# **Preface**

# قالي تعالي:

(يرفع الله الذين آمنو منكم والذين أوتوا العلم درجات والله بما تعملون خبير)

سورة المجادلة، الآية (١١)

# **DEDICATION**

To spirits of my parents, thanks for your confidence in me, and supporting me,
To my loyal wife,
To my sons and my daughters,
To my brothers and sisters,
To each of the teachers has taught me,
To every seeker of knowledge,
I dedicate this research.

#### **ACKNOWLEDGEMENTS**

Primarily, I am grateful to Almighty Allah for giving me the strength to complete this research. This research was researched and written over a period of time during which many developments took place. Maintaining a sense of these developments has involved extensive reading and ongoing dialogue with several key people and institutes whom I wish to thank for their professional generosity and input. First of all my deepest gratitude goes to SUST. I would also wish to acknowledge and thank my supervisor, Dr. Siddig Balal whose incisive reading and constructive critiques of the research in progress have been invaluable. I like to take this opportunity to wish him and all his family members a great health and happiness. My special thanks goes to memory of my ex\_supervisor, Associate Professor the Musa Haspurasoul, for his invaluable support in beginning stage of this PhD. I would like to extend my thanks to include Dr. Asharaf, for his encouragement and recommendations in many stages of research. Many people in various locations have assisted me during the data collection and research instrument development phases of this PhD thesis, I would like to express my great respect and thanks to all of them. My special gratitude goes to my small family and big family they have always motivated and supported me. Finally, I would like to express sincere gratitude to my late father and late mother (May Allah be Merciful upon them).

Thank you all too much.

Osman khalifa

SUST, 2016

# TABLE OF CONTENTS

	Page
Dedication Acknowledgements Table of Contents	ii iii iV
List of Tables	Vİİİ
List of Figures	Χİ
List of Abbreviation	Xİİİ
Abstract	XİV
المستخلص	XV

CHAPTER ONE: INTRODUCTION	Page
1 1.0 Introduction	1
1 1.1 Background of the Study	4
1.1.2 business process reengineering and business process	4
1.1.3 business process reengineering in service firms	8
1.2 Statement of the Problem	9
1.3 Research Questions	15
1.4 Research Objectives	16
1.5 Scope of the Study	17
1.6 Significance of the Study	18
1.6.1 Theoretical Contribution	18
1.6.2 Practical Contributions	19
1.7 Operationalization Definitions of Key Terms	20
1.8 Organization of the Study	22
1.9 Summery of the Chapter	23
CHAPTER TWO: LITERATURE REVIEW	
2.0 Introduction	24
2.1 Concept of BPR	24
2.1.1 The Definitions of BPR	25
2.1.2 The Significant of Implementation BPR	31
2.1.3 Success Implementations of BPR	33
2.2.4 BPR Critical Success Factors	37
2.2 Concept of The Organizational Performance	43
2.2.1 Definition of Organizational Performance	43
2.2.2 Financial Performance Measures	46
2.2.3 Non-financial Performance Measures	48
2.2.4 Dimensions of Organizational Performance	49

2.3 BPR and Organizational Performance	50
2.4 The Concept of Learning Capabilities	54
2.5 The Moderating Role of learning capabilities	
2.6 Summery of the Chapter	62
CHAPTER THREE: THEORETICAL FRAMEWORK AND RESEARCH	
HYPOTHESES	
3.0 Introduction	62
3.1 Theoretical Base of the Study	65
3.2 Theoretical Framework of the Study	66
3.3 Research Hypotheses Development	67
3.3.1 The Relationship between BPR and Organizational Performance	67
3.3.1.1 BPR and Effectiveness	67
3.3.1.2 BPR and Efficiency	68
3.3.1.3 BPR and Flexibility	69
3.3.2 Moderating effects Learning Capabilities between BPR and	71
Organizational Performance	7.4
3.3.2 .1 Moderating effect of Learning Capabilities on relationship between BPR and efficiency	74
3.3.2.2 Moderating effect of Learning Capabilities on relationship	75
between BPR and Effectiveness	
3.3.2.2 Moderating effect of Learning Capabilities on relationship	76
between BPR and Flexibility.  3.4 Control Variables	77
3.5 Summary of the Chapter	77
CHAPTER FOUR: RESEARCH METHODOLOGY	11
4.0 Introduction	79
4.1 Methodology Choice	80
4.2 General Research Design	80
4.3 Service Firms in Sudan	81
4.4 Population and Sampling	85
4.5 Respondents Selection Criteria	87
4.6 Measurement Variables of the Study	89
4.6.1 BPR Dimensions	91
4.6.2 learning Capabilities	92
4.6.3 Organizational Performance	92
4.6.4 Control Variables	93
4.7 Questionnaire Design	93
4.8 Pilot Study	93
4.9 Survey Administration	96
4.10 Statistical Analysis Techniques	96
· · · · · · · · · · · · · · · · · · ·	102
4.11Summary of the Chapter CHAPTER FIVE: ANALYSIS AND FINDINGS	
5.0 Introduction	105
3.0 mitoduction	105

