



*Sudan University of Science and Technology*

*College of Graduate Studies*

*Department of Business Administration*

# **The Interaction Effect of Market Sensing and Internal Market Orientation on Organizational Capabilities and Marketing Performance**

**أثر التفاعل بين الإستشعار عن السوق والتوجه بالسوق الداخلي على القدرات التنظيمية والأداء التسويقي**

Thesis Submitted in Fulfillment of the Requirements for the  
Doctor of Philosophy Degree in Business Administration

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Khartoum  
May, 2017

## DEDICATION

I have a special feeling of gratitude to dedicate this project to my Grandmother **Om Alhairan** who took care of me in my childhood.

It is my genuine gratefulness and warmest regard that I dedicate this work to my beloved Father and Mother who gave me the values, kindness, devotion and endless support necessary to be where I am standing today.

To the mother of my children for lend a hand throughout the period of the study.

To my children **Mohamed, Emtinan, Emtithal** and **Munadil**, I hope that I can make you proud of having me, the same way that I am proud of having all of you as my children and as the breadth of my life!

To my Uncles, Brothers, Sisters and the rest of my relative, really you have been the considerable source of my strength throughout this research and on your wings I have soared.

To whoever might find this dissertation is interesting.

My love to all of you can never be quantified.

God bless you all.

## ACKNOWLEDGEMENTS

In the beginning, I'm really thankful to my God for leading me to Sudan University of Science and Technology and surrounded me with the most intelligent and supportive faculty members and colleagues, who helped me to complete my PhD study. Thanks also extended to University of Nyala for offering me the opportunity to study for obtaining PhD degree.

I would like to thank my supervisor Dr. Abdel Hafiez Ali Hasaballah for his guidance, assistance, and patience in guiding me through the research process. Also I'm gratefully acknowledge my co-supervisor during the period of the research Dr. Siddig Balal Ibrahim who bore my weaknesses and faithfully guided me step by step for more than three years, so that I was talented to finish my work and obtain this doctoral degree. Without his strong support, guidance and patience throughout the years, I would not have been able to accomplish this study.

My thanks also go to examiners committee for their sincere and thoughtful comments that made this dissertation possible. I am also grateful for the wonderful faculty members who had guided me through the doctoral seminars and classes. I'm really appreciated the clarifications and questions that arrived from undergraduate students and post graduate Candidates which helped me to have basic understanding of research skills and encouraged me to broaden and deepen my knowledge. I'm very appreciative to my friends; Dr. Abdulhaq, Ibtihalat, Dr. Afraa, Dr. Thoryia, Dr. Hawaa and the rest of my colleagues in post graduate program for their encouragement. I show appreciation for all the firms that responded to participate in this study and their representatives from general managers, directors, and marketing managers, who took the time out and express their views on the questionnaire during the survey.

I would like also to express my profound gratitude to my colleague from PhD Candidates Emad Aldeen Essa for his practical support, and advices in analyzing the data and carry me on how to use AMOS and smart PLS in data analysis. Also, I have the pleasure to thank all my colleagues in University of Nyala and particularly those who are in faculty of economic and commercial studies for their support and assistance.

I'm greatly thankful to Allah, for the patience and sacrificial love of my children throughout the period of the study; they really motivated and supported me to finish this project. Also, I will not forget Medical Ehsan Bakhiet Abdallah mother of my children for her help, working full time as Physician and taking care of our four children, thank you for lend a hand. I'm really owes much to my beloved father and mother, uncles, brothers and sisters for their physical and moral support, in addition to their sold standing beside me to succeed in completion of this research. This study may be used for the salvation of my relative members in Sudan including my parents and my family.

Finally, I'm grateful to Development Studies and Research Institute, and my colleagues there, who share me the time, funny and love, thanks for your valuable comments. This study may also be useful to guide many fellow students and even raises up future leaders.

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## LIST OF ABBREVIATIONS

<b>AMOS</b>	Analysis of A Moment Structures
<b>ANOVA</b>	Analysis of Variance
<b>AVE</b>	Average Variance Extracted
<b>CFA</b>	Confirmatory Factor Analysis
<b>CR</b>	Composite Reliability
<b>DCT</b>	Dynamic Capabilities Theory
<b>EFA</b>	Exploratory Factor Analysis
<b>GDP</b>	Gross Domestic Product
<b>ID</b>	Information Dissemination
<b>IG</b>	Information Generation
<b>IM</b>	Internal Marketing
<b>IMO</b>	Internal Market Orientation
<b>KM</b>	Knowledge Management
<b>KMO</b>	Kaiser-Meyer-Olkin
<b>MC</b>	Management Concern
<b>MO</b>	Market Orientation
<b>MP</b>	Marketing Performance
<b>MS</b>	Market Sensing
<b>MSA</b>	Measure of Sample Adequacy
<b>MVC</b>	Marketing Value Chain
<b>NPD</b>	New Product Development
<b>OCs</b>	Organizational Capabilities
<b>OL</b>	Organizational Learning
<b>PLS</b>	Partial Least Squire
<b>RBT</b>	Resource-Based Theory
<b>RBV</b>	Resource-Based View
<b>ROA</b>	Return on Assets
<b>ROI</b>	Return on Investment
<b>SEM</b>	Structural Equation Model
<b>SMEs</b>	Small and Medium Enterprises
<b>SPSS</b>	Statistical Package for Social Science
<b>TR</b>	Training
<b>VRIN</b>	Valuable, Rare, Inimitable and Non-substitutable
<b>WFB</b>	Work/ Family Balance

## **Abstract**

The success of every business depends on adapting itself to the environment within which it functions. Therefore, the organization's ability to sense environmental change and respond willingly is a significant determination of success. However, literature search reveals that the interaction of firm capabilities couched within the complementarity perspective has not been empirically examined extensively. Moreover, the processes through which particular resources contribute to firm marketing performance remain largely a black box. Through using descriptive analytical approach this study contends that realizing the marketing performance impact of market sensing depends on know-how deployment processes and their complementarities in functional areas such as internal market orientation and organizational capabilities that co-align with market sensing. Drawing upon the resource-based view and dynamic capabilities theory of the firm, a model is developed to investigate the moderating role of internal market orientation in the relationship between market sensing and organizational capabilities, and how organizational capabilities mediate the relationship between market sensing and marketing performance. As a result of responses from (250) firms operating in Sudan, the path analysis through using AMOS in Structural Equation Modeling demonstrates some empirical supports to the model of this study. The results reveal that there is a positive relationship between some components of market sensing and customer performance; also the results predict that the two components of market sensing to some extent play an important role in influencing the organizational capabilities. Furthermore, the results indicate that organizational capabilities remained without effect on customer performance; while, the mediating effect shows that market sensing significantly contributes to customer performance via collaboration capability. In addition to that the result demonstrates that the two components of internal market orientation moderate the relationship between market sensing and organizational capabilities but in different ways. Based on study's results, the discussion of the findings, the theoretical and practical implications as well as the limitations in this study are provided.

## المستخلص

يعتمد نجاح كل مشروع على تكيفه مع البيئة التي يعمل فيها. ولذلك، فإن قدرة المنظمة على إستشعار التغير البيئي والإستجابة الفاعلة هي عنصر مهم للنجاح. ومع ذلك، تكشف مراجعة الأدبيات أن التفاعل بين قدرات الشركة المصاغة ضمن منظور التكامل لم يتم دراستها تجريبياً على نطاق واسع، علاوة على ذلك، فإن العملية التي تسهم من خلالها موارد معينة في الأداء التسويقي للشركة لا يزال إلى حد كبير "صندوق أسود". ومن خلال استخدام المنهج الوصفي التحليلي، تؤكد هذه الدراسة إن تحقيق الأثر التسويقي لأداء الإستشعار عن السوق يعتمد على عمليات نشر المعرفة وتكاملها في المجالات الوظيفية مثل التوجه بالسوق الداخلي والقدرات التنظيمية التي تتماشى مع الإستشعار عن السوق. وإستناداً على النظرة القائمة على الموارد ونظرية القدرات الداينمكية للشركة، تم تطوير نموذج للتحقق من الدور المعدل للتوجه بالسوق الداخلي في العلاقة بين الإستشعار عن السوق والقدرات التنظيمية، وكيف أن القدرات التنظيمية تتوسط العلاقة بين الإستشعار عن السوق والأداء التسويقي. ونتيجة لإستجابة (250) شركة عاملة في السودان، يوضح تحليل المسار من خلال إستخدام برنامج أموس في نمذجة المعادلة البنائية بعض من الدعم التجريبي لنموذج هذه الدراسة. كشفت النتائج أن هناك علاقة إيجابية بين بعض أبعاد الإستشعار عن السوق وأداء العملاء. أيضاً تتبأت النتائج بأن مكوّن الإستشعار عن السوق إلى حد ما يلعب دوراً مهماً في التأثير على القدرات التنظيمية. علاوة على ذلك، تشير النتائج إلى أن القدرات التنظيمية بقيت دون تأثير على أداء العملاء، بينما أظهر تأثير الوسيط أن الإستشعار عن السوق يسهم بشكل كبير في أداء العملاء من خلال القدرة على التعاون. بالإضافة إلى ذلك تظهر النتيجة أن بعدي التوجه بالسوق الداخلي يعدلان العلاقة بين الإستشعار عن السوق والقدرات التنظيمية ولكن بطرق مختلفة. وإستناداً إلى نتائج الدراسة تم تقديم مناقشة النتائج بالإضافة إلى التأثيرات النظرية والعملية والقصور في هذه الدراسة.

# **CHAPTER ONE**

## **INTRODUCTION**

### **1.0. Introduction**

The purpose of this chapter is to provide an overview of this study and its organization. It begins with a brief background about the physical and economic features in Sudan, including the private sector development and business environment, then the problem statement, followed by the questions, the objectives, and the significance of the study. Moreover the chapter contains a section on operationalization definitions of the key variables used in this study as well as the outlines of the study organization.

### **1.1. Sudan Physical and Economic Features**

The environmental factors almost influence every aspect of business; therefore understanding the various components of the business environment, which consist of the political framework, the socio-cultural aspects, the economic aspects, the legal aspects and the technological aspects etc, within which the business operates is very important for successfully running a business unit at any place because, the success of every business depends on adapting itself to the environment within which it functions. In this context Sudan is rich in both underground and surface natural resources that have remained mostly under developed because of

political and economic constraints (Development, 2012). The secession of South Sudan many years ago made Sudan a low-income fragile country facing major domestic and international constraints and large macroeconomic imbalances. Despite efforts made toward achieving macroeconomic stability and growth, the general outlook of Sudan is subject to significant downside risks (Fund, October 4, 2016). Low commodity export prices, absence of policy buffers, domestic and international efforts to end internal conflicts have not yet become fruitful; the difficult humanitarian situation in some areas and the weak business environment will continue to constrain the economic activity.

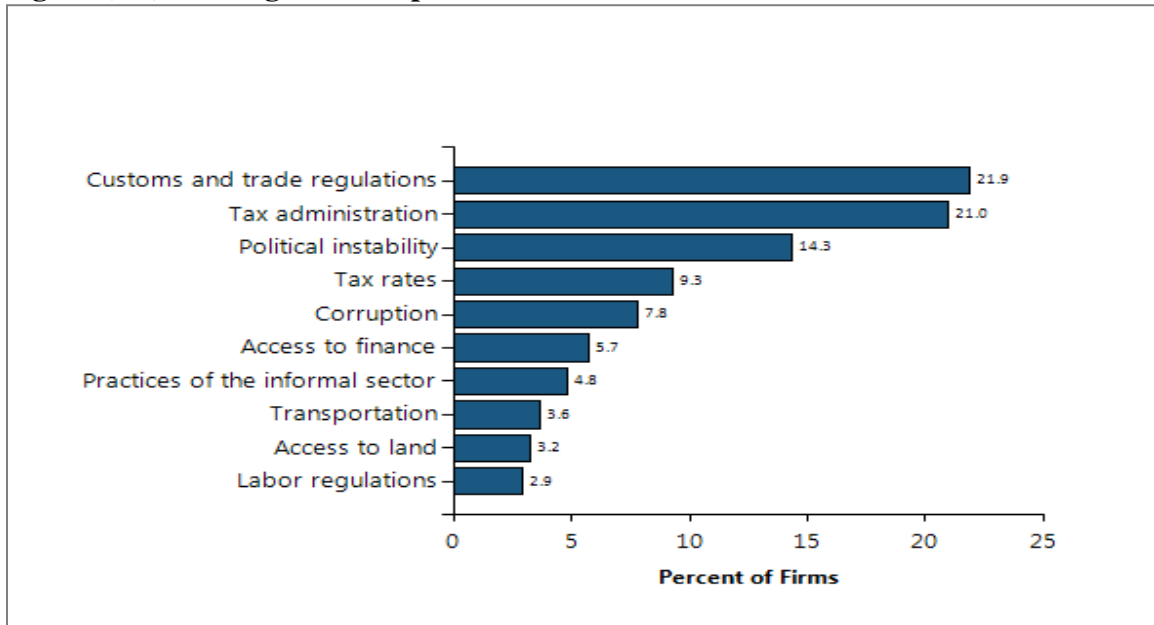
## **1.2. Private Sector Development and Business Environment.**

Private sector is an important sector which plays a major role in both developed and developing countries through the generation of employment, provision of social welfare and commercial centers, hence, contributing to the gross domestic product (GDP) of those countries, see (H.M.A & Mahmood, 2013). In the light of these, today business enterprises in Sudan operate in a dynamic and challenging environment; this includes its undeveloped physical infrastructure; and its lack of adequately qualified manpower, transformations in the socio-cultural conditions and continuous changes, as well as political instability, economic inflation, technological



advances and changes in international relations all these contribute to made it difficult to attract either foreign or domestic investment (Tahir & Hassan, 2014). Furthermore, it let the task of operating any organization successfully very intimidating.

**Figure (1.1) ranking of the Top Business Environment Obstacle for Firms in Sudan**



According to World Bank Group, (2014) the above Figure (1.1) shows that among different areas of the business environment, 21.9% of firms in Sudan are more likely to rate customs and trade regulations as the biggest obstacle to their daily operations, followed by tax administration 21% of firms, then political instability 14.3% of firms, 9.3% of firms ranked tax rates as a great challenge to their daily operations. 7.8% of firms reported corruption as a main obstacle in their daily operations, while, access to finance, practices of the internal sectors, transportation and access to land

remains respectively 5.7%, 4.8%, 3.55, 3.2% rated as obstacles. Labor regulations rates very low for Sudanese businesses 2.9%, whereas in Bhutanese businesses, Labor regulations are one of the top concerns of entrepreneurs (WBG, 2015).

### **1.3. Statement of the Problem**

Due to the highlighted constrains and the dynamic changes that confronted the business environment in Sudan. Firms now have to be receptive to what the customers want and need in order to be competitive (Cao, Deivasigamani, Stanly, & Sundel, 2012), or even survive in some cases. Thus, to assess accurately how well a business is performing, one needs to develop some quantifiable measures by identifying those aspects of the business process that need improvement and that are working well (Mohamed & Al-Shaigi, 2014).

The marketing literature views market sensing as the way firms learn about their environment to understand the environmental changes (see, Everett, 2014). Thus, the organization's ability to sense environmental change and respond willingly is a significant determination of success (Osisioma, Nzewi, & Mgbemena, 2016). However, in practice a considerable amount of studies have been conducted in the field of market sensing but in different ways, some of the studies used sensing as a one

dimension of market capabilities (Fang, Chang, Ou, & Chou, 2014), while others used it as a one component of dynamic capabilities (Osisioma, Nzewi, & Mgbemena, 2016) and strategic capabilities (Lim & Mavondo, 2000). Furthermore, Lin and Wang, (2015) used market sensing as a one dimensional construct, however few of scholars used market sensing as a multidimensional construct (e.g. Lindblom *et al.*, 2008; Day, 1994). The main reason for using market sensing construct with three dimensions it was more holistic and the dimensions have specific resonance in market-sensing activities.

Besides that, market sensing was found in literature to has a direct link to the firm's overall performance (e.g., Olavarrieta & Friedmann, 2008; Lindblom et al, 2008) but, measuring a firm's overall performance can lead to misleading conclusions because a firm may has resources that have the potential for generating competitive advantages but not fully realize this potential through its businesses activities (Ray, Barney, & Muhanna, 2004). Therefore, to answer the call for researchers to identify and travel around relationships involving different dimensions of marketing performance in empirical studies (Vorhies & Morgan, 2003; Clark, 2000), this study will examine the relationship between market sensing and marketing

performance with two indicators (market performance and customer performance).

Also different researchers have used to measure marketing performance from various components and are not seen fixed and standard practice in this area. Thus, examining this relationship is important because they are rarely studied together in the obtainable literature. Moreover, the previous studies have mostly ignored the existence of multiple marketing performance measures (Abela & Murphy, 2008).

In addition to exploring the relationship between market sensing and marketing performance, this study examines the relationship between market sensing and three organizational capabilities namely; learning, innovation and collaboration capability. Indeed, capabilities have attracted the interest of researchers because of their impact on the firm's ability to identify sources of sustainable competitive advantage (Zehir, Acar, & Tanriverdi, 2006). The previous studies of organizational capabilities used capabilities as a one-dimensional construct (e.g., Tuan & Takahashi, 2009; Wingwon, 2012; Ouakouak, Ouedraogo, & Mbengue, 2014) while, others used as a multi-dimensional construct like, (Raduan, Jegak, Haslinda, & Alimin, 2009; Zaidi & Othman, 2015; Chang, Chang, Chi, Chen, & Deng, 2012; HassabElnaby, Hwang, & Vonderembse, 2012; Leonidou L. C., Leonidou,

Fotiadis, & Zeriti, 2013; Jacks, Palvia, Schilhavy, & Wang, 2011) however, the dimensions used for multi-dimensional construct was differed from one to another as presented in Table (2.2) chapter two.

Also in literature, a number of studies identify many ways of developing dynamic capabilities. For example, Zollo and Winter, (2003), highlights the importance of deliberate learning mechanisms, such as organizational routines related to experience accumulation, knowledge articulation and knowledge codification, in developing dynamic capabilities. Currently, there is a view among scholars believes that market sensing is vital in assessing the business environment to determine the opportunities and challenges for the enhancement of competitive advantage. In contrast and to some extent there is no any study that explicitly addresses the organizational capabilities related to market sensing.

Bearing in mind the above mention, Ngo and O’Cass, (2012) argues that while various contexts of discussions in the literature focusing on resources and capabilities, the interaction of firm capabilities couched within the complementarity perspective has not been empirically examined extensively, moreover, he contend that the process through which particular resources contribute to firm performance remain largely “*a black box*”. In this context this study is going to examine the mediating role of organizational

capabilities in the relationship between market sensing and marketing performance, given that the mediating effect of organizational capabilities was empirically tested by a number of scholars, for instance (Ouakouak, Ouedraogo, & Mbengue, 2014; Tuan & Takahashi, 2009; HassabElnaby, Hwang, & Vonderembse, 2012; Hwang, 2011). Also, marketing literature suggests that firms use capabilities to transform resources into outputs driven by their marketing mix strategies and that such marketing capabilities can affect their business performance (Mohamed & Al-Shaigi, 2014).

Finally, as very few researches examine how such resources interact with one another and contribute to the strategic action (Krush, Agnihotri, Trainor, & Nowlin, 2013). In this sense, for building organizational capabilities as strategic action the integration between market sensing and internal market orientation was highly motivated by the resource based view and its extension dynamic capability theory, which were defined organizational capabilities as the ability of a firm to extend, modify and use resources to create competitive advantage (see., Helfat, 2007; Teece, 2007; Ozkaya, Droge, M. Hult, Calantone, & Ozkaya, 2015).

Past studies have shown that market orientation is positively linked to organizational performance (Kohli & Jaworski, 1993; Beverland & Lindgreen, 2007). However, these studies rarely take the internal market into

account and therefore the lack of internal focus in the discussions limits the applicability of market orientation to the current business environment (Carter & Gray, 2007). Nonetheless, very few empirical researches have examined the processes inside organizations which lead to develop dynamic capabilities or attempt to define their performance effects (Macher & Mowery, 2009). Therefore, this study investigates the moderating role of internal market orientation in the relationship between market sensing and organizational capabilities.

Based on the ongoing discussion, the problem of this study is to examine the interaction effect of internal market orientation dimensions (information generation, information dissemination, and responsiveness) with market sensing dimensions (sense, sensemaking, response) on organizational capabilities dimensions (innovation, collaboration, and learning) and the marketing performance of firms operating in Sudan, beside the mediating role of organizational capabilities in the relationship between market sensing and marketing performance. The following sub-title addresses in more specific context the main questions of the study.

#### **1.4. The Questions of the Study**

The main question of this research is: Does internal market orientation moderates the exchange of market sensing and organizational capabilities to

enhance marketing performance in Sudanese firms? This question was operationalized as five research questions to attain the aims of the study as follows:

- 1) What is the relationship between market sensing and marketing performance?
- 2) To what extent market sensing can contribute in shaping organizational capabilities?
- 3) What is the relationship between organizational capabilities and marketing performance?
- 4) Do organizational capabilities mediate the relationship between market sensing and marketing performance?
- 5) To what extent the interaction of market sensing and internal market orientation can contribute in creating organizational capabilities? (That is the moderating effect of IMO)

### **1.5. Objectives of the Study**

The general objective of this research is to provide specific answers about the question of does internal market orientation moderates the exchange of market sensing and organizational capabilities to enhance marketing performance in Sudanese firms? While the specific objectives are:



- 1) To test the relationship between market sensing and marketing performance.
- 2) To test the exchange between market sensing and the organizational capabilities (innovation, learning and collaboration).
- 3) To explain the relationship between organizational capabilities and marketing performance.
- 4) To examine the mediating role of organizational capabilities on the relationship between market sensing and marketing performance.
- 5) To investigate the interaction effect of internal market orientation and market sensing on organizational capabilities for testing the moderating role of internal market orientation within this relationship in Sudanese firms.

### **1.6. Significance of the Study**

The significance of this study rises from literature review of market sensing and internal market orientation to carry out their role in organizational capabilities and marketing performance. Therefore the significance of this study can be illustrated through the following two classifications:

### **1.6.1. Theoretical Significance:**

- 1) This study argues that a developed an interaction between market sensing and internal market orientation increase the potential range of organizational capabilities and ultimately enhances marketing performance.
- 2) This study is trying to fill the gap through the process of interaction between market sensing dimensions and internal market orientation dimensions on organizational capabilities.
- 3) This study is an attempt to build a conceptual framework that will contribute to theories and practice in the field of marketing and strategic management.
- 4) The study will provide scientific advices and guidelines through which the firms operating in Sudan can achieve the efficiency and the effectiveness.
- 5) The study will clarify the internal market orientation in which market sensing does result in organizational capabilities. This can contribute to the knowledge about how resources and capabilities are developed inside the firm in interaction with external influences.

