deviations and correlation coefficients for the Strategic alliance success variables. As the Table demonstrates involved 3 variables are significantly correlated (significant at the 0.01 level). The mean values of the variables are close to 4 which means that generally, the companies are satisfied with the SA different success components.

Table 4.2: Descriptive Statistics and Correlations among Strategic Alliance Success Variables

Descriptive Statistics and Correlations among the Strategic alliance success Variables					
	Mean	SD	Q1.1	Q1.2	Q1.3
Q1.1 SA overall performance	3.93	0.893	1.000		
Q1.2 Knowledge accumulated from participating in the collaborative agreement	3.94	0.804	0.782**	1.000	
Q1.3 New opportunities the alliance created for their firm	4.00	0.839	0.793**	0.725**	1.000

** Correlation is significant at the 0.01 level (2-tailed)

4.4.2 Strategic Goals

Overall, 8 variables were involved in the analysis of SA goal assessment. The respondents have been asked to assess the importance of different SA goals components for their firms. As Table 4.3 shows all of the variables were significantly correlated (significant at the 0.01 level), however, the correlation coefficients were lower than 0.7 which indicates that the correlations between the variables were moderate. Meanwhile, the mean values for the different items were close to 4 which indicates that those components are “Important” in terms of strategic goals when the SA agreement was signed. One of the variables which is “Blocking the competition” demonstrated a lower mean value (MD=3.69, SD=1.063), which means that this goal was the least important goal for the firms when signing strategic Alliance agreements.

The most important goals of the firms were Meeting government requirements (MD=4.35, SD=0.739), Developing new technologies (MD=4.33, SD=0.833), and Reducing costs/obtaining scale economies (MD=4.27, SD=0.779).

Table 4.3: Descriptive Statistics and Correlations among SA Goals Variables

Descriptive Statistics and Correlations among SA goals Variables										
	Mean	SD	Q2.1	Q2.2	Q2.3	Q2.4	Q2.5	Q2.6	Q2.7	Q2.8
Q2.1 Reducing costs/obtaining scale economies	4.27	0.779	1.000							
Q2.2 Gaining access to a market in the same industry	4.14	0.765	0.587**	1.000						
Q2.3 Gaining access to a market in another industry	4.03	0.849	0.463**	0.503**	1.000					
Q2.4 Developing new technologies	4.33	0.833	0.548**	0.596**	0.373**	1.000				
Q2.5 Blocking the competition	3.69	1.063	0.197**	0.294**	0.439**	0.254**	1.000			
Q2.6 Meeting government requirements	4.35	0.739	0.422**	0.549**	0.309**	0.530**	0.228**	1.000		
Q2.7 Developing new skills	4.25	0.783	0.596**	0.534**	0.431**	0.637**	0.257**	0.651**	1.000	
Q2.8 Reducing risks	4.06	0.933	0.512**	0.538**	0.446**	0.512**	0.146**	0.480**	0.567**	1.000

** Correlation is significant at the 0.01 level (2-tailed)

4.4.3 Strategic Alliance Success Factors

This section includes descriptive statistics and correlations of the strategic alliance success factor variables as per each component: strategic factors, tactical factors and operational factors.

4.4.3.1 Strategic Factors

The following section presents descriptive statistics and correlations of the three sub-components: Mutual Objectives and Strategies, Power and Contribution, Trust and Commitment.

Mutual objectives and strategies: Overall, 4 variables are involved under the Mutual objectives and strategies sub-component and all of them demonstrated statistically significant interrelation with each other (significant at the 0.01 level). The correlation coefficients were lower than 0.7 indicating moderate strength of the correlations. The mean values were higher than 4 which means that all of the items were assessed to be important factors in SA success (Table 4.4).

Table 4.4: Descriptive Statistics and Correlations among Items of Mutual Objectives and Strategies

Descriptive Statistics and Correlations among Variables						
	Mean	SD	Q4.1	Q4.2	Q4.3	Q4.4
Q4.1 Overall fit between the partners and existence of shared vision	4.16	0.753	1.000			
Q4.2 Defined clear and compatible goals and objectives	4.23	0.729	0.645**	1.000		
Q4.3 Comprehension and compatibility of objectives and goals between the partners	4.18	0.763	0.465**	0.602**	1.000	
Q4.4 Existence of agreement on the process by which SA goals can be achieved	4.25	0.755	0.540**	0.485**	0.486**	1.000

** Correlation is significant at the 0.01 level (2-tailed)

Power and Contribution: The variables involved (n=4 items) demonstrated statistically significant correlations (significant at the 0.01 level) with each other. The correlation coefficient did not exceed 0.7 indicating moderate strength of the interrelations between the variables. The mean values of all of the items are higher than 4 indicating the importance of all of the variables involved under the Power and Contribution sub-factor in terms of SA success (Table 4.5).

Table 4.5: Descriptive Statistics and Correlations among Items of Power and Contribution

Descriptive Statistics and Correlations among Variables						
	Mean	SD	Q4.5	Q4.6	Q4.7	Q4.8
Q4.5 Appropriateness of the form of cooperation for alliance management	4.21	0.745	1.000			
Q4.6 Appropriateness of the alliance governance form	4.18	0.750	0.668**	1.000		
Q4.7 Absence of disparities in the resources contributed and controlled by each partner organization	4.04	0.871	0.508**	0.518**	1.000	
Q4.8 Absence of excessive dominance by one partner	4.02	0.917	0.489**	0.460**	0.620**	1.000

** Correlation is significant at the 0.01 level (2-tailed)

Trust and Commitment: The variables involved (n=4 items) demonstrated statistically significant correlations (significant at the 0.01 level) with each other. The correlation coefficient was lower than 0.7 which indicates a moderate correlation between the variables. Overall, all of the items under “Trust and Commitment” were assessed higher than 4 indicating their importance for SA success (Table 4.6).

Table 4.6: Descriptive Statistics and Correlations among Items of Trust and Commitment

Descriptive Statistics and Correlations among Variables						
	Mean	SD	Q4.9	Q4.10	Q4.11	Q4.12
Q4.9 Existence of a positive previous experience among the partners	4.29	0.690	1.000			
Q4.10 Extent to which future expectations from the partners are positive	4.25	0.743	0.573**	1.000		
Q4.11 The degree of commitment between the partners	4.28	0.782	0.534**	0.660**	1.000	
Q4.12 The degree the commitment between the partners is guaranteed and reasonable	4.27	0.714	0.541**	0.598**	0.605**	1.000

** Correlation is significant at the 0.01 level (2-tailed)

4.4.3.2 Tactical Factors

Under Tactical factor 4 sub-components are involved: Transparency, Communication and Information Exchange, Learning and Cultural Fit. Descriptive statistics of each sub-component and correlations are presented in the below section.

Transparency, communication and information exchange: Overall, 4 variables are involved under Transparency, communication and information exchange sub-factor and all of them demonstrated statistically significant interrelation with each other (significant at the 0.01 level). The correlation coefficient was lower than 0.7 indicating moderate strength of the correlation. The mean value was higher than 4 which means that all of the items were assessed to be important factors in SA success (Table 4.7).

Table 4.7: Descriptive Statistics and Correlations among Items of Transparency, Communication and Information Exchange

Descriptive Statistics and Correlations among Variables						
	Mean	SD	Q5.1	Q5.2	Q5.3	Q5.4
Q5.1 Simultaneous transparency and receptivity among the organizations	4.22	0.832	1.000			
Q5.2 Openness and timeliness of communication	4.32	0.748	0.671**	1.000		
Q5.3 Quality of information exchanged between the partners	4.34	0.743	0.584**	0.667**	1.000	
Q5.4 Established efficient communication channels between the partners	4.33	0.760	0.670**	0.603**	0.679**	1.000

** Correlation is significant at the 0.01 level (2-tailed)

Learning: Under Learning 4 items are involved which demonstrated statistically significant interrelation with each other (significant at the $p < 0.05$ level). As demonstrated in Table 4.8, the mean values of the variables show that all of the items were assessed to be important for SA success.

Table 4.8: Descriptive Statistics and Correlations among Items of Learning

Descriptive Statistics and Correlations among Variables						
	Mean	SD	Q5.5	Q5.6	Q5.7	Q5.8
Q5.5 Simultaneous and receptivity of collective acquisition of knowledge among the organizations	4.28	0.787	1.000			
Q5.6 The level of learning synergy and interaction effect between the organizations	4.19	0.784	0.674**	1.000		
Q5.7 Creation of new knowledge through interaction among the organizations	4.31	0.778	0.638**	0.613**	1.000	
Q5.8 Continuity of learning	4.31	0.760	0.620**	0.639**	0.747**	1.000

** Correlation is significant at the 0.01 level (2-tailed)

Cultural Fit: Overall, 4 variables were involved under Cultural Fit. As Table 4.9 shows all of the variables were significantly correlated (significant at the 0.01 level), however, the correlation coefficients were close to 0.5 which indicates that the correlations between the variables were moderate. Meanwhile, the mean values for the different items were close to 4 which indicates that those components are important in terms of SA success.

Table 4.9: Descriptive Statistics and Correlations among Items of Cultural Fit

Descriptive Statistics and Correlations among Variables						
	Mean	SD	Q5.9	Q5.10	Q5.11	Q5.12
Q5.9 Partners sensibility toward different cultures	4.11	0.815	1.000			
Q5.10 Absence of cultural differences between the partners	3.96	0.930	0.511**	1.000		
Q5.11 Absence of language barriers between the partners	4.01	0.893	0.478**	0.629**	1.000	
Q5.12 Partners willingness to adapt to each other's' management practices, organizational culture, procedures	4.22	0.769	0.436**	0.445**	0.505**	1.000

** Correlation is significant at the 0.01 level (2-tailed)

4.4.3.3 Operational Factors

Under Operational factor two sub-components are involved: Operational control and coordination, and Organizational fit. Descriptive statistics of each sub-component and correlations are presented in the below section

Operational control and coordination: Overall, 4 variables are involved under the Operational control and coordination sub-component and all of them demonstrated statistically significant interrelation (significant at the 0.01 level). The correlation coefficients were different: Variables Q6.1 and Q6.2, and variables Q6.3 and Q6.4 demonstrated strong correlation with each other with correlation coefficients higher than 0.7, while for the rest of the variables the correlation was lower than 0.7 indicating moderate strength of the correlations. The mean values were higher than 4 which means that all of the items were assessed to be important factors in SA success (Table 4.10).

Table 4.10: Descriptive Statistics and Correlations among Items of Operational Control and Coordination

Descriptive Statistics and Correlations among Variables						
	Mean	SD	Q6.1	Q6.2	Q6.3	Q6.4
Q6.1 Existence of rules, policies and procedures that guide cooperation	4.29	0.811	1.000			
Q6.2 Distribution of clear roles and responsibilities within the alliance	4.34	0.737	0.752**	1.000		
Q6.3 Existence of alliance performance monitoring and evaluation mechanisms	4.32	0.747	0.554**	0.638**	1.000	
Q6.4 Existence of practices, mechanisms to handle disagreements between the partners happening in the process of collaboration	4.33	0.738	0.576**	0.572**	0.714**	1.000

** Correlation is significant at the 0.01 level (2-tailed)

Organizational fit: Overall, 4 variables were involved under Organizational Fit. As Table 4.11 shows all of the variables were significantly correlated (significant at the 0.01 level), however, the correlation coefficients were lower than 0.7 which indicates that the correlations between the variables were moderate. Meanwhile, the mean values for the different items were close to 4 which indicates that those components are important in terms of SA success.

Table 4.11: Descriptive Statistics and Correlations among Items of Organizational Fit

Descriptive Statistics and Correlations among Variables						
	Mean	SD	Q6.5	Q6.6	Q6.7	Q6.8
Q6.5 Absence of divergences in management style and corporate culture	4.07	0.868	1.000			
Q6.6 Comparable management styles of the partners	4.00	0.797	0.614**	1.000		
Q6.7 Compatible sizes of the partners engaged in SA	4.04	0.973	0.651**	0.645**	1.000	
Q6.8 Similar level of technical capacities of the partners engaged in SA	4.04	0.837	0.461**	0.575**	0.515**	1.000

** Correlation is significant at the 0.01 level (2-tailed)

4.4.4 Corporate Performance

This section includes descriptive statistics and correlations of the corporate performance as per each component: Operational Efficiency and Capacity Building.

4.4.4.1 Operational Efficiency

Overall, 7 variables were involved in the Operational Efficiency of the Corporate Performance. The respondents have been asked to assess to what extent corporate performance areas improved/worsened after starting/joining strategic alliances. As Table 4.12 shows all of the variables were significantly correlated (significant at the 0.01 level), however, for almost all of the pairs the correlation

coefficients were lower than 0.7 which indicates that the correlations between the variables were moderate. Two variables demonstrated a strong correlation with each other: Q7.3 Product/service quality and Q7.4 Customers/partners' satisfaction. Meanwhile, the mean values for the different items were close to 4 which indicates that those components are improved after starting/joining strategic alliances.

Table 4.12: Descriptive Statistics and Correlations among Items of Operational Efficiency

Descriptive Statistics and Correlations among Variables									
	Mean	SD	Q7.1	Q7.2	Q7.3	Q7.4	Q7.5	Q7.6	Q7.7
Q7.1 Quality of management	4.11	0.772	1.000						
Q7.2 Employee's satisfaction	3.97	0.825	0.700**	1.000					
Q7.3 Product/service quality	4.15	0.788	0.657**	0.688**	1.000				
Q7.4 Customers/partners' satisfaction	4.12	0.785	0.606**	0.617**	0.712**	1.000			
Q7.5 Firm's Quality of Marketing	4.13	0.661	0.402**	0.460**	0.481**	0.566**	1.000		
Q7.6 Improvement of Corporate Culture	4.18	0.751	0.616**	0.591**	0.598**	0.595**	0.552**	1.000	
Q7.7 Access to new markets	4.06	0.754	0.460**	0.526**	0.473**	0.497**	0.550**	0.617**	1.000

** Correlation is significant at the 0.01 level (2-tailed)

4.4.4.2 Capacity Building

Overall, 6 variables were involved in the Capacity Building of the Corporate Performance. The respondents have been asked to assess to what extent corporate performance areas improved/worsened after starting/joining strategic alliances. As Table 4.13 shows all of the variables were significantly correlated (significant at the 0.01 level), however, for almost all of the pairs the correlation coefficients were lower than or close to 0.7 which indicates that the correlations between the variables were

moderate. Meanwhile, the mean values for the different items were close to 4 which indicates that those components are improved after starting/joining strategic alliances.

Table 4.13: Descriptive Statistics and Correlations among Items of Capacity Building

Descriptive Statistics and Correlations among Variables								
	Mean	SD	Q7.8	Q7.9	Q7.10	Q7.11	Q7.12	Q7.13
Q7.8 Usage of information technologies	4.15	0.736	1.000					
Q7.9 Firm's Capacity to Innovate	4.14	0.780	0.624**	1.000				
Q7.10 Firm's Capacity of adapting to the changes	4.17	0.816	0.570**	0.706**	1.000			
Q7.11 Firm's Capacity to accumulate new knowledge	4.10	0.836	0.642**	0.650**	0.702**	1.000		
Q7.12 Companies' ability to attract, develop and retain Top Talent	4.12	0.885	0.506**	0.576**	0.648**	0.622**	1.000	
Q7.13 Firm's Project and risk management capabilities	4.17	0.755	0.586**	0.577**	0.563**	0.641**	0.664**	1.000

** Correlation is significant at the 0.01 level (2-tailed)

4.5 Reliability Testing

Both Reliability and Validity testing are important to ensure meaningful interpretation and analysis of the collected data. For the reliability testing, Cronbach's alpha test is used. Cronbach's alpha test is used when assessing the internal consistency of the unobservable constructs, in other words it gives an understanding of to what extent the individual items are measuring the same construct (Tavokol & Dennick, 2011).

4.5.1 Reliability Testing

Reliability analysis gives an idea on the internal consistency of the concepts which the questionnaire measures (Sekaran & Bougie, 2016). Reliability can be assessed using various measures. However, Cronbach's Alpha (α) coefficient is the most commonly used measure of reliability. It can be applied to assess if the scale in question is reliable. The recommended lower bound of acceptance for Cronbach's α is 0.7 (Pallant, 2010). Composite Reliability (CR) can also be used to assess the latent variables' reliability. Bagozzi and Yi (1988) and Hair et al. (2016) showed that composite reliability could sometimes provide more reliable results than the traditional Cronbach Alpha. Further, Values > 0.7 for both scales were used to denote acceptable reliability (Wong, 2013). In the current analysis, both values were examined for adequacy, and composite reliability was used in case of conflicting evidence. Variables decreasing alpha's coefficient were not considered in further processing. Composite reliability analysis results are presented in Structural Equation Modeling Section, introduced in the below sections.

The sections below detail the results of the reliability tests for each construct engaged in the study.

4.5.1.1 Reliability of Strategic Alliance Success

The research questionnaire included 3 items relating to the measurement of strategic alliance success. As the Table 4.14 shows Cronbach's alpha values for the Strategic Alliance Success equals 0.907 which indicates considerable reliability of the construct.

Table 4.14: Cronbach's Alpha for Internal Consistency of the Strategic Alliance Success

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.907	0.908	3

The Cronbach's alpha values of the items related to Strategic alliance success were as follows: SA overall performance (0.848; 0.84 if item deleted), Knowledge accumulated from participating in the collaborative agreement (0.796; 0.884 if item deleted), New opportunities the alliance created for their firm (0.806; 0.875 if item deleted). As can be seen all the measurement items had significant internal consistency and do not reduce Cronbach's alpha value.

Table 4.15: Cronbach's Alpha for Measurement Items for the Strategic Alliance Success

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q1.1 SA overall performance	7.94	2.328	0.848	0.720	0.840
Q1.2 Knowledge accumulated from participating in the collaborative agreement	7.92	2.691	0.796	0.641	0.884
Q1.3 New opportunities the alliance created for their firm	7.87	2.567	0.806	0.657	0.875

4.5.1.2 Reliability of Strategic goals

The research questionnaire included 8 items relating to the measurement of strategic goals. The reliability analysis revealed strong internal consistency with Cronbach's Alpha coefficient equaling 0.857 (Table 4.16).

Table 4.16: Cronbach's Alpha for Internal Consistency of the Strategic Goals

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.857	0.867	8

The Cronbach's alpha values of the items related to Strategic goals were as follows: Reducing costs/obtaining scale economies (0.65; 0.834 if item deleted), Gaining access to a market in the same industry (0.715; 0.828 if item deleted), Gaining access to a market in another industry (0.59; 0.841 if item deleted), Developing new technologies (0.676; 0.831 if item deleted), Blocking the competition (0.339; 0.879 if item deleted), Meeting government requirements (0.616; 0.839 if item deleted), Developing new skills (0.727; 0.826 if item deleted), Reducing risks (0.616; 0.838 if item deleted) (Table 4.17). As can be seen one of the variables demonstrated poor ability to tap the same measurement construct which is Blocking the competition.

Table 4.17: Cronbach's Alpha for Measurement Items for the Strategic Goals

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q2.1 Reducing costs/obtaining scale economies	28.84	18.120	0.650	0.495	0.834
Q2.2 Gaining access to a market in the same industry	28.97	17.832	0.715	0.551	0.828
Q2.3 Gaining access to a market in another industry	29.08	18.059	0.590	0.420	0.841
Q2.4 Developing new technologies	28.78	17.615	0.676	0.519	0.831
Q2.5 Blocking the competition	29.42	18.784	0.339	0.228	0.879
Q2.6 Meeting government requirements	28.76	18.567	0.616	0.497	0.839
Q2.7 Developing new skills	28.86	17.641	0.727	0.617	0.826
Q2.8 Reducing risks	29.05	17.373	0.616	0.449	0.838

4.5.1.3 Reliability of SA Success Strategic Factors

Under this section reliability of SA success strategic factors are presented per each sub-component including Mutual objectives and Strategies; Power and Contribution; and Trust and Commitment.

