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**STRATEGIC INTEGRATION OF LOGISTICAL SUPPORT FOR
ENHANCED CONTRACT MANAGEMENT AND FLEET
OPERATIONS EFFICIENCY IN THE
ROYAL MALAYSIAN NAVY**



**DOCTOR OF PHILOSOPHY
UNIVERSITI UTARA MALAYSIA
JULY 2024**

**STRATEGIC INTEGRATION OF LOGISTICAL SUPPORT FOR
ENHANCED CONTRACT MANAGEMENT AND FLEET
OPERATIONS EFFICIENCY IN THE
ROYAL MALAYSIAN NAVY**



AZIZI BIN HAJI AHMAD SARKAWI

**Thesis Submitted to
College of Business
Universiti Utara Malaysia,
in Fulfilment of the Requirement for the Degree of Doctor of Philosophy**



Kolej Perniagaan
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ABSTRACT

The effectiveness of fleet operations in the Royal Malaysian Navy (RMN) has been affected by several issues, including delays in refit programs, costly delays in spare parts delivery, procurement process leakages, and integrity issues in the RMN. These difficulties are closely linked to contract management in the RMN. The aim of this study is to investigate the strategic integration between logistical support factors and enhanced contract management towards the RMN fleet operation efficiency. A quantitative survey was distributed to RMN Supply & Secretariat Officers located all over Malaysia. A total of 204 officers responded through a simple random sampling method. The data were analyzed using Statistical Package for the Social Science version 25 and Partial Least Squares Structural Equation Modelling version 3. The result demonstrated that there was no significant association between financial support and effective contract management. The result then shows a significant and positive correlation between leadership support and effective contract management. In addition, the findings reveal a significant and positive relationship between contract compliance and effective contract management. There is a significant positive relationship between technological support and effective contract management. Finally, contracting officer competency significantly moderates the relationship between technological support and effective contract management. The findings from this study suggest that to establish an optimal procurement and contract management procedure, RMN must apply compelling technological support on contracting officers' skills as well as establish a Contract Management Office, Project Management Review, and Supply Working Group to improve efficiency, cost-effectiveness, and good procurement outcomes. Future studies should focus on mixed-mode approaches to provide a comprehensive understanding of effective contract management in the defense industry.

Keywords: Fleet operations; Contract management; Strategic integration; Technological support

ABSTRAK

Keberkesanan operasi armada dalam Tentera Laut Diraja Malaysia (TLDM) telah terjejas oleh beberapa isu termasuk kelewatan dalam program pasang pulih, kelewatan penghantaran alat ganti yang mahal, ketirisan proses perolehan, dan isu integriti dalam TLDM. Kesukaran ini berkait rapat dengan pengurusan kontrak dalam TLDM. Matlamat kajian ini adalah untuk menyiasat integrasi strategik antara faktor sokongan logistik dan pengurusan kontrak yang dipertingkatkan ke arah kecekapan operasi armada TLDM. Kaji selidik kuantitatif telah diedarkan kepada Pegawai Bekalan & Urusetia TLDM yang berada di seluruh Malaysia. Seramai 204 pegawai memberi maklum balas melalui kaedah persampelan rawak mudah. Data dianalisis menggunakan Pakej Statistik untuk Sains Sosial versi 25 dan Pemodelan Persamaan Struktur Kuasa Dua Separa Terkecil versi 3. Keputusan menunjukkan tiada perkaitan yang signifikan antara sokongan kewangan dan pengurusan kontrak yang berkesan. Seterusnya, keputusan menunjukkan korelasi yang signifikan dan positif di antara sokongan kepimpinan dan pengurusan kontrak yang berkesan. Di samping itu, penemuan kajian mendedahkan hubungan yang signifikan dan positif antara pematuhan kontrak dan pengurusan kontrak yang berkesan. Terdapat hubungan positif yang signifikan antara sokongan teknologi dan pengurusan kontrak yang berkesan. Akhir sekali, kompetensi pegawai kontrak menyederhanakan hubungan di antara sokongan teknologi dan pengurusan kontrak yang berkesan. Dapatan kajian mencadangkan bahawa, untuk mewujudkan prosedur perolehan dan pengurusan kontrak yang optimum, TLDM mesti menggunakan sokongan teknologi yang menarik terhadap kemahiran pegawai kontrak serta menubuhkan Pejabat Pengurusan Kontrak, Kajian Semula Pengurusan Projek dan Kumpulan Kerja Bekalan untuk meningkatkan kecekapan, kos efektif dan hasil perolehan yang baik. Kajian masa hadapan perlu memberi tumpuan kepada pendekatan mod campuran untuk memberikan pemahaman yang komprehensif tentang pengurusan kontrak yang berkesan dalam industri pertahanan.

Kata kunci: Operasi armada; Pengurusan kontrak; Integrasi strategik; Sokongan teknologi

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LIST OF ABBREVIATIONS

AO	: Area of Operation
AVE	: Average Variance Extracted
CC	: Contract Compliance
CM	: Contract Management
CMB	: Capability Management Board
CMO	: Contract Management Office
CMMM	: Contract Management Maturity Model
COC	: Contracting Officer Competency
DE	: Development Expenditure
FS	: Financial Support
ECM	: Effective Contract Management
f^2	: Effect Size
ILS	: Integrated Logistics Support
ISS	: In-Service Support
ITNMB	: Malaysian National Institute of Translation
JKPAK	: Government Asset Management Committee
HoD	: Head of Department
LS	: Leadership Support
MTR	: Mid Term Review
NBCD	: Nuclear, Biological and Chemical Damage
OE	: Operating Expenditure
PMR	: Project Management Review
PV	: Patrol Vessel
r^2	: Squared Multiple Correlations
RMN	: Royal Malaysian Navy
RMNSM	: Royal Malaysian Navy Strategic Meeting
ROI	: Return of Investment
SB	: Supply Board
SEM-PLS	: Structural Equation Model – Partial Least Square
SCM	: Supply Chain Management
SLOC	: Sea Lines of Communication
SPSS	: Statistical Package for the Social Science
SSNVR	: Straits Settlement Naval Volunteer Reserve
SWG	: Supply Working Group
TS	: Technological Support
VM Lab	: Value Management Lab

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Royal Malaysian Navy (RMN) was established on 27 April 1934. The establishment of RMN was with a very small intake from the local Malay known as the Straits Settlement Naval Volunteer Reserve (SSNVR). In the early years, the locals were fully trained by the British Navy (Royal Navy). In fact, assets such as ships, buildings and naval experts were also provided by the British Navy. Koontz, O'Donnell, and Weihrich (1980) stated premising is the formal recognition in the planning process that plans operated in an environment, both internally to the enterprise and externally. Despite its very small and limited capabilities, RMN has now evolved and developed in parallel with the progress of Malaysia by having more sophisticated assets and warfare systems such as strategic submarines, attack helicopters, combatant ships such as Frigates and Corvettes, Patrol Vessel (PV) as well as the acquisition of other infrastructures like Forward Bases, tactical training infrastructure namely submarine simulator, navigation simulator, Maritime Tactical Centre, Chemical, Biological, Radioactive, Nuclear, and Damage (CBRNDC) Training Centre and many more. To date, RMN has one main headquarter in Kuala Lumpur namely Royal Malaysian Navy Headquarter, Ministry of Defence (MinDef), nine main bases located at Langkawi, Lumut (Western Fleet Command), Kuantan, Klang (National Hydrographic Centre), Johor (Naval Volunteer Reserve Headquarter), Kota Kinabalu (Eastern Fleet Command & Submarine Force Headquarter), Sandakan, Semporna (Special Force) and Tawau (Naval Volunteer Reserve Unit). RMN has been equipped with 49 warships (27 West Malaysia, 22 East Malaysia) of various functions, 2 submarines and 15 helicopters (12 West Malaysia, 3

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APPENDICES

Appendix A: Questionnaire



Northern University of Malaysia

Relationship Between Logistical Support Factors and Effective Contract Management in The Royal Malaysian Navy

This research aimed to determine the relationship between logistical support factors (i.e. financial support, leadership support, contract compliance and technological support) and effective contract management. Moreover, the study also wanted to examine the moderating effect of contracting officer competency on the relationship between logistical support factors and effective contract management. In addition, this research also want to study the most influenced factor of logistical support such as financial support, leadership support, contract compliance and technological support on the effectiveness of contract management. Therefore, the respondents should answer the questions sincerely. Respondents' information will be kept confidential and all the answers will be report in general.

Penyelidikan ini bertujuan untuk menentukan hubungan di antara faktor sokongan logistik (iaitu sokongan kewangan, sokongan kepimpinan, pemuatan kontrak dan sokongan teknologi) dan pengurusan kontrak yang berkesan. Selain itu, kajian ini juga

ingin mengkaji kesan penyederhanaan kecekapan pegawai kontraktor terhadap hubungan di antara factor sokongan logistic dan pengurusan kontrak yang berkesan. Di samping itu, penyelidikan ini juga ingin mengkaji factor sokongan logistic seperti sokongan kewangan, sokongan kepimpinan, pematuhan kontrak dan sokongan teknologi yang paling banyak mempengaruhi keberkesanan pengurusan kontrak. Oleh itu, responden harus menjawab soalan dengan ikhlas. Maklumat responden akan dirahsiakan dan semua jawapan akan dilaporkan secara umum.

Thank you. Terima kasih.

Sincerely, *Ikhlas*,

AZIZI BIN AHMAD SARKAWI



SECTION A: DEMOGRAPHIC
BAHAGIAN A: DEMOGRAFI

Please tick (✓) your answer in the provided box.

Sila tanda (✓) jawapan anda di dalam kotak yang disediakan.