### 1.6.2. Practical Significant

- 1) This study will make managers aware to cope with change and complexity of business environment in Sudan through the adoption of market sensing.
- 2) The adoption of market sensing among firms operating in Sudan will contribute in establishing organizational capabilities and subsequently enhancing performance.
- 3) Managers can emphasize the importance of intangible resources in enhancing marketing performance.
- 4) This study may encourage managers to play a greater role in activities related to the development of organizational capabilities.
- 5) This study will provide better information about the importance of internal market orientation in building organizational capabilities, to the managers and policy makers who are responsible for business development.

### 1.7. Definitions of Key Terms

The operationalization definitions of the key variables are detailed in Table (1.1) below:

**Table (1.1) operationalization definitions of the key variables**

<b>Term</b>	<b>Definition</b>	<b>Source</b>
<b>Internal market orientation</b>	The internal market orientation is defined as the extent to which an organization is committed to create value for its employees through the effective management to	(lings & Greenley, 2010)

	relationships among employees, supervisors and the management.	
<b>Information generation</b>	Information generation is the process by which a firm obtains information about the internal customers	(Wei & Wang, 2011)
<b>Information dissemination</b>	Information dissemination refers to communications between employees and managers with the objective of disseminating new marketing strategies and strategic objectives to employees, mainly through communication channels.	(José L. Ruizalba, 2014)
<b>Responsiveness</b>	Responding to intelligence dissemination concerns those actions taken in response to the needs of employees, and it covers three aspects: management concern (MC), training (TR), and work/ family balance (WFB).	(José L. Ruizalba, 2014)
<b>Market sensing</b>	Market sensing is an organizational learning capability to advance strategic marketing by learning about customers, competitors, and channel members with a view to acting on events and trends in markets.	(Day, 2002) cited in (Bailey, 2014), and (Day, 1994) cited in (Lindblom <i>et al.</i> , 2008)
<b>Sensing</b>	Sensing is defined as the collection and distribution of information about customers, competitors, and relationships in the market.	(Bailey, 2014)
<b>Sensemaking</b>	Sensemaking refers to the interpretation of gathered information against past experiences and knowledge.	(Lindblom <i>et al.</i> , 2008)
<b>Response</b>	Response refers to the utilization of the gathered and interpreted information in decision-making	(Lindblom <i>et al.</i> , 2008)
<b>Organizational capabilities</b>	Organizational capabilities defined as intangible resources or assets, made up of constituents such as skills, learning and knowledge in deploying tangible or other intangible resources or assets.	(Combe & Greenley, 2004)
<b>Learning capability</b>	Refers to the extent to which organization is able to implement the appropriate management practices, structures and procedures that facilitate and encourage learning.	(Goh, 2003)
<b>Innovation capability</b>	Refers to the firm's ability to continuously transform knowledge and ideas into new products, processes and systems for the benefit of the firm and its stakeholders	(Saunila, Pekkola, & Ukko, 2014)
<b>collaboration</b>	The interaction among two or more individuals and can encompass a variety of behaviors, including communication, information sharing,	(Croker, Higgs, & Trede, 2009).

	coordination, cooperation, problem solving, and negotiation	
<b>Marketing performance</b>	Marketing performance is the result of successful marketing activities that depends on resources and capabilities to generate revenue through increasing sales volume or customer satisfaction.	(Doyle, 2003; Lassar, Mittal, & Sharma, 1995)
<b>Market performance</b>	The ability of the firm to offer a satisfied products or services and other elements like setting reasonable prices and market share to suit their customer's needs.	(Leonidou, Leonidou, Fotiadis, & Zeriti, 2013)
<b>Customer performance</b>	Success in acquiring new customers, satisfying existing customers and increasing sales to them as they become loyal to the company	(Krush, Agnihotri, Trainor, & Nowlin, 2013)

## 1.8. Research organization

The organization of this study comes out into six chapters. **Chapter one** is the introductory part which includes the research overview and background, then outlines the problem statement, research questions, research objectives, and the significance of the study as well as the definition of terms and the organization of the study. **Chapter two** presents the literature related to market sensing, internal market orientation, organizational capabilities and marketing performance as variables of the study. **Chapter three** provides the theoretical framework for depicting the conceptual model of the study followed by the arguments for hypotheses development. **Chapter four** describes the research design and methodology which includes the unit of analysis, data collection and the statistical techniques for empirically testing the stated hypotheses. **Chapter five**

provides the data analysis and findings where the results are presented. Finally, **Chapter six** is the conclusion and discussion including research implications, limitations and recommendations for future research directions as well as the discussion of results. The next chapter will discuss the literature review.

# **CHAPTER TWO**

## **LITERATURE REVIEW**

### **2.0. Introduction**

The literature review sheds light on the areas of market sensing, internal market orientation, organizational capabilities and marketing performance. The discussion of each is conducted by the review of relevant literature that will be used to explain the relationship between market sensing and organizational capabilities, and marketing performance. It will also explain the mediating role of organizational capabilities on the relationship between the market sensing and marketing performance this in addition to testing the moderating effect of internal market orientation on the relationship between market sensing and organizational capabilities.

### **2.1. Market Sensing (MS)**

This section explains the first concept of this study MS which represent the independent variable, including the rational background that dicussed the relationship between MS and organizational learning, MS and market orientation, MS and organizational or environmental scanning, and MS and organizational sensemaking. Also it explain the concept and definitions as well as dimensions of MS.

### **2.1.1. The Rational Background of MS**

Previous efforts to understand MS within the context of understanding business environment have been based in organizational learning, market orientation, organizational or environmental scanning and organizational sensemaking. The following sub sections discussed the relationship between market sensing and these concepts.

#### **2.1.1.1. MS and Organizational Learning**

Marketing philosophers stress the significance of continuous learning about customers. This learning procedure connects a series of information processing activities like, generating, distributing and interpreting customers' wants, responses, and environmental trends (Heusinkveld, Benders, & Berg, 2009). In accordance with Santos-Vijande, Sanzo-Pérez, Alvarez-Gonzalez, and Vazquez-Casielles, (2005) organizational learning help to explain the critical organizational capability of MS because it concerned with understanding organization-wide phenomena such as organizational culture and norms and also it encompass relationships and interdependencies between individuals and groups and the coordination use of both intangibles and tacit resources. Likewise Huber, (1991) as in (Hooi & Ngui, 2014) defines organizational learning as the process of firm-wide information processing, involving the acquisition, dissemination, interpretation, and institutionalization of knowledge.



In contrast MS activities provide companies with greater insights on customer needs, these insights, when combined with competitor information, enable companies to discover immature market niches and potential differentiation opportunities (Cao, Deivasigamani, Stanly, & Sundel, 2012). According to Bailey, (2014) when investigating the aspects of MS, there is a clear link to market learning theory and organizational learning which divided into information acquisition, information dissemination, and shared interpretation.

Early research by Day, (2002) defined MS as continuous ability to learn about the market. While Teece, (2007) view MS as a critical component of dynamic capabilities in the context of identifying opportunities. Therefore, MS is considered not a remote activity at the beginning of a development project, but relevant in each stage of the new product development process (Heusinkveld, Benders, & Berg, 2009). Based on the above mentioned MS was basically depend on organizational learning in methods that generate economic benefits, and each may be viewed as an individual source of competitive advantage.

#### **2.1.1.2. MS and Market Orientation**

Market orientation was defined by Kohli and Jaworski, (1990) as the organization-wide generation of market intelligence, dissemination of

intelligence across departments, and organization-wide response to it. Similarly, Celuch, Kasouf, and Peruvemba, (2002) consider market orientation as an antecedent of organizational market information processing activity as well as how it is used in the firm's strategy. Furthermore, Julian, (2010) defines market orientation as the degree to which individuals are conscious of the needs and wants of one's customer, and how the firm might best meet those needs and wants.

MS focus on information about customers, competitors, events and changes in the business environment to gain market intelligence through sense and sensemaking to conduct strategic course of action. Lin and Wang, (2015) asserted that sensing capabilities in firms' business ecosystem form the basis for building their dynamic capabilities, including sensing development of science and technology, customer demand, and market segmentation.

Depending on the literature market orientation represent the route of MS concept, this is because MS capture equally the essence of behavioral definition of market orientation (see, Day, 1990).

### **2.1.1.3. MS and Organizational or Environmental Scanning**

Organizational scanning as a systematic way for organizations to perceive changes, and hence prepare adaptive strategies for coping with

uncertainties, is becoming significant for all types of organizations to survive and remain successful. Similarly firms require sensing capabilities to identify opportunities and threads from their business ecosystem (Lin & Wang, 2015).

The concept of organizational scanning and environmental scanning are used interchangeably in literature, thus Zhang, Majid, and Foo, (2010) defines environmental scanning as a management process adopted by organizations to deal with external environmental information, the products of which would assist tactical and strategic decision making. Environmental scanning is defined as acquiring information about events and relationships in a company's outside environment (Aguilar, 1967). Similarly Lester and Waters, (1989) defines environmental scanning as a management process of using information from the environment to aid decision making through the process of obtaining, analyzing and using information.

On the other hand MS capability is one kind of sensing capabilities, which involves the capabilities of gathering and filtering market information from outside and inside the firm, determining its meaning, and drawing implications for action that can reduce commercialization process uncertainty and increase opportunities for successful commercial innovation (Lin & Wang, 2015).

Bearing in mind the above mentioned literature, MS was appeared to capture the essence of organizational or environmental scanning which basically concerns with the acquirement of information from business environment to help decision makers in developing strategic course of actions, and each may be considered as organizational capability.

#### **2.1.1.4. MS and Organizational Sensemaking**

Organizational sensemaking is defines as the reciprocal interaction of information seeking, meaning ascription, and action (Seligman, 2006). In accordance with Maitlis, (2005) organizational sensemaking is a fundamentally social process: organization members interpret their environment in and through interaction with others, constructing accounts that allow them to comprehend the world and act collectively.

Sensemaking occurs in organizations when members confront events, issues and actions that are surprising or confusing and use a process of social construction in their attempt to interpret and explain sets of cues from their environment (Carrington & Tayles, 2011).

In their work Thomas, Clark, and Gioia, (1993) determine that the three key processes: scanning, interpreting and responding are all important aspects of the more general notion of sensemaking which involves the reciprocal interaction of information seeking, meaning ascription, and

action. While Day, (1994; 2002) and Lindblom et al, (2008) on the other hand devided MS into three processes: sense, sensemaking, and response.

The two processes of organizational sensemaking and market sensing are systematic, thoughtful, and anticpactory in market-oriented firms than they are in other firms, therefore it can be concluded that the organizational sensemaking and MS are two face to one coin. In other words organizational sensemaking and MS are similar to one another and to some extend they can be used interchandeblly.

### **2.1.2. The Concept and Definition of MS.**

Due to some constrains and the dynamic changes that confronted the business environment. Companies now have to be receptive to what the customers want and need in order to be competitive (Cao, Deivasigamani, Stanly, & Sundel, 2012), or even survive in some cases. Thus, the management needs to understand customers in all their diversity. Day, (1994) Consider this kind of understanding as ‘market sensing’. Sensing the environment of the business is a skill that needs to be acquired in all firms, regardless of industry sector. Sensing capability encapsulates the logic that in complex, unpredictable and volatile market environment, the capacity to sense market changes and opportunities before they are fully materialized (Mu, 2015).

In literature a number of studies such as (Day, 1994; Everett, 2014; Foley & Fahy, 2004; Wilden, Gudergan, & Lings, 2009; Lindblom, Olkkonen, Mitronen, & Kajalo, 2008; Bailey, 2014), others remain, were discussed the market sensing concept. According to Day, (2002) as cited in (Bailey, 2014), MS is continuous ability to learn through the collection and distribution of information about customers, competitors and relationships in the market (see, (Fang, Chang, Ou, & Chou, 2014)). Based on (Menon & Varadarajan, 1992) and (Maltz & Kohli, 1996), MS refer to a firm's capacity to use market information that can be gained through written (e.g., official letters) and verbal (e.g., meetings) channels from a variety of individual and community sources. Huber, (1991) has considered such market-sensing as the ability of a firm to obtain and disseminate information, and to use market knowledge for organizational change as requested. MS capability is fundamentally the aptitude of the organization to be conscious of change in its market and to predict precisely answers to its marketing strategies (see, Lindblom *et al.*, 2008).

Day (1994) confirm that the behavioral construct of market orientation developed by Kohli and Jaworski (1990) capture the essence of market sensing fairly because each dimension of their construct describes a distinct activity that has to do with generating and disseminating on information

about customer needs and the impact of technologies, competition and other environmental changes.

According to Lindblom *et al.*, (2008) MS is conceptualized as a three dimension construct that includes, (i) sensing, (ii) sense-making and (iii) response.

### **2.1.3. Dimensions of MS.**

Previous studies used different approaches or point of views to specifying and clasifying MS which basically used to identify the firm's oppertunities and threats and to understanding the business environmental changes of the firms. In literature the RBV approach defines resources as firm-specific assets, capabilities and organizational processes used by the firm to apply its strategy. Furthermore RBV also defines organizational capabilities as the ability to use resources to create competitive advantage (Ozkaya, Droge, M. Hult, Calantone, & Ozkaya, 2015).

From Dynamic capability point of view Teece, Pisano, and Shuen, (1997) suggests that resources are developed through specialized routines that create different competencies. Moreover the deployment of dynamic capability is defined as the process of sensing and seizing market chances and reconfiguring the resource base (Teece, 2007).

According to Choo, (2001) in resource-dependency theory Pfeffer and Salancik, (1978), confirm that the environment is seen as a source of resources upon which the organization is dependent. Organizational learning approaches help companies to systematically acquire, disseminate, and use customer information to serve them better (Nguyen B. , Yu, Melewar, & Gupta, 2016). Within these theories a summary of several approaches and concepts have been suggested and presented in Table 2.1.

**Table 2.1.**  
**MS Classifications**

<b>Author(s)</b>	<b>approach</b>	<b>Dimensions of MS</b>
Kohli & Jaworski (1990)	Information	Intelligence generation, intelligence dissemination, and organization wide responsiveness
Huber (1991)	Information	Obtain information, disseminate information, and use market knowledge.
Thomas et al (1993)	Resource	Scanning, Interpreting, and action
Day (1994)	Capabilities	Sense, sensemaking, response
Moorman (1995)	Information	Information acquisition, information transmission, conceptual utilization, and instrumental utilization.
Choo (2001; 2002)	Information	Information needs, Information seeking, and Information use
Foley & Fahy (2004)	Capabilities	Learning orientation, Organization system, Marketing information, and Organization communication
Lankinen (2008)	Information	Collecting information, disseminating information, and using information.
Lindblom et al, (2008)	Capabilities	Sense, sensemaking, response
Huo (2008)	Capabilities	Sensing, absorptive, integrative, and innovative
Day (2011)	Capabilities	Dynamic, and Adaptive

Based on the above Table 2.1 scholars have generally operationalized MS as a multi-component construct. Therefore in arranging to develop an integrative MS capability, this research follows the construct of MS that



developed by Day, (1994) and other researchers (e.g., Moorman 1995; Choo, 2001; Choo, 2002; Lankinen, Rökman, and Tuominen, 2007; Day, 2001) have strongly built on this original work. In addition this study focus on resources and capabilities which are systematic, thoughtful, and anticipatory in market-oriented firms. Thus this study proposed three component, sense, sensemaking, and response for MS construct as developed by Day, (1994) and adopted by Lindblom et al, (2008). In the following are the subsections of the MS construct.

#### **2.1.3.1. Sensing**

Sensing refers to acquirement of information on different channel members like consumers and competitors beside others (Lindblom *et al.*, 2008). According to Bailey, (2014) the element of sensing involves scanning, searching and exploration in dynamic markets, and defined as the collection and distribution of information about the customers, competitors, and relationships in the market. Moreover Hou, (2008) defines sensing as a firm's ability to sense the needs of its customers and the dynamics of market better than its rivals.

#### **2.1.3.2. Sensemaking**

Lindblom et al, (2008) adressed that sense-making concern with the interpretation of collected information against ancient practices and knowledge. Sensemaking is the process in which one engages to understand

and deal with change effectively, and assists the individual in making sense of changes and also to integrate new experiences into existing frames of reference (Toit, 2007). Sensemaking is also the mechanism by which an individual attributes meaning to events (Ivanova & Torkkeli, 2013).

According to Colville and Pye, (2010) sensemaking is concerned with the way people make bets on ‘what is going on’ and what to do next by way of (inter)action. Sensemaking is also about giving meaning to events and situations (Sharifi & Zhang, 2009).

The concept of sensemaking is defined by Weick, (1995) as a process of making sense and assigning meaning to events in the environment. Similarly Kjærgaard and Vendelø, (2015) defines sensemaking as: the process through which people work to understand issues or events that are novel, ambiguous, confusing, or in some other way violate expectations.

### **2.1.3.3. Response**

Response refers to the use of the generated and interpreted information in managerial practices. In other words, response is the process of transforming knowledge and the intangible information into noticeable marketing strategy (Lindblom et al, 2008). Likewise Wei and Wang, (2011) believes that responsiveness is the action taken in response to intelligence that is generated and disseminated. In this context Moorman, (1995)

confirms that the information utilization process refers to the extent to which an organization directly or indirectly applies the acquired and transmitted market information to influence marketing strategy-related actions.

According to Wei and Wang, (2011) organizational responsiveness defined as the extent to which a firm responds to market changes, and it results from a firm's proactive interaction with its external environment. The effective organizational action in response to strategic issues often depends on the ability to implement decisions based on scanning strategies and subsequent interpretation of strategic information (Thomas, Clark, & Gioia, 1993). Therefore, in this study response refers to the utilization of the gathered and interpreted information in decision-making (Lindblom *et al.*, 2008).

## **2.2. Internal Market Orientation (IMO)**

This part discusses the second concept of this study IMO which represent the moderator variable, including the concept, the definitions and the dimensions of IMO.

### **2.2.1. The Concept and Definition of IMO**

The concept of IMO is supported by abroad body of theory based on the paradigm of market orientation, which state that specific system of values is required in order to create and offer value to customers (Ruizalba, Bermúdez-González, Rodríguez-Molina, & Blanca, 2014). It's an

organizational culture that effectively and competently creates the necessary behaviors for the creation of superior value to customers to maintain sustainable better performance for the business.

IMO refers to the behaviors associated with creating satisfied and motivated employee through the process of gathering and disseminating the intelligence of employees' needs and then responding to these needs (Lings, 2004; Lings & Greenley, 2005). This means that IMO represent the adaptation of market orientation to the context of employer - employee exchanges in the internal market. For this reason, internal suppliers need to focus on satisfying the requirement of their internal customers so as to provide superior value to the external customers (Liao, Chang, Wu, & Katrichis, 2011).

Gounaris, (2006) view IMO as the managerial philosophy underpinning internal marketing (IM) plans. In same context recent studies examining the use of IMO as an instrument for assessing a company's IM effort (Lings and Greenley, 2005; Gounaris, 2006; Tortosa, Moliner, & Sa'nchez, 2009) as cited in Sanchez-Hernandez and Miranda, (2011) they highlighted the importance of considering employees' needs in order to become more effective than firms which focus exclusively on external markets (Sanchez-Hernandez & Miranda, 2011).

Recent studies attempted an operationalized concept of internal marketing mostly through the adoption of the (IMO) concept which concerns about identifying and satisfying the wants and needs of employees as a prerequisite to satisfying the wants and needs of customers (Panigyrakis & Theodoridis, 2009).

According to Lings and Greenley, (2010) IMO aligns and motivates employees with a company's market objectives and encourage employees to perform better and to offer excellent service, which ultimately improves customer retention and enhances the success of the company. IMO creates co-operative and enthusiastic employees, commitment, coordination and cooperation among departments and participative management (Sanchez-Hernandez & Miranda, 2011).

The IMO concept is defined as the extent to which an organization is faithful to creating value for its employees through the effective management to relationships among employees, supervisors and the management (Lings & Greenley, 2010). Increasing the degree of IMO improves the response strategy of the organization and eventually, their ability to satisfy customers consistently, so that profits and sales increase. This is the approach that will be adopted in this investigation.

### 2.2.2. Dimensions of (IMO)

Authors such as (González-Benito & González-Benito, 2005; Jiménez-Jiménez & Cegarra-Navarro, 2007; Kaynak & Kara, 2004; Santos-Vijande, Sanzo-Pérez, Álvarez-González, & Vázquez-Casielles, 2005; Taylor, Kim, Ko, Park, Kim, & Moon, 2008) carried out research into market orientation uses information generation, dissemination, and responsiveness as dimensions to the construct. However, Ruizalba *et al.*, (2014) claims that (Gummesson, 1991; Morgan, 1991), with some authors highlighting the symmetry between the internal market (employees considered as internal customers) and the external one (external customers). By reconceptualizing market orientation to encompass internal as well as external markets, a more holistic model of marketing may be developed (Lings, 2004).

According to Ruizalba *et al.*, (2014) the parallel relationship between internal and external markets has led authors such as Mohrw-Jackson (1991) to complement Kohli and Jaworsky's model (1990) by linking IMO to three fundamental activities: (1) understanding needs; (2) disseminating this information among departments; and (3) increasing the benefits for internal customers so that these are transferred to external ones.

Furthermore, Carlos and Rodrigues, (2012), argues that IMO integrates ten dimensions: (a) identification of the trading value, (b) awareness of labor

market conditions, (c) segmentation of the internal market, (d) segmentation of the internal targets, (e) communication between managers and employees, (f) communication between managers, (g) job description, (h) pay system, (i) concern on the part of management and (j) training.

More recently, Gounaris, (2008) reconceptualised IMO as a multidimensional hierarchical construct, and his empirical analysis confirms Lings and Greenley's internal information generation, internal information dissemination and response to intelligence dimensions, and adds to these with a comprehensive array of sub-dimensions (Lings & Greenley, 2010). In a similar vein, lings, (2004) used IMO construct to include three behavioral dimensions namely: internal market research, communications and response.

As a result of research such as that mentioned above this study carry out the IMO construct on the basis of (Kohli, Jaworsky, & Kumar, 1993) market orientation construct where information generation and dissemination in addition to responsiveness are the dimensions of the construct.

### **2.2.2.1 Information Generation**

Internal information generation is the process by which a firm obtains information about its internal customers. Internal information gathering means collecting information regarding employees, in other words Lings and Greenley, (2010) state that information generation is relevant to the internal

market as it relates to employees' perceptions of the inputs to their jobs, the outputs (what they receive) and the equity of this exchange.