Mutual objectives and strategies: 4 items were included in the analysis of Mutual Objectives and Strategies as per conceptual scheme. Cronbach's Alpha final value was 0.822 which indicates strong internal consistency (Table 4.18).

Table 4.18: Cronbach's Alpha for Internal Consistency of the Mutual Objectives and Strategies

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.822	0.823	4

The Cronbach's alpha values of the items related to Mutual objectives and strategies were as follows: Overall fit between the partners and existence of shared vision (0.664; 0.767 if item deleted), Defined clear and compatible goals and objectives (0.708; 0.748 if item deleted), Comprehension and compatibility of objectives and goals between the partners (0.615; 0.79 if item deleted), Existence of agreement on the process by which SA goals can be achieved (0.597; 0.798 if item deleted). As can be seen all of the items demonstrated suitable levels of reliability and consistency for further analysis and none of them was excluded (Table 4.19).

Table 4.19: Cronbach's Alpha for Measurement Items for the Mutual Objectives and Strategies

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q4.1 Overall fit between the partners and existence of shared vision	12.67	3.446	0.664	0.485	0.767
Q4.2 Defined clear and compatible goals and objectives	12.59	3.429	0.708	0.536	0.748
Q4.3 Comprehension and compatibility of objectives and goals between the partners	12.65	3.526	0.615	0.412	0.790
Q4.4 Existence of agreement on the process by which SA goals can be achieved	12.58	3.593	0.597	0.367	0.798

Power and contribution: Cronbach's alpha for the variables under Power and contribution was found to be 0.822, which confirms significant reliability above the good level of 0.8 (Table 4.20).

Table 4.20: Cronbach's Alpha for Internal Consistency of the Power and Contribution

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.822	0.827	4

The Cronbach's alpha values of the items related to Power and contribution were as follows: Appropriateness of the form of cooperation for alliance management (0.659, 0.773 if item deleted), Appropriateness of the alliance governance form (0.648, 0.777 if item deleted), Absence of disparities in the resources contributed and controlled by each partner organization (0.667, 0.767 if item deleted), Absence of excessive dominance by one partner (0.628, 0.789 if item deleted) (Table 4.21). All of the variables demonstrated good ability to measure the same construct and none of them was excluded for the further analysis.

Table 4.21: Cronbach's Alpha for Measurement Items for the Power and Contribution

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q4.5 Appropriateness of the form of cooperation for alliance management	12.24	4.463	0.659	0.498	0.773
Q4.6 Appropriateness of the alliance governance form	12.27	4.476	0.648	0.493	0.777
Q4.7 Absence of disparities in the resources contributed and controlled by each partner organization	12.41	4.008	0.667	0.463	0.767
Q4.8 Absence of excessive dominance by one partner	12.43	3.960	0.628	0.429	0.789

Trust and Commitment: Cronbach's alpha for the variables under Trust and Commitment was found to be 0.850, which confirms significant reliability above the good level of 0.8 (Table 4.22).

Table 4.22: Cronbach's Alpha for Internal Consistency of the Trust and Commitment

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.850	0.850	4

The Cronbach's alpha values of the items related to Trust and Commitment were as follows: Existence of a positive previous experience among the partners (0.635; 0.831 if item deleted), Extent to which future expectations from the partners are positive (0.728; 0.792 if item deleted), The degree of commitment between the partners (0.711; 0.8 if item deleted), The degree the commitment between the partners is guaranteed and reasonable (0.684; 0.811 if item deleted) (Table 4.23). The results confirm that all of the variables involved in the analysis are suitable and there is no need to exclude any of them.

Table 4.23: Cronbach's Alpha for Measurement Items for the Trust and Commitment

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q4.9 Existence of a positive previous experience among the partners	12.79	3.749	0.635	0.407	0.831
Q4.10 Extent to which future expectations from the partners are positive	12.83	3.381	0.728	0.534	0.792
Q4.11 The degree of commitment between the partners	12.80	3.292	0.711	0.518	0.800
Q4.12 The degree the commitment between the partners is guaranteed and reasonable	12.81	3.568	0.684	0.468	0.811

SA Success Strategic Factors: finally, reliability test was performed for all the variables involved under SA Success Strategic Factors. The variables under SA Success Strategic Factors were loaded into the same test apart from any internal hierarchy of the factors that may underlie the structure of the variables. Overall, 12 items were involved in the test. The reliability test revealed strong internal consistency with Cronbach's Alpha value of 0.913 (Table 4.24).

Table 4.24: Cronbach's Alpha for Internal Consistency of the SA Success Strategic Factors

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.913	0.915	12

The Cronbach's alpha values of the items related to SA Success Strategic Factors were as follows: Overall fit between the partners and existence of shared vision (0.657; 0.905 if item deleted), Defined clear and compatible goals and objectives (0.665; 0.905 if item deleted), Comprehension and compatibility of objectives and goals between the partners (0.648; 0.905 if item deleted), Existence of agreement on the process by which SA goals can be achieved (0.661; 0.905 if item deleted), Appropriateness of the form of cooperation for alliance management (0.742; 0.901 if item deleted), Appropriateness of the alliance governance form (0.677; 0.904 if item deleted), Absence of disparities in the resources contributed and controlled by each partner organization (0.631; 0.907 if item deleted), Absence of excessive dominance by one partner (0.508; 0.914 if item deleted), Existence of a positive previous experience among the partners (0.65; 0.906 if item deleted), Extent to which future expectations from the partners are positive (0.673; 0.904 if item deleted), The degree of commitment between the partners (0.697; 0.903 if item deleted), The degree the commitment between the partners is guaranteed and reasonable (0.645; 0.906 if item deleted). The results show that one of the variables, which is "Absence of excessive dominance by one partner (Q4.8)" demonstrates poor ability to tap the same measurement construct and worsens Cronbach's Alpha and accordingly this variable is dropped for the further analysis (Table 4.25).

Table 4.25: Cronbach's Alpha for Measurement Items for the SA Success Strategic Factors

	Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q4.1 Overall fit between the partners and existence of shared vision	46.19	36.895	0.657	0.532	0.905
Q4.2 Defined clear and compatible goals and objectives	46.13	37.054	0.665	0.589	0.905
Q4.3 Comprehension and compatibility of objectives and goals between the partners	46.17	36.889	0.648	0.470	0.905
Q4.4 Existence of agreement on the process by which SA goals can be achieved	46.10	36.845	0.661	0.464	0.905
Q4.5 Appropriateness of the form of cooperation for alliance management	46.14	36.290	0.742	0.598	0.901
Q4.6 Appropriateness of the alliance governance form	46.17	36.788	0.677	0.533	0.904
Q4.7 Absence of disparities in the resources contributed and controlled by each partner organization	46.31	36.126	0.631	0.527	0.907
Q4.8 Absence of excessive dominance by one partner	46.33	36.961	0.508	0.454	0.914
Q4.9 Existence of a positive previous experience among the partners	46.07	37.512	0.650	0.475	0.906
Q4.10 Extent to which future expectations from the partners are positive	46.11	36.885	0.673	0.552	0.904
Q4.11 The degree of commitment between the partners	46.07	36.327	0.697	0.574	0.903
Q4.12 The degree the commitment between the partners is guaranteed and reasonable	46.09	37.372	0.645	0.493	0.906

4.5.1.4 Reliability of SA Success Tactical Factors

Under this section Reliability of SA Success Tactical Factors are presented per each sub-component including Transparency, Communication and Information Exchange, Learning and Cultural Fit.

Transparency, communication and information exchange: Cronbach's alpha for Transparency, communication and information exchange indicated considerable reliability and confirmed that all measurement items had significant internal consistency with Cronbach's Alpha value of 0.878 (Table 4.26).

Table 4.26: Cronbach's Alpha for Internal Consistency of the Transparency, Communication and Information Exchange

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.878	0.879	4

The Cronbach's alpha values of the items related to Transparency, communication and information exchange were as follows: Simultaneous transparency and receptivity among the organizations (0.733; 0.847 if item deleted), Openness and timeliness of communication (0.742; 0.843 if item deleted), Quality of information exchanged between the partners (0.733; 0.846 if item deleted), Established efficient communication channels between the partners (0.747; 0.841 if item deleted) (Table 4.27). All of the variables involved in the reliability test demonstrated good ability to measure the construct and were not excluded from the further analysis.

Table 4.27: Cronbach's Alpha for Measurement Items for the Transparency, Communication and Information Exchange

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q5.1 Simultaneous transparency and receptivity among the organizations	12.99	3.881	0.733	0.562	0.847
Q5.2 Openness and timeliness of communication	12.89	4.155	0.742	0.568	0.843
Q5.3 Quality of information exchanged between the partners	12.87	4.194	0.733	0.567	0.846
Q5.4 Established efficient communication channels between the partners	12.89	4.102	0.747	0.577	0.841

Learning: Cronbach's alpha for learning indicated considerable reliability and confirmed that all measurement items had significant internal consistency with Cronbach's Alpha value of 0.884 (Table 4.28).

Table 4.28: Cronbach's Alpha for Internal Consistency of the Learning

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.884	0.884	4

The Cronbach's alpha values of the items related to Learning were as follows: Simultaneous and receptivity of collective acquisition of knowledge among the organizations (0.731; 0.857 if item deleted), The level of learning synergy and interaction effect between the organizations (0.728; 0.858 if item deleted), Creation of new knowledge through interaction among the organizations (0.761; 0.845 if item deleted), Continuity of learning (0.766; 0.843 if item deleted) (Table 4.29). These results show that all of the variables involved in the reliability test demonstrated good ability to measure the construct and were not excluded from the further analysis.

Table 4.29: Cronbach's Alpha for Measurement Items for the Learning

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q5.5 Simultaneous and receptivity of collective acquisition of knowledge among the organizations	12.81	4.193	0.731	0.544	0.857
Q5.6 The level of learning synergy and interaction effect between the organizations	12.90	4.209	0.728	0.542	0.858
Q5.7 Creation of new knowledge through interaction among the organizations	12.79	4.147	0.761	0.614	0.845
Q5.8 Continuity of learning	12.78	4.201	0.766	0.619	0.843

Cultural Fit: Cronbach's alpha for Cultural Fit indicated considerable reliability and confirmed that all measurement items had significant internal consistency with Cronbach's Alpha value of 0.801 (Table 4.30).

Table 4.30: Cronbach's Alpha for Internal Consistency of the Cultural Fit

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.801	0.800	4

The Cronbach's alpha values of the items related to Cultural Fit were as follows: Partners sensibility toward different cultures (0.575; 0.77 if item deleted), Absence of cultural differences between the partners (0.661; 0.728 if item deleted), Absence of language barriers between the partners (0.675; 0.72 if item deleted), Partner's willingness to adapt to each other's' management practices, organizational culture, procedures (0.555; 0.779 if item deleted) (Table 4.31). As can be seen all of the variables demonstrated suitable levels of reliability and consistency for further analysis and none of them was excluded from the further processing.

Table 4.31: Cronbach's Alpha for Measurement Items for the Cultural Fit

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q5.9 Partners sensibility toward different cultures	12.19	4.630	0.575	0.333	0.770
Q5.10 Absence of cultural differences between the partners	12.34	3.990	0.661	0.461	0.728
Q5.11 Absence of language barriers between the partners	12.29	4.080	0.675	0.473	0.720
Q5.12 Partners willingness to adapt to each other's' management practices, organizational culture, procedures	12.08	4.843	0.555	0.315	0.779

SA Success Tactical Factors: As in case of SA Success Strategic Factors, reliability test was performed for all the variables involved under SA Success Tactical Factors. The variables under SA Success Tactical Factors were loaded into the same test apart from any internal hierarchy of the factors that may underlie the structure of the variables. Overall, 12 items were involved in the test. The reliability test revealed strong internal consistency with Cronbach's Alpha value of 0.911 (Table 4.32).

Table 4.32: Cronbach's Alpha for Internal Consistency of the SA Success Tactical Factors

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.911	0.914	12

The Cronbach's alpha values of the items related to SA Success Tactical Factors were as follows: Simultaneous transparency and receptivity among the organizations (0.635; 0.904 if item deleted), Openness and timeliness of communication (0.687; 0.902 if item deleted), Quality of information exchanged between the partners (0.717; 0.901 if item deleted), Established efficient communication channels between the partners (0.697; 0.901 if item deleted), Simultaneous and receptivity of collective acquisition of knowledge among the organizations (0.713; 0.901 if item deleted), The level of learning synergy and interaction effect between the organizations (0.686; 0.902 if item deleted), Creation of new knowledge through interaction among the organizations (0.716; 0.9 if item deleted), Continuity of learning (0.724; 0.9 if item deleted), Partners sensibility toward different cultures (0.595; 0.906 if item deleted), Absence of cultural differences between the partners (0.522; 0.911 if item deleted), Absence of language barriers between the partners (0.513; 0.911 if item deleted), Partners willingness to adapt to each other's' management practices, organizational culture, procedures (0.609; 0.905 if item deleted) (Table 4.33). As can be seen all of the variables demonstrated suitable levels of reliability and consistency for further analysis and none of them was excluded from the further processing.

Table 4.33: Cronbach's Alpha for Measurement Items for the SA Success Tactical Factors

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q5.1 Simultaneous transparency and receptivity among the organizations	46.36	39.561	0.635	0.622	0.904
Q5.2 Openness and timeliness of communication	46.27	39.861	0.687	0.595	0.902
Q5.3 Quality of information exchanged between the partners	46.24	39.682	0.717	0.619	0.901
Q5.4 Established efficient communication channels between the partners	46.26	39.663	0.697	0.627	0.901
Q5.5 Simultaneous and receptivity of collective acquisition of knowledge among the organizations	46.30	39.257	0.713	0.601	0.901
Q5.6 The level of learning synergy and interaction effect between the organizations	46.40	39.540	0.686	0.566	0.902
Q5.7 Creation of new knowledge through interaction among the organizations	46.29	39.317	0.716	0.636	0.900
Q5.8 Continuity of learning	46.28	39.427	0.724	0.651	0.900
Q5.9 Partners sensibility toward different cultures	46.48	40.094	0.595	0.415	0.906
Q5.10 Absence of cultural differences between the partners	46.64	39.919	0.522	0.549	0.911
Q5.11 Absence of language barriers between the partners	46.57	40.268	0.513	0.520	0.911
Q5.12 Partners willingness to adapt to each other's' management practices, organizational culture, procedures	46.36	40.374	0.609	0.443	0.905

4.5.1.5 Reliability of SA Success Operational Factors

Under this section Reliability of SA Success Operational Factors are presented per each sub-component including Operational Control and Coordination; Organizational fit.

Operational Control and Coordination. 4 items were included in the analysis of Operational Control and Coordination as per the conceptual scheme. Based on reliability scale results Cronbach's Alpha final value was 0.873 which indicates strong internal consistency of the variables (Table 4.34).

Table 4.34: Cronbach's Alpha for Internal Consistency of the Operational Control and Coordination

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.873	0.874	4

The Cronbach's alpha values of the items related to Operational control and coordination were as follows: Existence of rules, policies and procedures that guide cooperation (0.719; 0.843 if item deleted), Distribution of clear roles and responsibilities within the alliance (0.763; 0.824 if item deleted), Existence of alliance performance monitoring and evaluation mechanisms (0.727; 0.838 if item deleted), Existence of practices, mechanisms to handle disagreements between the partners happening in the process of collaboration (0.708; 0.846 if item deleted) (Table 4.35). Those results show that all of the variables involved in the reliability test demonstrated good ability to measure the construct and were not excluded from the further analysis.

Table 4.35: Cronbach's Alpha for Measurement Items for the Operational Control and Coordination

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q6.1 Existence of rules, policies and procedures that guide cooperation	13.00	3.756	0.719	0.597	0.843
Q6.2 Distribution of clear roles and responsibilities within the alliance	12.94	3.906	0.763	0.637	0.824
Q6.3 Existence of alliance performance monitoring and evaluation mechanisms	12.96	3.953	0.727	0.588	0.838
Q6.4 Existence of practices, mechanisms to handle disagreements between the partners happening in the process of collaboration	12.96	4.028	0.708	0.557	0.846

Organizational fit: 4 items were included in the analysis of Organizational fit as per the conceptual scheme. Based on reliability scale results Cronbach's Alpha final value was 0.843 which indicates strong internal consistency of the variables (Table 4.36).

Table 4.36: Cronbach's Alpha for Internal Consistency of the Organizational Fit

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.843	0.845	4

The Cronbach's alpha values of the items related to Organizational fit were as follows: Absence of divergences in management style and corporate culture (0.682; 0.8 if item deleted), Comparable management styles of the partners (0.734; 0.781 if item deleted), Compatible sizes of the partners engaged in SA (0.722; 0.784 if item deleted), Similar level of technical capacities of the partners engaged in SA (0.591; 0.837 if item deleted) (Table 4.37). These results show that all of the variables involved in the reliability test demonstrated good ability to measure the construct and were not excluded from the further analysis.

Table 4.37: Cronbach's Alpha for Measurement Items for the Organizational Fit

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q6.5 Absence of divergences in management style and corporate culture	12.07	4.889	0.682	0.492	0.800
Q6.6 Comparable management styles of the partners	12.15	5.010	0.734	0.538	0.781
Q6.7 Compatible sizes of the partners engaged in SA	12.11	4.378	0.722	0.536	0.784
Q6.8 Similar level of technical capacities of the partners engaged in SA	12.11	5.285	0.591	0.370	0.837

SA Success Operational Factors: Finally, the reliability of variables involved under SA Success Operational Factors were analyzed together. The internal Consistency of

the SA Success Operational Factors was found to be strong with Cronbach's Alpha coefficient of 0.860 (Table 4.38).

Table 4.38: Cronbach's Alpha for Internal Consistency of the SA Success Operational Factors

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.860	0.863	8

The Cronbach's alpha values of the items related to SA Success operational factors were as follows: Existence of rules, policies and procedures that guide cooperation (0.608; 0.842 if item deleted), Distribution of clear roles and responsibilities within the alliance (0.612; 0.842 if item deleted), Existence of alliance performance monitoring and evaluation mechanisms (0.641; 0.839 if item deleted), Existence of practices, mechanisms to handle disagreements between the partners happening in the process of collaboration (0.579; 0.846 if item deleted), Absence of divergences in management style and corporate culture (0.673; 0.835 if item deleted), Comparable management styles of the partners (0.62; 0.841 if item deleted), Compatible sizes of the partners engaged in SA (0.552; 0.852 if item deleted), Similar level of technical capacities of the partners engaged in SA (0.587; 0.845 if item deleted) (Table 4.39). The results confirm that all of the variables involved in the analysis are suitable and there is no need to exclude any of them.

Table 4.39: Cronbach's Alpha for Measurement Items for the SA Success Operational Factors

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q6.1 Existence of rules, policies and procedures that guide cooperation	29.14	16.819	0.608	0.613	0.842
Q6.2 Distribution of clear roles and responsibilities within the alliance	29.08	17.231	0.612	0.636	0.842
Q6.3 Existence of alliance performance monitoring and evaluation mechanisms	29.10	17.029	0.641	0.596	0.839
Q6.4 Existence of practices, mechanisms to handle disagreements between the partners happening in the process of collaboration	29.08	17.480	0.579	0.561	0.846
Q6.5 Absence of divergences in management style and corporate culture	29.36	16.055	0.673	0.545	0.835
Q6.6 Comparable management styles of the partners	29.43	16.790	0.620	0.558	0.841
Q6.7 Compatible sizes of the partners engaged in SA	29.39	16.224	0.552	0.548	0.852
Q6.8 Similar level of technical capacities of the partners engaged in SA	29.38	16.758	0.587	0.410	0.845

4.5.1.6 Corporate performance

Under this section Reliability of Corporate performance is presented per each sub-component including Operational Efficiency and Capacity Building.