- | | |
|--|--|
| <p>1. Which branch are you? / <i>Anda dari cawangan mana?</i></p> <p>A. Eksekutif (Pelaut) ☐</p> <p>B. Bekalan & Urusetia ☐</p> <p>C. Kejuruteraan ☐</p> <p>D. Lain-lain ☐</p> | <p>4. Gender/ <i>Jantina</i></p> <p>A. Male/ <i>Lelaki</i> ☐</p> <p>B. Female/ <i>Perempuan</i> ☐</p> |
| <p>2. What rank are you?/ <i>Apakah pangkat anda?</i></p> <p>A. Laksma ke atas ☐</p> <p>B. Kepten TLDM ☐</p> <p>C. Komander TLDM ☐</p> <p>D. Leftenan Komander TLDM ☐</p> <p>E. Leftenan TLDM ☐</p> <p>F. Leftenan Madya TLDM ☐</p> | <p>5. Age/ <i>Umur</i></p> <p>A. Below 20 years old/ <i>Bawah 20 tahun</i> ☐</p> <p>B. 21 years old to 30 years old/ <i>21 tahun ke 30 tahun</i> ☐</p> <p>C. 31 years old to 40 years old/ <i>31 tahun ke 40 tahun</i> ☐</p> <p>D. 41 years old to 50 years old/ <i>41 tahun ke 50 tahun</i> ☐</p> <p>E. More than 51 years old/ <i>Lebih daripada 51 tahun</i> ☐</p> |
| <p>3. How long are you in service?/ <i>Berapa lamakah anda berkhidmat?</i></p> <p>A. Less than 5 years/ <i>Kurang daripada 5 tahun</i> ☐</p> <p>B. 6 years to 10 years/ <i>6 tahun ke 10 tahun</i> ☐</p> <p>C. 11 years to 15 years/ <i>11 tahun ke 15 tahun</i> ☐</p> <p>D. 16 years and above/ <i>16 tahun ke atas</i> ☐</p> | <p>6. Qualification/ <i>Kelayakan</i></p> <p>A. SPM and below/ <i>SPM dan kebawah</i> ☐</p> <p>B. Diploma/ <i>Diploma</i> ☐</p> <p>C. Degree/ <i>Sarjana Muda</i> ☐</p> <p>D. Master/ <i>Sarjana</i> ☐</p> <p>E. Doctor of Philosophy/ <i>Doktor Falsafah</i> ☐</p> |

SECTIONB: VARIABLES**BAHAGIAN B: PEMBOLEH UBAH**

Please tick (✓) your answer in the provided box according to your preference.

Sila tanda (✓) jawapan anda di dalam kotak yang disediakan mengikut pilihan anda.

Strongly Disagree/ <i>Sangat Tidak Setuju</i>	Disagree/ <i>Tidak Setuju</i>	Neutral/ <i>Neutral</i>	Agree/ <i>Setuju</i>	Strongly Agree/ <i>Sangat Setuju</i>
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NO.	FINANCIAL SUPPORT/ SOKONGAN KEWANGAN	1	2	3	4	5
1.	Procurement contract planning based on approved budget <i>Perancangan kontrak perolehan berdasarkan anggaran bajet yang diluluskan</i>					
2.	Poor planning leads to budget deficits <i>Gagal merancang membawa kepada defisit belanjawan</i>					
3.	Procurement contract process begins with planning <i>Proses kontrak perolehan bermula dengan perancangan</i>					
4.	Contract needs assessment is undertaken <i>Penilaian keperluan kontrak dilakukan</i>					
5.	Market capability analysis is carried out <i>Analisis keupayaan pasaran dijalankan</i>					
6.	Funds availability before procurement begin <i>Ketersediaan dana sebelum perolehan dilaksanakan</i>					
7.	Procurement planning helps in resource allocation <i>Perancangan perolehan membantu dalam peruntukan sumber</i>					
8.	Procurement planning helps to achieve value for money <i>Perancangan membantu mencapai nilai tambah perolehan</i>					
9.	Procurement planning results into compliance to set procedures <i>Perancangan perolehan membantu pematuhan prosedur ditetapkan</i>					
10.	Without budgeting procedures, it would be difficult to come up with a procurement plan. <i>Tanpa anggaran, sukar untuk membuat rancangan perolehan</i>					

NO.	LEADERSHIP SUPPORT/ SOKONGAN KEPIMPINAN	1	2	3	4	5
1.	Top management supports procurement planning activities for contract management <i>Pengurusan atasan menyokong aktiviti perancangan perolehan untuk pengurusan kontrak</i>					
2.	The top management ensures that only competent staff is involved in final procurement planning for contract management <i>Pengurusan atasan memastikan bahawa hanya kakitangan yang kompeten yang terlibat dalam perancangan perolehan untuk pengurusan kontrak</i>					
3.	The top management regards procurement function important <i>Pengurusan atasan menganggap fungsi perolehan penting</i>					
4.	The management ensures that only what is in the master procurement plan is procured. <i>Pihak pengurusan memastikan bahawa hanya apa yang dirancang dilaksanakan perolehan.</i>					
5.	The management ensures that the policies and procedures in place followed <i>Pihak pengurusan memastikan bahawa polisi dan prosedur dipatuhi</i>					
6.	Leadership and top management support procurement planning for contract management <i>Kepimpinan dan pengurusan atasan menyokong perancangan perolehan bagi pengurusan kontrak</i>					
7.	Leadership as internal mechanism that ensures conformance to procurement policy and procedure <i>Kepimpinan sebagai mekanisme dalaman yang memastikan pematuhan terhadap polisi dan prosedur perolehan</i>					
8.	Conflicts of interest are quickly declared by members of staff <i>Sekiranya berlaku konflik berkaitan kepentingan akan dimaklumkan oleh anggota</i>					
9.	Strict codes of conduct ensure purchasing procedures are followed <i>Prosedur perolehan yang ketat dipatuhi</i>					
10.	There's confidentiality in dealing with supplier information <i>Kerahsiaan maklumat pembekal diuruskan dengan baik</i>					

NO.	CONTRACT COMPLIANCE/ KEPATUHAN KONTRAK	1	2	3	4	5
1.	There is internal anticorruption mechanism in place <i>Terdapat mekanisme pencegahan rasuah dalaman organisasi</i>					
2.	Effective procurement auditing procedure is followed <i>Prosedur pengauditan perolehan yang berkesan dipatuhi</i>					
3.	Application of sustainability principles in procurement being obey (eg. Contract Specifications, Tender Selection Criteria) <i>Penerapan prinsip kelestarian dalam perolehan dipatuhi (contoh; Spesifikasi Kontrak, Kriteria Pemilihan Tender)</i>					
4.	Penalty for non-compliance implemented as in contract document <i>Penalti kepada ketidakpatuhan dilaksanakan seperti dalam dokumen kontrak</i>					
5.	I ensure that goods/services are delivered as per specifications made <i>Saya memastikan bahawa barang / perkhidmatan dihantar mengikut spesifikasi yang dibuat</i>					
6.	I ensure that materials deliver from the contract has the quality can never be doubted <i>Saya memastikan bahawa produk yang dihantar mempunyai kualiti yang tidak dapat diragui</i>					
7.	Contractor supply delivery as promised time and quality <i>Penghantaran bekalan mengikut masa dan kualiti yang dijanjikan memastikan pengurusan kontrak yang kompeten</i>					
8.	Contractor with effective and efficient supply chain are more competence in deliver their contract output <i>Kontraktor yang mempunyai rantai bekalan yang berkesan dan cekap lebih cekap dalam menghasilkan output kontrak mereka</i>					
9.	I believe a long-term strategic partnership as well as a positive relationship with the contractor are essential for successful contract compliance. <i>Saya percaya perkongsian strategic jangka panjang serta hubungan positif dengan kontraktor sangat penting untuk pematuhan kontrak</i>					

NO.	TECHNOLOGICAL SUPPORT/ SOKONGAN TEKNOLOGI	1	2	3	4	5
1.	Technology transfer improves knowledge and management of government procurement. <i>Pemindahan teknologi meningkatkan pengetahuan dan pengurusan perolehan kerajaan</i>					
2.	I can find quickly the information that I need using technology <i>Saya mendapat dengan cepat maklumat yang saya perlukan dengan menggunakan teknologi</i>					
3.	Technology used in performing my job provide information in managing procurement contract <i>Teknologi yang digunakan dalam melaksanakan tugas saya memberikan maklumat dalam menguruskan kontrak perolehan</i>					
4.	The necessary information is easily available in the procurement contract supporting system <i>Maklumat yang diperlukan mudah didapati dalam system sokongan kontrak perolehan</i>					
5.	The necessary information provided by the procurement contract supporting system can be effectively utilise <i>Maklumat yang diperlukan oleh sistem sokongan kontrak perolehan dapat dimanfaatkan dengan berkesan</i>					
6.	The information from the procurement contract supporting system have a lot of consistency <i>Maklumat dari sistem sokongan kontrak perolehan sangat tepat dan konsisten</i>					
7.	Sound procurement systems enhance accountability in procurement <i>Sistem perolehan yang baik meningkatkan kebertanggungjawaban dalam perolehan</i>					
8.	Technology as a tools assist in decision and policy making in contract management <i>Teknologi sebagai alat membantu dalam membuat keputusan dan membuat dasar dalam pengurusan kontrak</i>					
9.	Technology give the information integrity required to develop compliance and procurement management practices. <i>Teknologi memberikan integrity maklumat yang diperlukan untuk amalan pematuhan dan pengurusan perolehan.</i>					
10.	I rely heavily on the procurement process in the appropriate system, which follows the procurement guidelines <i>Saya sangat bergantung kepada proses perolehan dalam sistem agar ianya menepati garis panduan perolehan</i>					

NO.	CONTRACTING OFFICER COMPETENCY/ KOMPETENSIPEGAWAIKONTRAK	1	2	3	4	5
1.	Organization deploys staff based on skills <i>Organisasi menjawat kakitangan berdasarkan kemahiran</i>					
2.	I have adequate skills <i>Saya mempunyai kemahiran yang mencukupi</i>					
3.	I have knowledge on procurement rules and regulations <i>Saya mempunyai pengetahuan mengenai peraturan dan undang-undang perolehan</i>					
4.	Organization sponsors staff for training <i>Organisasi menaja kakitangan untuk latihan</i>					
5.	Training has improved my knowledge skills and experience <i>Latihan telah meningkatkan kemahiran dan pengalaman pengetahuan saya</i>					
6.	Training and Effective Procurement personnel development are in place <i>Latihan dan pembangunan personel yang terlibat dengan perolehan dilaksanakan secara berkesan</i>					
7.	I have professional procurement qualifications <i>Saya mempunyai kelayakan melaksanakan kerja-kerja perolehan profesional</i>					
8.	I kept good procurement record keeping <i>Saya menyimpan rekod perolehan dengan baik</i>					
9.	I find a systematic procurement system enables me to accomplish my work efficiently <i>Saya dapati system perolehan yang sistematik membolehkan penyelesaian kerja saya dengan cekap</i>					
10.	I always monitor the delivered items and cross-checked with item specifications <i>Saya selalu memantau barang yang dihantar dan semak dengan spesifikasi item</i>					