According to Lings, (2004) information gathering includes information about (a) important attributes of jobs, (b) satisfaction of employees with their working conditions, (c) the internal and external factors that influence employee satisfaction, (d) the external market, e.g. legislative changes, the activities of competitors in the employee market and employment conditions with firms competing for the same employees.

Internal information generation also involves searching an organization's internal environment to identify important element that might bear on future performance (see, Thomas, Clark, & Gioia, 1993). There are three managerial activities associated with the process of generating information these are through formal face to face channels, formal written method, and informal method like day to day interactions.

In a marketing performance measurement context, information generation is the production of data indicating the outcomes accruing to marketing efforts (Clark, Abela, & Ambler, 2006). This represents the raw material with which the organization can evaluate marketing's contribution (Clark, Abela, & Ambler, 2006).



#### **2.2.2.2. Information Dissemination**

Information dissemination is the horizontal and vertical sharing of information within the organization. Horizontal dissemination occurs across functions or units at the same level in the organization structure, while vertical dissemination occurs across levels of the structure (Clark, Abela, & Ambler, 2006). Basically, information dissemination should lead to more generally based learning within the organization.

Internal information disseminations refer to communications between different departments and between managers and employees (Gounaris, 2006). Similarly Lings and Greenley, (2010) specify that information dissemination between management and employees and among managers relates to information generated internally about the needs of employees, and their requirements, which is shared and communicated across departments.

The internal communications is firstly aimed to communicate the organization's goals and marketing strategies to employees and secondly is for managers to understand their employees' needs. A closer interaction between managers and employees, will enables managers to be more aware of employees' needs. Thus managers inside an organization maintain smooth communications with employees and keep employees' attitudes and behaviors in line with the organization's goals, employees will accept the

assigned tasks and change their behaviors more quickly (Fang, Chang, Ou, & Chou, 2014).

Disseminating appropriate and timely information is an important prerequisite to aligning employee work attitude and other behaviors with the organizational goals (Yu & To, 2013). The marketing literature also provides evidence that intra-organizational dissemination of customer knowledge contributes to organizational effectiveness through inter-functional coordination, learning, and the innovation of products and services (Park, Auh, Maher, & Singhapakdi, 2011).

#### **2.2.2.3. Responsiveness**

Responsiveness in IMO refers to the extent to which manager's response to information generated and disseminated about employees' needs and expectations (see, Carter & Gray, 2007). Responsiveness relates to the implementation of appropriate strategies and action plans, the form of required job designs, salaries, perks, share in profits, and non-monetary benefits (Lings & Greenley, 2001). In same context Lings, (2004) claims that responding to information about the internal market may take several forms. Appropriate responses have been suggested as the design of jobs, the manipulation of financial rewards, and the administration of nonfinancial rewards and desirable outcomes, including management consideration,

training, recruitment and targeted internal communications. In other words, responsiveness to information dissemination is a firm-level strategic action (Wei & Wang, 2011).

According to Julian, (2010) an organization can generate intelligence and disseminate it internally, however, unless it responds to market needs, very little is achieved. Responsiveness is defined as the action taken in response to intelligence that is generated and disseminated (Kohli & Jaworski, 1990). Thus, in this study responsiveness refers to intelligence dissemination concerns those actions taken in response to the needs of employees, and it covers three aspects: management concern (MC), training (TR), and work/ family balance (WFB).

### **2.3. Organizational Capabilities (OCs)**

In strategic management, the importance of OCs is well documented and many authors have considered it as significant organizational resources that facilitate a firm to build competitive advantage (O'Regan & Ghobadian, 2004). Organizational capability is the firm's ability to manage internal and external resources to gain competitive advantage. (Chung, Wang, Huang, & Yang, 2016). In other words OCs is a firm's abilities or competences to perform a set of tasks via company resources.

Combe and Greenley, (2004) Conceptually thinks that capabilities are intangible resources or assets, include skills such as, learning and knowledge in deploying tangible or other intangible resources or assets. From strategic point of view Kaplan and Norton, (2004) referred to OCs as the ability of the organization to mobilize and sustain the process of change required to execute the strategy. According to Ozkaya et al, (2015) capabilities are tools for obtaining competitive advantage, often via product innovation.

Marketing literature reveals that the capabilities utilize by firms to convert resources into productivity related to the performance of their firm (Vorhies & Morgan, 2005). In same context Stacey, (2003) considered OCs as: the organization's capabilities to organize, manage, coordinate, control and govern sets of activities.

### **2.3.1. Dimensions of Organizational Capabilities**

Capabilities are widely discussed in “resource-based” literature, and many researchers have referred to some of their constituent parts and considered it as intangible resources or assets, made up of constituents such as skills, learning and knowledge in deploying tangible or other intangible resources or assets (Combe & Greenley, 2004). According to Tuan and Takahashi, (2009) many researches in organizational capabilities have so far been conducted based on four types of theoretical approaches: resource

heterogeneity, organizing approach, conceptual-level and dynamic capabilities. Based on this theoretical approaches Table 2.2 presents some of the dimensions from obtainable literature of organizational capabilities.

**Table 2:2.**  
**Dimensions of Organizational Capabilities**

<b>Author</b>	<b>Organizational capabilities</b>
(Raduan, Jegak, Haslinda, & Alimin, 2009)	Informational, product development, and relationship building.
(Hwang, 2011)	Cross-functional Coordination, Information access, Process improvement, Product innovation, Flexibility, and Agility
(Tuan & Takahashi, 2009)	Cost reduction capability, Quality capability, and Innovation capability
(HassabElnaby, Hwang, & Vonderembse, 2012)	Information access, Product variety, Process improvement, and Financial flexibility
(Chung, Wang, Huang, & Yang, 2016)	Management capability, and Technology capability
(Zaidi & Othman, 2015)	Exploitation and Exploration
(Chang, Chang, Chi, Chen, & Deng, 2012)	Openness capability, Integration capability, Autonomy capability, and Experimentation capability
(Wang, Dou, Zhu, & Zhou, 2015)	Innovation capability, Information capability, and Relational capability.
(Chen, Li, & Evans, 2012)	Exploitative capabilities and Exploratory capabilities
(Leonidou L. C., Leonidou, Fotiadis, & Zeriti, 2013)	Shared vision, Relationship building, and Technology sensing/response.
(Jacks, Palvia, Schilhavy, & Wang, 2011)	Integration, Collaboration, Planning/Control, and Innovation.
(Young, 2009)	Coordination, Competence, Commitment, Communication, Conflict management, Creativity, and Capacity management.

In the above Table 2.2, researchers are operationalized OCs as a multi-dimensional construct. Therefore, in order to develop an integrative OCs, this research chooses two dimensions of the OCs construct that used by Jack, Palvia, Schilhavy and Wang, (2011) besides learning capability. Thus, in this study the OCs refers to the organization's ability to collaborate, learn

and innovate to enhance the firms' marketing performance. In the following are the subsections of the OCs construct.

#### **2.3.1.1. Collaboration**

According to Croker, Higgs, and Trede, (2009) the term collaboration has often been used interchangeably with terms related to teamwork and team processes. Collaboration is broadly defined as the interaction among two or more individuals and can encompass a variety of behaviors, including communication, information sharing, coordination, cooperation, problem solving, and negotiation (Winkler & Waloszek, 2004) as cited in (Croker, Higgs, & Trede, 2009). In other context collaboration refers to the extent that people support and help in others' tasks while performing their tasks (Bagheri, Hamidizadeh, & Sabbagh, 2015)

The RBV suggests that effective inter-firm collaboration can benefit market and financial performance in multiple ways (Wang, Dou, Zhu, & Zhou, 2015). First, collaboration increases partners' access to complementary assets, capabilities, and other resources that can potentially improve the firm's market performance. Second, collaboration encourages the transfer of codified and tacit knowledge, enhancing the firm's innovation process. Third, collaboration helps identify new resources and applications, lower development costs, shorten development cycles, reduce financial risks,

as well as target and influence the right customers. Therefore, collaboration allows employees to work together across functions, and they can share resources, ideas, and information in the organization, work together informally as a team, and achieve goals collectively with other employees from different departments.

### **2.3.1.2. Learning**

Organizational learning capability is a dynamic process that involves moving between different levels of action, going from the individual to the group level, from there to the organizational level, and vice versa (Go´mez, Lorente, & Cabrera, 2004). Organizational learning capability is the firm’s ability to improve performance based on experience (Morales, Montes, & Jover, 2007). Organizational learning capability is the development of organizational knowledge, based on the transfer and integration of knowledge that is individually acquired (Go´mez, Lorente, & Cabrera, 2004).

A strong organizational learning capability enhances organizational performance by supporting the development and exploitation of knowledge for pursuing strategies that lead to achievement of desired organizational goals (Hooi & Ngui, 2014). OL continues to be an important issue for all types of enterprises. In larger micro-firms and small- and medium-sized

firms, OL refers to the activities that lead to the creation, acquisition and transfer of experience, ideas and information within an organization that develops its capacity (Bagheri, Hamidizadeh, & Sabbagh, 2015).

According to Jiménez-Jiménez and Cegarra-Navarro, (2007) learning organizations can be seen as organizations where people frequently expand their capacity to create the results they truly desire, thus organizational learning needs creation and control of both external and internal knowledge for both current and future operations. In this context they consider organizational learning as a one of capabilities that allow firms to attain a stronger positional advantage.

### **2.3.1.3. Innovation**

Innovation is defined as the invention and commercialization of new products or services based on the application of technological and/or market knowledge (King, Covin, & Hegarty, 2003). However from an organizational perspective, innovation is generally understood as the successful introduction of a new thing or method or embodiment, combination, or synthesis of knowledge in original, relevant, valued new products, processes, or services (Luecke & Katz, 2003) as cited in (Hao, Kasper, & Muehlbacher, 2012).



Innovation is a means for changing an organization, whether as a response to changes that occurs in its internal or external environment or as a pre-emptive move taken to influence an environment (Panayides, 2006). In same context Wang and Ahmed, (2004) defined organizational innovativeness as “an organization’s overall innovative capability of introducing new products to the market, or opening up new markets, through combining strategic orientation with innovative behavior and process. According to King *et al.*, (2003) successful innovation requires allocating significant resources away from clear current needs to ambiguous future-oriented needs.

Theoretically most scholars believe that innovation should have a role on the improvement of firm performance (Lu, Zhu, & Bao, 2015). According to Lu *et al.*, (2015) a number of Chinese scholars have studied the relationship between innovation and performance, for example, Li, He, and Mao, (2010) adressed that innovation activities have a positive impact on the business of positive financial performance. Also, empirical analysis by Guo, Sun, and Wu, (2009) shows that companies’ products can effectively promote innovative activities to enhance their market performance and financial performance. Furthermore, Y. & C., (2008) suggest a direct positive effect in the relationship between the level of technological

innovation and enterprise business performance. Finally, Qin, Yang, and Wei, (2007) conclude that activities of business innovation strategy have a positive impact on financial performance and operational performance of the enterprise.

Summing up previous arguments, innovators have the potential to create markets, shape customer preferences and even change the basic behaviour of consumers, which leads to higher profits (Diaz-Fernandez, Bornay-Barrachina, & Lopez-Cabrales, 2015).

#### **2.4. Marketing Performance**

Many businesses view marketing as a cost center without recognizing how it contributes to the bottom line (Park, Auh, Maher, & Singhapakdi, 2011), while marketing is a system of knowledge about the market where the company wants to implement its products and their trends beside the behaviors of competitors and consumers (Solcansky & Simberova, 2010).

However From a societal point of view, Mohamed and Al-Shaigi, (2014) asserted that marketing is the link between a society's material requirements and its economic patterns of response. Marketing satisfies these needs and wants through exchange processes and building long-term relationships. Furthermore, Mohamed and Al-Shaigi, (2014) confirmed that Kotler, (1984) stated that, marketing can looked at as an organizational

function and a set of processes for creating, delivering and communicating value to customers, and managing customer relationships in ways that benefit the organization and its shareholders. Marketing is the science of choosing target markets through market analysis and market segmentation, as well as understanding consumer-buying behavior and providing superior customer value.

In accordance with (Tomczyk, Doligalski, & Zaborek, 2016) the ability to measure marketing performance has an important impact on general firm performance and the relative significance of the marketing function in the middle of other departments of a company. Thus measuring marketing performance has become a priority for marketing executives in many organizations (Clark, Abela, & Ambler, 2006). Moreover, performance evaluation is often employed as the basis for corporate reward and punishment; hence, selecting the appropriate measurement index becomes ever more important (Tseng, 2014).

Marketing performance can be defined as the ability to achieve the objective of marketing (Solcansky & Simberova, 2010). Moreover, marketing performance is the result of successful marketing activities that depends on resources and capabilities to generate revenue through increasing sales volume or customer satisfaction (Doyle, 2003; Lassar, Mittal, &

Sharma, 1995). Marketing performance measurement is a business process that provides performance feedback to the organization regarding the results of marketing efforts (Clark, Abela, & Ambler, 2006).

Whenever the amount of invested resources increased in the marketing, the importance of complementing marketing performance assessment to marketing activities in companies is growing (Solcansky & Simberova, 2010). Tomczyk *et al.*, (2016) addressed that the effect of comprehensive systems for measuring marketing performance on a company's performance is conditional on both internal and external influences.

According to Clark, (1999) measuring marketing performance is attracting academic and managerial attention in marketing literature for many considerations. First major corporations are shifted from the point of diminishing return on increasing profit to a refocusing on marketing as driver of future sales, and therefore profit, and growth. Second the increasing demand of investors for information regarding the quality of marketing effort because it poorly reported in firm financial statements. Third the appearance of the Balanced Score Card as new overall conceptions of business performance measurements have attracted the attention to the issue of which marketing measures should included in the overall assessment of business performance. Finally senior marketing managers

themselves have become frustrated because they do not believe in the traditional performance measures which lead them to call for more research.

Another aspect that has contributed to the increased interest in measuring marketing performance is the need to use relevant measures for improving marketing resource allocation and departmental effectiveness (Grønholdt & Martensen, 2006).

Despite a strong theoretical base, many features of the relationship between marketing performance and overall firm performance remain unclear, which could be partially attributed to inherent difficulties with quantifying marketing efforts (Tomczyk, Doligalski, & Zaborek, 2016).

For the recognition of marketing performance scholars proposed to consider satisfaction of stakeholders and future relationship orientation besides traditional financial indicators, such as growth rate, ROI, ROA, and net profit before tax; or comparative market statuses: such as business positioning, market share, sales, present marketing activity evaluation both on absolute numbers and comparative changes (Lin, Hsu, & Tsai, 2011).

#### **2.4.1. Dimensions of Marketing Performance**

Historically the process of measuring marketing performance has, of course, been practiced and studied for many years ago. Among the various scholars in literature related to marketing performance two studies Clark,

(1999) and (Grønholdt & Martensen, 2006) are considerable attempt to determine marketing performance measurement. As a result of comprehensive reviews Clark, (1999) present and discuss marketing performance measurement and has come to the point that marketing performance measures have moved in three consistent directions over the years: first, from financial to non-financial output measures, second, from output to input measures, and third, from one-dimensional to multidimensional measures. Figure 2.1 below shows the marketing performance measures.

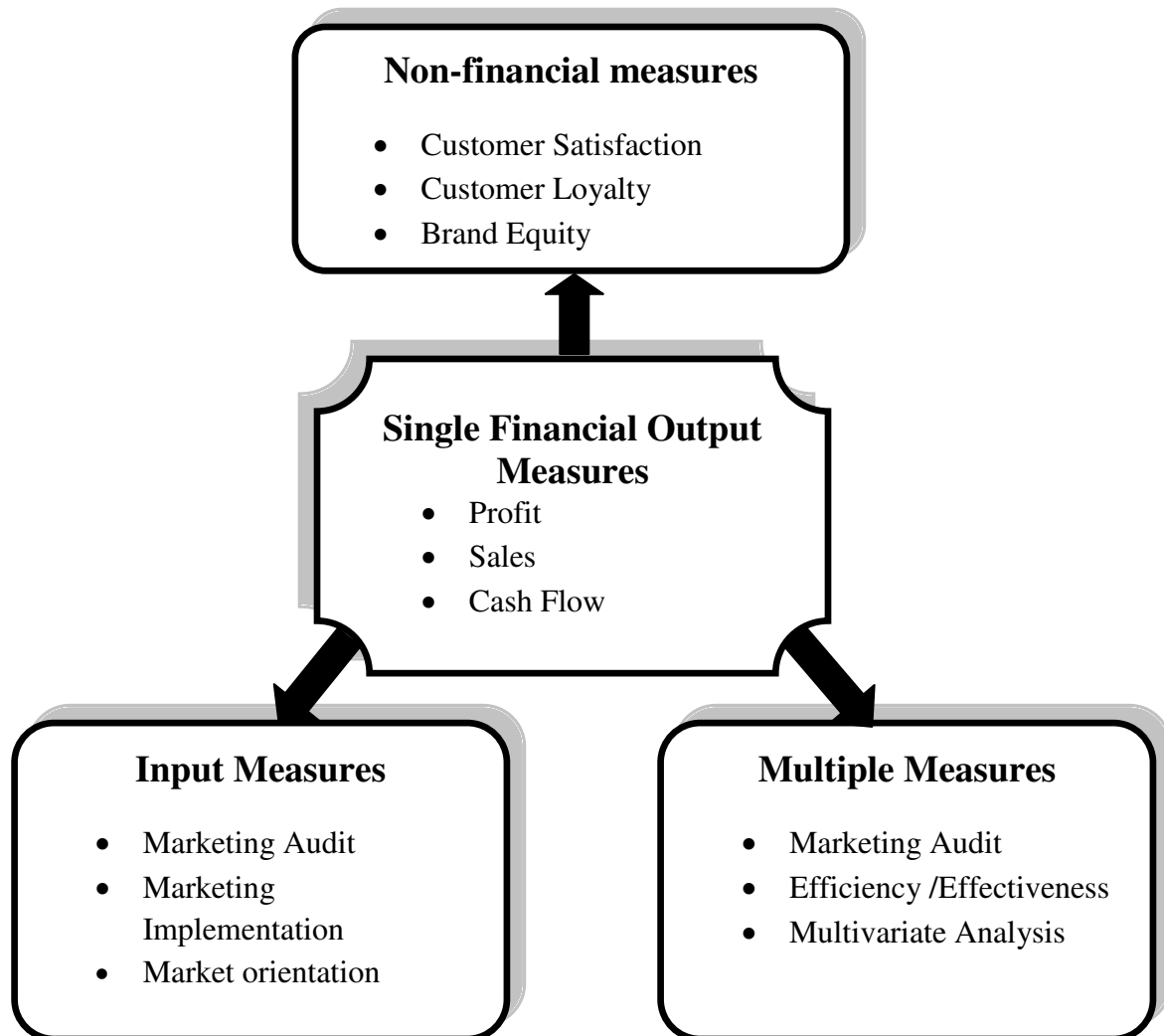
In a same vein with Clark, (1999), Grønholdt and Martensen, (2006) conducted research that aimed to presents an annotated literature review that provides the foundation for the development of a list of the most valuable marketing performance measures that are recommended in academic literature, and reported to reflect common usage and best practice.

For the purpose of reporting, Grønholdt and Martensen, (2006) have used anumber of screening criteria which is decisive for the design of the short-list they end up with. The following are the six criteria they are used:

- Frequent occurrence in literature
- Importance to top management
- Importance to marketing management

- Importance to most of the companies
- Within the framework of the Marketing Value Chain (MVC)
- Predictive power in the Marketing Value Chain

**Figure 2.1. the expanding Domain of marketing performance measures**



*Source: adopted from (Clark, 1999)*

As a result of the reviewed literature different names for identical or closely related measures were used. Table 2.3 shows a short-list of the most common performance measures, categorized according to the MVC and

based on previously mentioned screening criteria (Grønholdt & Martensen, 2006).

**Table (2.3) short-list of marketing performance measures based on literature review**

<p><b><u>Mental consumer results</u></b>            Brand awareness<sup>1</sup>            Relevance to consumer            Perceived differentiation            Perceived quality/esteem<sup>1</sup>            Relative perceived quality<sup>1</sup>            Image/reputation            Perceived value            Preference            Customer satisfaction<sup>1</sup>            Customer loyalty/retention (intention)<sup>1 2</sup>            Likelihood to recommend</p>	<p><b><u>Market results</u></b>            Sales (volume and value)<sup>1</sup>            Sales to new customers            Sales trends<sup>2</sup>            Market share (volume and value)<sup>1 2</sup>            Market trend<sup>1 2</sup>            Number of customers<sup>1</sup>            Number of new customers            Number of new prospects            (leads generated/inquiries)            Conversion (leads to sales)            Penetration            Distribution/availability<sup>1 2</sup>            Price            Relative price (SOM value/volume)<sup>1</sup>            Price premium            Price elasticity</p>
<p><b><u>Behavioral customer results</u></b>            Customer loyalty/retention<sup>1 2</sup>            Churn rate            Number of customer complaints<sup>1</sup>            Number of transactions per customer            Share of wallet</p>	<p><b><u>Financial results</u></b>            Profit/profitability<sup>1</sup>            Gross margin<sup>1</sup>            Customer profitability            Customer gross margin            Cash flow            Shareholder value/EVA/ROI            Customer lifetime value</p>

*Notes: 1 One of the 15 most commonly used measures. 2 One of the 10 most valuable measures.*

*Source: adopted from (Grønholdt & Martensen, 2006)*

With respect to the comprehensive literature and the maximum efforts scholars have exerted to examine the marketing performance measures, the perfect set of performance measures appropriate for all companies, industries, and market situations hardly exist. Moreover the company's goals and strategy are also decisive for the choice of performance measures (Grønholdt & Martensen, 2006). As for the measurement for marketing performance this study used customer performance to include both mental



and behavioral customer results and market performance as two dimensions regarding marketing assessment.

#### **2.4.1.1. Market Performance**

Market performance refers to the company's ability to satisfy, develop, and retain customers by offering products, services, and other elements that suit their needs (Leonidou L. C., Leonidou, Fotiadis, & Zeriti, 2013). In accordance with Nguyen B. , Yu, Melewar, and Gupta, (2016) a superior market performance requires not only information on customers, but also, to proactively implement innovative activities such as organizational learning, orientation towards markets, and internationalization efforts.

According to Wang, Dou, Zhu, and Zhou, (2015) Market performance can be seen in terms of new product launches, market development and penetration, quality improvement, and customer satisfaction. However in this study market performance is conceptualized as the firm's ability to launch new product, provide and develop new product, set reasonable price to product or service, and market share.

#### **2.4.1.2. Customer Performance**

The firm's customer performance captures its success in building a satisfied customer base. This implies that customer performance concerned with the relationship between a company and its customers. Customer-

focused organizations are skilled at knowing the needs of their customers, and have ability to build products and services that fulfill these needs (Tubigi & Alshawi, 2015). These companies are capable of satisfying their customers and maintaining high customer retention rates.