Operational Efficiency: Cronbach's Alpha coefficient for Operational Efficiency equals 0.903 indicating high level internal reliability of the construct (N of items = 7) (Table 4.40).

Table 4.40: Cronbach's Alpha for Internal Consistency of the Operational Efficiency

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.903	0.903	7

The Cronbach's alpha values of the items related to operational efficiency are as follows: Quality of management (0.723; 0.888 if item deleted), Employee's satisfaction (0.755; 0.884 if item deleted), Product/service quality (0.762; 0.883 if item deleted), Customers/partners' satisfaction (0.753; 0.884 if item deleted), Firm's Quality of Marketing (0.614; 0.899 if item deleted), Improvement of Corporate Culture (0.746; 0.885 if item deleted), Access to new markets (0.638; 0.897 if item deleted). None of the items increases Cronbach's Alpha value in case of elimination which indicates that all of the variables measure the same construct. The results are shown in Table 4.41.

Table 4.41: Cronbach's Alpha for Measurement Items for the Operational Efficiency

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q7.1 Quality of management	24.61	13.399	0.723	0.590	0.888
Q7.2 Employee's satisfaction	24.75	12.925	0.755	0.613	0.884
Q7.3 Product/service quality	24.57	13.117	0.762	0.633	0.883
Q7.4 Customers/partners' satisfaction	24.60	13.175	0.753	0.604	0.884
Q7.5 Firm's Quality of Marketing	24.59	14.549	0.614	0.440	0.899
Q7.6 Improvement of Corporate Culture	24.54	13.418	0.746	0.576	0.885
Q7.7 Access to new markets	24.66	13.928	0.638	0.468	0.897

Capacity building: Cronbach's Alpha coefficient for Capacity Building equals 0.906 indicating high level internal reliability of the construct (N of items = 6) (Table 4.42).

Table 4.42: Cronbach's Alpha for Internal Consistency of the Capacity Building

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.906	0.907	6

The Cronbach's alpha values of the items related to Capacity building were as follows: Usage of information technologies (0.694; 0.896 if item deleted), Firm's

Capacity to Innovate (0.753; 0.888 if item deleted), Firm's Capacity of adapting to the changes (0.772; 0.885 if item deleted), Firm's Capacity to accumulate new knowledge (0.788; 0.882 if item deleted), Companies' ability to attract, develop and retain Top Talent (0.721; 0.893 if item deleted), Firm's Project and risk management capabilities (0.726; 0.892 if item deleted) (Table 4.43). The results confirm that all of the variables involved in the analysis are suitable and there is no need to exclude any of them.

Table 4.43: Cronbach's Alpha for Measurement Items for the Capacity Building

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q7.8 Usage of information technologies	20.71	11.751	0.694	0.512	0.896
Q7.9 Firm's Capacity to Innovate	20.72	11.248	0.753	0.595	0.888
Q7.10 Firm's Capacity of adapting to the changes	20.69	10.957	0.772	0.635	0.885
Q7.11 Firm's Capacity to accumulate new knowledge	20.76	10.774	0.788	0.630	0.882
Q7.12 Companies' ability to attract, develop and retain Top Talent	20.74	10.815	0.721	0.561	0.893
Q7.13 Firm's Project and risk management capabilities	20.69	11.503	0.726	0.559	0.892

Corporate Performance: The overall reliability of the Corporate Performance has been performed through loading all of the variables into one test. According to the results the variables demonstrated considerable internal validity with Cronbach's Alpha value of 0.943 (number of items - 13) (Table 4.44).

Table 4.44: Cronbach's Alpha for Internal Consistency of the Corporate Performance

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.943	0.943	13

The Cronbach's alpha values of the items related to Corporate performance were as follows: Quality of management (0.743; 0.938 if item deleted), Employee's satisfaction (0.778; 0.937 if item deleted), Product/service quality (0.74; 0.938 if item deleted), Customers/partners' satisfaction (0.736; 0.938 if item deleted), Firm's Quality of Marketing (0.597; 0.942 if item deleted), Improvement of Corporate Culture (0.737; 0.938 if item deleted), Access to new markets (0.654; 0.941 if item deleted), Usage of information technologies (0.717; 0.939 if item deleted), Firm's Capacity to Innovate (0.767; 0.937 if item deleted), Firm's Capacity of adapting to the changes (0.765; 0.937 if item deleted), Firm's Capacity to accumulate new knowledge (0.742; 0.938 if item deleted), Companies' ability to attract, develop and retain Top Talent (0.712; 0.939 if item deleted), Firm's Project and risk management capabilities (0.744; 0.938 if item deleted) (Table 4.45). The results confirm that all of the variables involved in the analysis are suitable and there is no need to exclude any of them.

Table 4.45: Cronbach's Alpha for Measurement Items for the Corporate Performance

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q7.1 Quality of management	49.46	52.557	0.743	0.630	0.938
Q7.2 Employee's satisfaction	49.60	51.643	0.778	0.649	0.937
Q7.3 Product/service quality	49.42	52.371	0.740	0.650	0.938
Q7.4 Customers/partners' satisfaction	49.45	52.477	0.736	0.623	0.938
Q7.5 Firm's Quality of Marketing	49.44	55.137	0.597	0.454	0.942
Q7.6 Improvement of Corporate Culture	49.39	52.868	0.737	0.595	0.938
Q7.7 Access to new markets	49.51	53.645	0.654	0.501	0.941
Q7.8 Usage of information technologies	49.42	53.204	0.717	0.562	0.939
Q7.9 Firm's Capacity to Innovate	49.44	52.152	0.767	0.644	0.937
Q7.10 Firm's Capacity of adapting to the changes	49.42	51.804	0.765	0.659	0.937
Q7.11 Firm's Capacity to accumulate new knowledge	49.47	51.794	0.742	0.642	0.938
Q7.12 Companies' ability to attract, develop and retain Top Talent	49.45	51.572	0.712	0.592	0.939
Q7.13 Firm's Project and risk management capabilities	49.40	52.691	0.744	0.611	0.938

4.5.2 Summary of Reliability Analysis

As the above sections showed, overall, Tau-equivalent reliability test revealed high reliability for all the construct involved in the analysis. For most of the constructs (i.e., Strategic Alliance Success, SA Success Strategic Factors, SA Success Tactical Factors, Operational Efficiency of Corporate Performance, etc.) the Cronbach's Alpha coefficient was higher than 0.9 indicating strong internal consistency of the items involved in the analysis. For the rest of the constructs the Cronbach's Alpha coefficient was in between of 0.7 and 0.8 indicating good internal consistency of the variables. Overall, only two individual items (Q2.5-Blocking the competition and Q4.8-Absence of excessive dominance by one partner) demonstrated a poor internal consistency and were excluded from the further analysis.

4.6 Data Preparation for Structural Equation Modeling

Structural Equation Modeling is a method to observe unobservable latent variables. To apply the structural equation modeling method database needs to meet special requirements that will ensure model identification and accurate inferences. For this purpose, the initial database has been prepared for Structural Equation Modeling. Data preparation included data processing in a way to exclude any missing data in the dataset, identification, and elimination of the multivariate outliers and unengaged responses. Each method is described in the below sections in detail.

4.6.1 Handling Missing Data

Generally, structural equation modeling assumes a complete absence of missing data for each unit of analysis. The statistical software AMOS will not perform any estimation in case there is even one missing value in any of the cells of the unit of

analysis. However, the data observation revealed several cases of missing data. The research literature suggests several approaches for handling missing data, among them are listwise and pairwise deletion. The other methods include ad hoc imputation methods.

As the data observation showed most of the variables involved in the analysis are plagued by problems with missing data which can be reason of bias in parameter estimation during the application of structural equation modeling. The % of missing items varied from 2% to 20%. As already mentioned, there are various methods which enable to deal with missing data in SEMs among them are data imputation, listwise deletion, pairwise deletion, regression imputation, maximum likelihood, multiple imputations, etc. To generalize, the methods to address missing data issues can be groups onto three categories: (i) case deletion, (ii) single imputation, or (iii) multiple imputations (OECD, 2008).

To handle the issue of missing data for this dataset, it uses a combination of several methods. For the cases where data was missing for 15%-20% of the observations, the listwise deletion method was applied. Data removal was examined on a case by case basis to avoid bias in setting thresholds for removing cases. When feasible, listwise deletion was used to minimize the loss of information. Accordingly, 13 cases have been removed from the database. Another method used included an unconditional median imputation method which means that it uses sample median to replace the missing values of this variable. Accordingly, missing data were replaced by the median before analysis (De Maesschalck et al., 2000).

4.6.2 Identification of the Multivariate Outliers

To identify multivariate outliers Mahalanobis Distance (MD) method was used. Among the different statistical distance measures, the Mahalanobis distance has an advantage with its ability to detect multivariate outliers (Ghorbani, 2019). Mahalanobis' Distance (MD) enables us to assess whether there are cases that may be considered as multivariate outliers and it is based on a chi-square distribution where $p < 0.001$ criteria is used. The calculated Mahalanobis distance for each case was compared to the critical value. The distance measure included all the variables to be involved in SEM analysis. A critical chi-square probability value $p = 0.001$ was used to define outliers. The cases with a chi-square probability value lower than 0.001 were identified as outliers.

The initial analysis performed in the database with missing data revealed 4 cases as outliers which have been excluded from the analysis. Mahalanobis Distance (MD) method was the second time applied for the databases where all missing data have been handled through the application of different methods introduced in the previous section. The analysis identified 5 cases with a Chi-square probability value lower than 0.001 and those cases have been also excluded from the analysis. Overall, it identifies 9 outliers in the database based on the critical Mahalanobis distance (calculated based on the 47 items in the dataset) which have been excluded from the further analysis.

4.6.3 Unengaged Responses

The responses is examined to identify any unengaged participants i.e. used the same response for all questions (screened for 47 items in the dataset). The variance was calculated for each participant. A zero variance was used as a measure of non-

engagement. Accordingly, two cases have been identified as unengaged participants and have been excluded from the analysis.

4.6.4 Description of Final Database

The final database used in SEM analysis consisted of 251 observations. Overall, 24 observations have been removed based on different criteria as described in the previous section. All of the missing values for the remaining observations have been treated accordingly and the final database did not include any missing data.

4.7 Study of the Underlying Structure of the Variables (Exploratory Factor Analysis)

Taking into account a large number of the study variables and in order to avoid higher-order (second-order) factor models Exploratory Factor Analysis (EFA) method is used for SA success factors (tactical, operational, and, strategic factors) and Corporate Performance. EFA was performed to assess the underlying structure of each potential SA success factors and Corporate Performance. In case any higher-order factors are revealed they should be either excluded or should be taken into account during the Structural Equation Modeling method application. Principal component analysis with Varimax rotation was used to extract factor scores for the first-order factors. EFA results are presented below per each component involved in the research.

4.7.1 SA Success Strategic Factors

For SA success strategic factor, EFA was applied excluding Q4.8 variable (Absence of excessive dominance by one partner) which performed poor ability to tap the same measurement construct as already introduced in the Reliability Testing

sections. EFA based on Principal Component Analysis method with Varimax rotation was applied. Factors are extracted based on Eigenvalues higher than 1.

As the EFA results show, only one component is extracted which entails assuming that multiple specific dimensions of a construct fit together conceptually and are best measured together and not distinctly through any high-order factor model. The extracted component, which has an associated eigenvalue larger than one, explains 54.2% of overall variance (Table 4.46) .

Table 4.46: Collective Percentages for Total Variance Explained for SA Success Strategic Factors

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.963	54.210	54.210	5.963	54.210	54.210
2	0.853	7.758	61.969			
3	0.759	6.898	68.866			
4	0.630	5.724	74.590			
5	0.554	5.032	79.623			
6	0.478	4.348	83.971			
7	0.460	4.186	88.157			
8	0.399	3.623	91.780			
9	0.342	3.107	94.887			
10	0.314	2.852	97.739			
11	0.249	2.261	100.000			

As already mentioned, the run of Principal Component Analysis applying Varimax rotation with Kaiser Normalization identified only one component. Factor loadings of the items under the component with SA success strategic factor are introduced in Table 4.47. All of the items have factor loadings higher than 0.7, except one variable - Q4.7 (Absence of disparities in the resources contributed and controlled by each partner organization), which has loading lower than 0.7.

Table 4.47: Component Matrix of SA Success Strategic Factors

Component Matrix ^a	
	Component
	1
Q4.1 Overall fit between the partners and existence of shared vision	0.736
Q4.2 Defined clear and compatible goals and objectives	0.754
Q4.3 Comprehension and compatibility of objectives and goals between the partners	0.712
Q4.4 Existence of agreement on the process by which SA goals can be achieved	0.727
Q4.5 Appropriateness of the form of cooperation for alliance management	0.785
Q4.6 Appropriateness of the alliance governance form	0.728
Q4.7 Absence of disparities in the resources contributed and controlled by each partner organization	0.652
Q4.9 Existence of a positive previous experience among the partners	0.732
Q4.10 Extent to which future expectations from the partners are positive	0.753
Q4.11 The degree of commitment between the partners	0.781
Q4.12 The degree the commitment between the partners is guaranteed and reasonable	0.730

4.7.2 SA Success Tactical Factors

The run of Principal Component Analysis applying Varimax rotation with Kaiser Normalization revealed two components for tactical factors. The factors associated with eigenvalues higher than 1 explain 64.08% of total variance together (Table 4.48).

Table 4.48: Collective Percentages for Total Variance Explained for SA Success Tactical Factors

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.227	51.893	51.893	6.227	51.893	51.893
2	1.463	12.190	64.083	1.463	12.190	64.083
3	0.837	6.974	71.057			
4	0.597	4.974	76.031			
5	0.540	4.501	80.532			
6	0.482	4.020	84.552			
7	0.459	3.822	88.374			
8	0.362	3.019	91.393			
9	0.318	2.651	94.044			
10	0.284	2.369	96.412			
11	0.239	1.988	98.401			
12	0.192	1.599	100.000			

As the study of rotated component matrix (rotation converged in 3 iterations) showed most of the variables loaded under one factor and only four items have loadings associated with the second component. Two variables, which are Q5.10 (Absence of cultural differences between the partners) and Q5.11 (Absence of language barriers between the partners) formed a high-order factor model. Factor loadings of the items under the component with SA Success Tactical Factor is introduced on Table 4.49.

Table 4.49: Component Matrix of SA Success Tactical Factors

Rotated Component Matrix ^a		
	Component	
	1	2
Q5.1 Simultaneous transparency and receptivity among the organizations	0.805	0.072
Q5.2 Openness and timeliness of communication	0.765	0.203
Q5.3 Quality of information exchanged between the partners	0.791	0.220
Q5.4 Established efficient communication channels between the partners	0.778	0.205
Q5.5 Simultaneous and receptivity of collective acquisition of knowledge among the organizations	0.746	0.283
Q5.6 The level of learning synergy and interaction effect between the organizations	0.739	0.251
Q5.7 Creation of new knowledge through interaction among the organizations	0.712	0.340
Q5.8 Continuity of learning	0.737	0.317
Q5.9 Partners sensibility toward different cultures	0.349	0.660
Q5.10 Absence of cultural differences between the partners	0.141	0.850
Q5.11 Absence of language barriers between the partners	0.126	0.850
Q5.12 Partners willingness to adapt to each other's' management practices, organizational culture, procedures	0.396	0.619

With the aim to simplify the Structural Equation Model two variables which formed high-order factor model were excluded from the analysis. Only one component was extracted through the run of Principal Component Analysis applying Varimax rotation with Kaiser Normalization excluding two variables (Q5.10 Absence of cultural differences between the partners, and Q5.11 Absence of language barriers between the partners). With the given list of the variables one-factor model underlying SA success Tactical Factors is identified. The factor explains 57.239% of total variance of data (Table 4.50).

Table 4.50: Collective Percentages for Total Variance Explained for SA Success Tactical Factors (Excluding 2 Variables)

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.699	56.988	56.988	5.699	56.988	56.988
2	0.865	8.653	65.642			
3	0.690	6.901	72.543			
4	0.599	5.991	78.534			
5	0.522	5.216	83.750			
6	0.408	4.080	87.830			
7	0.395	3.953	91.783			
8	0.333	3.331	95.113			
9	0.270	2.700	97.813			
10	0.219	2.187	100.000			

Factor loadings of the items under the component with SA Success Tactical Factor (excluding two variables mentioned above) are introduced in Table 4.51. As the Table 4.51 shows all of the items have factor loadings higher than 0.7 and only two variables (Q5.9 Partner's sensibility toward different cultures; and Q5.12 Partner's willingness to adapt to each other's' management practices, organizational culture, procedures) have lower than 0.7-factor loadings.

Table 4.51: Component Matrix of SA Success Tactical Factors (Excluding 2 Variables)

Component Matrix ^a	
	Component 1
Q5.1 Simultaneous transparency and receptivity among the organizations	0.756
Q5.2 Openness and timeliness of communication	0.796
Q5.3 Quality of information exchanged between the partners	0.797
Q5.4 Established efficient communication channels between the partners	0.801
Q5.5 Simultaneous and receptivity of collective acquisition of knowledge among the organizations	0.778
Q5.6 The level of learning synergy and interaction effect between the organizations	0.745
Q5.7 Creation of new knowledge through interaction among the organizations	0.764
Q5.8 Continuity of learning	0.786
Q5.9 Partners sensibility toward different cultures	0.657
Q5.12 Partners willingness to adapt to each other's' management practices, organizational culture, procedures	0.651

4.7.3 SA Success Operational Factors

Similarly, Exploratory Factor Analysis with Principal Component Analysis Extraction Method was applied for SA success operational factors. Initial EFA identified two factors associated with Eigenvalues higher than 1. Two factors associated with eigenvalues higher than 1 were able to explain 71.2% of the total variance (Table 4.52).

Table 4.52: Collective Percentages for Total Variance Explained for SA Success Operational Factors

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.092	51.148	51.148	4.092	51.148	51.148
2	1.604	20.055	71.203	1.604	20.055	71.203
3	0.569	7.115	78.318			
4	0.558	6.970	85.288			
5	0.337	4.209	89.497			
6	0.321	4.012	93.510			
7	0.305	3.816	97.326			
8	0.214	2.674	100.000			

As the Rotated Matrix with Varimax method and Kaiser Normalization shows most of the items load into one factor and only two variables - Q6.6 Comparable management styles of the partners and Q6.7 Compatible sizes of the partners engaged in SA formed higher-order factor model (Table 4.53).

Table 4.53: Component Matrix of SA Success Operational Factors

Rotated Component Matrix ^a		
	Component	
	1	2
Q6.1 Existence of rules, policies and procedures that guide cooperation	0.834	0.185
Q6.2 Distribution of clear roles and responsibilities within the alliance	0.856	0.163
Q6.3 Existence of alliance performance monitoring and evaluation mechanisms	0.807	0.252
Q6.4 Existence of practices, mechanisms to handle disagreements between the partners happening in the process of collaboration	0.824	0.159
Q6.5 Absence of divergences in management style and corporate culture	0.306	0.772
Q6.6 Comparable management styles of the partners	0.151	0.857
Q6.7 Compatible sizes of the partners engaged in SA	0.064	0.874
Q6.8 Similar level of technical capacities of the partners engaged in SA	0.268	0.708

Two simplify the Structural Equation Model the variables which formed a higher-order factor model have been excluded from the analysis. The secondary run of Principal Component Analysis with Kaiser Normalization excluding two variables discussed above, revealed one-factor model which explains 58.2% of total variance (Table 4.54).