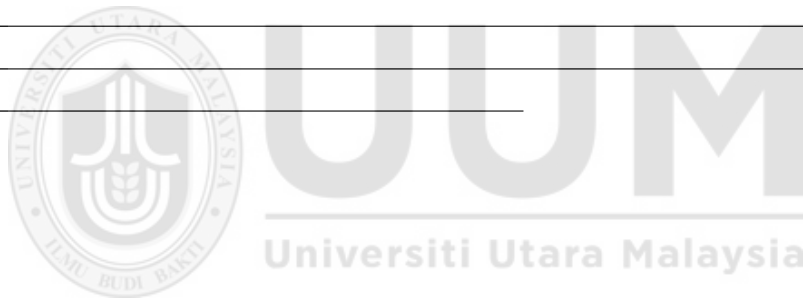
NO.	EFFECTIVE CONTRACT MANAGEMENT/ PENGURUSAN KONTRAK BERKESAN	1	2	3	4	5
1.	Our organisation performed excellent contracting, which resulted in higher-quality services <i>Organisasi kami melaksanakan pengurusan kontrak yang baik, serta menghasilkan perkhidmatan berkualiti tinggi</i>					
2.	All of our procured products and services are delivered on time as a result of effective contract management practises. <i>Semua produk dan perkhidmatan yang dipesan dihantar tepat pada waktunya hasil daripada amalan pengurusan kontrak yang berkesan.</i>					
3.	We receive fewer complaints from users as a result of more effective contract management. <i>Kami menerima kurang aduan daripada pengguna hasil daripada pengurusan kontrak yang berkesan.</i>					
4.	Wastages and damages has been reduced efficiently with good contract management <i>Pembaziran dan kesilapan telah dikurangkan dengan pengurusan kontrak yang baik</i>					
5.	Operating costs have been reduced with proper contract management <i>Kos operasi telah dikurangkan dengan pengurusan kontrak yang teratur</i>					
6.	Every contract has a proper payment system in place. <i>Setiap kontrak mempunyai maklumat system pembayaran yang tepat</i>					
7.	Corruption prevention measures are being implemented in our organisation. <i>Langkah-langkah pencegahan rasuah dilaksanakan di organisasi kami</i>					
8.	The contract document serves as the primary source of information for effectively managing the contract. <i>Dokumen kontrak berfungsi sebagai sumber maklumat utama untuk mengurus kontrak dengan berkesan.</i>					
9.	Sufficient written procurement procedures and checklist are used in the contract management <i>Prosedur perolehan dan senarai semak yang terkini digunakan dalam pengurusan kontrak</i>					
10.	Organisation never missed deadline for schedule procurement <i>Organisasi tidak pernah terlewat untuk perolehan berjadual</i>					

SECTION C: OPEN-ENDED QUESTIONS
BAHAGIAN C: SOALAN TERBUKA

1. In general, how significant or important is your job?

2. Overall, how well does the technology meet your needs?

3. Compared to other agencies, how effective is our implementation on contract management?



Appendix B

Respondent's Demographic Profile

Which branch are you?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Supply and Secretariat	203	99.5	99.5	99.5
Engineering	1	.5	.5	100.0
Total	204	100.0	100.0	

What rank are you?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Admiral and above	2	1.0	1.0	1.0
Capt	9	4.4	4.4	5.4
Cdr	49	24.0	24.0	29.4
Lt Cdr	78	38.2	38.2	67.6
Lt	50	24.5	24.5	92.2
Lt Dya	16	7.8	7.8	100.0
Total	204	100.0	100.0	

How long are you in service?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Less than 5 years	19	9.3	9.3	9.3
6 years to 10 years	35	17.2	17.2	26.5
11 years to 15 years	33	16.2	16.2	42.6
16 years and above	117	57.4	57.4	100.0
Total	204	100.0	100.0	

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	132	64.7	64.7	64.7
	Female	72	35.3	35.3	100.0
	Total	204	100.0	100.0	

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	21 years old to 30 years old	34	16.7	16.7	16.7
	31 years old to 40 years old	97	47.5	47.5	64.2
	41 years old to 50 years old	54	26.5	26.5	90.7
	More than 51 years old	19	9.3	9.3	100.0
	Total	204	100.0	100.0	

Qualification

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Diploma	13	6.4	6.4	6.4
	Degree	117	57.4	57.4	63.7
	Master	72	35.3	35.3	99.0
	Doctor of Philosophy	2	1.0	1.0	100.0
	Total	204	100.0	100.0	

Reliability Test

Variables	Cronbach Alpha's value Pilot Study	Cronbach Alpha's value Actual Study
Financial Support	0.953	0.885
Leadership Support	0.912	0.911
Contract Compliance	0.820	0.833
Technological Support	0.933	0.940
Contracting Officer Competency	0.877	0.887
Effective Contract Management	0.826	0.909

Normality Test

Descriptives

		Statistic	Std. Error
Financial Support	Mean	4.4721	.02923
	95% Confidence Interval for Mean	4.4144	
	Lower Bound	4.5297	
	Upper Bound	4.4888	
	5% Trimmed Mean	4.5000	
	Median	.174	
	Variance	.41742	
	Std. Deviation	3.50	
	Minimum	5.00	
	Maximum	1.50	
	Range	.80	
	Interquartile Range	-.293	.170
	Skewness	-.998	.339
	Kurtosis		

Leadership Support	Mean		4.2549	.03941
	95% Confidence Interval for Mean	Lower Bound	4.1772	
		Upper Bound	4.3326	
	5% Trimmed Mean		4.2781	
	Median		4.1000	
	Variance		.317	
	Std. Deviation		.56283	
	Minimum		2.80	
	Maximum		5.00	
	Range		2.20	
	Interquartile Range		.90	
	Skewness		-.239	.170
	Kurtosis		-.777	.339
Contract Compliance	Mean		4.3077	.03504
	95% Confidence Interval for Mean	Lower Bound	4.2386	
		Upper Bound	4.3768	
	5% Trimmed Mean		4.3304	
	Median		4.3333	
	Variance		.250	
	Std. Deviation		.50045	
	Minimum		2.33	
	Maximum		5.00	
	Range		2.67	
	Interquartile Range		.78	
	Skewness		-.423	.170
	Kurtosis		.047	.339

Technological Support	Mean		4.3917	.03629
	95% Confidence Interval for Mean	Lower Bound	4.3201	
		Upper Bound	4.4632	
	5% Trimmed Mean		4.4187	
	Median		4.3000	
	Variance		.269	
	Std. Deviation		.51831	
	Minimum		2.90	
	Maximum		5.00	
	Range		2.10	
	Interquartile Range		1.00	
	Skewness		-.275	.170
	Kurtosis		-.887	.339
Contracting Officer Competency	Mean		4.1480	.03791
	95% Confidence Interval for Mean	Lower Bound	4.0733	
		Upper Bound	4.2228	
	5% Trimmed Mean		4.1648	
	Median		4.0000	
	Variance		.293	
	Std. Deviation		.54152	
	Minimum		2.30	
	Maximum		5.00	
	Range		2.70	
	Interquartile Range		.77	
	Skewness		-.147	.170
	Kurtosis		-.183	.339

Effective Contract Management	Mean		4.1525	.03938
	95% Confidence Interval for Mean	Lower Bound	4.0748	
		Upper Bound	4.2301	
	5% Trimmed Mean		4.1719	
	Median		4.1000	
	Variance		.316	
	Std. Deviation		.56240	
	Minimum		2.60	
	Maximum		5.00	
	Range		2.40	
	Interquartile Range		.90	
	Skewness		-.238	.170
	Kurtosis		-.474	.339