For this research, customer performance operationalized as success in acquiring new customers, satisfying existing customers and increasing sales to them as they become loyal to the company (Krush, Agnihotri, Trainor, & Nowlin, 2013).

## **2.5. The Relationship between MS and Marketing Performance**

Performance is a crucial issue for all individuals and organizations. According to Tseng, (2014), Holsapple and Wu, (2011) asserted that a set of unique resources owned by the firm namely valuable, rare, difficult to imitate, and irreplaceable by other resources is the main driver of corporate performance.

Drawing on traditional resource-based theory, the literature posits that firms with sufficient understanding of customers' expressed wants and latent needs, competitor capabilities and strategies, channel requirements and developments, and the broader market environment than their rivals achieve superior business performance (Morgan, Vorhies, & Mason, 2009), because

these activities are in line with the behavioral definition of market orientation from which MS capture the essence (Day, 1994).

The marketing literature recognizes the role of sensemaking capability in saving customer linked performance (Neill, McKee, & Rose, 2007). Firms with growing levels of sensemaking will be able to present market pertinent products and services that are argued to influence customer satisfaction (Dick & Basu, 1994).

Despite the growth of studies related to market orientation and entrepreneurship, studies on entrepreneurs' market-sensing capabilities and the effect that such market sensing capabilities have on their business performance have remained relatively sparse (Lindblom, Olkkonen, Mitronen, & Kajalo, 2008).

According to Jiménez-Jiménez and Cegarra-Navarro, (2007) the positive link between market orientation and organizational performance that literature shows on repeated occasions led them conclude that marketing orientation is the course of superior performance.

With respect to whether the market-sensing capability of retail entrepreneurs is related positively to their business performance (in terms of growth and profitability), the findings suggest that high level of market-sensing capability does lead to higher growth. However, the study did not

find market-sensing capability to have a positive effect on profitability (Lindblom, Olkkonen, Mitronen, & Kajalo, 2008).

According to Choo, (2001), Miller and Friesen, (1977) found that intelligence-rationality factor, which comprises environmental scanning, controls, communication, adaptiveness, analysis, integration, multiplexity, and industry experience, was by far the most important factor in separating the successful companies from the unsuccessful, accounting for more than half of the observed variance. The environmental scanning and intelligence activity in all but one of successful archetypes were judged to be ‘substantial’ or ‘concerted,’ whereas the intelligence effort in the failing firms were described as ‘poor’ and ‘weak’ (Choo, 2001).

## **2.6. The Relationship between MS and OCs**

Generating information from different sources like the marketplace, competitors, and customers may help the firm to be familiar with the value of new information connected to forces of change in the environment to recognize market opportunities and implementing innovation actions (Wei & Wang, 2011). As a result Chen, Li, and Evans, (2012) documented that market knowledge improves the understanding of both current capability deficiencies and the business opportunities that are essential to develop new capabilities.

To establish management capability including shared mind set, management practice integrated on unity, capacity to change and a leadership role, a business must adapt to changing customer needs and strategic moves by establishing internal structures and processes that influence its members to create organization-specific competencies (Chung, Wang, Huang, & Yang, 2016).

Firms need strong and current market intelligence in their approaches and mechanisms to improve their marketing capabilities (Najafi-Tavani, Sharifi, & Najafi-Tavani, 2016). In response Nguyen B. , Yu, Melewar, and Gupta, (2016) demonstrate that for high-tech service firms, market orientation is a critical factor, necessary to create an optimal environment for brand innovation and for facilitating a firm's innovativeness. Similarly Lin ang Wang, (2015) argues that market sensing capability also strongly supports firm innovation performance. Therefore MS enables firms to improve their development of organizational capabilities because of their greater market information acquisition and utilization.

## **2.7. The Relationship between OCs and Marketing Performance**

The resource-based view of a firm theory, suggests that a firm develops organizational resources and capabilities to manage its environment and enhance performance (Hwang, 2011). Predicated on resource-based view

and organizational capability theories, Chung, Wang, Huang, and Yang, (2016) divided organizational capability into management and technology capability.

Management capability represents a firm's managerial and organizational skills, including its managerial skills in employee motivation, internal communication, decision-making and conflict resolution, ensuring that employees' skills and efforts are directed toward achieving organizational goals and strategies. Therefore, management capability is a crucial determinant leading to business success or failure (Chung, Wang, Huang, & Yang, 2016).

In this study three organizational capabilities (learning, innovation and collaboration) were developed to constitute OCs construct. These capabilities contribute to performance outcomes, because they embody dynamic routines that can be manipulated into unique configurations, enabling a firm to make product and service different (Hwang, 2011).

Despite management literature has witnessed a debate on the effects of dynamic capabilities particularly with regards to market advantages and firm performance (Ouakouak, Ouedraogo, & Mbengue, 2014). Some empirical researches indicate the relationship between OCs and performance. For example, O'Regan and Ghobadian, 2004) asserted that the firms' ability to

integrate, build and reconfigure their resources and competencies has effect on firm performance is highly evidenced. Furthermore Zaidi and Othman, (2015) has come to the conclusion that, even though all capabilities are imperative to NPD performance under different environmental conditions, firms must select the appropriate capabilities for the correct environments.

According to Wei and Wang, (2011) the empirical evidence shows that marketing capabilities or marketing-mix strategies (product management, pricing, marketing communications, distributions) are positively associated with superior business performance. Likewise, Chen, Li, and Evans, (2012) argues that a firm with greater exploitative capabilities can continually offer new products with superior functions and quality and thereby generate sales growth by fulfilling both expressed and potential customer needs within an existing product segment. Taken together, organizational capabilities are proposed to improve a firm's financial performance.

Indeed, organizational resources, capabilities and systems are regarded as good predicting variables for the variance in firm performance (Raduan, Jegak, Haslinda, & Alimin, 2009).

## **2.8. The Mediating Role of OCs between MS and Marketing Performance.**

Dynamic capabilities are the critical mechanism between business activities and performance (Tsai & Shih, 2013). In their work Najafi-Tavani,

Sharifi, and Najafi-Tavani, (2016) propose that market orientation requires complementing market-relating organizational capabilities to enable firms to respond to market intelligence they generate. In this context the results asserted by Jiménez-Jiménez and Cegarra-Navarro, (2007) show that market orientation has a positive influence on performance through organizational learning.

The marketing literature provides evidence that intra-organizational dissemination of customer knowledge contributes to organizational effectiveness through inter-functional coordination, learning, and the innovation of products and services (Park, Auh, Maher, & Singhapakdi, 2011). In this sense Nguyen B. , Yu, Melewar, and Gupta, (2016) shows that organizational learning fully influences market performance when firms facilitate brand innovation, and have concluded that a firm's market orientation enables it to develop brand innovation, which, in turn, increases superior market performance.

According to Hooi and Ngui, (2014) various studies suggest that a combination of market orientation and OL capability can enhance financial and non-financial performance (e.g. Baker & Sinkula, 1999; Calantone *et al.*, 2002; Hanvanich *et al.*, 2006; Hult *et al.*, 2003; Jimenez-Jimenez *et al.*, 2008; Keskin, 2006; Lin *et al.*, 2008). Based on the logic of the combination



between market orientation and OL capability this study proposes that the interaction of MS and OCs may result positively in marketing performance.

## **2.9. The Moderating Role of IMO between MS and OCs**

Both resource-based theory (RBT) and its extensions dynamic capability point out the significance of the interaction between a firm's 'know-what' knowledge resources and its complementary 'know-how' use capabilities (Celuch *et al.*, 2002). The advantage of 'know-what' is enable the firm to be more efficient and effective by allowing managers to choose the most productive obtainable resource combinations to match market conditions (see, (Slater & Narver, 1995)). In the RBV literature, resources are defined as firm-specific assets, capabilities and organizational processes used by the firm to apply its strategy. Resources that are rare, valuable, inimitable and non-substitutable (VRIN) are considered as a competitive advantage sources (Barnney, 1991).

According to Barnney, (2001) as cited in (Ozkaya, Droge, M. Hult, Calantone, & Ozkaya, 2015) the RBV defines organizational capabilities as the ability to use resources to create competitive advantage. Capabilities are defined as organizational routines that enable firms to perform distinctive activities (Teece, Pisano, & Shuen, 1997). Dynamic capabilities are derived from the RBV of the firm, which suggests that resources are developed

through specialized routines that create different competencies (Teece *et al.*, 1997). Teece, (2007) Defined the deployment of dynamic capability as the process of sensing and seizing market chances and reconfiguring the resource base. Similarly IMO reflects many of the characteristics of a dynamic capability. For example, Zahra, (2008) point out that information intelligence includes routines to search and disseminate information within the organization allows to recognize market opportunities. According to Morgan, Vorhies, and Mason, (2009) the literature points to that while possessing (VRIN) resources might be helpful, firms also need complementary capabilities to be clever to deploy available resources in ways that is suitable to the market conditions faced in arranging to drive organizational capabilities.

Despite the limitation of studies in literature related to IMO as general and particularly the moderating role of it, the only one attempt is found in (Chow, Lai, & Loi, 2015) which examined the moderating role of both, the leader-member exchange in the relationship between travel agents and their supervisors, and the internal marketing orientation in exchange between travel agents and their organizations based on social exchange theory and the findings indicate that internal market orientation is positively associated with

travel agents' customer service behavior only when leader-member exchange is low.

Marketing philosophers stress the significance of continuous learning about customers. This learning procedure connects a series of information processing activities like, generating, distributing and interpreting customers' wants, responses, and environmental trends (Heusinkveld, Benders, & Berg, 2009). Thus IMO captures a firm's routines and processes by generating and disseminating information to recognize market opportunities through the emphasizing of internal customers needs, and this capability is likely to strengthen a firm's market sensing. Similarly, Celuch *et al.*, (2002) consider market orientation as an antecedent of organizational market information processing activity as well as how it is used in the firm's strategy.

On the other hand MS activities provide companies with greater insights on customer needs, these insights, when combined with competitor information, enable companies to discover immature market niches and potential differentiation opportunities (Cao *et al.*, 2012). According to Bailey, (2014) when investigating the aspects of MS, there is a clear link to market learning theory and organizational learning which divided into

information acquisition, information dissemination, and shared interpretation.

Early research Day, (2002) defined MS as continuous ability to learn about the market. While, Teece, (2007) view MS as a critical component of dynamic capabilities in the context of identifying opportunities. Therefore, MS is considered not a remote activity at the beginning of a development project, but relevant in each stage of the new product development process (Heusinkveld *et al.*, 2009).

Research on marketing capabilities (Rapp *et al.*, 2010) underscores the significance of the interaction impact between various business resources on firm-specific business processes (Krush *et al.*, 2013). Moreover, Kozlenkova, Samaha, and Palmatier, (2014) argues that many articles observe synergistic influences among dissimilar resources and capabilities for creating and/or capturing customer value. This is because of the dynamic capability concept which means the firm's ability to incorporate, build and reconfigure external and internal competencies to address quickly changing environments (Teece *et al.*, 1997). According to Giniuniene and Jurksiene, (2015) researchers (Eisenhardt & Martin, 2000; Porter, 1990; Teece *et al.*, 1997; Zollo & Winter, 2003) in the scientific literature recognize dynamic

capabilities as a key factor in an organization's innovativeness and competitiveness.

Taking into consideration all the above IMO and MS are harmonizing to one another in methods that generate economic benefits, and each may be viewed as an individual source of competitive advantage. Therefore, this study proposes that internal market orientation: information generation, information dissemination, and responsiveness play a moderating role in the relationships between market sensing and the organizational capabilities.

## **2.10. Summary of the Chapter.**

This chapter highlighted the rational background of market sensing through illustrating the relationship between the concept of market sensing and other concepts like organizational learning, market orientation, organizational or environmental scanning and organizational sensemaking. Then, explained the concept and definition as well as the dimensions of market sensing, followed by the foundations and the conceptualizations of other variables in this study. Also this chapter discussed the relationship between constructs of this study, and beside that illustrated the mediating role of organizational capabilities in the relationship between market sensing and marketing performance. The last part of this chapter concerned with the moderating role of internal market orientation in the relationship between

market sensing and organizational capabilities. The next chapter will discuss the theoretical framework and the development of hypotheses.

# **CHAPTER THREE**

## **THEORETICAL FRAMEWORK AND HYPOTHESES DEVELOPMENT**

### **3.0. Introduction**

This chapter presents the theoretical framework of the study which describes the relationship between the variables, i.e. independent, dependent, mediating, and moderating variables. Beside the hypotheses on the other hand are formulated based on the developed research framework.

### **3.1. Underpinning Theories**

Based on the literature review this research model is depends on resource-based view, dynamic capability theory, market orientation theory, social exchange theory, and system theory as a main theories beside many other theories as following :

The resource-based view explains that the identification and possession of internal strategic resources contribute to a firm's ability to create and maintain a competitive advantage and improve performance (Barney 1991; Hart, 1995; Crook, Ketchen, Combs, & Todd, 2008). Firm's resources include tangible and intangible resources (Barney, 1991). Resources that are simultaneously valuable, rare, imperfectly imitable and imperfectly substitutable are an important source of competitive advantage (Barney,

1995). The unique bundle of resources owned by firms that are heterogeneous is expected to explain inter-firm performance differences (Hoopes, Madsen, & Walker, 2003).

According to Acar and Zehir, (2010) the resource based view (RBV) point out that firms can develop sustained competitive advantage by creating value for both customers and organization, and developing organizational capabilities in a way that is rare and difficult for competitors to imitate.

On the other hand Dynamic capabilities theory (DCT) is considered as an extension of (RBV) thinking to overcome the limitation of the (RBV). The theory explained that to sustain their competitive advantage firms need to renew their stock of valuable resources as their external environment changes. This means that if a firm possesses VRIN resources but does not use any dynamic capabilities, its superior returns cannot be sustained without dynamic capabilities and a firm's returns may be short lived if the environment exhibits any significant (Barney, 1991; Helfat, *et al.*, 2007).

Dynamic capabilities are derived from the resource-based view of the firm, which suggests that resources are developed through specialized routines that create distinct competencies (Teece, Pisano, & Shuen, 1997). Teece et al. (1997) define dynamic capabilities as the processes and routines used to adapt, alter, deploy and protect the firm's resources so to maintain



them as a source of competitive advantage. Helfat (2007) simplifies this definition as, the capacity of an organization to purposefully create, extend, or modify the resource base. Dynamic capabilities distinguish themselves from operational processes in that the dynamic capability of a firm influences the change and reconfiguring of existing operational processes (Ali, Peters, & Lettice, 2012; Helfat & Peteraf, 2003; Winter, 2003). These further encourage the renewal and development of operational capabilities to better match the demands of the market environment (Day, 2011; Hou, 2008).

Teece (2007), in his definition suggest that dynamic capabilities can be broadly broken down into (1) the capacity to sense and shape opportunities and threats from the external environment, (2) to seize opportunities by responding and implementing the appropriate changes, and (3) to provide the environment in which to maintain competitiveness through reconfiguring tangible and intangible resources. This work evolved from the previous concepts of adapting, integrating and reconfiguring (Teece *et al.*, 1997).

As previously discussed in chapter two market sensing is considered not only a remote activity at the beginning of a development project, but relevant in each stage of the new product development process (Heusinkveld *et al.*, 2009). Furthermore Lin and Wang, (2015) argue that sensing is an

important component of dynamic capability, which is important to strategy, a firm's market sensing capability is its capacity to gather and interpret knowledge from the market, including from customers, competitors, and technologies, and includes its capacity to store it all in an accessible organizational memory.

Although Teece, (2007) Defined the deployment of dynamic capability as the process of sensing and seizing market chances and reconfiguring the resource base. In same context the RBV defines organizational capabilities as the ability to use resources to create competitive advantage (Ozkaya, Droge, M. Hult, Calantone, & Ozkaya, 2015). Capabilities are defined as organizational routines that enable firms to perform distinctive activities (Teece, Pisano, & Shuen, 1997).

Depending on the reality that market sensing capture equally the essence of behavioral definition of market orientation (see, Day, 1990). The positive impact of marketing orientation on creation of organizational competencies and performance can perhaps be explained using the system theory (Scott, 1992). System theory focuses upon the idea that organizations are open system that interacts with diverse third parties and thus it is necessary to set out collective strategies that make the system as perfect as a whole beyond

the actual recognition of all the relationships on which companies depend on their own survival (Mainardes, Alves, & Raposo, 2011).

Based on the ongoing discussion the impacts of the market sensing on marketing performance may not directly expect, but within the mediation of organizational capabilities where interaction will take place and the organizational capabilities transform market sensing into outputs of created value. Thus organizational capabilities represent routines and process that enable firms to utilize market sensing in marketing performance. In other words market sensing as resource lead to OCs which influences marketing performance.

Beside the above mentioned theories, market orientation theory and social exchange theory may serve as acceptable frameworks in dealing with moderating effect of internal market orientation (information generation, information dissemination and responsiveness). Market orientation states that a specific system of values is required in order to create and offer value to customers. Authors such as Kohli and Jaworsky (1990) and Deshpandé, Farley, and Webster , (1993) carried out research into market orientation (MO), highlighting the importance of responding to the needs of customers and of developing central corporate values as a basis for effective marketing practices. Day, (2011) introduces market orientation into the capability

theory to further understand how firms are dealing with market changes and offers a unique perspective on adaptive marketing capabilities. Internal market orientation concerns with employees as internal customers to creating value for them through the effective process of market orientation mechanisms (information generation, information dissemination and responsiveness).

Social exchange theory starts with the premise that humans interact in social behavior in order to maximize benefits and minimize costs, which then leads to apposite outcome. The central message is that people weight the pros and cons before making a decision. According to Tortosa, Moliner, and Sa´nchez, (2009) Social exchange relationships are based on trust and the feeling of common purpose between the individuals of the relation. However, individuals or entities will only participate in a social exchange if they think that the other party has something of value to offer in the relationship, and will fulfill his obligation. Raising the amount of IMO improves the reply strategy of the organization and ultimately, their ability to make happy customers constantly, so that sales and profits increase (see, carlos and Rodrigues, 2012). The mutual relation between the organization and employee creates obligations to one another. These Obligations are therefore the key aspect in any social exchange relationship.

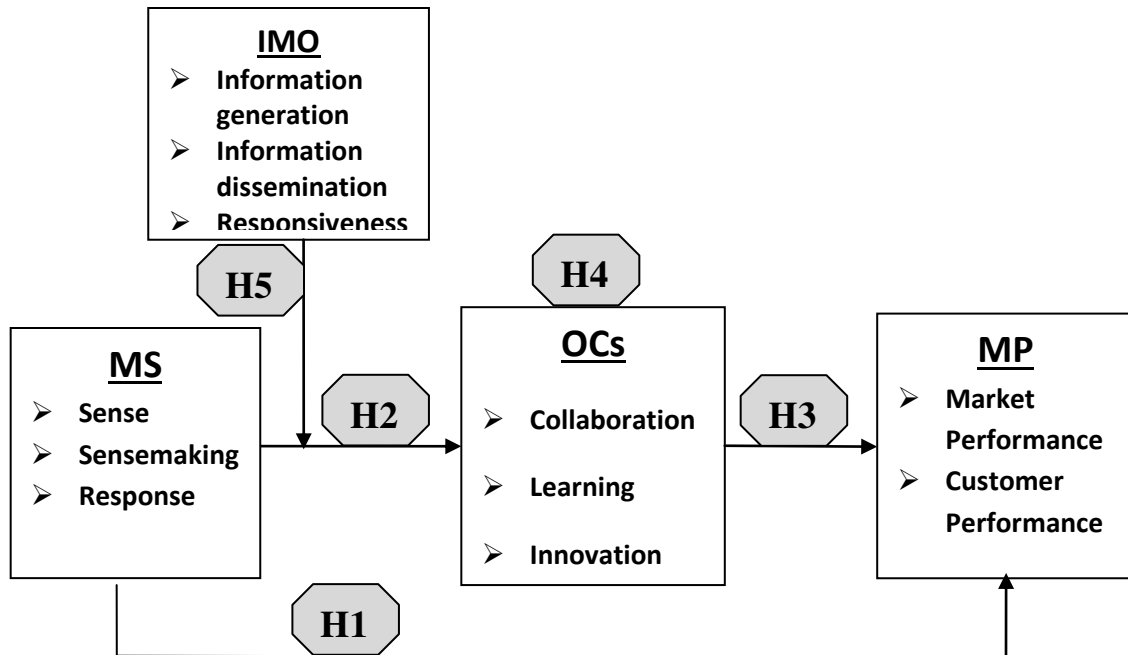
Considering the above it can be ended that the underpinning theories resource based view, dynamic capability and system theory of the framework in this research are justifiable. As explained before, these theories provide the theoretical base for understanding the effect of market sensing on organizational capabilities and marketing performance. While market orientation theory and social exchange theory provide base for understanding how internal market orientation can moderates the relationship between market sensing and organizational capabilities.

### **3.2. The Conceptual Framework of the Study**

Following the theoretical based, Figure 3.1 present the conceptual framework for this study which proposes that links of market sensing to organizational capabilities and marketing performance. The theoretical approach of this study proposes that organizational capabilities mediate the relationship between market sensing and marketing performance. Although the theoretical framework identifies three different component of internal market orientation (information generation, information dissemination and responsiveness) as moderating variables in the relationship between market sensing and organizational capabilities.

### 3.3. Hypotheses Development of the Study

Based on the theoretical framework of the study, five main hypotheses, in addition to sub-hypotheses, are formulated to reflect the relationships described in the framework, as follow:



*Figure 3.1: conceptual framework of the study*

#### 3.3.1. The Relationship between Market Sensing and Marketing Performance

In literature a number of scholars like (Day, 1994; Everett, 2014; Foley & Fahy, 2004; Wilden, Gudergan, & Lings, 2009; Lindblom, Olkkonen, Mitronen, & Kajalo, 2008; Bailey, 2014) beside others, are discussed the market sensing concept and most of them indicates that market sensing capability is important in developing market focus to enhance the

organizational performance. For example in learning firms, Day (1994) proposes that a variety of market sensing information processes is critical inputs to new product activities. This means that the development processes of effective new product engages incessant information sharing and utilization. In a same vein Bailey, (2014) states that firms competing in low-income market should carry out activities to build their market sensing abilities to better adapt to unique market and overcome the challenges and obstacles related to the lack of information and understanding of this low-income market in order to improve their performance. As justification of the market information processes on performance Jaworski and Kohli, (1993) provide evidence that market orientation, which reflects several information processes have apposite influence on overall firm performance (Moorman, 1995).