Table 4.54: Collective Percentages for Total Variance Explained for SA Success Operational Factors (Excluding 2 Variables)

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.493	58.211	58.211	3.493	58.211	58.211
2	0.972	16.207	74.418			
3	0.565	9.425	83.843			
4	0.445	7.409	91.252			
5	0.337	5.611	96.863			
6	0.188	3.137	100.000			

Factor loadings of the items under the component with SA Success Operational Factor (excluding two variables mentioned above) are introduced in Table 4.55. As the Table 4.55 shows all of the items have factor loadings higher than 0.8 and only two variables (Q6.5 Absence of divergences in management style and corporate culture; and Q6.8 Similar level of technical capacities of the partners engaged in SA) have lower than 0.7-factor loadings.

Table 4.55: Component Matrix of SA Success Operational Factors (Excluding 2 Variables)

Component Matrix ^a	
	Component 1
Q6.1 Existence of rules, policies and procedures that guide cooperation	0.832
Q6.2 Distribution of clear roles and responsibilities within the alliance	0.830
Q6.3 Existence of alliance performance monitoring and evaluation mechanisms	0.827
Q6.4 Existence of practices, mechanisms to handle disagreements between the partners happening in the process of collaboration	0.803
Q6.5 Absence of divergences in management style and corporate culture	0.621
Q6.8 Similar level of technical capacities of the partners engaged in SA	0.631

4.7.4 Corporate Performance

The run of Principal Component Analysis applying Varimax rotation with Kaiser Normalization revealed one component for Corporate Performance. This component explains 59.6% of the total variance and has an initial Eigenvalue equaling 7.743 (Table 4.56).

Table 4.56: Collective Percentages for Total Variance Explained for Corporate Performance

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.789	59.912	59.912	7.789	59.912	59.912
2	0.902	6.936	66.848			
3	0.727	5.591	72.440			
4	0.548	4.214	76.653			
5	0.526	4.045	80.698			
6	0.455	3.504	84.202			
7	0.413	3.180	87.382			
8	0.360	2.769	90.151			
9	0.314	2.413	92.563			
10	0.283	2.177	94.740			
11	0.242	1.860	96.601			
12	0.229	1.758	98.359			
13	0.213	1.641	100.000			

All of the items, except one item - Q7.5 Firm's Quality of Marketing, have factor loadings higher than 0.7, which indicates strong association with the measures hypothetic construct. The factor loadings of the individual variables to the latent factor are presented on the Table 4.57.

Table 4.57: Component Matrix of Corporate Performance

Component Matrix ^a	
	Component 1
Q7.1 Quality of management	0.782
Q7.2 Employee's satisfaction	0.810
Q7.3 Product/service quality	0.786
Q7.4 Customers/partners' satisfaction	0.783
Q7.5 Firm's Quality of Marketing	0.658
Q7.6 Improvement of Corporate Culture	0.775
Q7.7 Access to new markets	0.719
Q7.8 Usage of information technologies	0.752
Q7.9 Firm's Capacity to Innovate	0.807
Q7.10 Firm's Capacity of adapting to the changes	0.818
Q7.11 Firm's Capacity to accumulate new knowledge	0.809
Q7.12 Companies' ability to attract, develop and retain Top Talent	0.762
Q7.13 Firm's Project and risk management capabilities	0.785

4.7.5 Summary of Exploratory Factor Analysis

The study of the underlying structure of the research constructs through the Exploratory Factor Analysis method using Principal Component Analysis revealed that most of the research constructs are best measured together without forming any higher-order factor model. Though through literature review separate sub-factors have been identified for different constructs engaged in the research, Exploratory Factor Analysis suggested usage of first-order factor model for the constructs, where all the individual variables are loaded into the hypothetical construct (latent variable) and best measured together. EFA revealed an absence of a higher-order model for SA Success Strategic Factors and Corporate Performance. In the case of SA Success Operational and Tactical Factors one-factor model was ensured by excluding two variables in each construct. This did not significantly reduce the share of overall variance the factors were able to explain. In the case of SA Success Tactical Factors as a result of variable

elimination the share of cumulative variance explained reduced from 64% to 57%. In the case of SA Success Operational Factors, the Variance reduced from 71% to 58%. As it can be seen through a drop of the variables reduced the power of data to explain the overall variance of data it remained at an acceptable level. The exclusion of high-order models in the constructs will considerably simplify the Structural Equation Model and will enable its meaningful interpretation and inference.

4.8 Validity and Adequacy Testing

Validity is an important component to be studied in any social science research. Validity is about measuring the significance of the research construct. There are several groups of methods to test the validity of any construct which include content validity, construct validity, and criterion-related validity. Content validity is about assessing the degree of measurement tool capacity to capture the domain of a content to be measured (Martins, 2006). Content validity is ensured in two phases: during the development of the measurement instrument, when the construct is studied through literature review and available similar tools, and during when the tool is evaluated by independent experts. For this research, content validity is ensured during the literature review stage, when all of the individual variables have been identified through a thorough literature review and measurement instruments tested by other authors. The questionnaire development procedure is duly explained in the previous sections and the sources of the identified individual variables are presented accordingly.

In this section, the criterion-related validity of the constructs has been examined through the correlations between the measurement items. Particularly, Principal Component Analysis is applied including tests for criterion-related validity Kaiser Meyer Olkin (KMO) measure of sampling adequacy, Bartlett's test of

sphericity and commonalities. The Concept Related validity is presented and discussed under the Structural Equation Modeling section where Convergent validity and Discriminant Validity are analyzed and discussed.

4.8.1 Kaiser Meyer Olkin Measure (KMO) Measure of Sampling Adequacy

One of the aspects of the criterion-related validity of the constructs has been examined through the Kaiser Meyer Olkin (KMO) measure of sampling adequacy. This measure varies between 0 and 1 with values closer to 1 indicating higher adequacy.

Values > 0.9 are considered excellent while 0.6 is considered the minimum acceptable value. A separate Exploratory Factor Analysis was performed with the Principal Component Analysis method for SA Success Factors, including Strategic Factors, Tactical Factors, and Operational Factors, SA Overall Success, and Corporate Performance to obtain KMO values for each component. The analysis was performed excluding the variables which have been dropped as a result of application of Exploratory Factor Analysis methods discussed in the previous section.

As Table 4.58 demonstrates the value of KMO Measure of Sampling Adequacy for all of the constructs was higher than 0.7 indicating an acceptable value for each component. In the case of SA Success Strategic Factors, SA Success Tactical Factors and Corporate Performance KMO was higher than 0.9 indicating excellent Sampling Adequacy. Overall, as the KMO test shows the results are strong in terms of informative power.

Table 4.58: KMO Measure of Sampling Adequacy for Research Components

KMO Tests	
KMO Measure of Sampling Adequacy for SA Success Strategic Factors	0.920
KMO Measure of Sampling Adequacy for SA Success Tactical Factors	0.915
KMO Measure of Sampling Adequacy for SA Success Operational Factors	0.788
KMO Measure of Sampling Adequacy for SA Overall Success	0.748
KMO Measure of Sampling Adequacy for Corporate Performance	0.945

4.8.2 Bartlett Test for Sphericity

The null hypothesis for Bartlett's test of sphericity tests states that the variables are unrelated and therefore unsuitable for structure detection. Statistically significant p value of the test (less than 0.05) suggest that a factor analysis may be useful for the current dataset. A separate Exploratory Factor Analysis was performed with the Principal Component Analysis method for each research construct including SA Success Factors: Strategic Factors, Tactical Factors, and Operational Factors; SA Overall Success, and Corporate Performance to obtain Bartlett Test for Sphericity values for each component.

As the test results shown in Table 4.59, all of the construct involved in the analysis performed statistically significant p value as per Bartlett Test for Sphericity, which indicates that variables are related and therefore are suitable for structure detection.

Table 4.59: Bartlett Test for Sphericity

Bartlett Test for Sphericity		
Bartlett's Test of Sphericity for SA Success Strategic Factors	Approx. Chi-Square	1354.237
	Df	55
	Sig.	0.000
Bartlett's Test of Sphericity for SA Success Tactical Factors	Approx. Chi-Square	1399.304
	Df	45
	Sig.	0.000
Bartlett's Test of Sphericity for SA Success Operational Factors	Approx. Chi-Square	720.943
	Df	15
	Sig.	0.000
Bartlett's Test of Sphericity for SA Overall Success	Approx. Chi-Square	500.007
	Df	3
	Sig.	0.000
Bartlett's Test of Sphericity for Corporate Performance	Approx. Chi-Square	2244.634
	Df	78
	Sig.	0.000

4.8.3 Communalities

Communalities are defined as the share of variance in the indicator (manifest variable) that can be explained by the factors (unobservable variables). It is also defined as the sum of squared factor loadings for the variable. An acceptable value for communalities is > 0.3 . Thus, variables with communality lower than 0.3 were examined for potential removal from the analysis.

A separate EFA was performed with the Principal Component Analysis method for each research construct including SA Success Factors: Strategic Factors, Tactical Factors, and Operational Factors; SA Overall Success, and Corporate Performance to obtain values of the Communalities for each component.

As Table 4.60 shows the Communalities for the items loaded under SA Success Strategic Factors are high than 0.4 which means all of the items are acceptable. For

most of the items, the communalities ranged from 0.5 to 0.6. The exceptions were two items that showed lower communalities: Q4.3 (Comprehension and compatibility of objectives and goals between the partners) scored 0.467 and Q4.7 (Absence of disparities in the resources contributed and controlled by each partner organization) scored 0.432.

Table 4.60: Communalities for SA Success Strategic Factors

Communalities		
	Initial	Extraction
Q4.1 Overall fit between the partners and existence of shared vision	1.000	0.535
Q4.2 Defined clear and compatible goals and objectives	1.000	0.580
Q4.3 Comprehension and compatibility of objectives and goals between the partners	1.000	0.467
Q4.4 Existence of agreement on the process by which SA goals can be achieved	1.000	0.530
Q4.5 Appropriateness of the form of cooperation for alliance management	1.000	0.609
Q4.6 Appropriateness of the alliance governance form	1.000	0.523
Q4.7 Absence of disparities in the resources contributed and controlled by each partner organization	1.000	0.432
Q4.9 Existence of a positive previous experience among the partners	1.000	0.510
Q4.10 Extent to which future expectations from the partners are positive	1.000	0.552
Q4.11 The degree of commitment between the partners	1.000	0.601
Q4.12 The degree the commitment between the partners is guaranteed and reasonable	1.000	0.511

The Table 4.61 presents the Communalities for the items loaded under SA Success Tactical Factors. As can be seen all of the items were higher than 0.4 which means all of the items are acceptable. For most of the items the communalities ranged from 0.5 to 0.7. The exceptions were two items that showed lower communalities: Q4.3 (Comprehension and compatibility of objectives and goals between the partners) scored 0.467 and Q4.7 (Absence of disparities in the resources contributed and controlled by each partner organization) scored 0.432.

Table 4.61: Communalities for SA Success Tactical Factors

Communalities		
	Initial	Extraction
Q5.1 Simultaneous transparency and receptivity among the organizations	1.000	0.572
Q5.2 Openness and timeliness of communication	1.000	0.633
Q5.3 Quality of information exchanged between the partners	1.000	0.636
Q5.4 Established efficient communication channels between the partners	1.000	0.642
Q5.5 Simultaneous and receptivity of collective acquisition of knowledge among the organizations	1.000	0.605
Q5.6 The level of learning synergy and interaction effect between the organizations	1.000	0.555
Q5.7 Creation of new knowledge through interaction among the organizations	1.000	0.583
Q5.8 Continuity of learning	1.000	0.618
Q5.9 Partners sensibility toward different cultures	1.000	0.432
Q5.12 Partners willingness to adapt to each other's' management practices, organizational culture, procedures	1.000	0.424

Table 4.62 presents the Communalities for the items loaded under SA Success Operational Factors. As can be seen all of the items have communalities higher than 0.3 which means all of the items are acceptable. Four items have communalities higher than 0.6. However, two items showed lower commonalities: Q6.5 (Absence of divergences in management style and corporate culture) scored 0.385 and Q6.8 (Similar level of technical capacities of the partners engaged in SA) scored 0.398.

Table 4.62: Communalities for SA Success Operational Factors

Communalities		
	Initial	Extraction
Q6.1 Existence of rules, policies and procedures that guide cooperation	1.000	0.692
Q6.2 Distribution of clear roles and responsibilities within the alliance	1.000	0.689
Q6.3 Existence of alliance performance monitoring and evaluation mechanisms	1.000	0.684
Q6.4 Existence of practices, mechanisms to handle disagreements between the partners happening in the process of collaboration	1.000	0.645
Q6.5 Absence of divergences in management style and corporate culture	1.000	0.385
Q6.8 Similar level of technical capacities of the partners engaged in SA	1.000	0.398

Communalities for SA Overall Success scored higher than 0.8 indicating high proportion of variance in the indicator that can be introduced through the factors (Table 4.63).

Table 4.63: Communalities for SA Overall Success

Communalities		
	Initial	Extraction
Q1.1 SA overall performance	1.000	0.874
Q1.2 Knowledge accumulated from participating in the collaborative agreement	1.000	0.823
Q1.3 New opportunities the alliance created for their firm	1.000	0.837

As Table 4.64 demonstrates, all of the individual items loaded under Corporate Performance had communalities higher than 0.4. For most of the items, the values of the Communalities ranged from 0.6 to 0.7. Only one variable demonstrated a lower value of communality - Q7.5 (Firm's Quality of Marketing), scoring 0.433.

Table 4.64: Communalities for Corporate Performance

Communalities		
	Initial	Extraction
Q7.1 Quality of management	1.000	0.611
Q7.2 Employee's satisfaction	1.000	0.657
Q7.3 Product/service quality	1.000	0.618
Q7.4 Customers/partners' satisfaction	1.000	0.613
Q7.5 Firm's Quality of Marketing	1.000	0.433
Q7.6 Improvement of Corporate Culture	1.000	0.601
Q7.7 Access to new markets	1.000	0.517
Q7.8 Usage of information technologies	1.000	0.566
Q7.9 Firm's Capacity to Innovate	1.000	0.651
Q7.10 Firm's Capacity of adapting to the changes	1.000	0.670
Q7.11 Firm's Capacity to accumulate new knowledge	1.000	0.655
Q7.12 Companies' ability to attract, develop and retain Top Talent	1.000	0.581
Q7.13 Firm's Project and risk management capabilities	1.000	0.617

4.8.4 Summary of the Validity and Adequacy Testing

As the study of the criterion-related validity of the constructs showed the constructs have an acceptable level of sampling adequacy as per the KMO Measure test of Sampling Adequacy. In addition, Bartlett's test of sphericity tests validated that all of the constructs involved in the analysis are interrelated and therefore are adequate for structure detection. Meanwhile, all of the individual items had communalities higher than 0.3 indicating an acceptable value for communalities. Accordingly, none of the variables has been excluded based on the criterion-related validity testing.

4.9 Confirmatory Factor Analyses and Testing of the Research Model

To assess the underlying structure and structural model of the latent variables involved in this research Confirmatory Factor Analysis (CFA) method is applied. CFA method is applied if there is a need to verify the path relationships of the unobserved constructs through the identified variables. The research model incorporates path relationships between observed and latent variable, relationships between latent

variables and gives information on errors and disturbances. CFA is used in testing the path model which is specified a priori in the research hypothesis section.

Under this section, CFA procedure is explained. Fit indices for the model were checked and the validity and reliability of the model was analyzed and discussed. Finally, research hypothesis testing results are presented.

4.9.1 Testing of the Research Model and Hypotheses

In the final SEM the latent variables have been involved as follows:

Strategic Alliance Success Factors: Strategic Alliance Success Factors which are Strategic, Tactical and Operational Factors have been identified as separate measures that affect Corporate Performance separately. The individual variables in charge of measuring each construct have been identified through reliability tests and exploratory factor analysis methods as discussed in the above sections. The list of the individual variables identified to measure each latent construct is presented in Table 4.65.

Corporate Performance: The initial Research Hypothesis stated the Corporate Performance consists of two factors: Operational Efficiency and Capacity Building. The initial assumption was that Corporate Performance is best measured as a correlated unidimensional factors model where sub-dimensions of the construct fit to each other conceptually but perform better model estimates when measured separately. However, Exploratory Factor Analysis revealed an absence of any higher-order factors for this construct. Tau-equivalent reliability test also confirms that internal reliability of Corporate Performance, when all the variables are tested simultaneously is higher (Cronbach's Alpha equaling 0.943) than the internal reliability of Operational Efficiency (Cronbach's Alpha equaling 0.903) and Capacity Building (Cronbach's

Alpha equaling 0.906). Accordingly, in Structural Equation Model Corporate Performance is measured as a construct for which all of the variables are loaded into a single latent variable.

Strategic Alliance Success: Strategic Alliance Success is measured through 3 individual variables which performed string internal consistency.

The Table 4.65 presents the list of the items and their abbreviations included in the final structural model. The Figure 4.1 presents the final structural model to the tested. Final research hypothesis is in Table 4.66.

Table 4.65: List of the Variables Included in the Final Model

Factor	Abbreviations	Items
Strategic Factors	STF	Q4.1 Overall fit between the partners and existence of shared vision
		Q4.2 Defined clear and compatible goals and objectives
		Q4.3 Comprehension and compatibility of objectives and goals between the partners
		Q4.4 Existence of agreement on the process by which SA goals can be achieved
		Q4.5 Appropriateness of the form of cooperation for alliance management
		Q4.6 Appropriateness of the alliance governance form
		Q4.7 Absence of disparities in the resources contributed and controlled by each partner organization
		Q4.9 Existence of a positive previous experience among the partners
		Q4.10 Extent to which future expectations from the partners are positive
		Q4.11 The degree of commitment between the partners
		Q4.12 The degree the commitment between the partners is guaranteed and reasonable
Tactical Factors	TCF	Q5.1 Simultaneous transparency and receptivity among the organizations
		Q5.2 Openness and timeliness of communication
		Q5.3 Quality of information exchanged between the partners
		Q5.4 Established efficient communication channels between the partners
		Q5.5 Simultaneous and receptivity of collective acquisition of knowledge among the organizations
		Q5.6 The level of learning synergy and interaction effect between the organizations
		Q5.7 Creation of new knowledge through interaction among the organizations
		Q5.8 Continuity of learning
		Q5.9 Partners sensibility toward different cultures
		Q5.12 Partners willingness to adapt to each other's' management practices, organizational culture, procedures
Operational Factors	OPF	Q6.1 Existence of rules, policies and procedures that guide cooperation
		Q6.2 Distribution of clear roles and responsibilities within the alliance
		Q6.3 Existence of alliance performance monitoring and evaluation mechanisms
		Q6.4 Existence of practices, mechanisms to handle disagreements between the partners happening in the process of collaboration
		Q6.5 Absence of divergences in management style and corporate culture
		Q6.8 Similar level of technical capacities of the partners engaged in SA
Corporate Performance	CP	Q7.1 Quality of management
		Q7.2 Employee's satisfaction
		Q7.3 Product/service quality
		Q7.4 Customers/partners' satisfaction
		Q7.5 Firm's Quality of Marketing
		Q7.6 Improvement of Corporate Culture
		Q7.7 Access to new markets
		Q7.8 Usage of information technologies
		Q7.9 Firm's Capacity to Innovate
		Q7.10 Firm's Capacity of adapting to the changes
		Q7.11 Firm's Capacity to accumulate new knowledge
		Q7.12 Companies' ability to attract, develop and retain Top Talent
		Q7.13 Firm's Project and risk management capabilities
SA Success	SAS	Q1.1 SA overall performance
		Q1.2 Knowledge accumulated from participating in the collaborative agreement
		Q1.3 New opportunities the alliance created for their firm

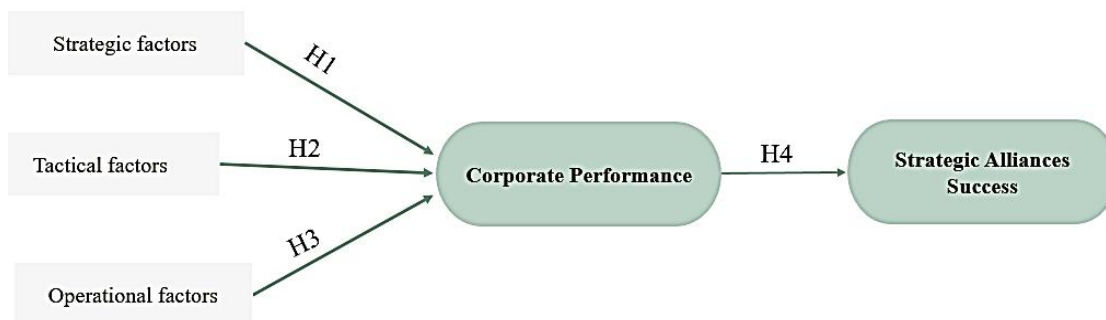


Figure 4.1: Structural Model to be Tested

Table 4.66: Research Hypothesis Underlying the Structural Equation Model

N	Hypothesis
H1	Strategic Factors positively impact Corporate Performance
H2	Tactical Factors positively impact Corporate Performance
H3	Operational Factors positively impact Corporate Performance
H4	Corporate Performance positively impact Strategic Alliance Success

4.9.2 Model Estimation Procedure

The model was estimated by loading variables onto identified factors using SEM software program AMOS 22. Overall, 43 variables have been involved as observed (endogenous) variables. Corporate performance (CP) and SA Overall Success (SAS) have been defined as unobserved endogenous variables. Error terms have been added for those variables. SA Success Strategic factors (STF), SA Success Tactical Factors (TCF) and SA Success Operational Factors (OPF) have been defined as unobserved, exogenous variables.