5.1 Response Rate	
5.2 Profile of Sample Firms	107
5.3 Respondents Characteristics	108
5.4 Bias Test	110
5.5 Goodness of Measures	112
5.5.1 Factor Analysis for BPR	114
5.5.2 Factor Analysis for Organizational Performance	117
5.5.3 Factor Analysis for Learning Capabilities	118
5.5.4 Reliability Analysis	119
5.6 Modification of Research Framework and Hypotheses Development	120
5.7 Descriptive Analysis	125
5.7.1 Descriptive Analysis of BPR	125
5.7.2 Descriptive Analysis of Organizational Performance	130
5.7.3 Descriptive Analysis of Learning Capabilities	132
5.8 Correlation Analysis	135
5.9 Hypotheses Testing	137
5.9.1 BPR and Organizational Performance	139
5.9.1.2 BPR and Efficiency	139
5.9.1.3 BPR and Flexibility	141
5.9.2 Moderating Effect of learning Capabilities	145
5.9.2.1 Moderating Effect of Stock of Knowledge	148
5.9.2.2 Moderating Effect of learning Flows	156
5.9 Summary of the Chapter	
CHAPTER SIX: DISCUSSION AND CONCLUTION	
6.0 Introduction	167
6.1 Recapitulation of Findings	168
6.2 Discussion	175
6.2.1 The Relationship between BPR and Organizational Performance	175
6.2.2 The Moderating Effect of Learning Capabilities on the Relationship	182
between BPR and Organizational Performance	
6.3 Implications of the Study	186
6.4.1 Theoretical Implications	187
6.4.2 Managerial Implications	188
6.5 Limitation of the Study	190
6.6 Directions for Future Research	191
6.7 Conclusion	192
REFERANCES	
APPENDICES	
Appendix A: QUESTIONNAIRE	
Appendix B: SPSS OUTPUT	
Appendix C: Details of Questionnaire Referees	

# List of tables

Table	content	page
number		
Table 1.1	Operationalization definition of key terms	20
Table 2.1	Definition of BPR	28
Table 2.2	BPR and Management Change Strategies	31
Table 2.3	The Successful Implementation of BPR	36
Table 2.4	BPR Dimensions	42
Table 2.5	Dimensions of Organizational Performance	49
Table 2.6	BPR and Organizational Performance	53
Table 4.1	Measurement of BPR	90
Table 4.2	Measurement of Learning Capabilities	92
Table 4.3	Measurement of Organization Performance	93
Table 4.4	Instrument Reliability	96
Table 5.1	Response Rate	106
Table 5.2	Firm Profile	107
Table 5.3	Respondents Profile	109
Table 5.4	Chi-Square Test for Differences between First and Second	111
	Response	
Table 5.5	ANOVA between Job Position and Study Variables	113
Table 5.6	Factor Analysis for BPR	116
Table 5.7	Factor analysis for Organizational Performance	117
Table 5.8	Factor Analysis for Learning Capabilities	118
Table 5.9	Reliability Analysis for Study Variables	120
Table 5.10	Descriptive Analysis of BPR	126
Table 5.11	T-test for BPR Differences for Business Age, Number of	128
	Employees and owner form	
Table 5.12	Differences in BPR by Service Type Attributes	129
Table 5.13	Descriptive Analysis of Organizational Performance	130
Table 5.14	Differences in Organizational Performance by Service	131
	Type Attributes	
Table 5.15	Organizational Performance Differences for Business Age,	132
	Number of Employees and owner form	
Table 5.16	Descriptive Analysis of Learning Capabilities	133
Table 5.17	Learning Capabilities Differences by service type.	133
Table 5.18	Learning Capabilities Differences by business age and	135
	number of employees	
Table 5.19	Pearson Correlation Matrix	136