Drawing on traditional resource-based theory, the literature posits that firms with superior MO achieve superior business performance because they have a greater understanding of customers' expressed wants and latent needs, competitor capabilities and strategies, channel requirements and developments, and the broader market environment than their rivals (see, Hult & Ketchen, 2001; Jaworski & Kohli, 1993). This represents a 'know-what' advantage that enables the firm to be both more effective and efficient

by allowing managers to select the most productive available resource combinations to match market conditions (see, Slater & Narver, 1995). For these reasons, the study expects that:

***H1: The firm's market sensing is positively relates to firm's marketing performance.***

From this general hypothesis, two sub-hypotheses can be formulated as follows:

***H1:1: The firm's market sensing is positively relates to market performance.***

H1:1a: sensing is positively relates to firm's market performance.

H1:1b: sensemaking is positively relates to firm's market performance.

H1:1c: responsiveness is positively relates to firm's market performance.

***H1:2: The firm's market sensing is positively relates to customer performance.***

H2:1a: sensing is positively relates to firm's customer performance.

H2:1b: sensemaking is positively relates to firm's customer performance.

H2:1c: responsiveness is positively relates to firm's customer performance.

### **3.3.2. The Relationship between Market Sensing and Organizational Capabilities.**

Organizations can learn to sense their markets better by understanding each step in their process, critically assessing their market learning capability, and then correcting the learning disabilities (Lindblom, Olkkonen, Mitronen, & Kajalo, 2008). Therefore, mastering each stage in



the market-sensing capability model is of utmost importance. In their work Lin & Wang, (2015) addresses that market sensing capability strongly supports firm innovation performance.

According to Vorhies and Morgan, (2005) capabilities utilize by firms to convert resources into productivity related to the performance of their firm. Each capability is created and affected by different resources (Tuan & Takahashi, 2009). So static resources must be transformed into dynamic capabilities in order to create competitive advantage and realize superior financial performance (Wang, Dou, Zhu, & Zhou, 2015). Market orientation contributes to the development of customer-linking capabilities and that these capabilities contribute to increased customer satisfaction and loyalty as well as increased sales and profits (Rapp, Trainor, & Agnihotri, 2010). The literature therefore suggests that:

***H2: There is a positive relationship between market sensing and organizational capabilities.***

From this general hypothesis, three sub-hypotheses can be formulated as follows:

***H2:1: There is a positive relationship between market sensing and organizational collaboration capability.***

H2:1a: There is a positive relationship between sensing and collaboration capability.

H2:1b: There is a positive relationship between sensemaking and collaboration capability.

H2:1c: There is a positive relationship between responsiveness and collaboration capability.

***H2:2: There is a positive relationship between market sensing and organizational learning capability.***

H2:2a: There is a positive relationship between sensing and learning capability.

H2:2b: There is a positive relationship between sensemaking and learning capability.

H2:2c: There is a positive relationship between responsiveness and learning capability.

***H2:3: There is a positive relationship between market sensing and organizational innovation capability.***

H2:3a: There is a positive relationship between sensing and innovation capability.

H2:3b: There is a positive relationship between sensemaking and innovation capability.

H2:3c: There is a positive relationship between responsiveness and innovation capability.

### **3.3.3. The Relationship between the Organizational Capabilities and Marketing Performance.**

The literature suggests that the ability to build effective capabilities is a significant driver of performance (O'Regan & Ghobadian, 2004). Furthermore, Raduan, Jegak, Haslinda, and Alimin, (2009) addressed that studies have shown that there is a significant relationship between organizational resources, capabilities, systems and performance. Subsequent researches have concluded that such capabilities actually increase the firm's agility and strategic flexibility and, as a result, enhance its performance (Ouakouak, Ouedraogo, & Mbengue, 2014).

In resource-based view a firm develops organizational resources and capabilities to manage its environment and enhance performance (Hwang, 2011). Thus Raduan, Jegak, Haslinda, and Alimin, (2009) in their manuscript regarded organizational resources, capabilities and systems as good predicting variables for the variance in firm performance. Most of the studies that examined the relationship between organizational capabilities and firm performance have found a highly significant and positive association between them (Ouakouak, Ouedraogo, & Mbengue, 2014). Given all these considerations the hypotheses formulated as following:

***H3: There is a positive relationship between the organizational capabilities and marketing performance.***

Based on the above general hypothesis the two sub-hypotheses can be formulated as follows:

***H3:1: Organizational capabilities positively relates to customer performance.***

H3:1a the organizational learning capability is positively relates to customer performance.

H3:1b the organizational innovation capability is positively relates to customer performance.

H3:1c the organizational collaboration capability is positively relates to customer performance.

***H4:2: Organizational capabilities positively relates to market performance.***

H3:2a the organizational learning capability is positively relates to market performance.

H3:2b the organizational innovation capability is positively relates to market performance.

H3:2c the organizational collaboration capability is positively relates to market performance.

### **3.3.4. The Mediation Role of Organizational Capabilities in the Relationship between Market Sensing and Marketing Performance.**

The literature in strategic management has strongly emphasized the importance of participative processes in developing dynamic capabilities and improving organizational performance. Most recent studies focus on resource-based view of strategy and contend that competitive advantage arises from organizational capabilities (O'Regan & Ghobadian, 2004). This sight proposes that competitive advantage and performance effects are consequences of firm-specific resources and capabilities.

In this light, conceptual and empirical researches in the field of strategic management and marketing have begun to demonstrate how organizational capabilities may play a mediating role in the relationship between any tangible or/and intangible resources and firm performance. For example, HassabElnaby, Hwang, and Vonderembse, (2012) examines the mediating role of organizational capabilities in the relationship between ERP Implementation and firm performance. In line with a growing literature on the crucial role of middle managers Ouakouak, Ouedraogo, and Mbengue, (2014) examines the mediating role of organizational capabilities in the relationship between middle managers' involvement and firm performance. Furthermore, Hwang, (2011) tests the impact of the ERP Implementation

drivers on organizational capabilities and performance and customer value. Also Tuan and Takahashi, (2009) conduct empirical work on the relationship between resources, organizational capabilities and performance.

In accordance with the above discussion regarding the mediating role of the organizational capabilities, to some extent earlier studies have not so far incorporated market sensing, organizational capabilities and performance simultaneously in discussions. Regarding this context the above discussion can justify the existing of such relationships. Hence, this study wants to demonstrate how the component of organizational capabilities (innovation, learning and collaboration) can play the mediating role in the relationship between market sensing and marketing performance. Thus the study hypothesizes that:

***H4: The organizational capabilities mediate the relationship between market sensing and firm marketing performance.***

Taking the above general hypothesis of the mediating effect of organizational capabilities in consideration, there was eighteen sub-hypotheses formulated as follows:

***H4:1: The organizational learning capability mediates the relationship between market sensing and customer performance.***

H4:1a: The organizational learning capability mediates the relationship between sensing and customer performance.

H4:1b: The organizational learning capability mediates the relationship between sensemaking and customer performance.

H4:1c: The organizational learning capability mediates the relationship between response and customer performance.

***H4:2: The organizational learning capability mediates the relationship between market sensing and market performance.***

H4:2a: The organizational learning capability mediates the relationship between sensing and market performance.

H4:2b: The organizational learning capability mediates the relationship between sensemaking and market performance.

H4:2c: The organizational learning capability mediates the relationship between response and market performance.

***H4:3: The organizational innovation capability mediates the relationship between market sensing and customer performance.***

H4:3a: The organizational innovation capability mediates the relationship between sensing and customer performance.

H4:3b: The organizational innovation capability mediates the relationship between sensemaking and customer performance.

H4:3c: The organizational innovation capability mediates the relationship between response and customer performance.

***H4:4: The organizational innovation capability mediates the relationship between market sensing and market performance.***

H4:4a: The organizational innovation capability mediates the relationship between sensing and market performance.

H4:4b: The organizational innovation capability mediates the relationship between sensemaking and market performance.

H4:4c: The organizational innovation capability mediates the relationship between response and market performance.

***H4:5: The organizational collaboration capability mediates the relationship between market sensing and customer performance.***

H4:5a: The organizational collaboration capability mediates the relationship between sensing and customer performance.

H4:5b: The organizational collaboration capability mediates the relationship between sensemaking and customer performance.

H4:5c: The organizational collaboration capability mediates the relationship between response and customer performance.

***H4:6: The organizational collaboration capability mediates the relationship between market sensing and market performance.***

H4:6a: The organizational collaboration capability mediates the relationship between sensing and market performance.



H4:6b: The organizational collaboration capability mediates the relationship between sensemaking and market performance.

H4:6c: The organizational collaboration capability mediates the relationship between response and market performance.

### **3.3.5. The Moderating Effect of Internal Market Orientation**

Research on marketing capabilities (Rapp et al, 2010) underscores the significance of the interaction effect between various business resources on firm-specific business processes (Krush *et al.*, 2013). Moreover, Kozlenkova, Samaha and Palmatier, (2013) argue that many articles observe synergistic influences among dissimilar resources and capabilities for creating and/or capturing customer value. This is because both resource-based theory and its dynamic capability extensions indicate the importance of the interaction between a firm's 'know-what' knowledge resources and its complementary 'know-how' deployment capabilities (e.g., (Grant, 1996)).

The advantage of 'know-what' is enable the firm to be more efficient and effective by allowing managers to choose the most productive obtainable resource combinations to match market conditions (see, Slater & Narver, 1995). According to Barney, (2001) cited in (Ozkaya, Droge, M. Hult, Calantone, & Ozkaya, 2015) the RBV defines organizational capabilities as the ability to use resources to create competitive advantage.

Capabilities are defined as organizational routines that enable firms to perform distinctive activities (Teece, Pisano, & Shuen, 1997).

Dynamic capabilities are derived from the RBV of the firm, which suggests that resources are developed through specialized routines that create different competencies (Teece *et al.*, 1997). Thus internal market orientation captures a firm's routines and processes by generating and disseminating information to recognize market opportunities through the emphasizing of internal customers needs, and this capability is likely to strengthen a firm's market sensing. In this context internal market orientation reflects many of the characteristics of a dynamic capability. The deployment of dynamic capability defined as the process of sensing and seizing market chances and reconfiguring the resource base (Teece, 2007).

Since, Zahra, (2008) pointed out that information intelligence includes routines to search and disseminate information within the organization allows to recognize market opportunities, market sensing activities on the other hand provide companies with greater insights on customer needs, these insights, when combined with competitor information, enable companies to discover immature market niches and potential differentiation opportunities (Cao *et al.*, 2012). According to Bailey, (2014) when investigating the aspects of market sensing, there is a clear link to market learning theory and

organizational learning which divided into information acquisition, information dissemination, and shared interpretation.

Early research by Day, (2002) defined market sensing as continuous ability to learn about the market, while Teece, (2007) view market sensing as a critical component of dynamic capabilities in the context of identifying opportunities. Therefore, market sensing is considered not a remote activity at the beginning of a development project, but relevant in each stage of the new product development process (Heusinkveld *et al.*, 2009).

According to Morgan, Vorhies, and Mason, (2009) the literature points to that while possessing (VRIN) resources might be helpful, firms also need complementary capabilities to be clever to deploy available resources in ways that is suitable to the market conditions faced in arranging to drive organizational capabilities.

Based on the above mentioned this study strongly believe that a firm's market sensing and its internal market orientation may interact to enable the firm to align its resource deployments with its market environment better than its rivals (e.g., Day, 1994; Eisenhardt & Martin, 2000). Therefore, market sensing and internal market orientation are harmonizing to one another in methods that generate economic benefits, and each may be

viewed as an individual source of organizational capabilities. For these reasons, the study expects that:

***H5: The effect of market sensing on organizational capabilities is stronger when internal market orientation is higher.***

From this general hypothesis, three sub-hypotheses can be formulated as follows:

***H5:1: The moderating effect of information generation on the relationship between market sensing and organizational capabilities.***

***H5:1:1: The effect of market sensing on organizational learning capability is stronger when information generation is higher.***

H5:1:1a: The effect of sensing on organizational learning capability is stronger when information generation is higher.

H5:1:1b: The effect of sensemaking on organizational learning capability is stronger when information generation is higher.

H5:1:1c: The effect of response on organizational learning capability is stronger when information generation is higher.

***H5:1:2: The effect of market sensing on organizational innovation capability is stronger when information generation is higher.***

H5:1:2a: The effect of sensing on organizational innovation capability is stronger when information generation is higher.

H5:1:2b: The effect of sensemaking on organizational innovation capability is stronger when information generation is higher.

H5:1:2c: The effect of response on organizational innovation capability is stronger when information generation is higher.

***H5:1:3: The effect of market sensing on organizational collaboration capability is stronger when information generation is higher.***

H5:1:3a: The effect of sensing on organizational collaboration capability is stronger when information generation is higher.

H5:1:3b: The effect of sensemaking on organizational collaboration capability is stronger when information generation is higher.

H5:1:3c: The effect of response on organizational collaboration capability is stronger when information generation is higher.

***H5:2: The moderating effect of information dissemination on the relationship between market sensing and organizational capabilities.***

***H5:2:1: The effect of market sensing on organizational learning capability is stronger when information dissemination is higher.***

H5:2:1a: The effect of sensing on organizational learning capability is stronger when information dissemination is higher.

H5:2:1b: The effect of sensemaking on organizational learning capability is stronger when information dissemination is higher.

H5:2:1c: The effect of response on organizational learning capability is stronger when information dissemination is higher.

*H5:2:2: The effect of market sensing on organizational innovation capability is stronger when information dissemination is higher.*

H5:2:2a: The effect of sensing on organizational innovation capability is stronger when information dissemination is higher.

H5:2:2b: The effect of sensemaking on organizational innovation capability is stronger when information dissemination is higher.

H5:2:2c: The effect of response on organizational innovation capability is stronger when information dissemination is higher.

*H5:2:3: The effect of market sensing on organizational collaboration capability is stronger when information dissemination is higher.*

H5:2:3a: The effect of sensing on organizational collaboration capability is stronger when information dissemination is higher.

H5:2:3b: The effect of sensemaking on organizational collaboration capability is stronger when information dissemination is higher.

H5:2:3c: The effect of response on organizational collaboration capability is stronger when information dissemination is higher.

*H5:3: The moderating effect of responsiveness on the relationship between market sensing and organizational capabilities.*

*H5:3:1: The effect of market sensing on organizational learning capability is stronger when responsiveness is higher.*

H5:3:1a: The effect of sensing on organizational learning capability is stronger when responsiveness is higher.

H5:3:1b: The effect of sensemaking on organizational learning capability is stronger when responsiveness is higher.

H5:3:1c: The effect of response on organizational learning capability is stronger when responsiveness is higher.

*H5:3:2: The effect of market sensing on organizational innovation capability is stronger when responsiveness is higher.*

H5:3:2a: The effect of sensing on organizational innovation capability is stronger when responsiveness is higher.

H5:3:2b: The effect of sensemaking on organizational innovation capability is stronger when responsiveness is higher.

H5:3:2c: The effect of response on organizational innovation capability is stronger when responsiveness is higher.

*H5:3:3: The effect of market sensing on organizational collaboration capability is stronger when responsiveness is higher.*

H5:3:3a: The effect of sensing on organizational collaboration capability is stronger when responsiveness is higher.

H5:3:3b: The effect of sensemaking on organizational collaboration capability is stronger when responsiveness is higher.

H5:3:3c: The effect of response on organizational collaboration capability is stronger when responsiveness is higher.

### **3.4. Control Variables**

In a line with the previous studies, control variables were used to examine their effects on firms across section of industries (e.g., Narver & Slater, 1990; Jaworski & Kohli, 1993). According to Armstrong and Shimizu, (2007) Controlling for industry effects is important for two reasons, firstly, the performance of firms is often influenced by general industry environments such as industry economic cycle, and secondly, the relationship between the performance and resources may be industry dependent. Firm size and firm age have long been emphasized as an important factors that might influence new product development performance (Chen, Li, & Liu, 2015), and new product market performance (Mu, 2015) of a firm as control variables in analysis because their omission might confound the analysis. Therefore Firm size as calculated by the number of employee, and firm age were included as control variables in this study to avoid obtaining erroneous results like unsupportable relationships or support for opposite relationships (Armstrong & Shimizu, 2007).



### **3.5. Summary of the Chapter**

This chapter presents the theoretical and conceptual framework which basically depends on previous studies to propose a direct link between market sensing and marketing performance and indirect link via three dimensions of organizational capabilities (learning, innovation, and collaboration) as well as the exchange between organizational capabilities and marketing performance. Furthermore the chapter explains the mediating role of organizational capabilities, beside clarifies the moderating effect of the internal market orientation (information generation, information dissemination and responsiveness) in the relationship between market sensing and organizational capabilities. The coming chapter illustrates the research methodology.

# **CHAPTER FOUR**

## **RESEARCH METHODOLOGY**

### **4.0. Introduction**

This research was carried out in three stages, before a pre-test stage, then a pre-test study, and a large scale survey stage. Before a pre-test stage the description and discussion of a general research design, population, sample, and respondents were provided. For the sake of measurements and questionnaire design a potential survey items were generated through theory development and a literature review for each sub-construct of the four main constructs, (1) market sensing, (2) internal market orientation, (3) organizational capabilities, and (4) marketing performance. In a pre-test study many discussions were carried out to reach a confident level of content validity for each sub-construct. Then, items were examined and evaluated through small sample of respondents.

The last stage is conducting a large-scale survey for exploratory data analysis. Developed questionnaire was used to ask respondents to indicate the level of their agreement in their firms. Items were measured using a five-point likert scale, beginning with (1) strongly disagree to (5) strongly agree.

In the large-scale analysis, Statistical Package for Social Science (SPSS) Version 21 was used in addition to other data analysis techniques.

#### **4.1. General Research Design**

The purpose of this study is to examine the effect of market sensing on marketing performance through the organizational capabilities as mediating variable beside the moderating role of internal market orientation in the relationship between market sensing and organizational capabilities in a sample of Sudanese Firms.

Given that this study is quantitative in nature because it involves the collection of primary data from a large number of individuals, frequently with the intention of projecting the results to the larger population (Black, 1999). While survey is useful technique to capture the truth, opinions, behaviors from respondents (Maylor & Blackmon, 2005) this study used the self administrated questionnaire to collect the data.

Since survey is the main instrument used in this research validity test, and the frequency of the important constructs can be measured. Based on the analysis of the results of this study and previous literatures, this research provides some explanation on how the interaction of market sensing and internal market orientation may create value for the firms.

Finally the conclusions are drawn upon the investigation at a particular point of time, since cross sectional is used in this study to provide specific advantages.

## **4.2. Population and Sampling**

It was well known that most of the firms in Sudan are located in three towns represents the capital of the country (Khartoum, Bahri, and Omdurman) therefore, the population of this study was the firms located in these areas. However, the researcher found difficulties in determining their accurate number, because the Firms General Registrar was refused to give the directory list. Given that, even its obtained there is a great deal of family firms (one man show), in addition to that as percentage of the total firms that are completely or partially out of service, (57%) are in Khartoum state (Industry, 2016). So, for these reasons the study focuses on well structured firms with a considerable number of employees.

The research employed convenient sample where self-administrated survey was used to distribute 250 questionnaires to the firms across the three towns.

## **4.3. Respondents**

The primary objective of this study is to examine how such resources can interacts to create value to the firms. Therefore the principal informant

method was used, and the top and middle manager were identified as the key informant. Really these managers are likely to be the directors of the market sensing and internal market orientation thought in their firms, and both of them play an important role in strategy making process of the firm (Ouakouak *et al.*, 2014).

Given that this study explained the interaction effect of market sensing with internal market orientation on organizational capabilities and the impact of market sensing on marketing performance through organizational capabilities. Thus the suitable person who asked to fill the questionnaire was ideally one of the managers at top and middle management level. These managers have a good perception about their firm's business strategy as well as they have their own methodologies and techniques to be used in environmental scanning and information generating regarding their firms.

In addition to that managers are able to understand and describe the potential marketing performance of a firm's resources and capabilities (Barnney, 1991). Therefore the questionnaire was addressed to general manager or branch manager or deputy manager or director or marketing manager for each firm.

#### **4.4. Measurement of Variables**

The object of item generation is to create a pool of items that would cover the sampling domain of each construct (Churchill, 1979). Item generation for measurement of the operationalizing constructs was first carried out by searching the literature for previously developed items that can be used to measure the sub-constructs in the research model. The generated items should ensure content validity to have valid and reliable empirical research (Nunnally J. , 1994). Content validity is always achieved from intensive and comprehensive literature review and feedback from practitioners and academicians. The study broadened the sample of measurement questions used by adding similar questions to the data collection instrument. This measurement method has also been used in previous studies (e.g., Baker & Sinkula, 2005; Hooley, Greenley, Cadogan, & Fahy, 2005; Olavarrieta & Friedmann, 2008). Although the study shortened the measurement items used by deleting similar items from the data collection instrument to save time in order to meet the respondent's cooperation as shown in tables (4.1, 4.2, and 4.3). When there were no such items found to be adopted, measurement items were developed based on the adaptation and the modification of the previous items as provided in tables (4.9). In the following subsections,

theoretical discussions from supporting literature are presented to illustrate how measurement items are generated.

#### **4.4.1. Measurement of Internal Market Orientation (IMO)**

The IMO concept reflects a system of values that guide the company's behavior towards its employees, while the end goal always remains to improve customer value (Gounaris, Vassilikopoulou, & Chatzipanagiotou, 2010). The IMO is defined as the extent to which an organization is committed to create value to its employees, supervisors and the management, given that the measurement of IMO is used to assess the extent to which the practice of internal marketing (IM) is achieved successfully in an organization (Carlos & Rodrigues, 2012).

In this study the scale that used to assess the IMO was adopted from Ruizalba *et al.*, (2014) which consist of 22 items arranged in three dimensions; (1) intelligence generating; (2) internal communication (intelligence disseminating); and (3) responsiveness. However the study shortened the items to 16 by deleting some items in order to meet the satisfactory of respondents and to make the data collection instrument suitable in time and length so as to achieve the respondent's cooperation. A five-point Likert scale was used for all dimensions of IMO where 1 = strongly disagree to 5 = strongly agree, and the operational definition and

measurement items generated for each dimension are illustrated in the following:

#### 4.4.1.1. Information Generation (IG)

IG is the process by which a firm obtains information about the internal customers (See, (Wei & Wang, 2011)). Internal information gathering means collecting information concerning employees, managers can collect employee information through formal and informal channels to identify employees' characteristics and needs, employees' perceptions of their job inputs, what benefits they would like to get from their jobs, and employees' perceptions of the equity of employer-employee exchanges (Fang, Chang, Ou, & Chou, 2014) .