Model parameters were estimated using the maximum likelihood method. As all of the variables included in the analysis were 5-scale Likert variables standard estimation procedure was applied without any resampling technique.

The run of the model showed that it was empirically identified with a Chi-square value equaling Chi-square = 2328.578, df = 842, and probability level = 0.000.

The initial model was modified and improved by adding covariance between the error terms as suggested by the modification indexes. Overall, 14 covariance links have been added between the error terms. The final model is presented in Figure 4.2.

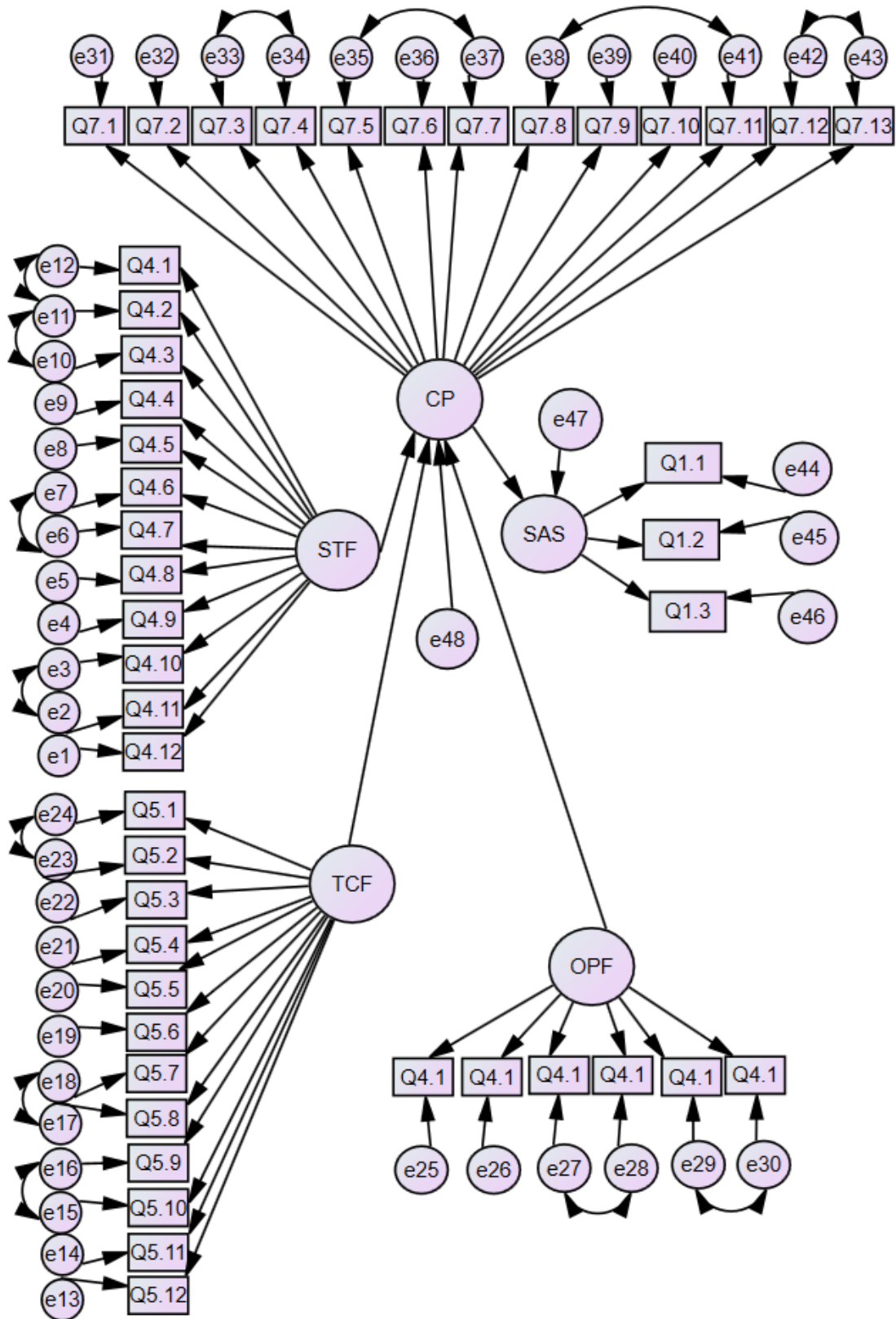


Figure 4.2: Final Estimated Structural Equation Model

4.9.3 Model Fit

The Structural Equation Modeling method proposes a series of different indicators that enable us to assess to what extent the model provides an adequate fit to the data. For this research, the overall model fit was assessed using the following indices: 1. C_{min}/df ; 2. the Root Mean Square Error of Approximation (RMSEA); 3. The Tucker Lewis index (TLI); 4. The Comparative Fit Index (CFI); 5. RMSEA upper 90% CI.

The lower benchmark of good fit is known to be 0.90 for the TLI and the CFI. The upper limit for proper match is assumed to be 0.08 for the RMSEA. C_{min}/df less than 3 was considered an indication of good model fit. Although P close should be > 0.05 , the large sample size used may hinder the achievement of such results. Thus, a better approach is the use the upper 90% confidence interval for RMSEA which should be lower than 0.08. These cut off criteria for model fit were used as previously defined (Hu & Bentler, 1999) and are discussed briefly below:

One of the assessment fit index is the Tucker-Lewis index (known also as a Non-Normed Fit Index (NNFI)) which depends on the average size of the data associations. If there is not a strong average correlation between variables, so the TLI would not be very high.

RMSEA or the root mean square error of approximation index is one of the most frequently used indices and can be considered as a “must be examined” index. RMSEA is an absolute measure of fit based on non-certainty parameters. The indicative of a good model fit is RMSEA value lower than 0.08. Different benchmarks are used by different methodologies to denote the goodness of fit based on RMSEA value. Particularly, MacCallum, Browne and Sugawara (1996) suggest to use 0.01 to

indicate excellent, 0.05 to indicate good, and 0.08 to indicate mediocre fit of the model to data. Benchmark of 0.10 to indicate poor model fit is also suggested by some other researches. This index may be biased if the sample size is small and depends on the degree of freedom. Due to this, for example, Kenny (2014) suggests not to refer to RMSEA if model degree of freedom is low. RMSEA also has its confidence intervals and structural equation modeling software provide estimations for them as well. As a rule, the 90% confidence interval's lower value contains or is very close to 0 (or not worse than 0.05) and the upper value is not very high, i.e., less than 0.08.

As a rule, CFI is greater than TLI, meanwhile, CFI and TLI are highly correlated and reporting of one indicator gives idea about the other one. CFI is also based on the non-centrality measure. As the practice shows CFI is reported more frequently than TLI.

The final CFA model was inspected for goodness of fit (Table 4.67). The correlations between latent variables were also inspected and interpreted in the section below.

Table 4.67: Fit Indices for the CFA Model

Estimation Indexes	Default Model Value	Acceptable Fit Value
Chi-square (CMIN)	2328.578	Non-significant Chi-square is accepted CMIN/df < 3
Degree of Freedom (DF)	842	
P	0.000	
CMIN/DF	2.766	
CFI	0.808	≥ 0.9
TLI	0.791	≥ 0.9
RMSEA	0.08	< 0.08
RMSEA upper 90% CI	0.08	< 0.08

Results showed that the final model performed a good fit for the data for several criteria, however, not for all of them. The CFI and TLI were lower than the proposed threshold of 0.9. The RMSEA was 0.08 which is exactly as the suggested threshold. However, the upper limit of the 95% confidence interval of the RMSEA should be taken into consideration during result interpretation. The upper limit of the RMSEA 95% confidence interval was again equal to the suggested threshold of 0.8.

4.9.4 Convergent and Discriminant Validity of the Model

CFA was performed to assess whether the proposed model of latent constructs was a good fit for the data. To test the Convergent and Discriminant Validity of the Constructs engaged in the analysis a similar model was tested with covariance relationships between all the unobserved hypothetical variables as presented in Figure 4.3. The reliability of the constructs was also assessed using the Composite Reliability (CR) index. The results of the Convergent, Divergent, and Discriminant Validity analysis are presented in the below sections.

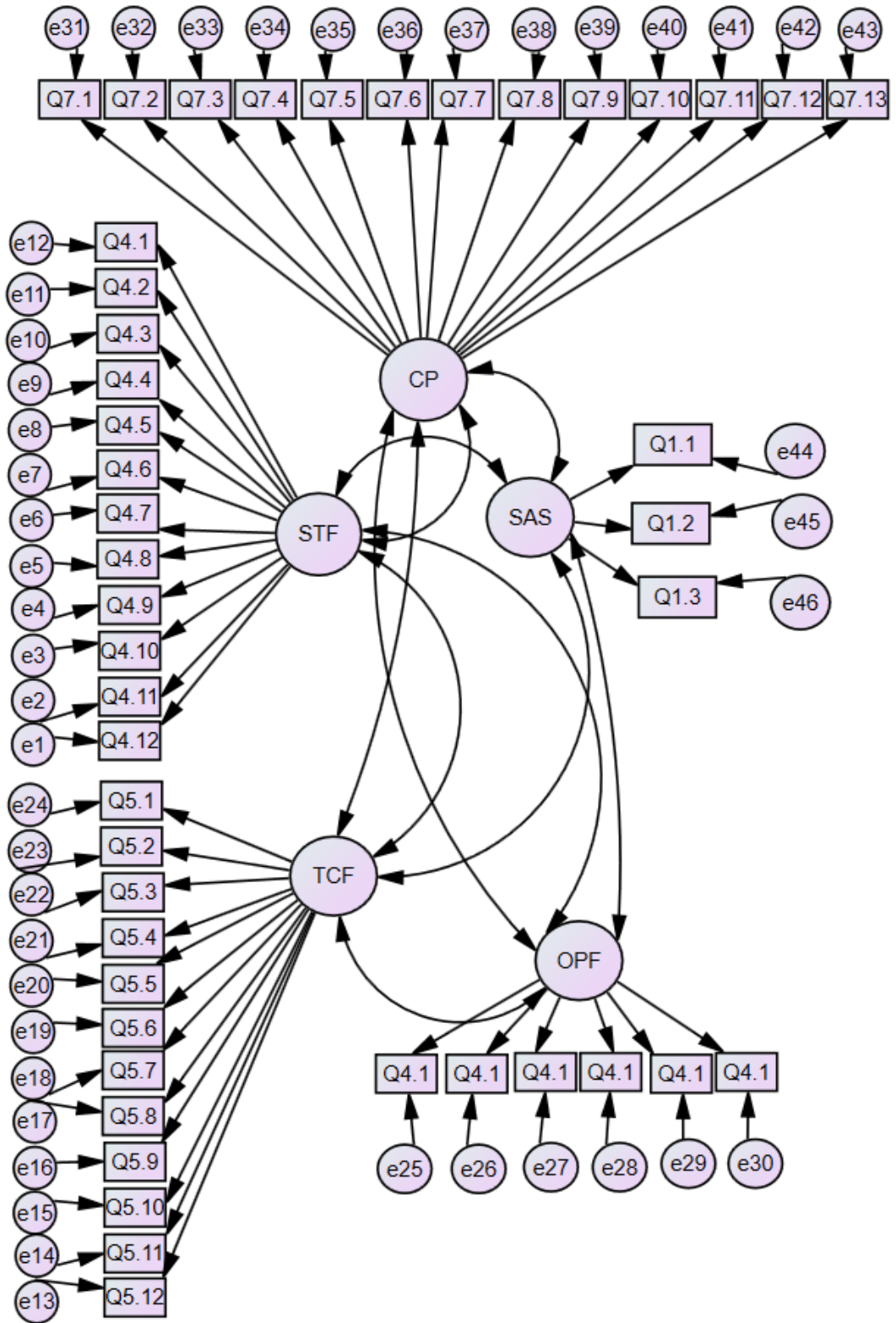


Figure 4.3: Confirmatory Factor Analysis Loadings for First-Order Factors

4.9.4.1 Convergent Validity

To assess convergent validity the loadings of the directly observable variables on the appropriate unobserved variables have been studied. As the literature suggested loadings are good if equal to or greater than 0.5. The convergent validity of the constructs was assessed using the average variance extracted which should be greater than 0.5 for all constructs. Divergent validity was assessed by comparing the correlations between latent variables to square root the average variance extracted (\sqrt{AVE}). Divergent validity was met if none of the correlations between latent variables was higher than the square root the AVE. Due to the exploratory nature of the study, factors with an AVE slightly below 0.50 and CR above 0.70 were kept in the analysis (Fornell & Larcker, 1981). Individual indicators were allowed to load on only one factor and the latent variables were allowed to freely co-vary.

All constructs showed good convergent validity as shown by the AVE which was ~ 0.5 for all constructs. Only one constructs (STF) had $AVE < 0.5$. However, the AVE was very close to 0.5 (~0.485) which indicates good convergent validity (Table 4.68).

Table 4.68: Calculation of AVE and Square Root of AVE of the Latent Variables

Indicator variables	Direction	Latent Variables	Standardized loadings	AVE	Square Root of AVE
Q4.12	<---	STF	0.686	0.485	0.697
Q4.11	<---	STF	0.749		
Q4.10	<---	STF	0.715		
Q4.9	<---	STF	0.681		
Q4.7	<---	STF	0.615		
Q4.6	<---	STF	0.677		
Q4.5	<---	STF	0.746		
Q4.4	<---	STF	0.710		
Q4.3	<---	STF	0.633		
Q4.2	<---	STF	0.732		
Q4.1	<---	STF	0.707		
Q5.12	<---	TCF	0.604	0.522	0.723
Q5.9	<---	TCF	0.612		
Q5.8	<---	TCF	0.725		
Q5.7	<---	TCF	0.703		
Q5.6	<---	TCF	0.699		
Q5.5	<---	TCF	0.736		
Q5.4	<---	TCF	0.793		
Q5.3	<---	TCF	0.773		
Q5.2	<---	TCF	0.789		
Q5.1	<---	TCF	0.764		
Q6.8	<---	OPF	0.520	0.508	0.713
Q6.5	<---	OPF	0.514		
Q6.4	<---	OPF	0.742		
Q6.3	<---	OPF	0.752		
Q6.2	<---	OPF	0.830		
Q6.1	<---	OPF	0.843		
Q7.1	<---	CP	0.769	0.566	0.752
Q7.2	<---	CP	0.797		
Q7.3	<---	CP	0.778		
Q7.4	<---	CP	0.761		
Q7.5	<---	CP	0.609		
Q7.6	<---	CP	0.752		
Q7.7	<---	CP	0.676		
Q7.8	<---	CP	0.723		
Q7.9	<---	CP	0.789		
Q7.10	<---	CP	0.809		
Q7.11	<---	CP	0.791		
Q7.12	<---	CP	0.741		
Q7.13	<---	CP	0.758		
Q1.1	<---	SAS	0.909	0.769	0.877
Q1.2	<---	SAS	0.844		
Q1.3	<---	SAS	0.876		

4.9.4.2 Discriminant Validity

Discriminant validity is evaluated through comparison of the loading value with the cross-loading construct with other structural models' constructs. Discriminant validity is met if the loading of the item is higher than its corresponding cross-loading of the other construct (Hair et al., 2016). To assess discriminant validity correlation between the factors should be studied. Ideally 0.7 is a maximum benchmark for the correlation between the two. Discriminant validity was also assessed through cross-loadings i.e., no manifest item should load on more than one factor.

Correlation between latent variables: Correlation is a bivariate measure of strength of association between two continuous variables. The sign (+ or -) indicates the direction of the relationship. The value of correlation coefficient (r) ranges from +1 and -1 (Pallant, 2010) with a value of zero indicating no association. A correlation coefficient of 1 or -1 indicates a perfect linear association (Hair et al., 2016). Cut-off values are used for correlation that were proposed by Cohen and Manion (1980). A correlation coefficient (r) that ranges from 0.1 to 0.29 indicates small correlation strength while values that range from 0.3 to 0.49 indicate medium strength. Values from 0.5 to 1.0 indicate high strength of association.

As can be seen, all of the hypothetical contracts are significantly correlated to each other (significant at $p < 0.001$ level). A strong correlation was detected between STF and TCF with a correlation coefficient scoring 0.870 (significant at $p < 0.001$ level). Meanwhile correlation was strong between OPF and STF (correlation coefficient scoring for 0.752, significant at $p < 0.001$ level); OPF and TCF (correlation coefficient scoring for 0.783, significant at $p < 0.001$ level). These high correlations

indicate low discriminant validity of the factors which were observed among the STF, OPF, and TCF latent variables (Table 4.69).

Composite Reliability: Composite reliability was used to assess the reliability of the constructs. Results showed good reliability of the included first-order factors as shown by composite reliability which was > 0.7 for all constructs. Initial results showed that the resulting model was in concordance with the expected one. The extracted number of factors was similar to what was proposed in the hypothetical model.

Table 4.69: Reliability and Validity of first Order Latent Variables (First Run)

	CR	AVE	STF	TCF	OPF	CP	SAS
STF	0.91	0.485	0.697				
TCF	0.92	0.522	0.870***	0.723			
OPF	0.86	0.508	0.752***	0.783***	0.713		
CP	0.94	0.566	0.598***	0.609***	0.615***	0.752	
SAS	0.91	0.769	0.562***	0.601***	0.565***	0.680***	0.877
P < 0.1, * P < 0.05, ** P < 0.01, *** P < 0.001							
CR: Composite reliability AVE: Average variance extracted Bold numbers on the diagonals represent \sqrt{AVE} for the construct and numbers below it represent its correlation with all other constructs							

The reliability of the first-order model was acceptable as shown by composite reliability which was > 0.7 for all constructs. The AVE was > 0.5 for all constructs. No discriminant or convergent validity issues were observed except for STF and TCF which were highly correlated ($r = 0.870$, $P < 0.001$). However, this can be explained by the similar nature of the two factors. The removal of any of the remaining items in these two constructs did not affect significantly improve the results.