Percentiles

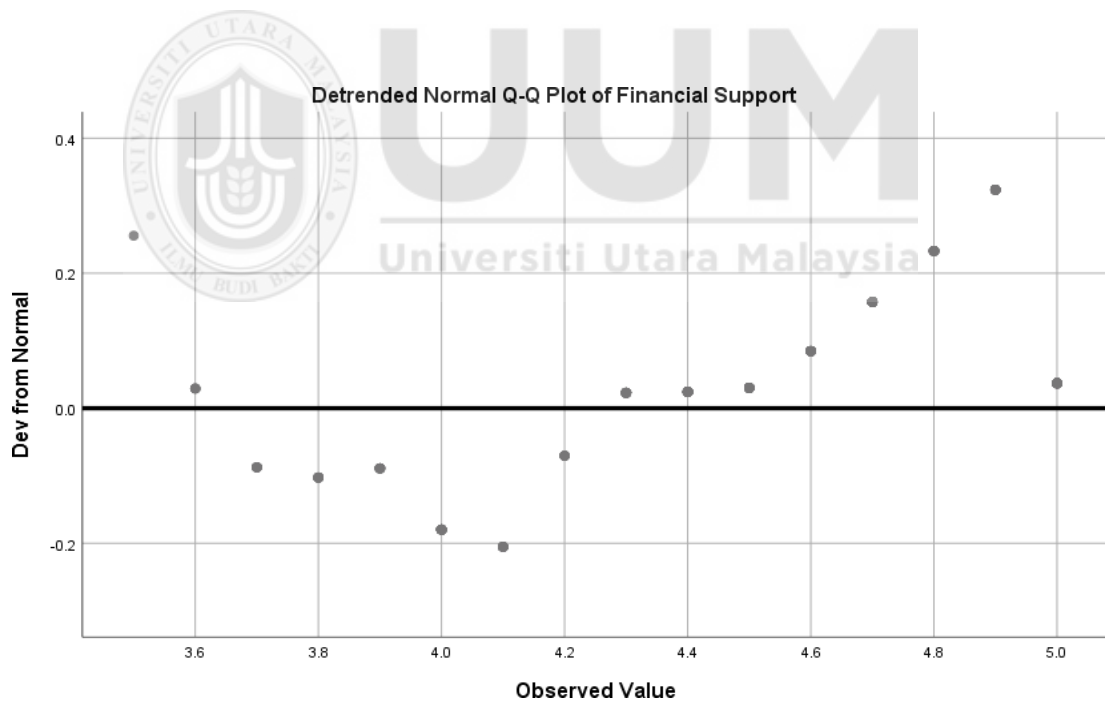
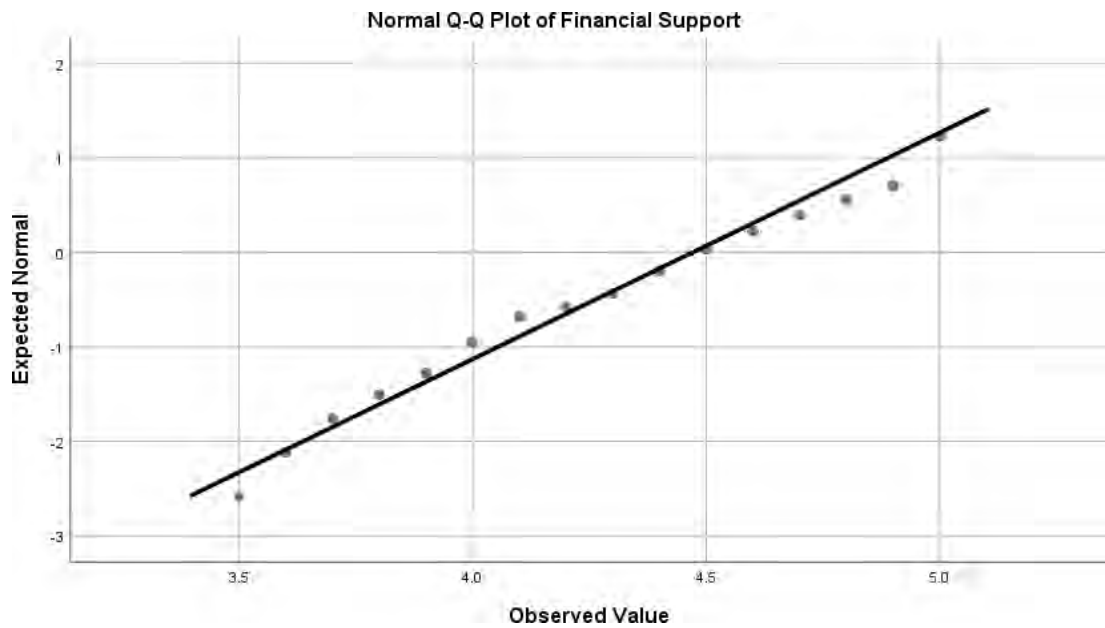
		Percentiles			
		5	10	25	50
Weighted Average(Definition 1)	Financial Support	3.7250	3.9000	4.1000	4.5000
	Leadership Support	3.2000	3.5000	3.9000	4.1000
	Contract Compliance	3.5556	3.7222	4.0000	4.3333
	Technological Support	3.6000	3.8000	4.0000	4.3000
	Contracting Officer Competency	3.2000	3.5000	3.8250	4.0000
	Effective Contract Management	3.2000	3.4000	3.8000	4.1000

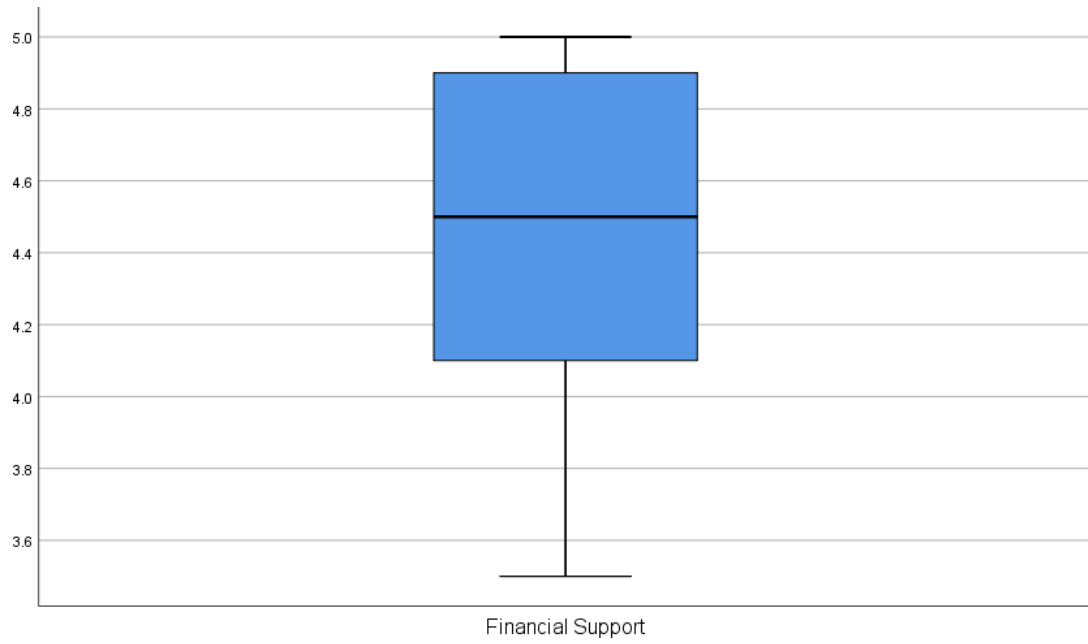
Tukey's Hinges	Financial Support			4.1000	4.5000
	Leadership Support			3.9000	4.1000
	Contract Compliance			4.0000	4.3333
	Technological Support			4.0000	4.3000
	Contracting Officer Competency			3.8500	4.0000
	Effective Contract Management			3.8000	4.1000

Percentiles

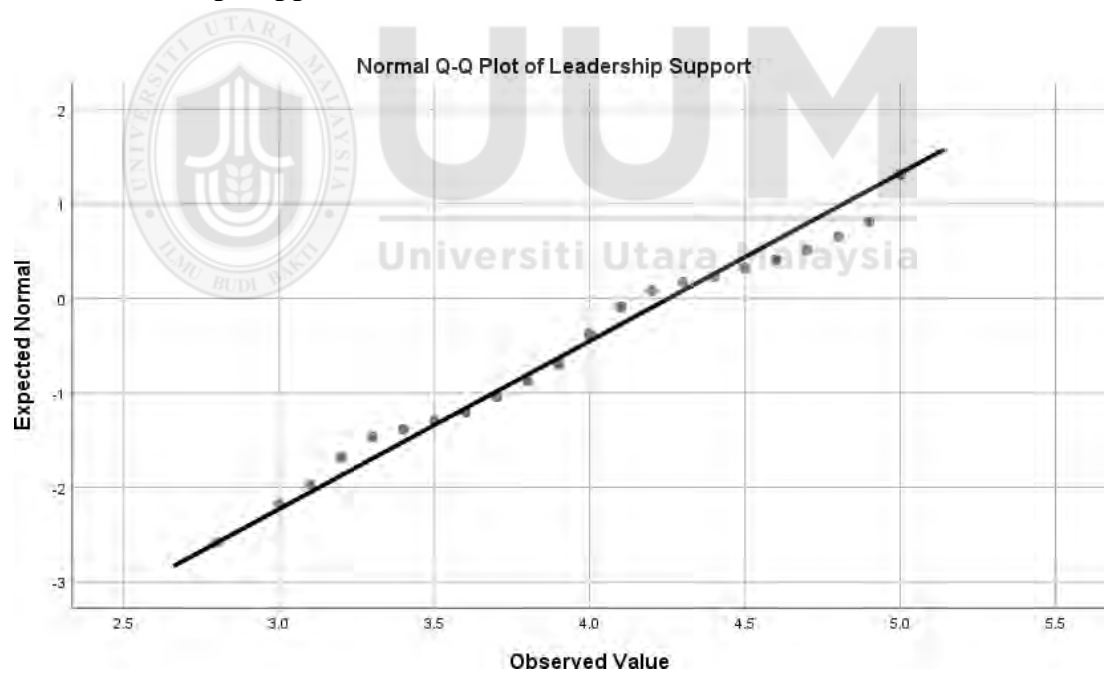
		Percentiles		
		75	90	95
Weighted Average(Definition 1)	Financial Support	4.9000	5.0000	5.0000
	Leadership Support	4.8000	5.0000	5.0000
	Contract Compliance	4.7778	5.0000	5.0000
	Technological Support	5.0000	5.0000	5.0000
	Contracting Officer Competency	4.6000	5.0000	5.0000
	Effective Contract Management	4.7000	5.0000	5.0000
Tukey's Hinges	Financial Support	4.9000		
	Leadership Support	4.8000		
	Contract Compliance	4.7778		
	Technological Support	5.0000		
	Contracting Officer Competency	4.6000		
	Effective Contract Management	4.7000		