**Table 4.1**

<b>Items for Information Generation Measurement</b>		
<b>No</b>	<b>in our firm we .....</b>	<b>source</b>
1	Understand the needs of our employees before any decisions are made.	Ruizalba (2014)
2	We meet our employees face to face so as to understand their needs better.	Ruizalba (2014)
3	Have an important aspect of our work is to check whether our employees are satisfied with their job and to identify any problems they might have.	Ruizalba (2014)
4	Classifies our employees into well-defined groups according to their individual needs (e.g. health problems, those with dependents, etc.).	Ruizalba (2014)
5	Always ask ourselves how it will affect the different segments of employees with similar needs and characteristics when we draw up a particular policy or aim to implement it.	Ruizalba (2014)

IG as in Ruizalba, Bermúdez-González, Rodríguez-Molina, and Blanca, (2014) is mainly concern with the activities that have to do with (1) the identification of employee value exchange, and (2) the recognition of



specific employee segments with different characteristics and needs. Accordingly the items that reflect the above mentioned was adopted from Ruizalba *et al.*, (2014) which originally adopted from Lings and Greenley, (2005) and Gounaris, (2008) as shown in Table 4.1 above.

#### 4.4.1.2. Information Dissemination (ID)

ID refers to communications between employees and managers with the objective of disseminating new marketing strategies and strategic objectives to employees, mainly through communication channels (Ruizalba, Bermúdez-González, Rodríguez-Molina, & Blanca, 2014).

**Table 4.2**

Items for information dissemination measurement		
No	Managers and supervisors in our firm.....	source
1	Are genuinely interested in listening to what employees have to say about their work, any problems they might have, and the suggestions they put forward.	(Ruizalba <i>et al.</i> , 2014)
2	Encourages employees to talk to them if they have a personal problem that has a negative effect on their performance.	(Ruizalba <i>et al.</i> , 2014)
3	Are always available to meet personally with an employee if such a meeting is requested.	(Ruizalba <i>et al.</i> , 2014)
4	Spends time with employees, explaining to them the firm's objectives and how these objectives affect what the firm expects from each individual employee.	(Ruizalba <i>et al.</i> , 2014)

According to Gounaris (2006) dissemination of this intelligence relates to the communication between, managers and employees on one hand, and on the other hand between managers from different departments and hierarchical levels. The purpose of this communication is two objectives. The first one is to communicate new marketing strategies and company

strategic objectives to employees, while the second one is to build an understanding of employees' needs between the company's managers. Subsequently, the items used to measure the information dissemination are presented in Table 4.2.

#### **4.4.1.3. Responsiveness**

Responding to intelligence dissemination concerns those actions taken in response to the needs of employees, and it covers three aspects: management concern (MC), training (TR), and work/ family balance (WFB) (Ruizalba, Bermúdez-González, Rodríguez-Molina, & Blanca, 2014). Similarly, in his study Gounaris, (2006) claims that responsiveness to this intelligence pertains to designing jobs that meet the needs of the employees, adjusting the remuneration schemes accordingly, making the company's management more considering with regard to the employees' needs and offering them the necessary training in order to develop the skills and capabilities that their job description requires. Given that the measurement for the responsiveness to intelligence which encompasses the above mentioned concerns is adopted from (Ruizalba, Bermúdez-González, Rodríguez-Molina, & Blanca, 2014). Therefore, seven out of eleven items are adopted and considered to reflect the measurement of responsiveness to intelligence as shown in table 4.3.

**Table 4.3**

<b>Items for responsiveness to information dissemination measurement</b>		
<b>No</b>	<b>In our firm managers.....</b>	<b>source</b>
1	Invest resources (time and/or money) where needed in order to satisfy the specific needs or requirements of employees.	(Ruizalba <i>et al.</i> , 2014)
2	Are clearly geared toward solving any problems that employees may have and providing them with the support they need to perform their job well.	(Ruizalba <i>et al.</i> , 2014)
3	Are genuinely interested in hearing about and understanding their employees' feelings in so far as these affect their work.	(Ruizalba <i>et al.</i> , 2014)
4	Are systematically and continuously organizes training seminars so that employees can develop their skills.	(Ruizalba <i>et al.</i> , 2014)
5	Will personally provide training in relation to the new role If an employee is moved to a new task or department.	(Ruizalba <i>et al.</i> , 2014)
6	Understand the family needs of employees.	(Ruizalba <i>et al.</i> , 2014)
7	Support employees so that they can combine their work and family commitments.	(Ruizalba <i>et al.</i> , 2014)

#### **4.4.2. Measurement for Market Sensing (MS)**

Market sensing capability is one type of sensing capabilities, which involves the capabilities of gathering and filtering market information from outside and inside the firm, determining its meaning, and drawing implications for action that can reduce commercialization process uncertainty and increase opportunities for successful commercial innovation (Lin & Wang, 2015), therefore, Firms require sensing capabilities to identify opportunities and threats from their business ecosystem.

In this study the measurement used to assess MS was adopted from Lindblom *et al.*, (2008) which consist of thirteen items divided into three sub-constructs: (1) sensing; (2) sense-making; and (3) response. These sub-constructs were measured on multi-item scales. All items were measured on

five-point Likert-type scales (1 = strongly disagree; 5 = strongly agree). The operationalized definition and items regarding each sub-construct are presented in the following.

**4.4.2.1. Sensing**

Sensing is defined as the collection and distribution of information about customers, competitors, and relationships in the market (Bailey, 2014). Sensing is considered by O’Reilly and Tushman, (2008) as critical component of dynamic capability because it evolves scanning, searching, and exploration in dynamic markets. Thus in context of identifying opportunities Teece, (2007) also addressed sensing as critical component of dynamic capabilities. Therefore four items are adopted from Lindblom *et al.*, (2008) to assess the operationalized definition of sensing and considered to reflect the measurement of it as presented in Table 4.4

**Table 4.4**

<b>Items for sensing measurement</b>		
<b>No</b>	<b>Our firm.....</b>	<b>source</b>
1	Actively sense events and trends in our firm environment	(Lindblom <i>et al.</i> , 2008)
2	Style of information-gathering is systematic.	(Lindblom <i>et al.</i> , 2008)
3	Gather information regularly from different kinds of sources.	(Lindblom <i>et al.</i> , 2008)
4	Actively exchange information with other departments.	(Lindblom <i>et al.</i> , 2008)

**4.4.2.2. Sensemaking**

Sensemaking refers to the interpretation of gathered information against past experiences and knowledge (Lindblom *et al.*, 2008). In other words sensemaking concerns with the information processing and interpretation

before it can be used (Bailey, 2014). The sensemaking scale consisted of questions related to the commitment of firms operated in Sudan to interpret and synthesize the information that the firm receives in order to identify opportunities. The four items which used to measure the sensemaking are adopted from (Lindblom *et al.*, 2008) as illustrated in Table 4.5.

**Table 4.5**

<b>Items for sensemaking measurement</b>		
<b>No</b>	<b>Our firm.....</b>	<b>source</b>
1	Style of interpreting the information is analytic.	(Lindblom <i>et al.</i> , 2008)
2	Spends a considerable amount of time to analyze the gathered information	(Lindblom <i>et al.</i> , 2008)
3	Actively analyze information before marketing decision-making	(Lindblom <i>et al.</i> , 2008)
4	Believe that analyzing information is useless when it comes to marketing decision-making	(Lindblom <i>et al.</i> , 2008)

#### **4.4.2.3. Response**

Response refers to the utilization of the gathered and interpreted information in decision-making (Lindblom *et al.*, 2008), and briefly it means the process of turning the intangible information and knowledge into visible marketing action. Thus response as a one dimension of market sensing constructs needs to encompass items that reflect precisely the essence of its conceptualized definition. Given that four of the items originated by Kohli and Jaworski, (1990) and adopted by Lindblom *et al.*, (2008) in addition to one item adopted from ( ) were taken in this study to measure response as presented in the following Table 4.6.

**Table 4.6**

<b>Items for response measurement</b>		
<b>No</b>	<b>Our firm.....</b>	<b>source</b>
1	Actively utilize information regarding consumers' needs and intentions when making our marketing decisions	(Lindblom <i>et al.</i> , 2008)
2	Actively utilize information provided by sales and market share reports regarding our products when making our marketing decisions	(Lindblom <i>et al.</i> , 2008)
3	Actively utilize data provided by sales and market share reports regarding the products that we represent when making our marketing decisions	(Lindblom <i>et al.</i> , 2008)
4	Actively utilize information provided by company image studies when making our marketing decisions	(Lindblom <i>et al.</i> , 2008)
5	Collection and analysis of information always leads to good knowledge.	

### **4.4.3. Measurement for Organizational Capabilities (OCs)**

From resource-based view Combe and Greenley, (2004) defined organizational capabilities as intangible resources or assets, made up of constituents such as skills, learning and knowledge in deploying tangible or other intangible resources or assets.

In literature a number of different organizational capabilities have been presented as Table 2.2 in chapter two showed some of them, however in this study only three capabilities were used to represents the organizational capabilities (learning, innovation, and collaboration).

The three dimensions were measured on multi-item scales. All items were measured on five-point Likert-type scales (1 = strongly disagree; 5 = strongly agree). The operationalized definition and items regarding each dimension are presented in the following.

#### 4.4.3.1. Learning Capability

The operationalized definition of learning capability in this study was adopted from Goh, (2003), which refers to the extent to which organization is able to implement the appropriate management practices, structures and procedures that facilitate and encourage learning. The scale of learning capability consisted of items related to clarity of mission and vision, leadership commitment and empowerment, experimentation and rewards, effective transfer of knowledge and teamwork and problem-solving. Therefore the items used to measure learning capability were adopted from Goh, (2003) as illustrated in Table 4.7 below.

**Table 4.7**

<b>Items for Learning Capability Measurement</b>		
<b>No</b>	<b>In our firm .....</b>	<b>source</b>
1	There is widespread support and acceptance of the organization's mission statement.	(Goh, 2003)
2	The mission statement identifies value with which all employees must conform.	(Goh, 2003)
3	Managers can accept criticism without becoming overly defensive.	(Goh, 2003)
4	Managers often provide useful feedback that helps to identify potential problems and opportunities.	(Goh, 2003)
5	Managers encourage team members to experiment in order to improve work process.	(Goh, 2003)
6	The new work processes that may be useful to the firm as a whole are usually shared with all employees.	(Goh, 2003)
7	We have a system that allows us to learn successful practices from other organizations.	(Goh, 2003)
8	Current organizational practice encourages employees to solve problems together before discussing them with a manager.	(Goh, 2003)

#### 4.4.3.2. Innovation Capability

The conceptualization of innovation capability used in this study is refers to the firm's ability to continuously transform knowledge and ideas into new products, processes and systems for the benefit of the firm and its stakeholders (Saunila, Pekkola, & Ukko, 2014).

Innovation is a means for changing an organization, whether as a response to changes that occurs in its internal or external environment or as a pre-emptive move taken to influence an environment (Panayides, 2006).

In order to tap the domain of innovation capability, the scale adopted by Panayides, (2006) which originally developed by Hurt and Teigen, (1977) and Hurt, Joseph, and Cook, (1977) was adopted in this study. The fact that Panayides, (2006) has stated is this scale has been used and validated in a number of other studies. Thus the items used to measure innovation capability were showed in the following Table 4.8.

**Table 4.8**

<b>Items for Innovation Capability Measurement</b>		
<b>No</b>	<b>Our firm.....</b>	<b>source</b>
1	Frequently tries out new ideas.	(Panayides, 2006)
2	Seeks out new ways to do things.	(Panayides, 2006)
3	Is creative in its methods of operation.	(Panayides, 2006)
4	Is often the first to market with new products or service.	(Panayides, 2006)
5	New product / service introduction has increased over the last five years.	(Panayides, 2006)



### 4.4.3.3. Collaboration Capability

Collaboration is broadly defined as the interaction among two or more individuals and can encompass a variety of behaviors, including communication, information sharing, coordination, cooperation, problem solving, and negotiation (Croker, Higgs, & Trede, 2009). Many researchers have proved the essential importance of collaboration in the process of creating and transferring knowledge (Bagheri, Hamidizadeh, & Sabbagh, 2015). The scale of collaboration include items reflect the essence of the above definition. Therefore five out of seven items used to measure the collaboration capability were adapted, three items from Tseng, (2014), and two from Mesly, (2011), while the rest were developed. Table 4.9 below presents all the items for collaboration measurement.

**Table 4.9**

<b>Items for Collaboration Capability Measurement</b>		
<b>No</b>	<b>In our firm we are.....</b>	<b>source</b>
1	Believe in team work as a very common practice.	Developed
2	Willing to cooperate to improve the logistics and shipping processes.	(Tseng, 2014)
3	Willing to cooperate to improve the production and operation processes.	(Tseng, 2014)
4	Willing to cooperate to improve the quality of products or service.	(Tseng, 2014)
5	Able to share mutual responsibility and commitment with our customers.	Developed
6	Ready to inform our customer about any changes in our products.	(Mesly, 2011)
7	Able to share duties and responsibilities when necessary.	(Mesly, 2011)

### 4.4.4. Measurement for Marketing Performance (MP)

Marketing performance refers to the outcomes of successful marketing efforts that depend on a firm’s resources and capabilities to generate revenue

through improving market and/or customer performance of the firm (Doyle, 2003; Lassar, Mittal, & Sharma, 1995). According to Solcansky and Simberova, (2010) Marketing Performance Assessment is an important complement to marketing activities in companies. Moreover, performance evaluation is often employed as the basis for business reward and punishment; hence, selecting the appropriate measurement directory becomes ever more important.

Most scholars have similar perspectives on the definition of performance; however, many different criteria have been used to measure performance (Tseng, 2014). As such, the performance measurement indicator applied in each study should be chosen according to the research topic. Based on the above mentioned, this study will combination market and customer performance measure to assess marketing performance.

The performance of each dimension is measured by checking respondents to evaluate their firm's marketing performance during last three years relative to their major competitors. The two dimensions measured on multi-item scales, and all items measured on five-point Likert-type scales (1 = strongly disagree; 5 = strongly agree). The operationalized definition and items regarding each dimension are presented in the following.

#### 4.4.4.1. Market Performance

Market performance in this study is refers to the ability of the firm to offer a satisfied products or services and other elements like setting reasonable prices and market share to suit their customer's needs (Leonidou L. C., Leonidou, Fotiadis, & Zeriti, 2013). There is different ways of measuring market performance, however the most common measures are the ability of the firm to set reasonable price in relation to those of competitors, effective new product development processes, ability to launch successful new product, and market share in comparison to major competitors (Hooley, Greenley, Cadogan, & Fahy, 2005; Grønholdt & Martensen, 2006). In general, five items were adapted from Grønholdt and Martensen, 2006) as showed in Table 4.10 below.

**Table 4.10**

<b>Items for Market Performance Measurement</b>		
<b>No</b>	<b>During the last three years relative to our major competitors, this firm has achieved...</b>	<b>source</b>
1	Increase the products in the current market of the firm	developed
2	Ability to set reasonable price to products or service.	(Grønholdt & Martensen, 2006)
3	Ability to initiate successful new products	(Grønholdt & Martensen, 2006)
4	Make extensive use of media advertising.	(Grønholdt & Martensen, 2006)
5	First in introducing new products to market.	(Grønholdt & Martensen, 2006)

#### 4.4.4.2. Customer Performance

Customer performance was operationalized as success in acquiring new customers, satisfying existing customers and increasing sales to them as they

become loyal to the company (Krush, Agnihotri, Trainor, & Nowlin, 2013). Similar to market performance, customer performance can be measured in a variety of ways, but the most common measures of customer performance are the mental customer performance which include brand awareness, Perceived differentiation/quality/value, image/reputation, satisfaction, loyalty, Preference, etc., and behavioral customer performance that include customer retention, customer complaints, transactions per customer, etc. Therefore a combination of mental and behavioral customer performance encompass five items adapted from Grønholdt & Martensen, (2006) to measure this dimension as showed in Table 4.11

**Table 4.11**

<b>Items for Customer Performance Measurement</b>		
<b>No</b>	<b>During the last three years relative to our major competitors, this firm has achieved...</b>	<b>source</b>
1	Increasing customers' recall the symbol or logo of firm's product or service.	(Grønholdt & Martensen, 2006)
2	Understanding customer needs and requirements	(Grønholdt & Martensen, 2006)
3	The level of customer satisfaction.	(Grønholdt & Martensen, 2006)
4	Minimizing Number of customers' complaints.	(Grønholdt & Martensen, 2006)
5	Improving number of transaction per customer	(Grønholdt & Martensen, 2006)

## **4.5. Questionnaire Design**

The questionnaire was divided into three parts with a total of 71 items were used. Part (one) is about firm's profile it includes questions about: The nature of the firm's work, number of employees, age of the firm, the markets that firm Works in, the ownership of the firm, the number of competitors, and the type of products provided by the firm. The objective of this part is to

provide information about the predominant characters of the firm that help in identifying similarities and differences. Such identifications are necessary for providing excellent interpretation or explanation of the analysis results. Part (two) centered on the items generated for the measurement of the variables related to dimensions of the four constructs that shaped the research model, these are IMO (intelligence generation, intelligence dissemination, and responsiveness), OS (scanning, interpretation, and responding), OC (learning, innovation, and collaboration), and MP (market performance and customer performance). Finally part (three) focused on personal information about the respondent. The layout and the overall items of the questionnaire are listed in appendix (A2).

#### **4.6. Pre-Testing of Questionnaire**

Pre-Testing refers to the testing of questionnaire on small sample of respondents in order to identify and eliminate potential problems (Malhotra, 1999). The aim of pretest is to validate the data collection instrument and to ensure the appropriateness of the survey administration (Aaker, Kumar, & Day, 2007). Thus in the first stage a first draft of the questionnaire was initially developed in English, then back to back Arabic translation was conducted and back translated into English. This procedure ensures that the English and the Arabic versions of the questionnaire contain equivalent

measures. Subsequently, a number of researchers in the same field assessed the correctness and the clearance of questions and measurement items and provided valuable feedback that assisted the refinement of certain questions. In the second stage a sample of questionnaire was developed and sent to four academicians served as expert judges to assess the questionnaire's face validity. The academicians include two assistant professors from school of management studies – University of Khartoum, one assistant professor from Alryadah College for business management and technology, in addition to one professor from faculty of management studies – Omdurman Islamic University. Based on the suggestions provided by the academicians several revisions to question wording, modification of items, as well as the layout and length of the questionnaire were made according to academicians' feedback. It's in fact that the academicians' contribution made the questionnaire valuable and overcome all the weakness such as redundant, double – barreled items and so on.

As a result of the previous work a primary draft of questionnaire was developed. In stage three, fifty copies of the questionnaire was distributed to the firms randomly drawn from research sample. Consequently, Cronbach's Alpha coefficient values were calculated for each variables of the study because is an adequate test of internal consistency reliability (Sekaran,

2003). The result of the test is shown in Table (4.12). In this table the results reveals that all the values of Cronbach's Alpha test for the variables fall above the 0.70 except the Cronbach's Alpha for market performance is somewhat lower than 0.70 benchmark suggested by Nunnally, (1978), low levels of reliability are common in the early stages of measurement development and considering the sample size (Larcker, Richardson, & Tuna, 2007). Therefore, these variables have an acceptable level of reliability (Sekaran, 2003). Following that, modifications were made to the questionnaire to reduce possible ambiguity of some question and improve general appearance of the questionnaire before using it in the large – scale survey.

**Table 4.12**

<b>Pre-Test of the Questionnaire for Reliability</b>		
<b>Variable</b>	<b>Number of Items</b>	<b>Cronbach's Alpha</b>
Intelligence Generation	5	0.737
Intelligence Dissemination	4	0.903
Responsiveness	7	0.811
Scanning	4	0.855
Interpreting	4	0.806
Responding	5	0.961
Learning Capability	8	0.854
Innovation Capability	5	0.810
Collaboration Capability	7	0.892
Market Performance	5	0.649
Customer Performance	5	0.776

#### **4.7. Survey Administration**

According to Pre-Test the questionnaire was modified and refined, subsequently a final draft of questionnaire was prepared, including cover letter to enhance the participation of respondents in this research survey. The cover letter explained the objectives and importance of the study, appreciated the respondents' cooperation, and promised strict confidentiality of responses, that is the information supplied was only used for the research purpose and it will not be reported to any other party. Also it mentioned the importance of respondents' full completion to questionnaire in making the study valuable. In addition to that the co-supervisor and researcher phone numbers and email address were provided. This permits the respondents to contact the researcher asking for explanation concerning research questionnaire. Therefore self-administrated survey questionnaire were sent to 200 firms in Sudan in the middle of February 2015. Personal questionnaire is the best way to collect data. The major advantages are that, it can collect all the completed questionnaire from respondents within a short period of time, less expensive, and it was not wasting time.

#### **4.8. Data Analysis Techniques**

To evaluate the data obtained by questionnaire from respondents and testing the hypothesis, Statistical Package for Social Science (SPSS) Version



21 and AMOS were used. The data analysis techniques used in this study were described below.

#### **4.8.1. Descriptive Statistics**

According to Aaker *et al.*, (2007) descriptive Statistics were used to summarize and describe the key feature of the sample data such as frequency, percentage, mean, standard deviations, and range. Therefore in this study descriptive Statistics were used to describe the firms in Sudan and respondents beside all the variables of the main four constructs shaped the model of this study (internal market orientation, organizational sensemaking, organizational capabilities, and marketing performance).

#### **4.8.2. Factor Analysis**

Factor analysis is a common statistical method used to find a small set of unobserved variables (also called latent variables, or factors) which can account for the covariance among a larger set of observed variables (also called manifest variables), Thus it uses to assess the reliability and validity of measurement scales (Albright, 2006-2008).

Factor analysis is an interdependence technique its primary purpose is to identify the underlying structures or commonalities in the data (Hair, Black, Babin, Anderson, & Tath, 2010). The factor analysis is used to test the

validity of items in the survey, i.e. to ensure that the instrument has reasonable construct validity (Ho, 2011s; Kuo, 2011).

According to Albright, (2006-2008) it is possible to distinguish between two categories of factor analysis depending on whether the investigator wishes to explore patterns in the data or to test explicitly stated hypotheses; these are exploratory factor analysis and confirmatory factor analysis.

#### **4.8.2.1. Exploratory Factor Analysis**

Exploratory factor analysis corresponding to the former task is available in general purpose statistical software such as SPSS, SAS, and Stata. When carrying out an EFA no substantive constraints are imposed on the data. Instead it is assumed that each common factor affects every observed variable and that the common factors are either all correlated or uncorrelated (Albright, 2006-2008). In this study, exploratory factor analysis was used to validate and ensure the goodness of measures under the following conditions:

- a) Factor loading should be greater than 0.50 for sample that range between 130 and 150.
- b) Any item cross loaded with tow factor should be dropped.
- c) Factor that had eigenvalue exceeded 1.0 were accepted, while other were dropped.