4.9.5 Direct, Indirect and Total Effects

The most common method to establish mediation is the causal model promoted by Baron and Kenny (1986). Such approach involves estimating each path in the model (Figure 4.4) and check whether certain statistical criteria are met. However, Baron and Kenny (1986) outline that reaching statistical significance of the total effect is mandatory for mediation. They claim that a non-significant total effect (path c) should not warrant further investigation of mediation. Thus, new alternative approaches were suggested the most common of which is to use bootstrapping (MacKinnon et al., 2004). The Bootstrapping method involves the use of bootstrapped samples (e.g., 2000) to estimate the indirect effect (the ab path). For each sample, the estimate of ab is calculated. The pooled estimates are then used to construct the bootstrapped 95% confidence interval for the indirect effect. Confidence intervals that do not include 0 were considered statistically significant. The latter approach is used to test for mediation. Such approach does not require the total effect (c) to be statistically significant but only the indirect effect (ab).

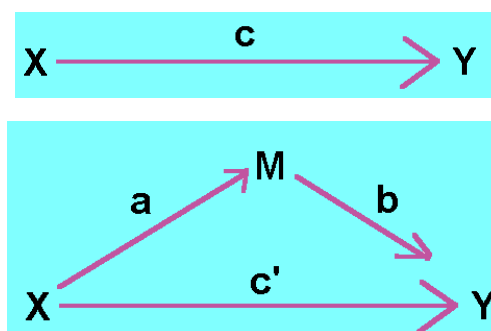


Figure 4.4: Diagrammatic Representation of Mediation

Complete mediation is present when variable X no longer affects Y after M has been controlled, making path c' zero i.e., $\beta = 0$. Partial mediation is deemed present when the path from X to Y is reduced in absolute size but is still different from zero

when the mediator is introduced. Both types require that the path ab is statistically significant i.e., 95% CI $\neq 0$.

As it can be seen, all of the effects are positive. OPF has the largest total effect on CP with total effect scoring 0.314 compared to TCF and STF, with total effects scoring 0.290 and 0.282, respectively. Through CP, which is an unobservable mediator variable, OPF has largest indirect effect on SAS equaling 0.202. Meanwhile, the direct effect of CP on SAS is considerably high equaling 0.646 (Table 4.70).

Table 4.70: Standardized Total, Direct and Indirect Effects of the Latent Variables

Standardized Total Effects					
	OPF	TCF	STF	CP	SAS
CP	0.314	0.290	0.282	0.000	0.000
SAS	0.202	0.188	0.182	0.646	0.000
Standardized Direct Effects					
	OPF	TCF	STF	CP	SAS
CP	0.314	0.290	0.282	0.000	0.000
SAS	0.000	0.000	0.000	0.646	0.000
Standardized Indirect Effects					
	OPF	TCF	STF	CP	SAS
CP	0.000	0.000	0.000	0.000	0.000
SAS	0.202	0.188	0.182	0.000	0.000

4.9.6 Structural Model and Path Relationships

As mentioned above, it constructed structural model to study path relationships among the latent variables, particularly it tested causal models where CP was interpreted as mediator variable, STF, TCF and OPT as independent variables and SAS as a dependent variable.

Regression model estimation parameters are presented through β , standard error and T Statistics. All the estimated paths were significant at $p < 0.05$ (significant at 0.01 level). As it can be seen, all of the latent independent variables have positive relationships with the latent dependent variable and mediator latent variable (Table 4.71).

Table 4.71: Standardized Regression Weights and Estimations of the Latent Variables

O. E. V.	Direction	U. E. V.	S. R. W.	Estimate	S.E.	C.R.	P
CP	<---	STF	0.282	0.299	0.071	4.23	***
CP	<---	TCF	0.290	0.327	0.077	4.264	***
CP	<---	OPF	0.314	0.451	0.111	4.057	***
SAS	<---	CP	0.646	0.965	0.105	9.216	***
S.E. - Standard Error; C.R. - Critical Ratio; U. E. V. - Unobserved endogenous variables; O. E. V.- Observed endogenous variables; S. R. W. - Standardized Regression Weights; *** - statistically significant at 0.001 level							

All the established hypotheses are confirmed. Among the other constructs, Operational Factors are described with the highest β value indicating stronger relationships with Corporate Performance ($\beta=0.314$) which is followed by Tactical Factors, with β equaling 0.290, and Strategic Factors, with β equaling 0.282. The path relationships with Corporate Performance and Strategic Alliance Success is described with a high β value, $\beta = 0.646$ indicating a strong casual effect of Corporate Performance on Strategic Alliance Success (Table 4.72).

Table 4.72: Results of Hypothesis Testing

Hypothesis	Path	β	S.E.	T-Statistics	Comments
H1	STF \rightarrow CP	0.282***	0.071	4.23	Supported
H2	TCF \rightarrow CP	0.290***	0.077	4.264	Supported
H3	OPF \rightarrow CP	0.314***	0.111	4.057	Supported
H4	CP \rightarrow SAS	0.646***	0.105	9.216	Supported
Significant at 0.001 level, S.E.- Standard Error					

4.10 Summary of Confirmatory Factor Analysis and Hypothesis Testing

To assess the underlying structure and structural model of the latent variables involved in this study Confirmatory Factor Analysis (CFA) method is used. In an Apriori model Corporate Performance and SA Overall Success have been defined as unobserved endogenous variables, SA Success Strategic factors, SA Success Tactical factors and SA Success Operational factors have been defined as unobserved, exogenous variables, and individual variables have been defined as observed (endogenous) variables. Model parameters were estimated using the maximum likelihood method. The run of the model showed that it was empirically identified and it provided a good fit to the data for several criteria. Convergent, Divergent, and Discriminant Validity analysis as also performed which showed that that have strong Convergent and Divergent validity. The analysis of discriminant validity showed a high correlation between the SA Success Strategic, Tactical and Operational factors due to which discriminant validity of the constructs was not strong. The Composite Reliability showed good reliability of the included first-order factors. Regression model estimation parameters showed that all the paths were significant at 0.01 level. All of the latent independent variables have positive relationships with the latent dependent variable and mediator latent variable. All the established hypotheses are

confirmed. Operational Factors are described with the highest effect on Corporate Performance.

Chapter 5: Discussion and Conclusions

5.1 Introduction

Under this Chapter key findings of the study are summarized and the Chapter outlines the main conclusions. Key findings per each research component is presented including discussion and comparison of the result with key literature suggestions. The success factors of SA, including strategic, operational and tactical factors have been combined with the corporate performance of the firms engaged in the SAs and success of the alliance in a single research model where general interrelations of the involved concepts are studied. The results showed that all SA success factors positively affect corporate performance of the firms and SA success. The research found that among the other factors operational success factors are the most important in terms of impact on corporate performance and strategic alliance success. The Chapter also introduces the theoretical contributions of the research and the area of its potential implications for the academics and practitioners. The chapter also details the limitations of this study and suggests some directions that may be useful for further research.

5.2 Discussion of Findings

This study identifies the impact of the strategic alliances on the corporate performance of the companies in an oil and gas industry in the emirate of Abu Dhabi, UAE. The study examines and assesses the success factors of strategic alliances distinguishing three groups of the factors – strategic factors, tactical factors and operational factors, as well as studies the impact of such alliances on firms' corporate performance and strategic alliance success. The primary research question was to assess the strategic alliances' impact on the corporate performance of the firms involved in the alliances in the oil and gas Industry of UAE. The secondary research

question was to determine the factors underlying the success of the strategic alliances with the example of the firms operating in oil and gas industry in the UAE.

To address the identified research questions, a comprehensive review of the research literature on Strategic Alliances, corporate performance, and success factors underlying SA success was carried out, which is presented in Chapter 2 of this study. Based on the key literature a research model was developed and a group of hypotheses was formulated. The research relied upon a quantitative approach based on a survey among the key informants working in the firms involved in any strategic alliance in the oil and gas drilling industry. Overall, 275 quantitative questionnaires have been filled-in. The detailed research methodology is presented in Chapter 3 of this study. Construction of measurement models of the hypothetical concepts including Strategic Alliances Success, SA Success Factors, and Corporate Performance was performed. A group of statistical tests have been applied prior to testing of research model. Particularly descriptive statistics data and correlation of the variables was introduced. The internal reliability to the constructs involved in the study based on which variables demonstrating poor internal consistency were dropped from the analysis. The underlying structure of the data was studied through exploratory factor analysis method and validity tests are conducted. Data has been prepared for Structural Equation Modeling, which was used to test a priori research model of the unobserved latent variables and their path relationships. Survey data analysis results are presented in Chapter 4 of this study. The next sections discuss the finding of the study, their theoretical and practical implications, as well as limitations of the research and proposed some suggestions for the future research.

5.2.1 General Impact of the SA Success Factors on Corporate Performance and SA Overall Success

In this section general interrelations of the constructed involved in the research are discussed after which the discussion of each research construct is introduced. In general, the study of path relationships among the SA Success Factors, Corporate Performance, and SA Overall Success revealed a statistically significant regression model among the involved latent variables. The research model was estimated and impact loadings of each factor and individual variable are presented in the Section 4. Overall, all of the latent variables involved in the analysis had positive relationships with each other. All of the established hypotheses, which assume that strategic, tactical and operational factors have positive impact on corporate performance and SA success, were confirmed. In general, the research findings are consistent with the key literature on Strategic Alliance according to which general positive relationship between the success of the strategic alliances and corporate performance exists (Russo & Ceserani, 2017; O'Dwyer & Gilmore, 2018; Mamédio et al., 2019; Goerzen, 2007). It complements the research literature which generally suggests that engagement in a strategic alliance enable the firms and business organizations to enhance their performance in most of the areas (Goerzen, 2007; Perry & Sengupta, 2004). This research particularly provides quantitative evidence on direction of the impact and its strength consistent with general literature suggestions and findings which claim that there is a significant nexus between the performance of the firms and involvement in SAs (Perry & Sengupta, 2004).

Though all of the identified sub-factors of the SA success including strategic factors, tactical factors and operational factors demonstrated positive impact on Corporate Performance their impact strength varies. Compared to Strategic and

Tactical Factors, Operational Factors had the strongest relationship with Corporate Performance, which is followed by Tactical Factors and then Strategic Factors. This may lead to the conclusion that SA success in terms of its impact on Corporate Performance mostly depends on management patterns within the alliance that unfolds during the alliance operation phase rather than the factors which are important during SA formation. This may implicate that the positive impact of Strategic Alliance in Corporate Performance will be high in case firms involved in the SA pay duly attention to the operational factors which include establishment of rules, policies and procedures that guide the cooperation, distribution of the roles and responsibilities with the alliance, establishment of performance monitoring and evaluation mechanisms etc. Thus, for SA success operational factors are critically important which include established formalized mechanisms supporting alliance operation and daily management.

5.2.2 SA Success Strategic Factors

In general, Strategic Alliance Success factor demonstrated positive impact on Corporate Performance. Overall, Strategic factors are those which are taken into account during SA formation phase when companies are making decision on cooperation, its form, governance, etc.

Almost all of the individual factors identified under this factor demonstrated a high level of contribution to SA Success. As the factor loadings of the individual variables showed two criteria are the most important in terms of strategic alliance success - appropriateness of the form of cooperation for alliance and the degree of commitment between the partners. This finding contributes to Russo and Cesarani (2017) finding who suggests two key factors critical for this phase: selection of an

appropriate partner and selection of the best management form for alliance governance, as well as Anand and Khanna (2000) suggestion that strategic alliance success, including its functioning and stability, is dependent on the level of commitment the partners follow during SA establishment and operation. Meanwhile, the absence of excessive dominance by one partner was not found to be a meaningful explaining variable in terms of SA success. Furthermore, the absence of differences and gaps in the resources contributed and controlled by each partner firms were found to have the smallest factor loading in SA Success. This constricts to research literature according to which possible dominance by one partner may negatively impact the motivation and interest of other partner, and commitment of the partner in the alliance will be small (Johnston, 1991; Rai et al., 1996), as well as to the claim that differences in the resources shared and managed by each partner organization may lead to disparities in organizational power in the SA (Thompson, 1967; Harrigan, 1985). Thus, it is concluded that strategic alliance success is not preconditioned with the existence or absence of dominance by one partner or dominance in resources controlled, but rather depends on the appropriateness of the form of cooperation for alliance and the degree of commitment between the partners.

Thus, as for the strategic factors the key research findings are consistent with the literature suggestions, however the research finds that the impact level of different factors in SA success varies. While the forms of governance and commitment between the parties are found to be remarkable explaining factors for SA success, the differences in resource distribution and control across the alliance partner firms are not found to be powerful explaining variables. It suggests that alliance may be successful even there are disparities in the controlled and contributed resources and there is an excessive dominance by any of the partner.

5.2.3 SA Success Tactical Factors

Strategic alliance tactical factors are those which generally related to interactions between the partners and reveal themselves during implementation process of the strategic alliance. Those interactions may be both formal and not-formal. Those factors were also found to be significant explaining variables for the Strategic Alliance success according to the data analysis results of this research. This finding is consistent with research literature, which suggest that such factors as transparency, communication, knowledge exchange and cultural fit are important factors for SA success (Das & Teng, 2003; Larsson et al., 1998; Russo & Cesarani, 2017).

Almost all of the individual factors identified under this factor demonstrated a high level of contribution to SA Success. Meanwhile, the sub-factors involved under this factor demonstrated different patterns during the analysis. Transparency, communication, information exchange, and learning are found to be significant explaining factors of Strategic success. As data analysis showed those sub-factors performed good fit together, while the variables identified under “Cultural Fit” acted as a separate factor not fitting under the overall tactical factor as an overarching concept. This may be explained by the fact that transparency, communication, information exchange, and learning evolve and reveal during the alliance implementation process and gradually influence strategic alliance success, while factors under “cultural fit” are mainly predetermined factors and may have their implications during strategic alliance formation stage, therefore those factors may be studied under “Strategic factors” rather than “Tactical Factors”. The other assumption is that variables involved under transparency, communication, information-sharing, and learning are closely interrelated and depend on each other, particularly, learning

may happen in case there is transparency and communication, therefore those factors may be studied under one general overarching concept rather than separated.

To conclude, it can be claimed that overall, the findings were consistent with research literature which suggests that transparency, communication, information-sharing, and learning are important elements of the success of strategic alliances (Russo & Cesarani, 2017; Das & Teng, 1998; Larsson et al., 1998; Todeva & Knoke, 2003). Compared to those factors it was revealed that the “cultural fit” factors are less important in terms of their power to explain strategic alliance success. Meanwhile, “cultural fit” factors are performing a distinct pattern of impact on SA success and therefore should be studied separately either as a distinct individual factor impacting SA success, or as a sub-factor involved under SA strategic factor.

5.2.4 SA Success Operational Factors

Operational factors are generally those which evolve and reveal themselves during daily management of the Strategic Alliance. Those factors mostly refer to the management patterns of the SA which unfolds during alliance operation and implementation phase. Generally, those include existence of formalized mechanisms that support SA operation and evaluation and refers to “organizational fit” of different partners engaged under a single alliance. As the data analysis shows, operational factors are found to be the most important factor for SA success compared to the tactical and strategic factors. This finding is consistent with research literature which suggests that SA success is dependent on operational control and coordination of the alliance (Russo & Cesarani, 2017; Mohr & Spekman, 1994; Tjemkes et al., 2017) as well as organizational fit between the partners (Kanter, 1994; Park & Ungson, 1997; Hennart & Zeng, 2002).

Almost all of the individual factors identified under this factor demonstrated a high level of contribution to SA Success. Among them, two factors have been identified to be critically important in terms of their ability to explain SA success. Those include the existence of rules, policies, and procedures that guide cooperation and distribution of clear roles and responsibilities within the alliance. This is consistent with research literature which suggests that to reach success, business have to establish and manage the level of control in the alliance and balance different collaborative aspects between each other (Russo & Cesarani, 2017; Mohr & Spekman, 1994; Schilke & Goerzen, 2010). Meanwhile, the organizational fit factors were found to be less important in terms of their power to explain SA success compared to the Operational control and coordination factors.

Thus, it can be concluded that operational factors are important in terms of their impact on Corporate Performance of the firms engaged in the alliance. Though disparities in management style and culture between the firms are important factors of SA success, operational control and coordination are more important and in case properly implemented may compensate the negative impact of organizational disparities between the partners.

5.2.5 SA Corporate Performance

As data analysis shows, corporate performance of the firms is impacted by the success of the focal strategic alliances in which they are engaged in. This research findings were consistent with the literature, according to which strategic alliances positively impact corporate performance of the companies (Williamson, 1985; Goerzen & Beamish, 2005; Arora & Gambardella, 1990; Deeds & Hill, 1996; Kale et al., 2002).

In this research it was suggested that Corporate Performance should be measured through informants' two subjective assessment groups under two factors - operational Efficiency and capacity building. This assumption was based on literature review where according to several sources Corporate Performance was introduced through two factors - Operational Efficiency (Osborn & Hagedoorn, 1997; Kaplan & Norton, 1992) and Capacity Building (Eisenhardt, 1999; Kaplan and Norton, 1992). However, data analysis (through exploratory factor analysis method) showed that it is a one-factor concept for which operational efficiency and capacity fit together conceptually and are best measured together. All of the individual variables performed good ability to measure the impact of SA in Corporate Performance, however as revealed, one of the components is least impacted by SA, which is Firm's Quality of Marketing. The other variables with smaller loadings include access to new markets and usage of information technologies.

Thus, it can be concluded that SA success factors positively impact Corporate Performance of the firms which in general is consistent with research literature (Williamson, 1985; Goerzen & Beamish, 2005). This indicates that SA positively impacts firms' quality of management, product quality, customers' satisfaction, firms' capacity to innovate etc. However, in case of engagement in an alliance firms' quality of marketing, access to new markets and usage of information technologies are less impacted. This finding may be explained with the fact that research covers oil and gas industry and industry-specific aspects which may include need for marketing, access to new markets, may differ from the practices in the other sectors.

5.2.6 SA Strategic Alliance Success

Strategic alliance success was measured through key informants' subjective assessment. As the data analysis shows, SA success is positively impacted by the Corporate Performance with loading exceeding 0.8. Overall, three individual variables have been involved in the analysis: SA overall performance, knowledge accumulated from participating in the collaborative, new opportunities the alliance created for their firm; and all of the variables performed strong ability to measure SA success. The performance of the identified individual variables to measure the SA success was consistent with research literature where particularly those measures are suggested to be used to assess overall success of an alliance (Ariño, 2002; Parkhe, 1993).

5.3 Theoretical Contributions

The aim of this research was to contribute to knowledge in Strategic Alliance field, particularly through understanding of the factors underlying SA success and their implication on Corporate Performance of the firms involved in the SAs. As the literature review shows the interest of academic cycles on Strategic alliances increased during the recent decades (López-Duarte, 2016), however as noted in the literature as noted in the literature, the impact of SA on the performance and yield of oil companies is also unknown in the region and there is not a large corpus of literature on strategic alliances involving Emirati firms in general (Butler, 2007). Meanwhile, the business relationships in this sector evolve intensively and understanding those processes becomes critically important both from academic and practical perspectives.

As already noted, most of the research in this field adopted a qualitative approach lacking quantitative interpretation of casual relationships, estimation of impacts and hypothesis testing. This research provides quantified evidence to confirm

the existing qualitative studies that SA do add value to the firms concerned and support improvement of their corporate performance. The research sheds light on the question of to what extent the strategic alliances enable firms involved in these alliances to improve their corporate performance by pooling their core strengths, resources and proprietary technologies. Through applied quantities methods path relationships between the SA success factors, Corporate Performance and SA overall success are studied and quantified.