Table 5.20	Regression Analysis: The Relationships between BPR and	139
	Efficiency.	
Table 5.21	Regression Analysis the Relationships between BPR and	143
	Flexibility	
Table 5.22	Summary of Hypotheses Testing Results for the	144
	Relationship between BPR and Organizational Performance	
Table 5.23	Effect of knowledge stocks on the Relationship between	149
	BPR and Efficiency	
Table 5.24	Effect of knowledge stocks on the Relationship between	153
	BPR and Flexibility	
Table 5.25	The Moderating Effect of Learning Flows on the	156
	Relationship between BPR and Efficiency	
Table 5.26	The Moderating Effect of Learning Flows on the	161
	Relationship between BPR and Flexibility	
Table 5.27	Summary of Hypotheses Testing Results for Moderated	164
	Effects of learning capabilities	

# LIST OF FIGURES

		Page
Figure 3.1	Conceptual Framework of the Study.	69
Figure 4.2	Contribution of the Economic Sectors to GDP for the Years 2012 and 2013.	85
Figure 4.3	Percentage Share of GDP Components in 2013.	86
Figure 5.1	Modified theoretical framework	125
Figure 5.2	The Relationship between BPR and Organizational Performance.	138
Figure 5.3	Moderating Effect of Learning Capabilities	145
Figure 5.4	The Moderating effect of Knowledge Stocks on relationship between Organizational Change and Efficiency.	151
Figure 5.5	The moderating effect of knowledge stocks on the relationship between Top Management Commitment and Efficiency	152
Figure 5.6	Effect of knowledge stocks on the relationship between Change management systems and culture, and flexibility.	155
Figure 5.7	The moderating effect of learning flows on the relationship between Organizational change and flexibility.	158
Figure 5.8	Moderating effect of learning flows on the relationship between Top Management Commitment and Efficiency	159
Figure 5.9	The moderating effect of knowledge stocks on the relationship between Change management and flexibility.	162
Figure 5.10	The moderating effect of learning flows on the relationship between Top Management Commitment and flexibility.	163

# LIST OF ABBREVIATIONS

BPR	Business Process Reengineering
IS	Information System
IT	Information Technology
RBV	Resource-based view
ROA	Return on assets
ROI	Rerun on Investment
ROS	Return on asset
SPSS	Statistical Package for the Social Sciences
TQM	Total Quality Management
UAE	United Arab Emirates
GDP	Gross Domestic Product
CBOS	Central Bank of Sudan
Annova	Analysis of Variance
KMO	Kaiser-Meyer-Olkin
UK	United Kingdom
SUST	Sudan University of Science and Technology
USA	United State of America

### **Abstract**

The rapid and complex changes in global business environment due to information and communication technology revolution are fundamentally changing the world of services industry. New services, new models of services, high quality, low cost, and high speed have increased the complexities of the operations and functions of service industry, that forced to call for business process change as a means of transition to a new digital era. This study aims to explore the potential effect of Business Process Reengineering (BPR) and the organizational performance in the Sudanese context as a study on services firms. To achieve the objectives of the study, hypothetico-deductivist approach was adopted and a conceptual model was developed. Resource Based View(RBV) was employed to build the Conceptual Model of the Study. BPR as Independent was measured by (Change Management Systems and Culture, Top Management Commitment, Organizational Change, Information Technology Infrastructure, and Management Competence). In addition, to measure the organizational performance as dependent variable (efficiency, effectiveness and flexibility) are used as dimensions. The study employed descriptive and analytical research design, where convenience sampling and self-administrated survey questionnaires were sent to services firms in Sudan (Finance, Communication and Education), with response rate (96%). Data were obtained from primary sources and were analyzed using Principal Component Analysis and Multiple Regression Analysis. The results of the analysis revealed that there was a significant relationship between BPR (Change Management Systems and Culture, Organizational Change, Information Technology Infrastructure, and Management Competence) and Organizational Performance (Efficiency) of selected firms. The findings showed that there was a significant relationship between the BPR factors (Change Management Systems and Culture, and Top Management Commitment) and Organizational Performance (Flexibility) as well as a significant effect. The study findings showed the learning capabilities moderate the relationship between BPR and organizational performance. The study recommended to Sudanese service firms managers to successful applying BPR strategy and develop an effective management change tool that must be combined with learning capabilities and aligned with strategic planning to enhance the organizational performance.