- d) The minimum acceptable value for KMO is 0.6.
- e) Bartlett's test with p-value less than 0.05 was used to test the overall significance of correlation among items.

#### **4.8.2.2. Confirmatory Factor Analysis**

Confirmatory factor analysis (CFA), on the other hand, is theory-driven and it's a special case of the structural equation model (SEM). With CFA it is possible to place substantively meaningful constraints on the factor model, such as setting the effect of one latent variable to equal zero on a subset of the observed variables (Albright, 2006-2008). The advantage of CFA is that it allows for testing hypotheses about a particular factor structure.

#### **4.8.3. Reliability Analysis**

Reliability refers to ability of an instrument to produce consistent or same results. Reliability is a degree to which measures are free from error so that they give same results when repeat measurements are made under constant conditions (Ram & Singh, 2009). Reliability analysis was used to test the consistency and stability of the measurement instrument and help to assess the goodness of measure (Hair *et al.*, 2010). To ensure the reliability of the instrument in this research a pre-test study was conducted and the value of Cronbach's Alpha was calculated to examine the internal consistency and stability of the measurement instrument. The criteria of

Cronbach's Alpha according to Sekaran, ( 2003) was 0.70 considered to be acceptable, while it was less than 0.60 considered as a poor and those higher than 0.80 are to be good.

#### **4.8.4. Correlation Analysis**

Correlation analysis was used to establish a correlation matrix between variables of the study. In this study person correlation was used to see the degree of correlation between the main variables. That is to determine the relationship between market sensing and organizational capabilities as a mediator and marketing performance as dependent variable as well as explaining the moderating role of internal market orientation in between market sensing and organizational performance.

#### **4.8.5. Multiple Regression Analysis**

Multiple regressions indicate how adequate the predictors are in explaining the dependent variable. It also gives the best predictive model of the linear relationship present among the independent variables (Hair *et al.*, 2010). In addition, multiple regressions are appropriate multivariate method for evaluating construct and relationship between constructs (Tabachnick & Fidell, 2001). In this research multiple regressions was used to test the research hypothesis that is to determine if the specified independent variables were statistically significant predictors of the dependent variable.

#### **4.8.6. Hierarchal Regression Analysis**

Hierarchical Regression Analysis was used in this research to test the mediating effect of organizational capabilities on the relationship between the interaction of internal market orientation with organizational sensemaking and marketing performance. To test for mediating variables, the commonly applied method requires estimating three regression equations using Ordinary Least Squares (OLS) (Shaver, 2005). The first step is the regression of dependent variable on independent variable to determine if this relation exists. The second step is to establish whether there is a relationship between the independent variable and the mediating variable. The final step is to assess whether the independent variable still affects the dependent variable, once controlling for the effect the mediating variable on the dependent variable. The outcome of this test either partial mediating effect or full mediating effect. The full mediating exists when the effect of the independent variable on the dependent variable, once controlling for the mediating variable is insignificant, whereas the partial mediating exists when the relationship between the independent variable and the dependent variable is significant.

## **4.9. Summary of the Chapter**

In the beginning of this chapter the general research design is described. It is followed by the justification for choosing the firms as the research targeted population. After that, a discussion on the interested population, sampling procedures, survey design and survey method are explained. It includes a discussion on the modification of scale items and an explanation of the different measurement scales being used followed by questionnaire design. Finally the methods used in collecting and analyzing data, and in testing the hypotheses are also described.

# **CHAPTER FIVE**

## **DATA ANALYSIS AND FINDINGS**

### **5.0. Introduction**

This chapter shows the process through which the data that was collected from firms represents various industries in Sudan was analyzed to presents the findings. The chapter was organized into four sections. The first section concerns with data cleaning, response rate, and the characteristics of both firms and respondents, followed by the goodness of measures which discusses the validity and reliability of the measurement. The third section shows the descriptive analysis of the study variables. The last section focuses on the results of path analysis and hypotheses testing.

### **5.1. Data Cleaning**

Data cleaning deals with detecting and removing errors and inconsistencies from data in order to improve the quality of data. The need for data cleaning is centered on improving the quality of data to make them “fit for use” by users through reducing errors in the data and improving their documentation and presentation (Chapman, 2005).

Data quality problems are present in single data collections due to misspellings during data entry, missing information or other invalid data.

When multiple data sources need to be integrated, or analysis programs need to be used, the need for data cleaning increases significantly. Thus in this study data cleaning is used to manipulate missing data, unengaged responses, and outliers.

### **5.1.1. Missing Data**

Missing data is common and always expected in the process of collecting and entering data due to lack of concentration and/or the misunderstanding among respondents, and missing information or other invalid data during the entry of data. Missing data can cause several problems. The most apparent problem is that there simply won't be enough data points to run the analysis and particularly in structural equation model (SEM).

Both exploratory and confirmatory factor analysis and path models require a certain number of data points in order to compute estimates. Additionally, missing data might represent bias issues. Some people may not have answered particular questions in survey because of some common issue. If missing data is more than 10% of the responses on a particular variable, or from a particular respondent, that variable or respondent may be problematic. In this study the proportion of missing data is lower than 10% therefore there no need to remove any of responses.



### 5.1.2. Unengaged responses

Unengaged responses means some responses giving same answer for all the questionnaire it seems to be random answers , in this case we use standard deviation to find out any unengaged response this means that any standard deviation of responses less than 0.5 when Likert’s five point scale is used just deleted. Therefore in this study 24 questionnaires was found to have standard deviation less than 0.5 and they were excluded from data analysis. Table 5.1 shows the unengaged response.

**Table 5.1**  
**Unengaged responses**

<b>Total Questionnaires</b>	<b>210</b>
Unengaged responses	24
Unengaged responses Rate	11%

*Source: prepared by researcher 2016*

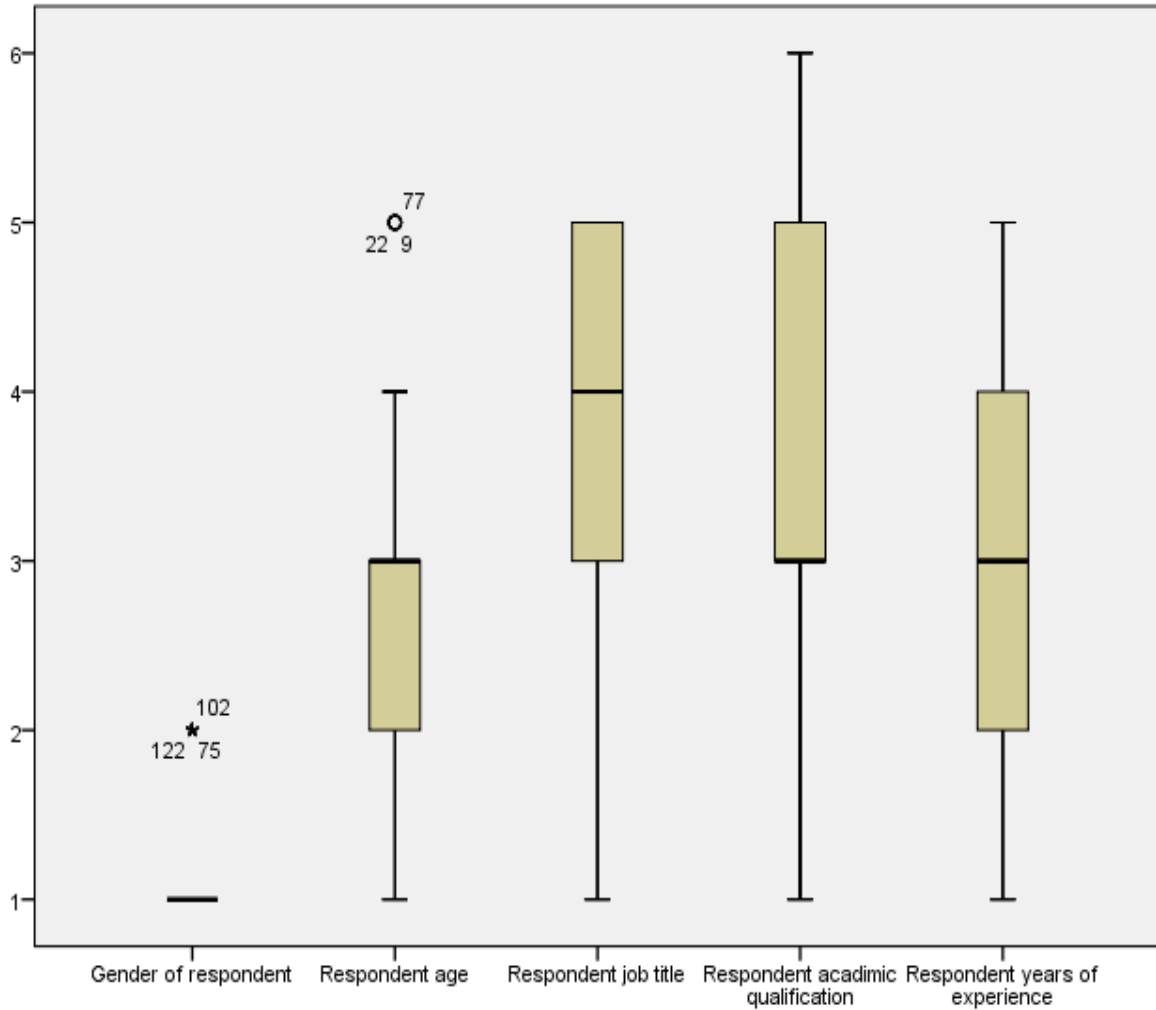
### 5.1.3. Outliers

It’s very important to check outliers in the dataset. Outliers can influence the results of analysis. If there is a really high sample size, the need for removing the outliers is wanted. If the analysis running with a smaller dataset, you may want to be less liberal about deleting records. However, outliers will influence smaller datasets more than largest ones. However in this dataset outliers were checked as showed in figure 5.1 but no change was made because it is seemed logic to find some of the employees

are extreme in their ages and gender among all the respondents of the study.

The SPSS output presented in appendix B1.

Figure (5.1) outliers



## 5.2. Response Rate

It was well known that most of the firms in Sudan are located in three towns represents the capital of the country (Khartoum, Bahri, and Omdurman) therefore, the population of this study was the firms located in these areas. The researcher employed convenient sample where self-

administrated survey was used to distribute 250 questionnaires to the firms across the three towns, given that top and middle managers were asked to fill the questionnaire. The survey started on the 1st of March 2015 and by the end of April 2015 a total of 210 out of 250 questionnaires received from respondents, the overall response rate was 84% this was considered as high rate due to questionnaires given one by one to respondents and in researches used a self-administrated survey (Sekaran, 2003). Those who didn't responded to fill the questionnaire some were mentioned that they were not authorized to fill the questionnaires while others were not transparent in their justifications. Bellow is Table (5.2) to shows the summary of questionnaire response rate.

**Table (5.2) Response rate of questionnaire**

<b><i>Total distributed questionnaires</i></b>	<b>250</b>
<b>Total questionnaires received from respondents</b>	<b>210</b>
<b>Valid questionnaires received from respondents</b>	<b>179</b>
<b>Partially filled questionnaires</b>	<b>4</b>
<b>Invalid questionnaires</b>	<b>24</b>
<b>Not filled-up questionnaires</b>	<b>3</b>
<b>Questionnaires not received</b>	<b>40</b>
<b>Overall response rate</b>	<b>84%</b>
<b>Useable response rate</b>	<b>72%</b>

*Source: prepared by researcher from data (2015)*

### **5.3. Profile of the Responded Firms and Respondents**

Based on the descriptive statistics using the frequency analysis this part investigates the profiles of firms that participated in the survey on the light of seven characteristics, these are the nature of work, firm's number of employees, age of the firm, markets the firm works in, the firm's ownership, the firm's number of competitors, and finally the firm's products. The SPSS output presented in appendix (B2) shows that (46.9%) of the responded firms were industrial, where (27.9%) were classified as commercial work, and (21.2%) of these firms works in services such as logistics and handling as a business. Finally just two of these firms represents (3.9%) has agricultural concern. In term of firm's number of employees almost (41.3%) of the responded firms are large firms with more than 150 employees, while the small one's with less than 50 employees are (31.3%). The responded firms' number of employees ranged 50 – 100 is (17.3%), where others ranged 101 – 150 is (10.1%).

Concerning the ages of the firms almost half of responded firms are well-established firms (48.6%) with more than 15 years, where the newly established firms are (13.4%) with less than 5 years, and those ranged their time from 5 to 15 years is (38%). With regard to the markets the responded firms works in, (54.7%) of these firms are work in domestic markets, where

(43%) are works in both domestic and international markets, while only two firms of the respondents with percentage of (2.3%) deals in international markets.

The majority of the responded firms are fully owned by Sudanese (76.5%) while other country fully owned (7.3%) of the responded firms, and the rest are multinational firms (16.2%). The competition among the responded firms is to some extent high because (52.5%) has more than 10 competitors, while (31.3%) of the respondents has 5 – 10 competitors, and beside (15.6%) of the firms has less than 5 competitors there was only one firm has no any competitor with percentage of (.6%) of the responded firms.

With respect to above mentioned the frequency analysis classified the responded firms into three parts to produces three types of products, (31.3%) of the firms are specialized in producing products for consumption, (31.3%) produced industrial products, and the rest of the firms are for service products. Bellow is table (5.3) to presents the general characteristics of responded firms.

Beside the firms the given respondents are concerned, table (5.4) bellow and the SPSS output presented in appendix B3 shows the respondents profile. The table reveals that (90.4%) of the managers are males where (9.6%) are females. With regard to respondents ages (34.6%) are in the

middle range age 30 – 40 years, and (31.3%) their age range is 41 – 50

**Table (5.3) profile of responded firms**

<i>Variable</i>	<i>category</i>	<i>frequency</i>	<i>%</i>
<i>The nature of work</i>	Commercial	50	27.9
	Agricultural	7	3.9
	Industrial	84	46.9
	Services	38	21.2
<i>Number of employees</i>	Less than 50	56	31.3
	from 50 to 100	31	17.3
	from 101 to 150	18	10.1
	More than 150	74	41.3
<i>Firm's age</i>	Less than 5 years	24	13.4
	5 to 15 years	68	38
	More Than 15 years	87	48.6
<i>Markets the firm works in</i>	Local	98	54.7
	International	4	2.2
	Local and International	77	43.0
<i>The firm's ownership</i>	Sudanese Ownership	137	76.5
	Multinational Ownership	29	16.2
	Owned By other country	13	7.3
<i>The firm's number of competitors</i>	Less than 5 competitors	28	15.6
	5 to 10 competitors	56	31.3
	More Than 10 competitors	94	52.5
	No competitors	1	.6
<i>The firm's products</i>	Consumption	56	31.3
	Industrial	56	31.3
	Service	65	36.3
	Agricultural	2	1.1

*Source: prepared by researcher from data (2015)*

years, while the rest are between 51 – 60 years (14.5%), less than 30 years (14.5%), and above 60 years is (5%). Concerning the respondents job titles (43.3%) is the department managers compared to (30.3%) are marketing

managers followed by general managers (10.7%) while branch managers (9.0%) and deputy managers remains (6.7%).

**Table (5.4) respondents' profile**

<i>variable</i>	<i>category</i>	<i>frequency</i>	<i>%</i>
<b><i>Gender of respondent</i></b>	Male	160	90.4
	Female	17	9.6
<b><i>Respondent age</i></b>	Less than 30	26	14.5
	30- 40	62	34.6
	41-50	56	31.3
	51-60	26	14.5
	More than 60	9	5.0
<b><i>Respondent job title</i></b>	General manager	19	10.7
	Branch Manager	16	9.0
	Deputy	12	6.7
	Department manager	77	43.3
	marketing manager	54	30.3
<b><i>Respondent academic qualification</i></b>	Secondary	6	3.4
	Diploma	13	7.3
	Bachelor	81	45.3
	Higher Diploma	13	7.3
	Master	56	31.3
	PhD	10	5.6
<b><i>Respondent years of experience</i></b>	less than 5	21	11.7
	from 5 to 10	46	26.8
	from 11 to 15	48	24.1
	from 16 to 20	28	15.6
	More than 21	36	20.1

*Source: prepared by researcher from data analysis (2015)*

Regarding the respondents' academic qualification the data shows small number of the respondents (3.4%) are holding secondary certificates, where most of them studied at university as highest level of education (96.6%), distributed in (45.3%) bachelor degree, (31.3.1%) master degree,

followed by (7.3%) for each higher and middle diploma and (5.6%) are holding PhD. In terms of managers experience the data indicates that few (11.7%) of the managers have less than five years, compared to a great deal (88.3%) of the respondents have more than five years of work experience in their firm, this means that questionnaires were answered by the well experienced personnel in the firm.

#### **5.4. Goodness of Measures**

This section, reports the results of validity and reliability tests as a means to assess the goodness of measure in this study constructs (Sekaran, 2003). The study used exploratory factor analysis (EFA) and (CFA) confirmatory factor analysis. The following are the detailed information of each

##### **5.4.1. Exploratory Factor Analysis (EFA)**

Exploratory Factor Analysis (EFA) is a statistical approach for determining the correlation among the variables in a dataset (Gaskin, 2016). This type of analysis provides a factor structure (a grouping of variables based on strong correlations). In general, an (EFA) prepares the variables to be used for cleaner structural equation modeling (SEM). This means the (EFA) will be able to spot problematic variables much more easily than the (CFA). Therefore this study used exploratory factor analysis for testing the validity and uni-dimensionality of measures to all variables under study,



**Table (5.5) exploratory factor analysis for testing the model validity**

	Component								
	1	2	3	4	5	6	7	8	9
Coll3	.776								
Coll4	.754								
Coll7	.735								
Coll6	.699								
Coll2	.687								
Coll5	.672								
Resp3		.810							
Resp2		.795							
Resp1		.777							
Resp4		.720							
Resp5		.491							
ID1			.796						
ID3			.762						
Res2			.755						
ID2			.752						
ID4			.607						
Sca2				.725					
Sca3				.722					
Sca1				.721					
Inter1				.607					
Sca4				.575					
Inter2				.547					
CP4					.749				
CP5					.731				
CP3					.717				
CP1					.601				
CP2					.576				
Lea7						.712			
Lea6						.633			
Lea8						.625			
Res6							.739		
Res7							.682		
Inn4								.718	
Inn1								.486	
Inn2								.454	
IG4									.850
IG5									.538

Source: prepared by researcher from data analysis (2015)

followed the assumptions recommended by (Lowry & Gaskin, 2014) as follow:

- There must be a clean pattern matrix.
- Adequacy.
- Convergent validity.
- Discriminant validity.
- Reliability.

Fifty five items was used to measure the model variables were subjected to exploratory factor analysis using principal component, the summary of results was showed in Table (5.5) and the SPSS output attached in appendix B4. As shown in Table (5.5) above all the remaining items has more than recommended value of at least 0.45 in measure of sample adequacy (MSA) with (KMO) value of 0.903 (above the recommended minimum level of 0.60), and Bartlett's test of sphericity is significant ( $p < .01$ ). Thus, the items are appropriate for factor analysis.

#### **5.4.2. Convergent Validity**

Convergent validity means that the variables within a single factor are highly correlated. This is evident by the factor loadings. Sufficient/significant loadings depend on the sample size of dataset.

The table below (5.6) outlines the thresholds for sufficient/significant factor loadings. Generally, the smaller the sample size, the higher the required loading.

**Table (5.6) thresholds for sufficient/significant factor loadings**

<b>Sample size</b>	<b>Significant factor loadings</b>
<b>50</b>	0.75
<b>60</b>	0.70
<b>70</b>	0.65
<b>85</b>	0.60
<b>100</b>	0.55
<b>120</b>	0.50
<b>150</b>	0.45
<b>200</b>	0.40
<b>250</b>	0.35
<b>350</b>	0.30

*Source: adopted from (Gaskin, 2016)*

Since the sample size used in analysis for this study was 179, therefore the sufficient factor loading was 0.45 as shown above in Table (5.5) of the factor structure for (EFA) indicating sufficient convergent validity of the measurement instrument

### **5.4.3. Discriminant Validity**

Discriminant validity refers to the extent to which factors are distinct and uncorrelated. The rule is that variables should relate more strongly to their own factor than to another factor. Two primary methods exist for determining discriminant validity during an (EFA). The first method is to examine the rotated component matrix instead of pattern matrix when

principle component used. Variables should load significantly only on one factor. If cross loading do exist (variable loads on multiple factors) then the cross loading should differ by more than 0.2. The second method is to examine the factor correlation matrix. The correlation between factors should not exceed 0.7. The following Table (5.7) shows the Discriminant validity.

**Table (5.7) correlation Matrix for discriminant validity**

Component	1	2	3	4	5	6	7	8	9
1	.455	.442	.392	.389	.310	.268	.214	.226	.169
2	.322	-.561	.632	-.345	-.192	.073	.143	-.010	-.002
3	.578	.042	-.294	-.483	.429	-.242	-.303	.005	.101
4	-.520	-.147	.328	-.102	<b>.764</b>	-.026	-.063	-.026	.013
5	.176	-.323	-.394	.091	.291	.418	.458	-.202	-.437
6	.132	-.565	-.157	.583	.095	-.107	-.227	-.036	.474
7	-.024	-.205	-.095	.060	.023	-.133	-.033	<b>.906</b>	-.325
8	-.173	-.035	-.212	-.341	-.057	.668	-.018	.277	.530
9	-.073	.002	-.138	-.133	.035	-.462	<b>.758</b>	.095	.399

*Source: prepared by researcher from data analysis (2015)*

As shown in Table (5.7) the correlation between factor four and five, factor nine and seven, and factor seven and eight are more than 0.7. In this case the alteration that needed for manipulation will be done after the confirmatory factor analysis.

#### **5.4.4. Reliability Analysis**

This study used Cronbach's alpha as diagnostic tool to assess the degree of internal consistency between multiple measurements of variables. (Hair et al, 2010) stated that the lower limit for Cronbach's alpha is 0.70, although

it may decrease to 0.60 in exploratory research. While Nunnally (1978) considered Cronbach's alpha values greater than 0.60 are taken as reliable. Given that Cronbach's alpha has being the most widely used measure (Sharma, 2000).

Table (5.8) presents the summary of the results for reliability analysis. Confirmed that all the scales display the satisfactory level of reliability (Cronbach's alpha exceed the minimum value of 0.60). Therefore it can be concluded that the measures have acceptable level of reliability. The full SPSS output showed in Appendix B4.