In addition, the research contributes in theoretical background for each concept involved in this study. Particularly, special attention has been paid to the development of the measurement model of each construct which include thorough literature review with the purpose to identify the individual variables best fitting the concepts and assurance of high content validity. In addition, reliability and validity tests have been applied which revealed high reliability and validity for each construct, therefore those measures and tools may be applied by other academics and practitioners in this field. And in the end, this research gives a multidimensional approach to the study of Strategic alliance success and as a quantitative research it provides useful insights for the research and practitioners in the field where mostly qualitative research is conducted.

5.4 Practical Implications

The research addresses its original purposes and covers the gaps identified in the literature providing quantitative evidence on the impact of Strategic Alliances on Corporate Performance. It brings important insights to the research and practice in Strategic Alliance sphere in UAE gas and oil industry context. As already noted, most of research in this sector explores the impact of the strategic alliances on corporate

performance relied on qualitative methods. Those methods are useful for investigating the underpinning processes and their description in Strategic Alliance sector. The practical implications of the research may be the following:

First, the research gives clear range of the factors which are important in terms of SA success. The companies which are engaged in any strategic alliance or plan to join any alliance may use the list to assess their SA success or form their expectation based on current state of SA. The research highlights which particular factors are critically important for SA success and companies involved in any SA may pay special attention to those factors. Particularly, as already mentioned operation factors are critically important, among them existence of rules, policies, and procedures that guide cooperation and distribution of clear roles and responsibilities within the alliance.

Secondly, the research highlights the overall positive impact of engagement in SA on companies' corporate performance. It provides a comprehensive report on the correlation that exists between the strategic alliances and the corporate performance of the oil companies in Abu Dhabi. In addition, it provides adequate data on the role played by strategic alliances in enhancing the diversification process of oil companies in the Abu Dhabi oil and gas industry. The findings of the study will help oil companies in GCC countries to make informed decisions when selecting alliances that are crucial to the strengthening of their corporate performance. In addition, the findings of the report will provide policymakers in GCC countries with adequate information on the significance of the strategic alliances in the diversification of their economies.

Furthermore, the identified list of the SA success factors may be used by the companies involved in the strategic alliances during SA performance and implementation monitoring and evaluation process. As already noted, all of the

measures demonstrated high reliability and validity and therefore are tested and verified tools to be used in the field. The existing database including survey data of 275 participants may also be shared with the other researchers and practitioners for further investigation and research.

To conclude, the findings of the study will be critical in bridging the information gap on the impact of the strategic alliances on the corporate performance of oil companies in the GCC countries. The findings of the study will also help oil companies in GCC countries to make informed decisions when selecting alliances that are crucial to the strengthening of their corporate performance. In addition, the findings of the report will provide policymakers in GCC countries with adequate information on the significance of the strategic alliances in the diversification of their economies. And last and not least, the research enables the other academics and practitioners to have access to the tested and verified research tools that may be applied for similar researches or during the monitoring and evaluation of the SAs progress and performance.

5.5 Limitations and Suggestions for Future Research

Though special attention was paid to the research to make it comprehensive and useful in terms of its methodological and practical perspectives there are some limitations which open room for the future research and investigation. This section provides overview of the research limitations and highlight some opportunities for future research.

First: The underlying structure of Strategic Alliance Success Factors have been identified through a thorough literature review and identified individual variables have

been grouped under Strategic Factors, Tactical Factors and Operational Factors. The Discriminant Validity analysis showed that those variables have high inter-correlations and distinction between those contracts are rather hypothetical than practical. Most probably low model fit indexes were due to this restriction. In addition, “Cultural fit” factors demonstrated distinct pattern in research model not fitting under “Tactical factors” and therefore in future research should be either studied as a separate factor impacting SA success or under “Strategic factors” overarching construct. However, the list of the identified individual variables describing SA success is quite comprehensive including overall 32 individual variables identified and assessed. This enables researchers to have access to a broad range of variables describing the factors underlying SA success. Further research may address this issue through identification of better underlying structure of SA success factors through application of Exploratory Factor Analysis method or other research methods.

The other limitation includes the bias related to the representativeness of the study. Conduction of survey in oil and gas industry is a challenging task as most of the units in survey population may be not accessible. However, the research covers a single sector, which significantly mitigates the representativeness issue as no bias exists due to involvement of not proportional sizes of sample per sectors.

And finally, the research aims to study the overall impact of SA on Corporate Performance. Different SA success factors may have different importance in terms of SA success. Though the research gives overall understanding on the factors that are important in terms of SA success generally introducing broad view of the factors, the further research may include more thorough study of each individual variables’ impact and power on SA success.

All those limitations should be taken into account while interpreting research results and making conclusions. However, those limitation open room for the further research and create opportunities for the future development.

5.6 Conclusions

This research addresses two main research goals: it identifies and assess the success factors of strategic alliances and assess the impact of such alliances on firms' corporate performance. The study of the factors underlying success of the Strategic Alliances in terms of their impact on Corporate Performance may be useful to other researchers and practitioners to identify and assess the necessary conditions for the success of strategic alliances. The research has its theoretical and practical implication in the Strategic alliance research field, shedding light to the industry-specific relationships of strategic alliance success and corporate performance of the firms in oil and gas industry. In addition, the research provides access to tested and verified tools and measures which may have its academic and practical implications and application by the other researchers. And finally, the limitations of this study do not harm its value and significant and instead open a room for further research and development.

Based on the research outputs recommendations for the corporations intending to engage in SA or currently involved in SAs are withdrawn. Generally, the companies in the oil companies in Abu Dhabi are recommended to join SAs as engagement in strategic alliances will have a positive impact on companies' corporate performance. The companies which plan to join any strategic alliance or currently are engaged in are recommended to pay remarkable attention to the operational factors of SA operations ensuring that formalized mechanisms supporting alliance operation and daily management are properly established and maintained. This includes ensuring that clear

rules, policies, and procedures that guide cooperation procedures are in place and the roles and responsibilities within the alliance are properly distributed. The companies are also recommended to pay special attention to the appropriateness of the form of alliance cooperation and the degree of commitment between the partners. Last but not least, the companies are recommended to ensure proper operational control and coordination which in case properly implemented may mitigate the negative impact of organizational disparities between the partners.

References

- ADNOC. ADNOC Drilling. 2018. Retrieved 25 Jun 2019 from:
<https://www.adnoc.ae/en/adnoc-drilling>.
- Albers, S., Wohlgezogen F., Zajac, E. “Strategic Alliance Structures: An Organization Design Perspective.” *Journal of Management*, 42(3), 2013: 582-614.
- Aliaga, M., & Gunderson, B. *Interactive statistics*. Virginia. America: Pearson Education, 2002.
- Allen, I. E., & Seaman, C. A. “Likert scales and data analyses.” *Quality Progress*, 40(7), 2007: 64-75.
- Anand, B. N. & Khanna, T. “Do Firms Learn to Create Value? The Case of Alliances.” *Strategic Management Journal*, 21(3), 2000: 295-315.
- Andersen, O. S. & Kheam, L. “Resource-based theory and international growth strategies: an exploratory study.” *International Business Review*, 7(2), 1998: 163-184.
- Antoncic, B., & Prodan, H. “Alliances, corporate technological entrepreneurship and firm performance: Testing a model on manufacturing firms.” *Technovation*, 28(5), 2008: 257-265.
- Apuke, O. “Quantitative research methods: A synopsis approach.” *Kuwait Chapter of Arabian Journal of Business and Management Review*, 33, 2017: 1-8.
- Aramco. PETRONAS, Saudi Aramco announce formation of two new joint ventures in Malaysia. 2018. Retrieved 16 May 2018 from:
<https://www.saudiaramco.com/en/news-media/news/2018/petronas-aramco-announce-formation-two-joint-ventures>.
- Ariño, A. “Measures of strategic alliance performance: an analysis of construct validity.” *Journal of International Business Studies*, 34(1), 2002: 66-79.
- Arora, A., & Gambardella, A. “Complementary and external linkages: The strategies of the large firms in biotechnology.” *Journal of Industrial Economics*, 4, 1990: 361- 379.
- Aroyyo, J. P., Yago, M., Nasir, M., & Wu, J. “Strategic Alliance in Energy Sector & Implications for Economic Growth and Technical Efficiency: The Case of Petrobras and Galp.” *International Journal of Energy Economics and Policy*, 4(4), 2014: 759-771.
- Bagozzi, R. P. & Yi, Y. “On the evaluation of structural equation models.” *Journal of the academy of marketing science*, 16, 1988: 74-94.

- Baird, I. S., Lyles, M. A., Ji, S. & Wharton, R. "Joint venture success: a Sino-US perspective." *International Studies of Management & Organization*, 20, 1990: 125-134.
- Bakerhughes. Adnoc Strategic Partnership. 2018. Retrieved 9 March 2018 from: <https://www.bakerhughes.com/company/news/adnoc-and-bhge-form-strategic-partnership-improve-drilling-efficiencies-and-grow-adnoc>.
- Bakker, R. "Stepping in and stepping out: Strategic alliance partner re-configuration and the unplanned termination of complex projects." *Strategic Management Journal*, 37(9), 2015: 1919-1941.
- Baradzich, I. *Strategic Alliance Process and Performance: A meta-analytic study*. Bellaterra. Sage Publication, 2017.
- Barney, J. "Firm Resources and Sustained Competitive Advantage." *Journal of Management*, 17(1), 1991: 99-120.
- Beamish, P. W. *Multinational Joint Ventures in Developing Countries*. New York: Routledge, 1988.
- Belson, W. A. *The design and understanding of survey questions*. Aldershot: Gower, 1981.
- Borys, B., & Jemison, D. B. "Hybrid Arrangements as Strategic Alliances: Theoretical Issues in Organizational Combinations." *The Academy of Management Review*, 14, 1989: 243-249.
- Brouthers, D. K. "A retrospective on: Institutional, cultural and transaction cost influences on entry mode choice and performance." *Journal of International Business Studies*, 56, 2013: 14-22.
- Brown, D. M., & Laverick, S. "Measuring corporate performance." *Long Range Planning*, 27(4), 1994: 89-98.
- Brown, T. A. *Confirmatory Factor Analysis for Applied Research*. New York: The Guilford Press, 2006.
- Browne, W. & Sugawara, M.. "Power analysis and determination of sample size for covariance structure modeling." *Psychological methods*, 2, 1996: 130-142.
- Bruyaka, O., Philippe, D., & Castañer, X. "Run away or stick together? The impact of organization-specific adverse events on alliance partner defection." *The Academy of Management Review*, 43(3), 2018: 445-469.
- Bryman, A. *Social Research Methods*. Oxford University Press, 2016.
- Bryman, H. & Bell, G. "Qualitative data analysis." *International Journal of Sales, Retailing & Marketing*, 4, 2011: 5-14.

- Butler, C. “ Cross-border strategic alliances: co-operation between firms from the United Arab Emirates and international partners.” *Strategic Change*, 16(7), 2007: 351-359.
- Butler, C. “Changes in industry structure and competition: the use of strategic alliances by defence manufacturing firms.” *Strategic Change*, 14(1), 2005: 15-24.
- Cacciolattia, L., Rosli, A., Ruiz-Alba, L., & Chang, J. “Strategic alliances and firm performance in startups with a social mission.” *Journal of Business Research*, 106, 2020: 106-117.
- Campbell, D. T. & Stanley, J. C. *Experimental and Quasi-Experimental Designs For Research*. Boston: Houghton Mifflin Company, 1963.
- Charles, W, Hill, L., & Jones, G. *Strategic Management: An Integrated Approach*. Routledge, 2007.
- Child, J. & Faulkner D. *Strategies of Cooperation: Managing Alliances, Networks and Joint Ventures*. New York: Oxford University Press, 1998.
- Child, J., Faulkner, D., & Tallman, S. B. *Cooperative strategy* . Oxford: MS: Oxford University Press., 2005.
- Chyung, S. Y., Roberts, K., Swanson, I., & Hankinson, A. “Evidence-Based Survey Design: The Use of a Midpoint on the Likert Scale.” *Performance Improvement*, 56(10), 2017: 15-23.
- Cohen, L. & Manion, L., *Research Methods in Education*. London: Groom Helm Ltd, 1980.
- Cooper, C. M. & Gardner, J. T. “Building Good Business Relationships: More than Just Partnering or Strategic Alliances?” *International Journal of Physical Distribution & Logistics Management*, 23(6), 1993: 14-26.
- Creswell, J. W. *Research Design: Qualitative & Quantitative Approaches*. London: Sage Publication, 1994.
- Creswell, J. W. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Sage publications, 2014.
- Crotty, M. *The foundations of social research: Meaning and perspective in the research process*. Sage Publication, 1998.
- Culpan, R. “A fresh look at strategic alliances: Research issues and future directions.” *International Journal of Strategic Business Alliances*, 12, 2009: 102-116.
- Culpan, R. *Global Business Alliances: Theory and Practice*. Westport, CT: Quorum Books, 2002.

- Das, T. K. & Teng, B.,. "Between trust and control: developing confidence in partner cooperation in alliances." *Academy of Management Review*, 23(3), 1998: 491-512.
- Das, T. K., & Teng, B. S. "A resource-based theory of strategic alliances." *Journal of Management*, 26(1), 2003: 31-61.
- De Maesschalck, R., Jouan-Rimbaud, D., & Massart, D. L. "The Mahalanobis distance." *Chemometrics and Intelligent Laboratory Systems*, 50, 2000: 1-18.
- Deeds, D. & Hill, C. "Strategic alliances and therate of new product development: an empirical studyof entrepreneurial biotechnology firms." *Journal of Business Venturing*, 11, 1996: 41-55.
- Doz, Y. & Hamel, G. *Alliance Advantage: The Art of Creating Value through Partnering*. Boston: Harvard Business School Press, 1998.
- Drennan, J. "Cognitive interviewing: Verbal data in the design and pretesting of questionnaires." *Journal of Advanced Nursing*, 42, 2003: 57-63.
- Dussauge, P., Garrette, B., & Will, M. "How to Get the Best Results from Alliances." *European Business Forum*, 3, 2000: 41-46.
- Duysters, G., Saebi, T., & De Man, A. P. "Shaping the alliance management agenda: a capability approach." *Journal on Chain and Network Science*, 11(3), 2011: 191-196.
- Eisenhardt, K. M. "Strategy as strategic decision-making." *Sloan Management Review*, 40(3), 1999: 65-72.
- Eisenhardt, M. & Schoonhoven, B. "Resource-based view of strategic alliance formation: Strategic and social effects in entrepreneurial firms." *Organization Science*, 7, 1996: 136-150.
- Ellen, B. "Problem solving in the rat: piecemeal acquisition of cognitive maps." *Animal Learning & Behavior*, 12, 1984: 232-237.
- ENI. ADNOC and BHGE form strategic drilling partnership. 2018. Retrieved 16 May 2019 from: <https://www.the-eic.com/News/NewsStory/ADNOC-and-BHGE-form-strategic-drilling-partnership.aspx?ArticleID=4718&tabid=766>.
- ENI. Eni and SONATRACH sign agreements to extend their historic partnership. 2019. Retrieved 16 May 2019 from: https://www.eni.com/en_IT/media/2018/04/eni-and-sonatrach-sign-agreements-to-extend-their-historic-partnership.
- Espino-Rodríguez T. F. and Padrón-Robaina V. "A resource-based view of outsourcing and its implications for organizational performance in the hotel sector." *Tourism Management* 6(5), 2006: 707-721.

- Europetrole. Oman Oil company and Kuwait Petroleum International sign partnership agreements for the development of Duqm Refinery and Petrochemical Complex. 2017. Retrieved 9 May 2019 from: <https://www.europetrole.com/oman-oil-company-and-kuwait-petroleum-international-sign-partnership-agreements-for-the-development-of-duqm-refinery-and-petrochemical-complex-n-i-14690>.
- Fornell, C. & Larcker, D. F. "Evaluating structural equation models with unobservable variables and measurement error." *Journal of marketing research*, 89, 1981: 39-50.
- Forrest, J. *Management of Technology Innovation; Strategic Alliances in the 'New' Biotechnology Industry*. Sage Publication, 1998.
- Foss, J. N. & Knudsen, K. "The resource-based tangle: towards a sustainable explanation of competitive advantage." *Managerial and Decision Economics*, 24(4), 2003: 291-307.
- Franco, M. "Determining factors in the success of strategic alliances: an empirical study performed in Portuguese firms." *European Journal of International Management*, 5, 2011: 608-632.
- Franko, L. G. *Joint venture survival in multinational corporations*. New Yoek: Praeger Publishers, 1971.
- Gal, D. *Global Oil Trends and Their Geopolitical Impact on the Middle East*. Sage Publication, 2004.
- Gamal, R. Exclusive-Saudi Aramco eyes partnerships as it expands refining, petrochems. 2018. Retrieved 25 Jun 2019 from: <https://www.cnn.com/2018/06/12/reuters-america-exclusive-saudi-aramco-eyes-partnerships-as-it-expands-refining-petrochems.html>.
- Garcia, R., Lessard, D. & Singh, A. "Strategic partnering in oil and gas: A capabilities perspective." *Energy Strategy*, 63, (2014): 21-29.
- Geringer, J. M. & Hebert, L. "Measuring performance of international joint ventures." *Journal of International Business Studies*, 22(2), 1991: 249-264.
- Ghorbani, H. "Mahalanobis Distance and its Application for Detecting Multivariate Outliers." *Facta Universitatis*, 34, 2019: 583-595.
- Ghosh, S. & Mukherjee, S. "Measurement of Corporate Performance through Balanced Scorecard: An Overview." *Vidyasagar University Journal of Commerce*, 11, 2006: 60-70.
- Giles, L. *Sun Tzu on The Art of War*. Boston, Massachusetts: IndyPublish, 2001.
- Goertzen, M. J. *Introduction to Quantitative Research and Data. Applying Quantitative Methods to E-book Collections*, 2017.

- Goerzen, A. & Beamish, P. W. "The effect of alliance network diversity on multinational enterprise performance." *Strategic Management Journal*, 26(4), 2005: 333-354.
- Goerzen, A. "Alliance networks and firm performance: The impact of repeated partnerships." *Strategic Management Journal*, 28, 2007: 487-509.
- Grant, R. M. & Baden-Fuller, L. "A Knowledge Accessing Theory of Strategic Alliances." *Journal of Management Studies*, 41(1), 2004: 61-84.
- Greene, J., Caracelli, V., & Graham, W. "Toward a conceptual framework for mixed method evaluation designs." *Educational Analysis and Policy Analysis*, 11(3), 1989: 255-274.
- Gulati, R. "Alliances and networks." *Strategic Management Journal*, 19(4), 1998: 293-317.
- Gulati, R., Wohlgezogen, F., & Zhelyazkov, P. "The Two Facets of Collaboration: Cooperation and Coordination in Strategic Alliance." *Academy of Management Annals*, 6, 2012: 531-583.
- Gummesson, E. *Qualitative Research in Management Qualitative Methods in Management Research*. Londres: Sage Publications, 1991.
- Hagedoorn, J., & Schakenraad, J. "The effect of strategic technology alliances on company performance." *Strategic Management Journal*, 15(4), 1994: 291-309.
- Hagos, G. & Pal, T. "The Means of Analysis and Evaluation for Corporate Performance." *Annales Universitatis Apulensis Series Oeconomica*, 12(1), 2010: 438-449.
- Hair, J. F., Sarstedt, M., Matthews, L. M., & Ringle, C. M. "Identifying and treating unobserved heterogeneity with FIMIX-PLS: part I-method." *European Business Review*, 96, 2016: 11-24.
- Hamel, G. & Prahalad, C. "The Core Competence of the Corporation." *Harvard Business Review*, 14, 1990: 79-91.
- Hamel, G. & Prahalad, C. K. "Strategic intent." *Harvard Business Review*, 67(3), 1989: 63-76.
- Hamel, G. "Competition for competence and inter-partner learning within international strategic alliances." *Strategic Management Journal*, 12, 1991: 83-103.
- Harrigan, K. R. *Strategies for joint ventures*. MA: Lexington Books, 1985
- Hennart, J. F. & Zeng, M. "Cross-cultural differences and joint venture longevity." *Journal of International Business Studies*, 33, 2002: 699-716.