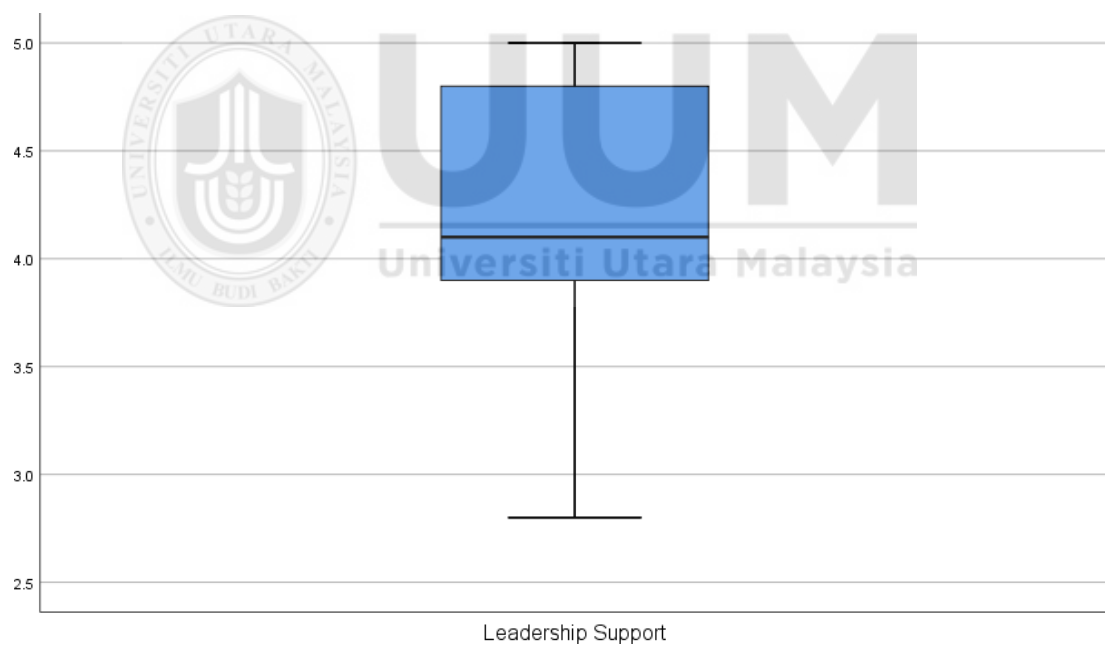
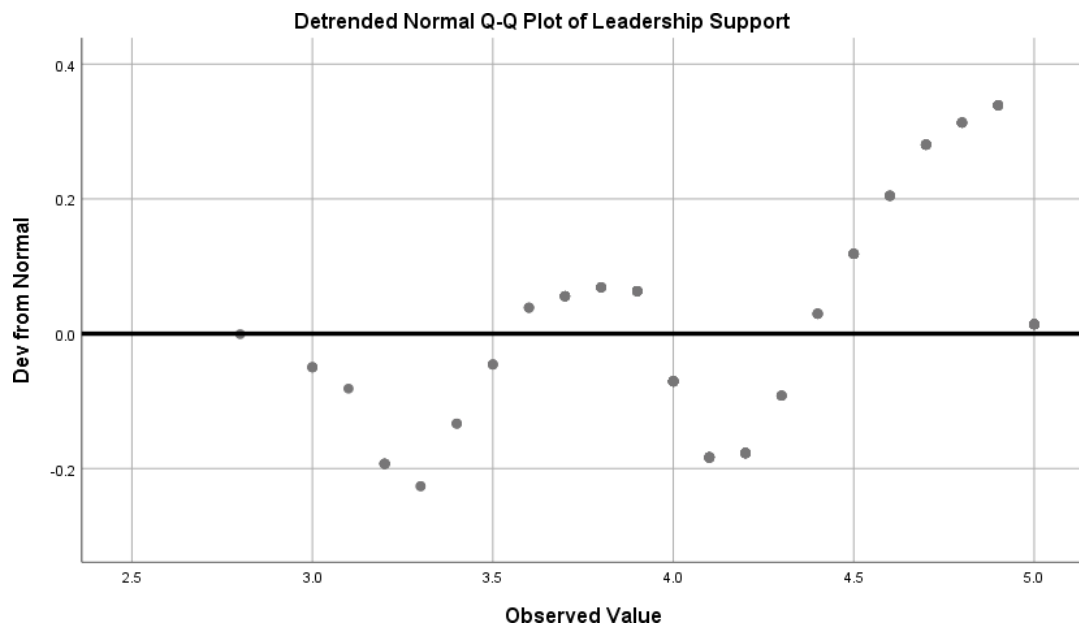
Financial Support



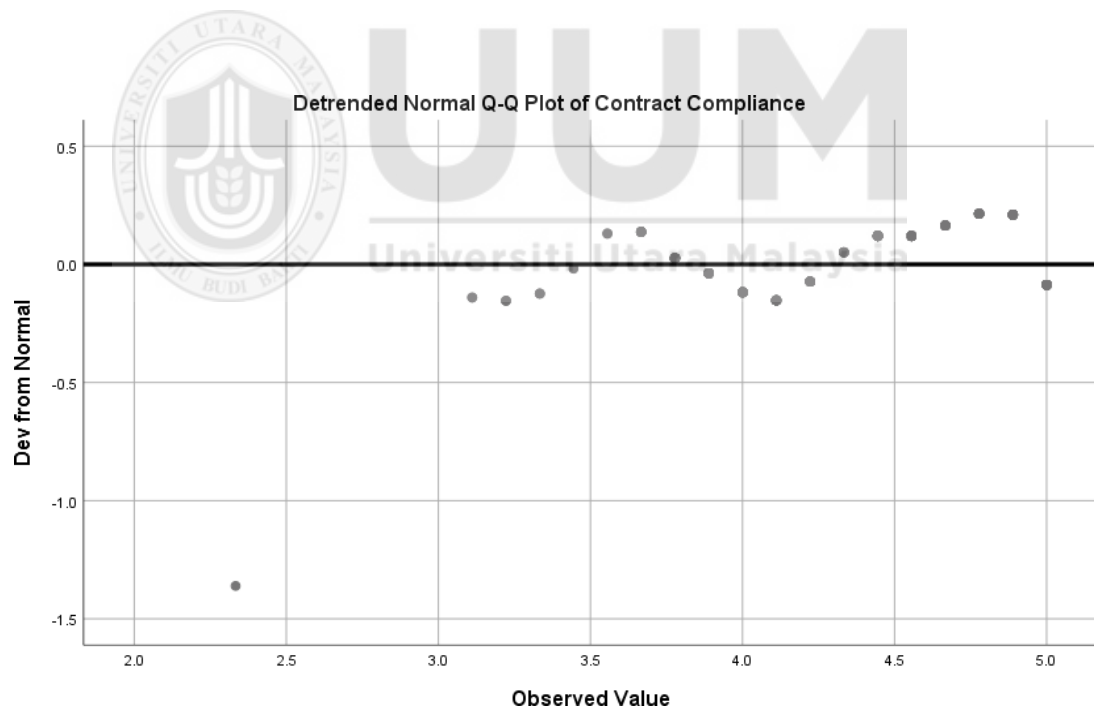
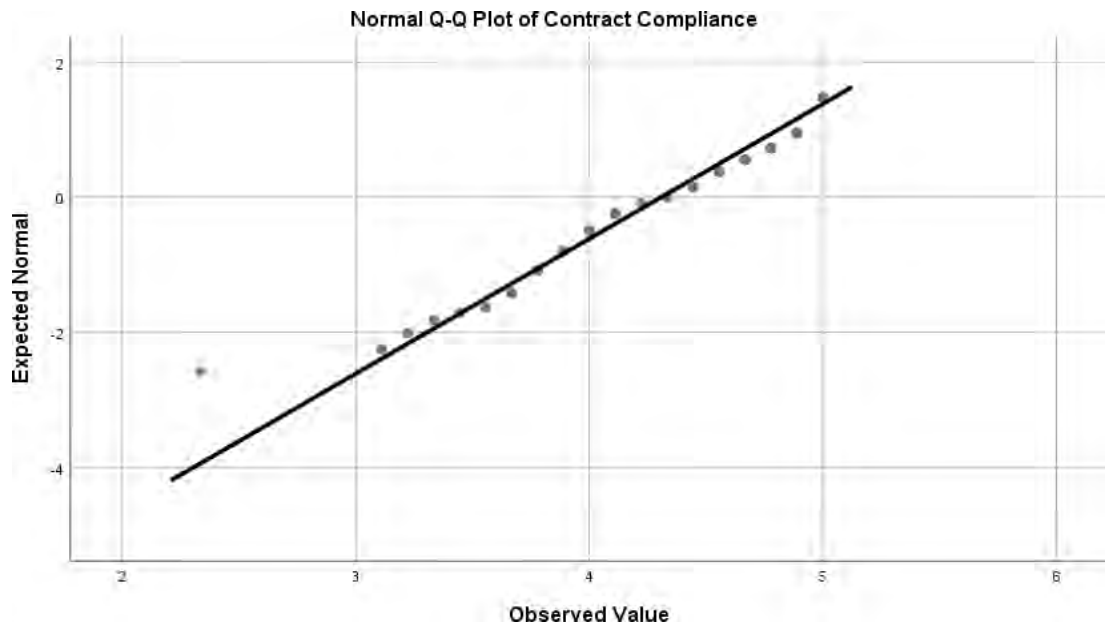