**Keywords**: Business Process Reengineering, Organizational Performance, learning capabilities, Sudan, Services Firms.

### المستخلص

التطورات السريعة في نتيجة لثورة المعلومات والاتصالات التكنولوجيا فرضت تغيرات سريعة ومعقدة وبشكل جذري في بيئة الأعمال، ومن قطاعات الاعمال التي تأثرت بشكل كبير صناعة الخدمات. التغييرات تظهر في قصر دورة طرح خدمات جديدة، خلق خدمات ابتكارية، والجودة العالية، وانخفاض التكلفة والسرعة العالية. هذه الظروف الجديدة أجبرت العديد من المؤسسات في التفكير في الحلول الإدارية الفعّالة في سبيل البقاء فانتهجت استراتيجيات التغيير الحديثة من خلال إعادة هندسة العمليات الإدارية كوسيلة للانتقال إلى العصر الرقمي الجديد. حداثة التوجه نحو إعادة هندسة العمليات بالإضافة لغموض الكثير من الجوانب المهمة لأثر هذه المنهجية هدفت هذه الدراسة الى قياس مدى أثر اعادة هندسة العمليات الإدارية كمنهج اداري جديد على الاداء التنظيمي بالإضافة لبيان الدور المعدل للقدرات التعليمية للمؤسسات في هذه العلاقة في المؤسسات الخدمية العاملة في السودان. اعتمدت الدراسة على ابعاد: تغيير نظم وثقافة وقيم العمل، التغيير الهيكل التنظيمي، التزامات الادارة العليا للمنظمات، البنية التحتية لتكنولوجيا المعلومات، والكفاءة والقدرات الادارية كأبعاد لإعادة هندسة العمليات الادارية (متغير مستقل)، اما المتغير التابع الاداء التنظيمي فقد استخدمت ابعاد المرونة وكفاءة الأداء للقياس، كما تم قياس القدرات التعليمية للمنظمات من خلال بعدي تخزين المعرفة واستغلال المعرفة. تم توظيف النموذج المفاهيمي الدراسة مع نظرية الموارد RBVلاستنتاج وتطوير عدد من الفرضيات. تم تصميم استبانة بغرض جمع البيانات وزعت يدويا لجمع البيانات الاولية من عينة الدراسة والتي شملت عدد من مؤسسات الخدمية في السودان التي تمارس نشاطها في كل من قطاع: الاتصالات وتكنولوجيا المعلومات، التعليم والخدمات المالية والمصرفية وكانت نسبة الاسترداد عالية ٩٦%. اتبعت الدراسة المنهج الوصفي التحليلي لتحليل وتفسير النتائج، انتهجت الدراسة لتصميم المعاينة الغير الاحتمالية لطبيعة وظروف الدراسة (القصدية). من المعالجات الاحصائية تبنتها الدراسة في تحليل البيانات الانحدار المتعدد لقياس وشرح التباين في المتغير التابع بالإضافة لكشف الدور المعدل للقدرات التعليمية. وظَّفت الدراسة التحليلي العاملي و معامل الفا كرو نباخ للتأكد من جودة أداة جمع البيانات من اهم نتائج الدراسة وجود أثر معنوي ب بين ابعاد المتغير المستقل إعادة هندسة العمليات الإدارية التالية: تغير نظم العمل والثقافة التنظيمية، البنية التحتية لتكنولوجيا المعلومات والاتصالات، والكفاءة والقدرات الادارية على المتغير التابع الأداء التنظيمي (الكفاءة)، بالإضافة الى ذلك توصلت الدراسة الى وجود أثر معنوي لأبعاد المتغير المستقل التالية: تغير نظم العمل والثقافة التنظيمية، والتزامات الادارة العليا على الأداء التنظيمي (المرونة) كمتغير تابع. من النتائج المهمة ان القدرات التعليمية (تخزين المعرفة، تدفق المعرفة) عدلت العلاقة بين المتغير التابع والمستقل. وعلى ضوء هذه النتائج قدمت الدراسة مجموعة من التوصيات يمكن للمؤسسات الخدمية في السودان الاسترشاد بها في فهم أثر ومقدار أثر إعادة هندسة العمليات على الأداء التنظيمي بالإضافة الى تحديد اهم العوامل واكثرها تأثيرا على الأداء التنظيمي، كما كشفت الدراسة عن الدور المعدل للقدرات التعليمية للمنظمات في هذه العلاقة وحجم هذا الدور. كما اوصت الدراسة الباحثين والممارسين بضرورة تبني اعادة هندسة العمليات الإدارية في قطاعات اخري لتعميق الفهم وزيادة المعرفة عن أثر إعادة هندسة العمليات على أداء منظمات الاعمال في بيئة العمل السودانية.