- Hilton, C. E. "The importance of pretesting questionnaires: a field research example of cognitive pretesting the Exercise referral Quality of Life Scale (ER-QLS)." *International Journal of Social Research Methodology*, 45, 2015: 2-14.
- Hoang, H. & Rothaermel, F. T. "The effect of general and partner-specific alliance experience on joint R&D project performance." *Academy of Management Journal*, 48, 2005: 332-345.
- Hoffmann, R. & Schlosser, W. "Success Factors of Strategic Alliances in Small and Medium-sized Enterprises-An Empirical Survey." *Long Range Planning*, 34, 2001: 357-381.
- Holmlund, M. & Fulton, E. *Networking For Success: Strategic Alliances In The New Agriculture*. University of Saskatchewan, Japan, 1999.
- Hu, L. & Bentler, M.. "Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives." *Structural Equation Modeling: A Multidisciplinary Journal*, 6, 1999: 1-55.
- Human, S. & Provan, K. "An emergent theory of structure and outcomes in small-firm strategic manufacturing networks." *Academy of Management Journal* 40(2), 1997: 368-403.
- Ireland, R. D., Hitt, M. A., & Vaidyanath, D. "Alliance management as a source of competitive advantage." *Journal of Management*, 28(3), 2002: 413-446.
- Jake, L. *Stuart Groves. Strategic Alliances in Upstream Oil and Gas*. New York : BCG, 2015.
- James, R. "Strategic Alliances Between National and International Oil Companies, Program on Energy and Sustainable Development." *Freeman Spogli Institute For International Studies*, 14, 2011: 1-25.
- Jatmiko, B. "The comparison of OR-IPA teaching model and problem based learning model effectiveness to improve critical thinking skills of pre-service physics teachers." *Journal of Baltic Science Education*, 17, 2018: 300-320.
- Jiang, X., Bao, Y., Xie, Y., & Gao, S. "Partner trustworthiness, knowledge flow in strategic alliances, and firm competitiveness: A contingency perspective." *Journal of Business Research*, 69(2), 2016: 804-814.
- Johnston, S. J. "Dangerous liaisons?" *Infoworld*, 13(4), 1991: 112-127.
- Kale, P., Dyer, J. H., & Singh, H. "Alliance Capability, Stock Market Response, and Long Term Alliance Success: The Role of the Alliance Function." *Strategic Management Journal*, 23(8), 2002: 747-767.
- Kanter, R. M. "Collaborative advantage: The art of alliances." *Harvard Business Review*, 72(4), 1994: 96-108.

- Kaplan, B. & Maxwell, H. Evaluating health care information systems: Methods and applications. *Qualitative Research Methods for Evaluating Computer Information Systems*. JG Anderson, CE Ayden and SJ Jay. Thousand Oaks, Sage Publication, 1994.
- Kaplan, R. S., & Norton, D. P. "The balanced scorecard-measures that drive performance." *Harvard Business Review*, 63, 1992: 71-79 .
- Kenny, A. *The design and analysis of data from dyads and groups*. Sage Publication, 2014.
- Kinderis, R. & Jucevicius, G. "Strategic Alliances - their definition and formation." *Latgale National Economy Research*, 1(5), 2013: 106-128.
- Kirkman, B. L., Lowe, K. B., & Gibson, C. B. "A quarter century of "Culture's Consequences": A review of empirical research incorporating Hofstede's cultural values framework." *Journal of International Business Studies*, 37(3), 2006: 285-320.
- Kivunja, C. & Kuyini, A. B. "Understanding and Applying Research Paradigms in Educational Contexts." *International Journal of Higher Education*, 6, 2017: 26-41.
- Kohtamäki, M., Rabetino, R. & Möller, K. "Alliance capabilities: A systematic review and future research directions." *Industrial Marketing Management*, 81, 2018: 188-201.
- Koka, B. R. & Prescott, J. E. "Strategic Alliances As Social Capital: A Multidimensional View." *Strategic Management Journal*, 23(9), 2008: 795-816.
- Kor, Y. J. and Mahoney, T. Y. "Edith Penrose's (2004) Contributions to the Resource-based View of Strategic Management." *Journal of Management Studies*, 41(1), 2004: 183-191.
- Kraemer, H. "Without Increasing Sample Size." *Psychopharmacology Bulletin*, 27, 1991: 217-228.
- Krishnaswami, O. R., & Satyaprasad, B. G. *Business Research Methods*. Mumbai, INDIA: Himalaya Publishing House, 2010.
- Larsson, R., Bengtsson, L., Henriksson, K., & Sparks, J. "The Interorganizational Learning Dilemma: Collective Knowledge Development in Strategic Alliances." *Organization Science*, 9(3), 1998: 285-305.
- Ledesma, D. "The Changing Relationship between NOCS and IOCS in the LNG Chain." *Oxford Institute for Energy*, 32, 2009: 1-33.
- Lee, C. W. "Strategic alliances influence on small and medium firm performance." *Journal of Business Research*, 60(7), 2007: 731-741.

- Leischnig, A., Geigenmuellerb, A., & Lohmann S. "On the role of alliance management capability, organizational compatibility, and interaction quality in interorganizational technology transfer." *Journal of Business Research*, 67(6), 2014: 1049-1057.
- Li, K., Qiu, J., & Wang, J. "Technology Conglomeration, Strategic Alliances, and Corporate Innovation." *Management Science*, 58, 2019: 1-26.
- Lin, Y. & Wu, L. "Exploring the role of dynamic capabilities in firm performance under the resource-based view framework." *Journal of Business Research*, 67(3), 2014: 407-413.
- López-Duarte, C. "International Strategic Alliances and National Culture: Mapping the field and developing a research agenda." *Journal of World Business*, 103, 2016: 23-38.
- Lui, S. S. & Ngo, Y. "The Role of Trust and Contractual Safeguards on Cooperation in Non-equity Alliances." *Journal of Management*, 66, 2004: 471-485.
- Macher, J. T., & Richman, B. D. "Transaction Cost Economics: An Assessment of Empirical Research in the Social Sciences." *Business and Politics*, 10(1), 2008: 1-63.
- MacKinnon, P., Chondra M. Lockwood, & Jason Williams. "Confidence limits for the indirect effect: Distribution of the product and resampling methods." *Multivariate Behavioral Research*, 39, 2004: 99-128.
- Mamédio, D., Rocha, C., Szczepanik, D., & Kato, H. "Strategic alliances and dynamic capabilities: a systematic review." *Journal of Strategy and Management*, 12, 2019: 26-42.
- Marcel, V. *Investment in Middle East Oil: Who needs whom?* London: Chatham House, 2006.
- March, G. "Exploration and exploitation in organizational learning." *Organization Science*, 2, 1991: 71-87.
- Martins, G. A. "Sobre confiabilidade validade." *Rev Bras Gest*, 8(20), 2006: 1-12.
- Marxt, C. & Link, P. "Success factors for cooperative ventures in innovation and production systems." *International Journal of Production Economics*, 77, 2002: 219-229.
- Meirovich, G. "The impact of cultural similarities and differences on performance in strategic partnerships: An integrative perspective." *Journal of Management & Organization*, 16(1), 2010: 127-139.
- Meyer, E., & Wang, Y. *Transaction cost perspectives on alliances and joint ventures: Explanatory power and empirical limitations. Handbook on international alliance and network research.* Edward Elgar Publishing, 2015.

- Mintzberg H., Ahlstrand B., & Lampel J. *Strategi Safari*. London: Financial Times/Prentice Hall, 1998.
- Mintzberg, H. "Crafting Strategy." *Harvard Business Review*, 84, 1987: 66-75.
- Mirani, C. *Alliance as Competitive Strategy in the Oil & Gas Industry, the case of ENI and Statoilhydro*. University of Nordland, Bodo, Norway, 2009.
- Mjoen, S. & Tallman, H. "Control and Performance in International Joint Ventures." *Organization Science*, 8(3), 1997: 257-274.
- Mohr, J., & Spekman, R. "Characteristics of partnership success: partnership attributes, communication behavior, and conflict resolution techniques." *Strategic Management Journal*, 15(2), 1994: 135-152.
- Morgan, G. & Smircich, L. "The case for qualitative research." *Academy of Management Review*, 5, 1980: 491-500.
- Musarra, G. "The influence of desire for control on monitoring decisions and performance outcomes in strategic alliances." *Industrial Marketing Management*, 55, 2016: 10-21.
- Nelson, R. R. & Winter, S. *An Evolutionary Theory of Economic Change*. Boston: Harvard University Press, 1982.
- Newman, I. "Qualitative-Quantitative Research Methodology." UK: Southern Illinois, 1998.
- O'Dwyer, M. & Gilmore, A. "Value and alliance capability and the formation of strategic alliances in SMEs: The impact of customer orientation and resource optimisation." *Journal of Business Research*, 87, 2018: 58-68.
- O'Dwyer, M., Gilmore, A. & Carson, D. "Strategic alliances as an element of innovative marketing in SMEs." *Journal of Strategic Marketing*, 19(1), 2011: 91-104.
- OECD. *Survey of Adult Skills Technical Report*. 2008. Retrieved 7 April 2019 from: https://www.oecd.org/skills/piaac/_Technical%20Report_17OCT13.pdf
- Oliver, C. "Determinants of Interorganizational Relationships: Integration and Future Directions." *The Academy of Management Review*, 15, 1990: 241-265.
- Osborn, R. N. & Hagedoorn J. "The Institutionalization and Evolutionary Dynamics of Interorganizational Alliances and Networks." *The Academy of Management Journal*, 40(2), 1997: 261-278.
- Ozdemira, S., Kandemir, D., & Eng, T. "The role of horizontal and vertical new product alliances in responsive and proactive market orientations and performance of industrial manufacturing firms." *Industrial Marketing Management*, 64, 2017: 25-35.

- Ozorhon, B. "Implications of culture in the performance of international construction joint ventures." *Journal of construction engineering and management*, 134, 2008: 361-370.
- Pallant, J. *A step by step guide to data analysis SPSS*. Open University Press, McGraw-Hill Education, Philadelphia, USA, 2010
- Pangarkar, N., Yuan, L., & Hussain, S. "Too much of a good thing? Alliance portfolio size and alliance expansion." *European Management Journal*, 75, 2017: 477-485.
- Park, S. H., & Ungson, G. R. "The effect of national culture, organizational complementarity, and economic motivation on joint venture dissolution." *Academy of Management Journal*, 40(2), 1997: 279-307.
- Parkhe, A. "Partner nationality and the structure-performance relationship in strategic alliances." *Organization Science*, 4(2), 1993: 301-324.
- Patton, M. "Two decades of developments in qualitative inquiry: A personal, experiential perspective." *Qualitative social work*, 3, 2002: 261-283.
- Perry, M. & Sengupta, S. "Effectiveness of Horizontal Strategic Alliances in Technologically Uncertain Environments: Are Trust and Commitment Enough?" *Journal of Business Research*, 57(9), 2004: 951-956.
- Phillips, P. A., & Moutinho, L. "The strategic planning index: A tool for measuring strategic planning effectiveness." *Journal of Travel Research*, 38(4), 2000: 369-379.
- Porter, M. "How Competitive Forces Shape Strategy." *Harvard Business Review*, 56, 1979: 2-10.
- Porter, M. "What is strategy?" *Harvard Business Review*, 74(6), 1996: 61-78.
- Porter, M. *Competitive Strategy: Techniques for Analyzing Industries and Competitors*. New York: The Free Press, 1980.
- Porter, M. E. "Towards a Dynamic Theory of Strategy." *Strategic Management Journal*, 12, 1991: 95-117.
- Presser, S., Couper, M. P., Lessler, J. T., Martin, E., Martin, J., Rothgeb, J. M., & Singer, E. "Methods for testing and evaluating survey questions." *Public opinion quarterly*, 68(1), 2004: 109-130.
- Rahman, F. UAE to deepen energy partnership with China. 2018. Retrieved 5 December 2018 from: <https://gulfnews.com/business/sectors/energy/uae-to-deepen-energy-partnership-with-china-1>.
- Rai, A., Borah S., & Ramaprasad A. "Critical Success Factors for Strategic Alliances in the Information Technology Industry: An Empirical Study." *Decision Sciences*, 103(1), 1996: 141-155.

- Ramaseshan, B., & Loo, P. C. "Factors affecting a partner's perceived effectiveness of strategic business alliance: some Singaporean evidence." *International Business Review*, 7(4), 1998: 443-458.
- Rehman, A., & Alharthi, K. "An introduction to research paradigms." *International Journal of Educational Investigations*, 3, 2016: 51-59.
- Reuters. Russia's Rosneft, Iran's NIOC agree to team up on oil and gas projects worth \$30 billion. 2017. Retrieved 3 January 2018 from:
<https://www.reuters.com/article/us-russia-iran-oil/russias-rosneft-irans-nioc-agree-to-team-up-on-oil-and-gas-projects-worth-30-billion-idUSKBN1D14P6>.
- Richards, K. *Qualitative inquiry in TESOL*. Springer, 2003.
- Robson, M. J., Katsikeas, C. S., Schlegelmilch, B. B., & Pramböck, B. "Alliance capabilities, interpartner attributes, and performance outcomes in international strategic alliances." *Journal of World Business*, 26, 2018: 1-17.
- Russo, M. & Cesarani M. "Strategic Alliance Success Factors: A Literature Review on Alliance Lifecycle." *International Journal of Business Administration*, 8, 2017: 1-9.
- Saylor Academy. *Principles of sociological inquiry; Qualitative and quantitative methods*. Washington, DC: Saylor Academy, 2012.
- Schilke, O. & Goerzen, A. "Alliance management capability: an investigation of the construct and its measurement." *Journal of Management*, 36(5), 2010: 1192-1220.
- Sekaran, U. & Bougie, R. *Research methods for business: A skill building approach*. John Wiley & Sons, 2016.
- Shaikh, F. "The strategic planning process." *Management Research* 24(12), 2007: 8-15.
- Shelley, T. *Oil - Politics, Poverty & the Planet* 1st ed. London: Zed Books, 2005.
- Sheppard V. *Research Methods for the Social Sciences: An Introduction*. Sage Publication, 2020.
- Spralls, S. A., Hunt, S. D., & Wilcox, J. B. "Extranet use and building relationship capital in interfirm distribution networks: The role of extranet capability." *Journal of Retailing*, 87(1), 2001: 59-74.
- Strauss, A. & Corbin, J. *Basics of qualitative research techniques*. Thousand Oaks, CA: Sage publications, 1998.
- Sukamolson, S. *Fundamentals of quantitative research*. Language Institute Chulalongkorn University, China, 2007.

- Tavokol, M. & Dennick R. "Making sense of Cronbach's alpha." *International Journal of Medical Education*, 2, 2011: 53-55.
- Taylor, A. "An operations perspective on strategic alliance success factors - an exploratory study of alliance managers in the software industry." *International Journal of Operations & Production Management*, 25, 2005: 469-490.
- Tebrani, M. "Competitive strategies, strategic alliances, and performance in international high tech industries, a cross-cultural study." *Journal of American Academy of Business*, 2(2), 2003: 610-617.
- The U.S. U.A.E. Business Council. "The U.A.E oil and gas sector." Washington D.C. 2019. Retrieved 25 Jun 2019 from: <http://usuaebusiness.org/wp-content/uploads/2019/01/U.A.E.-Oil-and-Gas-Sector.pdf>
- Thompson, J. D. *Organizations in Action*. New York: McGraw-Hill, 1967.
- Tjemkes, B., Vos P., & Burgers K. *Strategic Alliance Management*. London: Routledge, 2017.
- Todeva, E. & Knoke, D. "Strategic Alliances and Corporate Social Capital." *Kölner Zeitschrift für Soziologie und Sozialpsychologie*, 102, 2003: 345-380.
- Toft, P., & Duero, A. "Reliable in the long run? Petroleum policy and long-term oil supplier reliability." *Energy Policy*, 39(10), 2011: 6583-6594.
- TOTAL. "Abu Dhabi: Total consolidates its strategic." 2018. Retrieved 28 October 2018 from: <https://www.total.com/en/media/news/press-releases/abu-dhabi-total-consolidates-its-strategic-partnership-adnoc-being-awarded-participating-interests>.
- TOTAL. "Kuwait Petroleum Corporation (KPC) and Total sign a Memorandum of Understanding for a refining and petrochemicals project in China." 2012. Retrieved 28 October 2018 from: <https://www.total.com/en/media/news/press-releases/kuwait-petroleum-corporation-kpc-and-total-sign-memorandum-understanding-refining-and-petrochemicals>.
- TOTAL. "SONATRACH and Total sign partnership agreement." 2017. Retrieved 28 October 2018 from: <https://www.total.com/en/media/news/press-releases/sonatrach-and-total-sign-partnership-agreement>.
- Tsang, E. W. "Motives for strategic alliance: A resource-based perspective." *Scandinavian Journal of Management*, 14(3), 1998: 201-221.
- Tully, S. "The modular corporation." *Fortune*, 130(3), 1993: 106-108.
- Varma, S., Awasthy, R., Narain, K., & Nayyar, R. "Cultural determinants of alliance management capability - an analysis of Japanese MNCs in India." *Asia Pacific Business Review*, 21(3), 2015: 424-448.

- Venkatraman, N. & Ramanujam, V. "Measurement of business performance in strategy research: a comparison of approaches." *Academy of Management Review*, 11(4), 1986: 801-814.
- Vyas, M. N., Shelburn W. L., & Rogers D. C. "An analysis of strategic alliances: forms, functions and framework." *Journal of Business & Industrial Marketing*, 10, 1995: 47-60.
- Wassmer, U. "Alliance Portfolios: A Review and Research Agenda." *Journal of Management*, 36(1), 2010: 141-171.
- Williams, K. "Adaptive management of natural resources—framework and issues." *Journal of environmental management*, 92, 2011: 1346-1353.
- Williamson, O. E. *The economic institutions of capitalizm: firms, markets, relational contracting*. New York: Free Press, 1985.
- Wong, K. "Partial least squares structural equation modeling (PLS-SEM) techniques using SmartPLS." *Marketing Bulletin*, 24, 2013: 1-32.
- Wray, L., Metzger Aa., & Syvertsen A. "Testing multidimensional models of youth civic engagement: Model comparisons, measurement invariance, and age differences." *Applied Developmental Science*, 25, 2016: 1-13.
- Wright, P., Pringle C. D., & Kroll M. J. *Strategic Management: Text and Cases*. Boston: MA: Allyn and Bacon, 1992.
- Yamin, S., Gunasekaran, A., & Mavondo, F. T. "Gunase Relationship between generic strategies, competitive advantage and organizational performance: An empirical analysis." *Technovation*, 19(8), 1999: 507-518.
- Yan, A. & Zeng, M. "International joint venture instability: a critique of previous research, a reconceptualization, and directions for future research." *Journal of International Business Studies* 30(2), 1999: 397-414.
- Yin, R. *Case study research: design and methods*. London: Sage Publication, 2009
- Yoshino, Y. & Rangan U. *Strategic Alliances: An Entrepreneurial Approach to Globalization*. Cambridge: MA: Harvard University Press, 1995.
- Zollo, M., Reuer, J. J., & Singh, H. "Interorganizational Routines and Performance in Strategic Alliances." *Organization Science*, 13(6), 2002: 701-713.