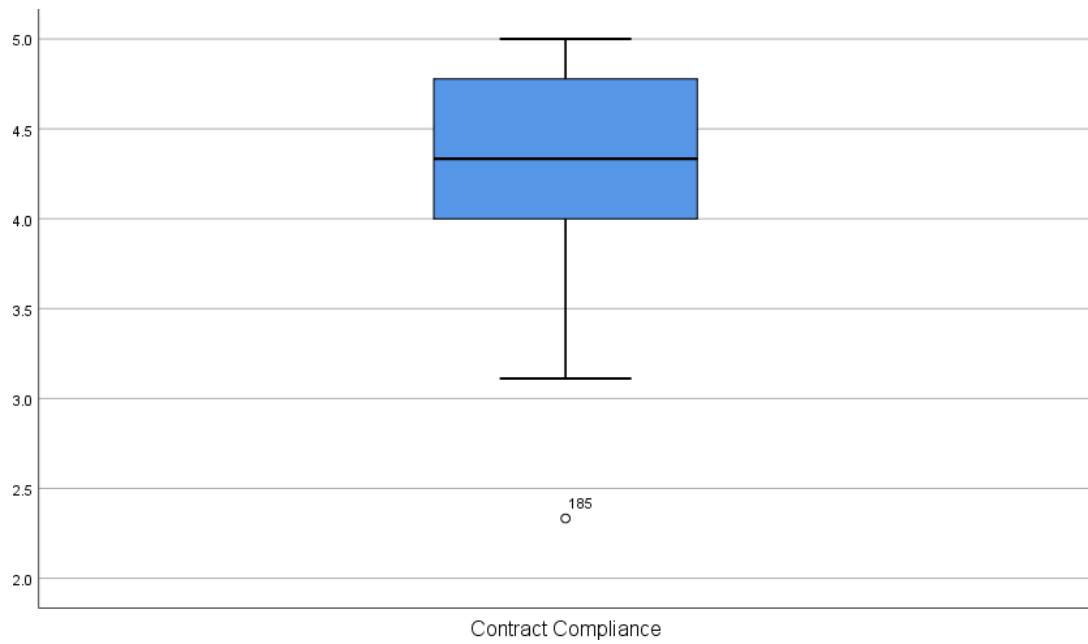
Leadership Support



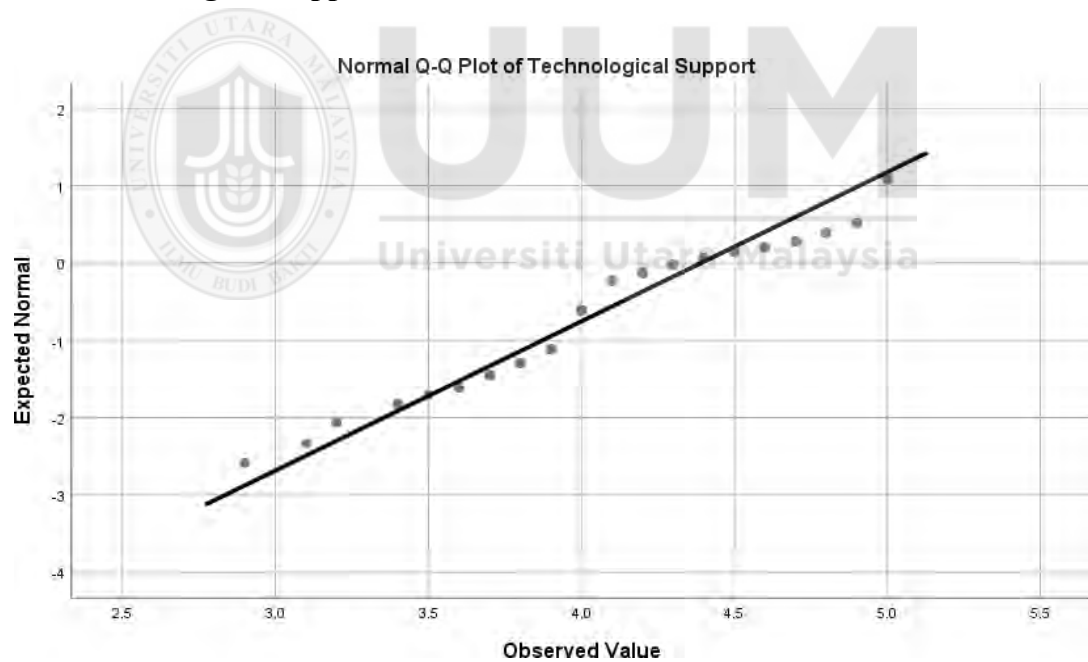


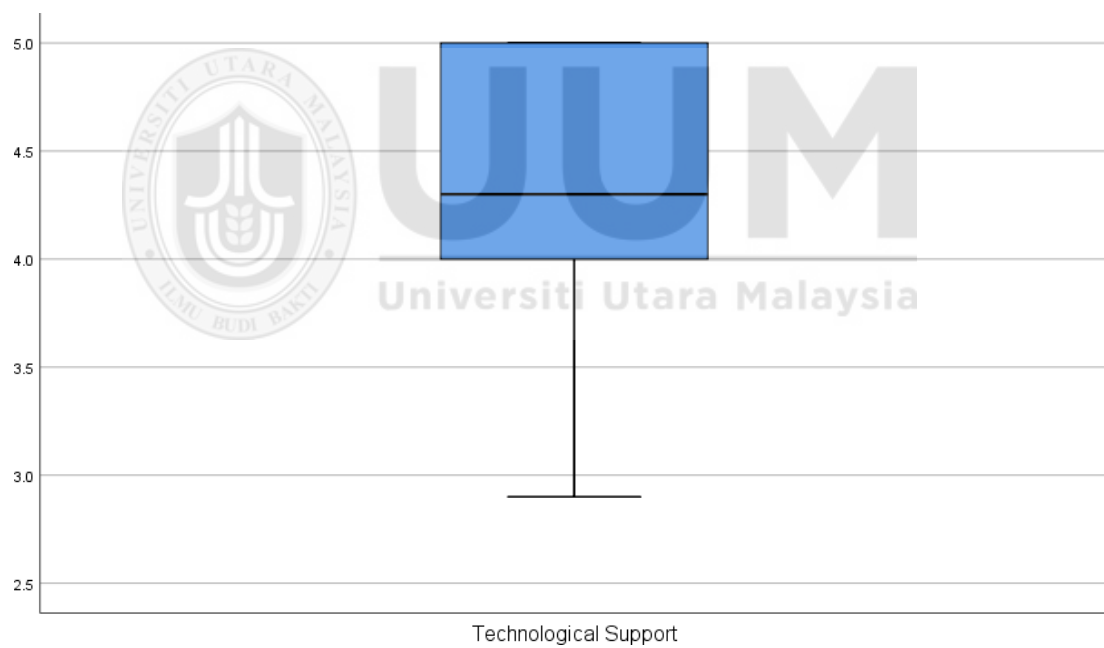
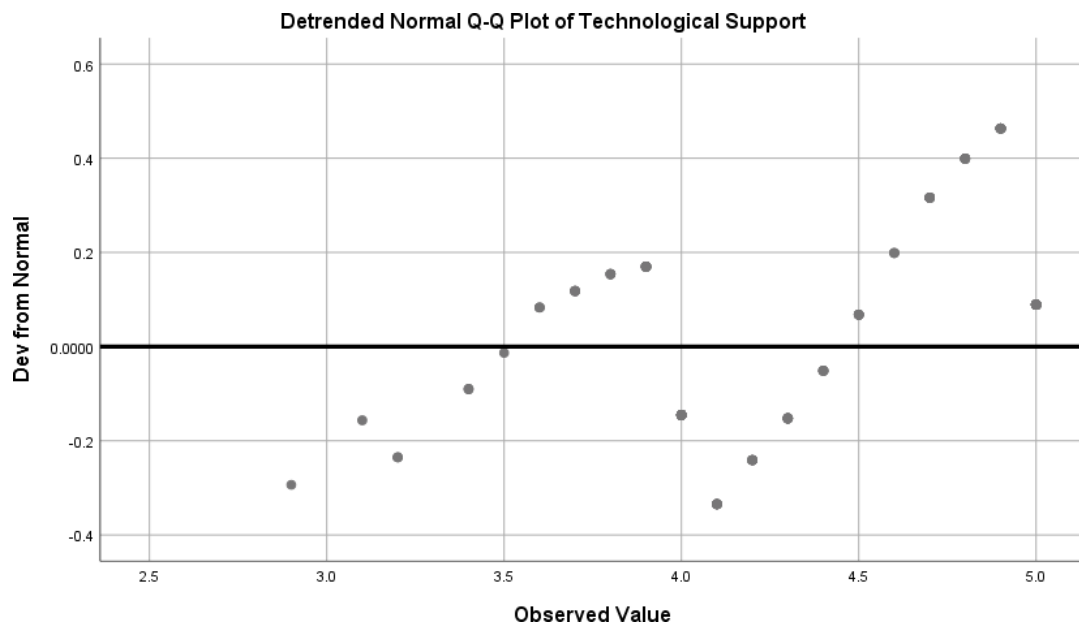
Contract Compliance



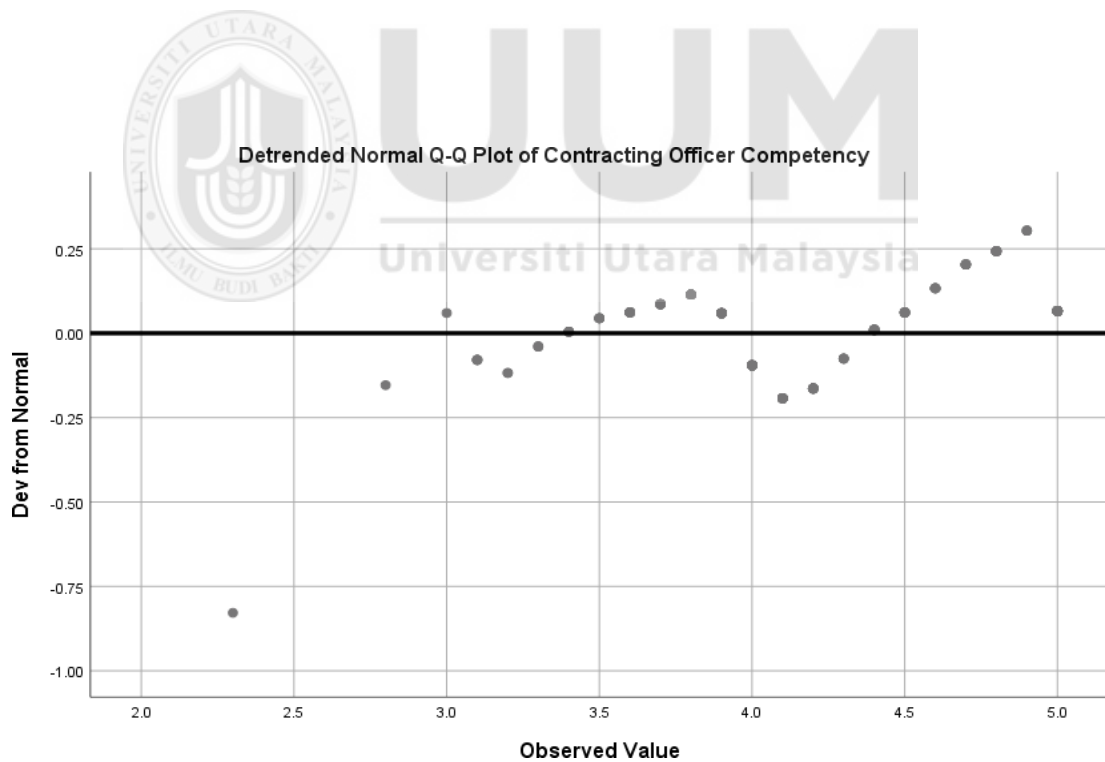
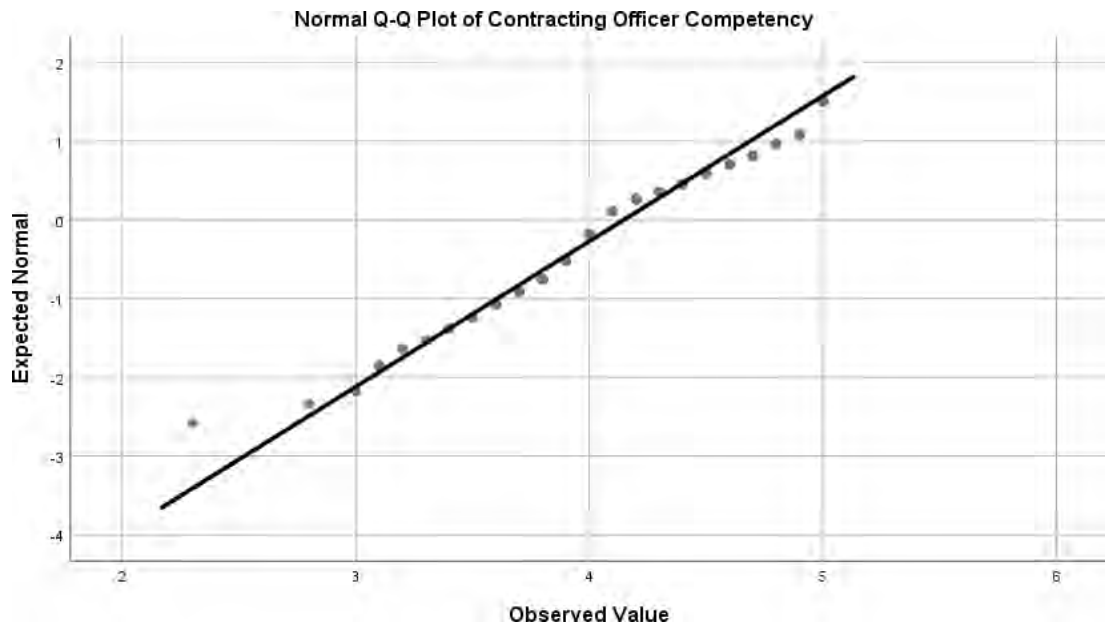


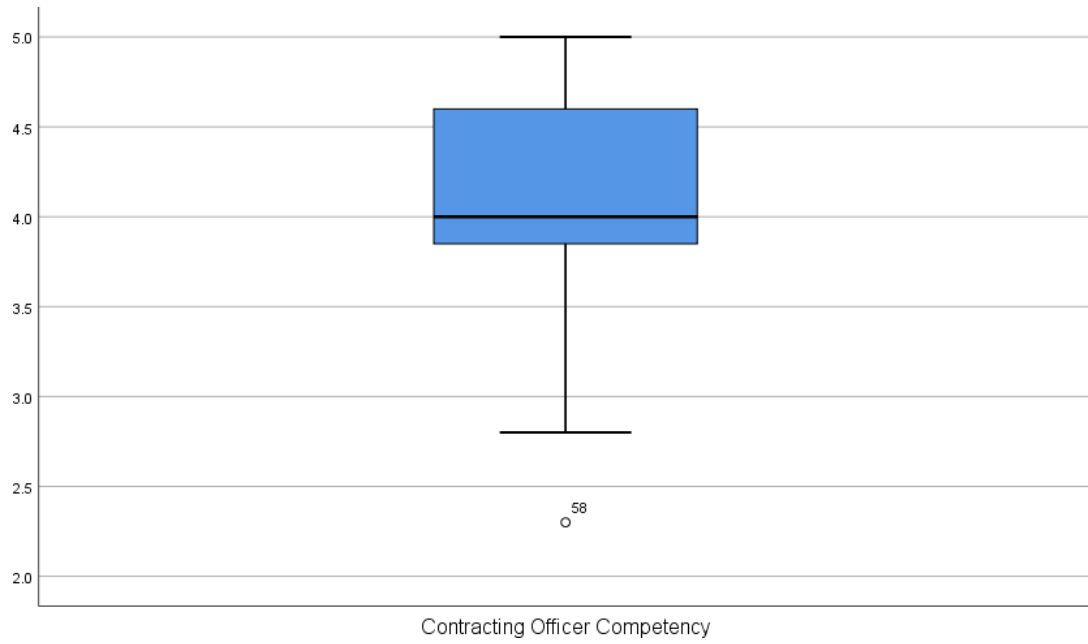
Technological Support



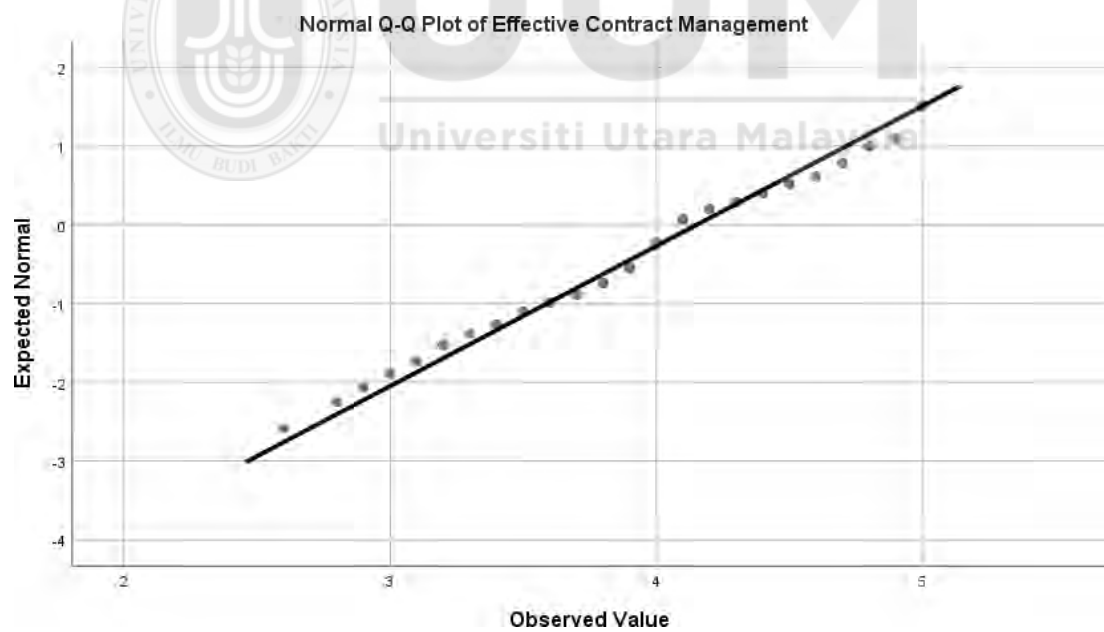


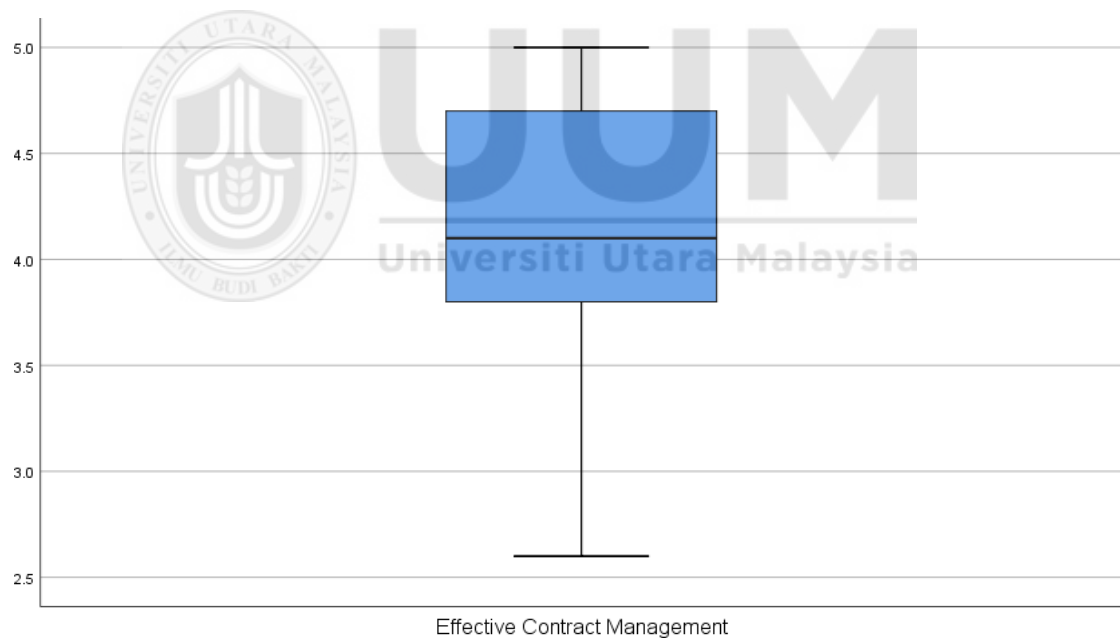
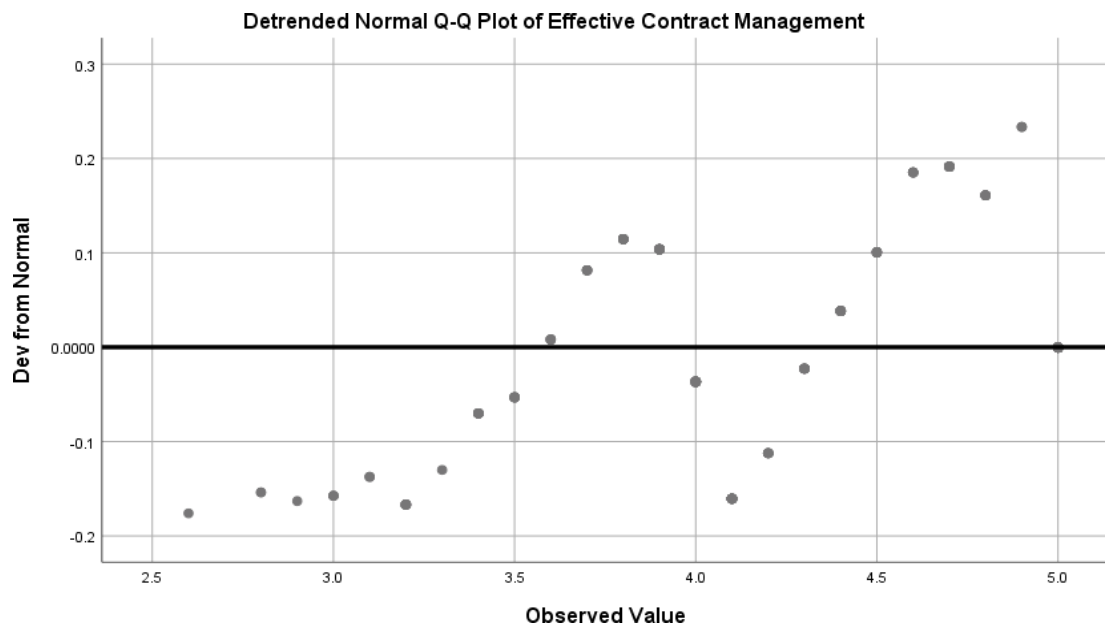
Contracting Officer Competency





Effective Contract Management





DESCRIPTIVE ANALYSIS AND FREQUENCY

Financial Support

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Moderate	5	2.5	2.5	2.5
	High	199	97.5	97.5	100.0
	Total	204	100.0	100.0	

Leadership Support

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Moderate	25	12.3	12.3	12.3
	High	179	87.7	87.7	100.0
	Total	204	100.0	100.0	

Contract Compliance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Moderate	19	9.3	9.4	9.4
	High	184	90.2	90.6	100.0
	Total	203	99.5	100.0	
Missing	System	1	.5		
Total		204	100.0		

Technological Support

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Moderate	12	5.9	5.9	5.9
	High	192	94.1	94.1	100.0
	Total	204	100.0	100.0	

Contracting Officer Competency

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Low	1	.5	.5	.5
Moderate	32	15.7	15.7	16.2
High	171	83.8	83.8	100.0
Total	204	100.0	100.0	

Effective Contract Management

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Moderate	35	17.2	17.2	17.2
High	169	82.8	82.8	100.0
Total	204	100.0	100.0	



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Universiti Utara Malaysia

CORRELATIONS

Correlations

		Effective Contract Management	Financial Support	Leadership Support
Effective Contract Management	Pearson Correlation	1	.570**	.683**
	Sig. (2-tailed)		.000	.000
	N	204	204	204
Financial Support	Pearson Correlation	.570**	1	.665**
	Sig. (2-tailed)	.000		.000
	N	204	204	204
Leadership Support	Pearson Correlation	.683**	.665**	1
	Sig. (2-tailed)	.000	.000	
	N	204	204	204
Contract Compliance	Pearson Correlation	.665**	.592**	.717**
	Sig. (2-tailed)	.000	.000	.000
	N	204	204	204
Technological Support	Pearson Correlation	.669**	.584**	.647**
	Sig. (2-tailed)	.000	.000	.000
	N	204	204	204

		Contract Compliance	Technological Support
Effective Contract Management	Pearson Correlation	.665**	.669**
	Sig. (2-tailed)	.000	.000
	N	204	204
Financial Support	Pearson Correlation	.592**	.584**
	Sig. (2-tailed)	.000	.000
	N	204	204
Leadership Support	Pearson Correlation	.717**	.647**
	Sig. (2-tailed)	.000	.000
	N	204	204
Contract Compliance	Pearson Correlation	1	.650**
	Sig. (2-tailed)		.000
	N	204	204
Technological Support	Pearson Correlation	.650**	1
	Sig. (2-tailed)	.000	
	N	204	204

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

REGRESSION

Model Summary^b

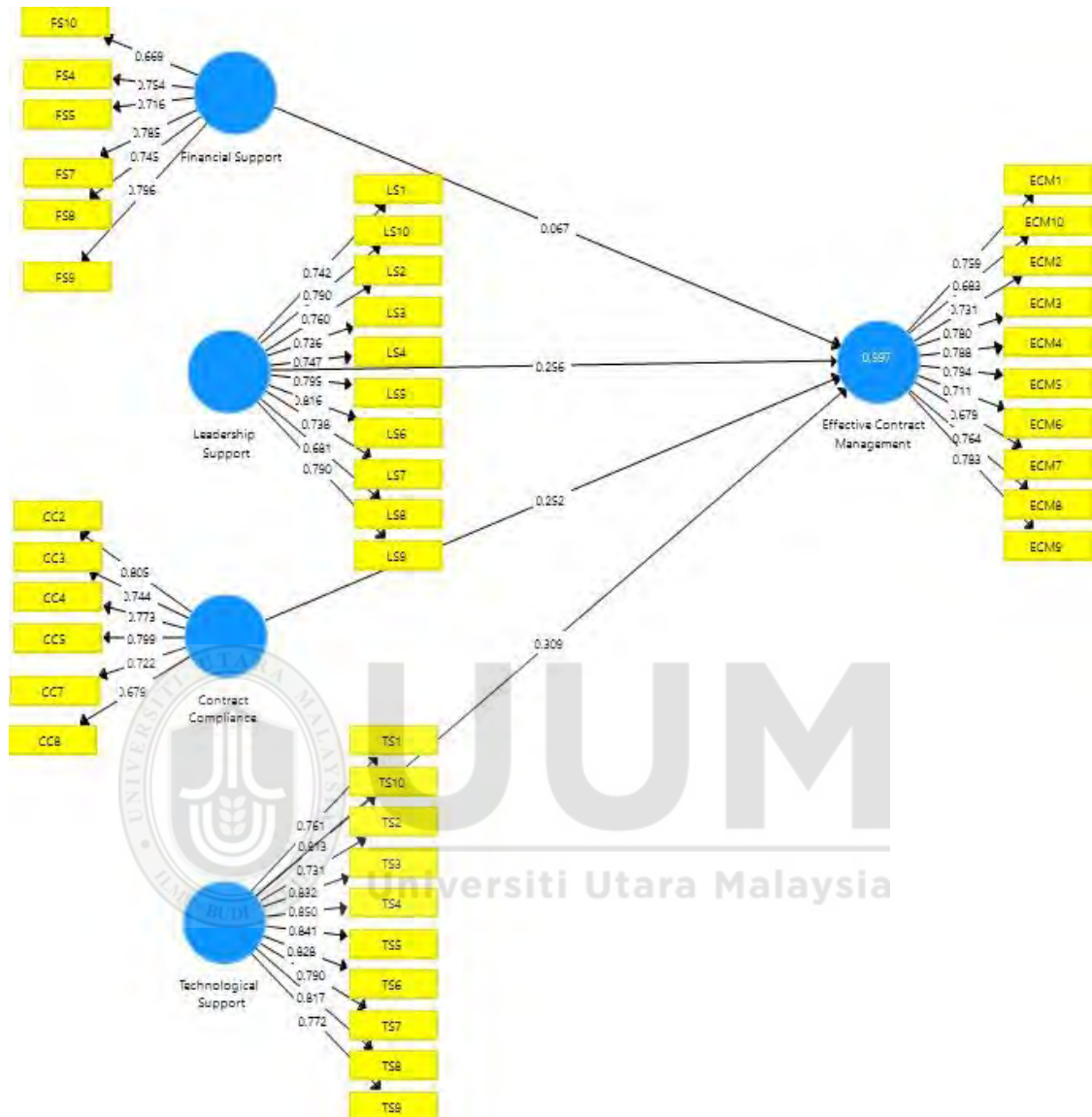
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.763 ^a	.583	.574	.36691

ANOVA^a

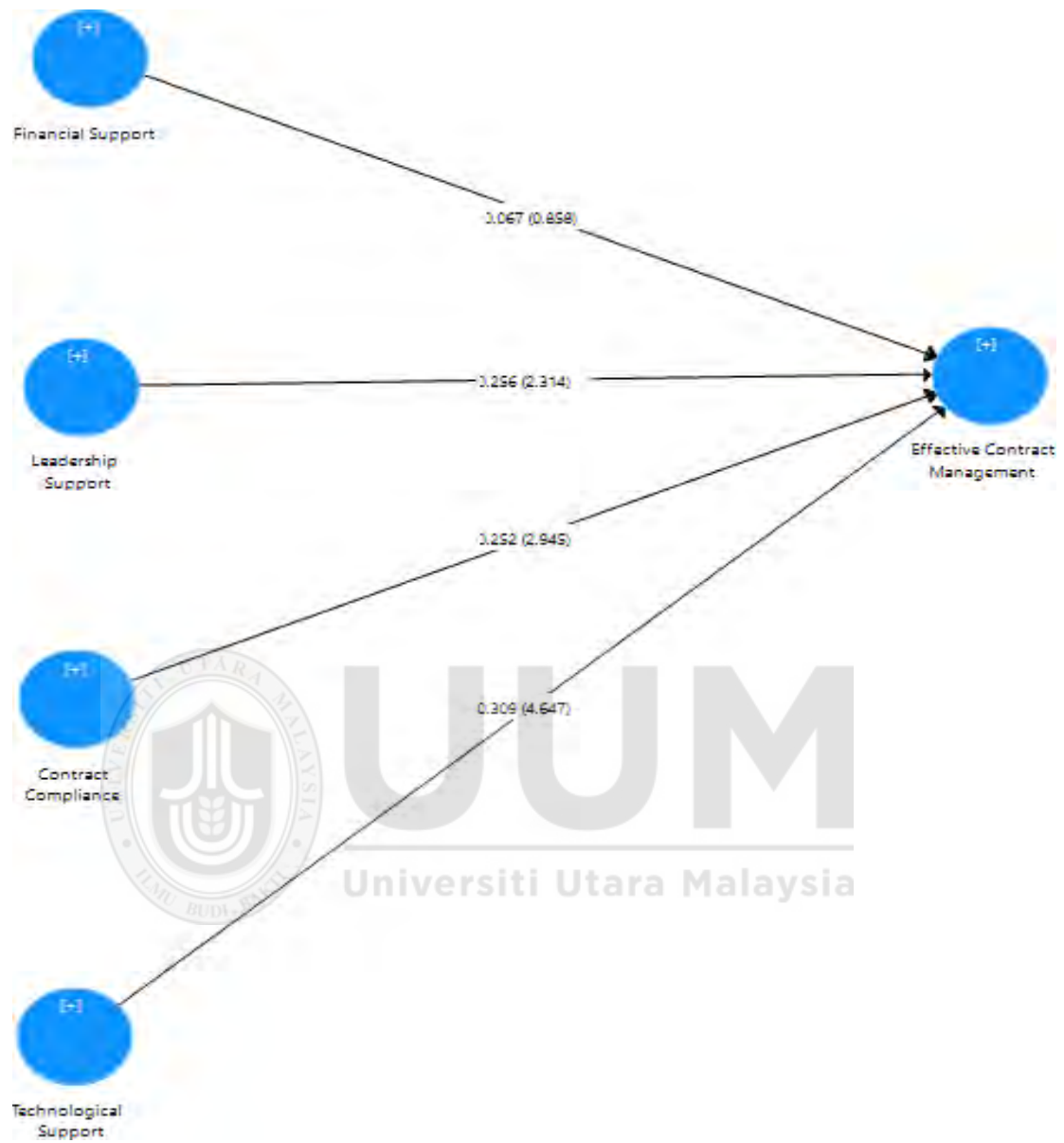
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	37.419	4	9.355	69.487	.000 ^b
Residual	26.790	199	.135		
Total	64.209	203			



MEASUREMENT MODEL



STRUCTURAL MODEL



MODERATING EFFECT