**Table (5.8)**  
**Reliability for study variables after EFA**

<b>Construct</b>	<b>variable</b>	<b>No of items</b>	<b>Cronbach's alpha</b>
Internal Market Orientation	Information generation	2	.585
	Information dissemination	5	.878
	Responsiveness	2	.847
Market Sensing	Sensemaking	6	.840
	Response	5	.896
Organizational Capabilities	Collaboration	6	.890
	learning	3	.772
	Innovation	3	.692
Marketing Performance	Customer performance	5	.805

*Source: prepared by researcher from data analysis (2015)*

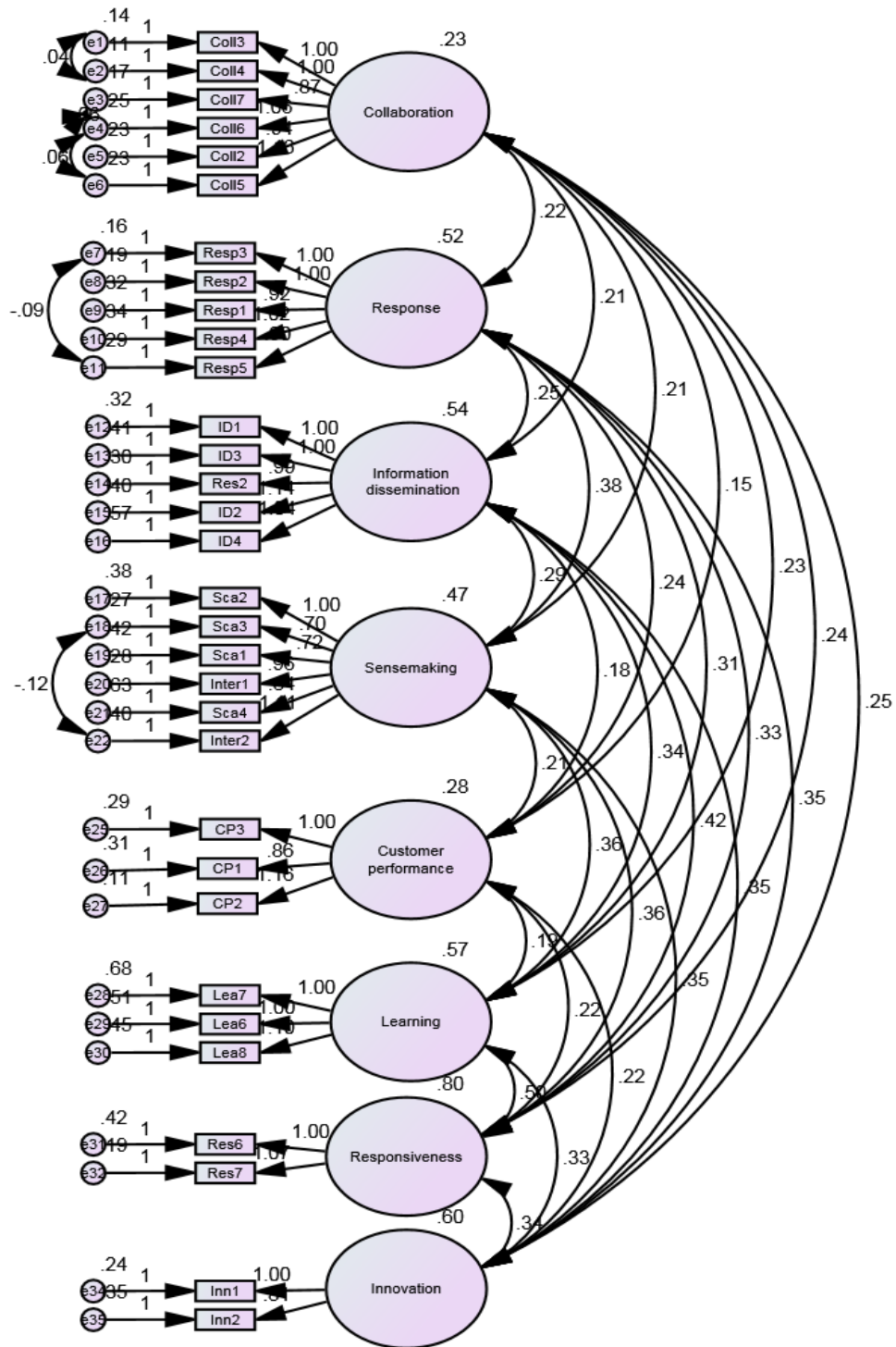
#### **5.4.5. Confirmatory Factor Analysis**

Confirmatory Factor Analysis (CFA) is the next step after exploratory factor analysis to determine the factor structure of dataset. In the (EFA) we explore the factor structure (how the variables relate and group based on

inter-variable correlations); in the (CFA) we confirm the factor structure we extracted in the (EFA). All the items in Table (5.5) were used to conduct confirmatory factor analysis with maximum likelihood and promax. Thus, the clean pattern matrix showed that items (Sca1, Cp4, Cp5, Inn4, IG4, IG5) were deleted because of their low standardized regression weight (less than .650), as a result of deleting these items the correlation between factor four and five, factor nine and seven, and factor seven and eight which presented in Table (5.7) are decreased to less than 0.7. Given that the composite reliability was improved. Figure 5.2 presents the result of confirmatory factor analysis represented by path diagram.

#### **5.4.6. Model Fit**

Model fit refers to how well the proposed model accounts for the correlations between variables in the dataset. If the accounting for all the major correlations inherent in the dataset (with regards to the variables in the model), then the model will have a good fit. If not, then there is a significant “discrepancy” between the correlations proposed and the correlations observed, and thus have poor model fit.



**Figure (5.2) path diagram for value model**

There are specific measures that can be calculated to determine goodness of fit. The thresholds listed in the table (5.9) below are simply a guideline.

**Table (5.9) measures to determine goodness of model fit**

Measure	Threshold
Chi-square/degree of freedom(cmin/df)	< 3 good; < 5 sometimes permissible
P-value for model	>.05
CFI	>.95 great; >.90 traditional; >.80 sometimes permissible
GFI	>.95
AGFI	>.80
SRMR	<.09
RMSEA	<.5 good; .05-.10 moderate;> 10 bad
P Close	>.05

*Source: Adopted from (Gaskin, 2016)*

Based on the thresholds listed in Table (5.9) above and Table (5.11) the confirmatory factor analysis (CFA) was run to check the validation of the measurements, including unidimensionality and convergent validity. Table (5.10) presents the measures and the (CFA) results. The (CFA) fit indices show that the measurements model fits the data well: Chi-square/degree of freedom (cmin/df) = 1.562; incremental fit index (IF) = .931; comparative fit index (CFI) = .930; goodness of fit index (GFI) = .826; adjusted goodness of fit index (AGFI) = .786; square root mean of residual (SRMR) = .060; root mean square error of approximation (RMSEA) = .056; and P Close = .115. All items loaded on their respective constructs, and each had large coefficients and significance at the 0.001 level. Table (5.11) presents the cut off criteria of the model fit.



**Table (5.10) model fit measures**

Measure	Estimate	Threshold	Interpretation
CMIN	629.627	--	--
DF	403	--	--
CMIN/DF	1.562	Between 1 and 3	Excellent
CFI	0.930	>0.95	Acceptable
SRMR	0.060	<0.08	Excellent
RMSEA	0.056	<0.06	Excellent
P Close	0.115	>0.05	Excellent

*Source: prepared by researcher from data analysis (2015)*

**Table (5.11) cutoff criteria**

Measure	Terrible	Acceptable	Excellent
CMIN/DF	> 5	> 3	> 1
CFI	<0.90	<0.95	>0.95
SRMR	>0.10	>0.08	<0.08
RMSEA	>0.08	>0.06	<0.06
PClose	<0.01	<0.05	>0.05

*Source: prepared by researcher from data analysis (2015)*

### 5.4.7. Reliability and Validity

To evaluate the reliability and validity of the measurement instrument, several statistical analyses were conducted. To verify scale reliability, Composite Reliability (CR) and Cronbach's alpha were engaged. Table (5.12) shows that all CR and Cronbach's alpha values have exceeded the minimum requirement of 0.70. Therefore, the measurement instrument has a high level of reliability (Lee, Foo, Leong, & Ooi, 2016). In terms of convergent validity, the Average Variance Extracted (AVE) for all scales is

greater than the suggested threshold 0.5 as recommended by (Fornell & Larcker, 1981) indicating sufficient convergent validity of the measurement instrument. To evaluate discriminant validity the calculation of (AVE) showed that the correlation of the construct with its measurement items is greater than its correlation with the other constructs (Lowry & Gaskin, 2014). The diagonal boldface of Table (5.12) showed that all square root of AVE is greater than their respective correlation coefficients. Hence, the measurement instrument has a high level of discriminant validity. Table (5.12) shows the details of the above mentioned.

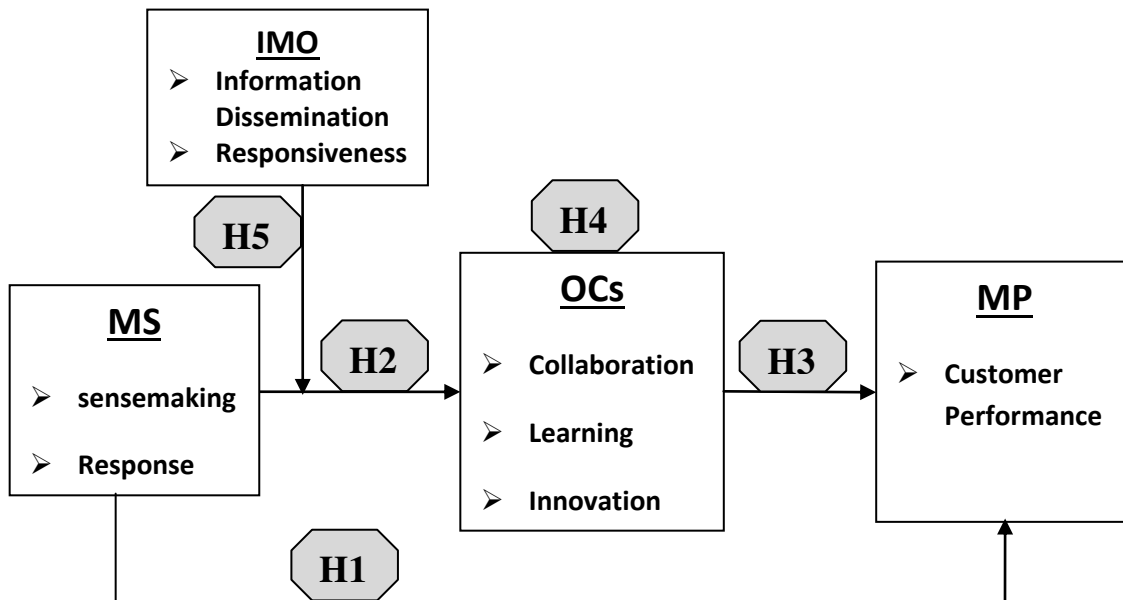
**Table (5.12) validity and reliability test**

Variable name	CR	AVE	MSV	ASV	1	2	3	4	5	6	7	8
<b>1. Responsiveness</b>	0.829	0.742	0.526	0.306	<b>0.861</b>							
<b>2. Collaboration</b>	0.949	0.576	0.419	0.328	0.525	<b>0.759</b>						
<b>3. Response</b>	0.922	0.649	0.513	0.348	0.475	0.576	<b>0.805</b>					
<b>4. Information diss</b>	0.881	0.595	0.419	0.306	0.647	0.571	0.443	<b>0.772</b>				
<b>5. Sensemaking</b>	0.871	0.538	0.513	0.354	0.533	0.526	0.716	0.521	<b>0.733</b>			
<b>6. Customer perfor</b>	0.867	0.555	0.433	0.287	0.433	0.557	0.658	0.460	0.552	<b>0.745</b>		
<b>7. Learning</b>	0.742	0.529	0.526	0.373	0.725	0.599	0.573	0.605	0.662	0.496	<b>0.727</b>	
<b>8. Innovation</b>	0.803	0.618	0.419	0.350	0.477	0.647	0.641	0.591	0.623	0.559	0.588	<b>0.786</b>
<b>9. Reliability ( <math>\alpha</math> )</b>					<b>0.847</b>	<b>0.890</b>	<b>0.896</b>	<b>0.878</b>	<b>0.822</b>	<b>0.779</b>	<b>0.772</b>	<b>0.760</b>

## 5.5. Modification of Conceptual Framework and Hypotheses

As a result of factor analysis the initial Framework of this study has been changed, the variables of OCs remained without change. However the variables related to MS has been changed to two variables, sensemaking, and response. While the items related to the IMO were factored into two variables instead of three conceptualized component. Therefore, one variable has been excluded from IMO construct (information generation).

Furthermore one dimension of MP construct was excluded (market performance) and the remaining dimension was (customer performance). Sequentially, the initial hypotheses presented with the proposed model will be restated. Figure (5.3) presents the modified conceptual framework, and the restated hypotheses are shown in table (5.13).



Source: prepared by researcher (2015)

Figure (5.3): The Modified Conceptual Framework.

**Table (5.13) the restated hypotheses**

- 
- H1: The firm’s market sensing is positively relates to firm’s marketing performance.**
  - H1:1: The firm’s market sensing is positively relates to customer performance.**
  - H1:1a: sensemaking is positively relates to firm’s customer performance.**
  - H1:1b: response is positively relates to firm’s customer performance.**
  - H2: There is a positive relationship between market sensing and organizational capabilities.**
  - H2:1: There is a positive relationship between market sensing and organizational collaboration capability.**
  - H2:1a: There is a positive relationship between sensemaking and collaboration capability.**
  - H2:1b: There is a positive relationship between response and collaboration capability.**
  - H2:2: There is a positive relationship between market sensing and organizational learning capability.**
  - H2:2a: There is a positive relationship between sensemaking and learning capability.**
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H2:2b: There is a positive relationship between response and learning capability.

**H2:3: *There is a positive relationship between market sensing and organizational innovation capability.***

H2:3a: There is a positive relationship between sensemaking and innovation capability.

H2:3b: There is a positive relationship between response and innovation capability..

**H3: *There is a positive relationship between the organizational capabilities and marketing performance.***

**H3:1: *Organizational capabilities positively relates to customer performance.***

H3:1a *the organizational learning capability is positively relates to customer performance.*

H3:1b *the organizational innovation capability is positively relates to customer performance.*

H3:1c *the organizational collaboration capability is positively relates to customer performance.*

**H4: *The organizational capabilities mediate the relationship between market sensing and firm marketing performance.***

**H4:1: *The organizational learning capability mediates the relationship between market sensing and customer performance.***

H4:1a: The organizational learning capability mediates the relationship between sensemaking and customer performance.

H4:1b: The organizational learning capability mediates the relationship between response and customer performance.

**H4:2: *The organizational innovation capability mediates the relationship between market sensing and customer performance.***

H4:2a: The organizational innovation capability mediates the relationship between sensemaking and customer performance.

H4:2b: The organizational innovation capability mediates the relationship between response and customer performance.

**H4:3: *The organizational collaboration capability mediates the relationship between market sensing and customer performance.***

H4:3a: The organizational collaboration capability mediates the relationship between sensemaking and customer performance.

H4:3b: The organizational collaboration capability mediates the relationship between response and customer performance.

**H5: *The moderating effect of internal market orientation on the relationship between market sensing and organizational capabilities.***

**H5:1: *The information dissemination strengthens the positive effect of market sensing on organizational capabilities.***

**H5:1:1: *The information dissemination strengthens the positive effect of market sensing on organizational learning capability.***

H5:1:1a: *The information dissemination strengthens the positive effect of sensemaking on organizational learning capability.*

H5:1:1b: *The information dissemination strengthens the positive effect of response on organizational learning capability*

**H5:1:2: *The information dissemination strengthens the positive effect of market sensing on organizational innovation capability.***

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H5:1:2a: *The information dissemination strengthens the positive effect of sensemaking on innovation.*

H5:1:2b: *The information dissemination strengthens the positive effect of response on innovation.*

**H5:1:3:** *The information dissemination strengthens the positive effect of market sensing on organizational collaboration capability.*

H5:1:3a: *The information dissemination strengthens the positive effect of sensemaking on collaboration.*

H5:1:3b: *The information dissemination strengthens the positive effect of response on innovation.*

**H5:2:** *The responsiveness strengthens the positive effect of market sensing on organizational capabilities.*

**H5:2:1:** *The responsiveness strengthens the positive effect of market sensing on learning capability.*

H5:2:1a: *The responsiveness strengthens the positive effect of sensemaking on learning capability.*

H5:2:1b: *The responsiveness strengthens the positive effect of response on learning capability.*

**H5:2:2:** *The responsiveness strengthens the positive effect of market sensing on innovation capability.*

H5:2:2a: *The responsiveness strengthens the positive effect of sensemaking on innovation capability.*

H5:2:2b: *The responsiveness strengthens the positive effect of response on innovation capability.*

**H5:2:3:** *The responsiveness strengthens the positive effect of market sensing on collaboration capability.*

H5:2:3a: *The responsiveness strengthens the positive effect of sensemaking on collaboration capability.*

H5:2:3b: *The responsiveness strengthens the positive effect of response on collaboration capability.*

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*Source: prepared by researcher (2015).*

## **5.6. Descriptive Analysis**

Descriptive statistics such as mean and standard deviation was used to describe the characteristics of the firms and all the variables (internal market orientation, market sensing, organizational capabilities, and marketing performance) under the study. Given that the study include some of firm characteristics such as firm age, type of industry, ownership status, and firm

size as measured by number of employees as control variables. Firm size has been shown to influence organizational learning process and customer performance, while firm age is used as a surrogate for the firm's memory (Krush, Agnihotri, Trainor, & Nowlin, 2013). Therefore, t-test was used to test the differences. The SPSS output for descriptive statistics presented in appendix B6.

### 5.6.1. Descriptive Analysis of Internal Market Orientation

Table 5.14 shows the means and standard deviations of the two components of internal market orientation, information dissemination, and responsiveness. The table reveals that the firms operating in Sudan are emphasized more on information dissemination (mean=3.90, standard deviation=0.701), followed by responsiveness (mean=3.65, standard deviation=0.834). Given that the scale used a 5-point scale (1=strongly disagree, 5=strongly agree), it can be concluded that firms operating in Sudan are to some extent highly of information dissemination, while above average on responsiveness.

**Table (5-14) descriptive analysis of internal market orientation**

<b>Variables</b>	<b>Mean</b>	<b>Standard Deviation</b>
information dissemination	3.90	0.701
Responsiveness	3.65	0.834

*Note: All variables used a 5-point likert scale (1= strongly disagree, 5= strongly agree)*

### 5.6.2. Descriptive Analysis of Market Sensing

Table (5.15) shows the means and standard deviations of the two dimensions of market sensing, sensemaking, and response. The table reveals that the firms operating in Sudan are emphasized more on response (mean=4.17, standard deviation=0.675), followed by sensemaking (mean=4.16, standard deviation=0.652). Given that the scale used a 5-point Scale (1=strongly disagree, 5=strongly agree), it can be completed that firms operating in Sudan are highly of responding to response, and sensemaking.

**Table (5.15) descriptive analysis of market sensing**

<b>Variables</b>	<b>Mean</b>	<b>Standard Deviation</b>
Response	4.17	0.675
Sensemaking	4.16	0.652

*Note: All variables used a 5-point likert scale (1= strongly disagree, 5= strongly agree)*

### 5.6.3. Descriptive Analysis of Organizational Capabilities

Table 5.16 contains the means and standard deviations for the three organizational capabilities. The table shows that the innovation capability was in the top ranking score (mean=4.47, standard deviation=0.708), followed by collaboration capability (mean=4.20, standard deviation=0.489), then learning capability (mean=3.73, standard deviation=0.695). These results demonstrate that the firms operating in Sudan have above average organizational capabilities (on a 5-point scale). However, innovation capability rate highest score in compare with other capabilities

(collaboration, and learning). This finding indicates that the innovation capability tends to inhabit high position in the firms operating in Sudan.

**Table (5-16) descriptive analysis of organizational capabilities**

<b>Variables</b>	<b>Mean</b>	<b>Standard Deviation</b>
Innovation	4.47	0.708
Collaboration	4.20	0.489
Learning	3.73	0.695

*Note: All variables used a 5-point likert scale (1= strongly disagree, 5= strongly agree)*

T-tests were used to test the differences in organizational capabilities among the type of industry, firm age, and firm size. Table (5.17) presents summary of the t-tests, the output is attached in Appendix B.7. The results shows significant differences in collaboration capability (t-value=-2.204,  $p < 0.05$ ) among commercial and industrial firms. The means and t-value indicate that industrial firms have the higher level of collaboration capability than commercial firms. However, the table shows no significant differences in innovation, and learning capability between the two types of firm's industry.

Regarding the firm age table (5.17) shows to some extend significant differences in innovation and learning capability (t-value=1.853 and 1.899,  $p < 0.05$ ) among new and well-established firms. The means and t-value indicate that new-established firms have the higher level of innovation and learning capability than well-established firms. However, the table shows no



significant differences in collaboration capability between the two types of firm age.

For firm size, Table 5.17 shows no significant differences in all dimensions of organizational capabilities (innovation, learning and collaboration) among medium and large firms ( $p > 0.05$ ). Close inspection of the means indicate that large firms with more than 150 employees have high innovation capability compare with medium firms that have 150 employees or less. While the vice versa in learning and collaboration capability.

**Table (5-17) T-test for Organizational Capabilities**

<i>Firm attribute</i>		<i>Collaboration</i>		<i>innovation</i>		<i>learning</i>	
		<i>M</i>	<i>t-value</i>	<i>M</i>	<i>t-value</i>	<i>M</i>	<i>t-value</i>
<i>Industry type</i>	<i>Commercial</i>	4.12		4.38		3.69	
	<i>industrial</i>	4.28	-2.229*	4.57	-1.794	3.78	-.948
<i>Firm age</i>	<i>New</i>	4.26		4.56		3.83	
	<i>Well established</i>	4.14	1.649	4.37	1.853*	3.63	1.899*
<i>Firm size</i>	<i>Medium</i>	4.20		4.40		3.77	
	<i>large</i>	4.19	.055	4.53	-1.161	3.70	.614

*Note: \*p < 0.05, \*\*p < 0.01, M=Mean. Source: prepared by researcher from data (2015)*

#### **5.6.4. Descriptive Analysis of Marketing Performance**

Table 5.18 presents means and standard deviations values of the dimension of customer performance. The table illustrate that the mean score of measuring customer performance is notably low. The table shows that customer performance (mean= 3.64, standard deviation=0.490) is above average. This result indicates that, during the last three years the sampled

firms in Sudan have achieved above average customer performance (on a 5-point scale).

**Table (5.18) Descriptive Analysis of Marketing Performance**

<b>Variables</b>	<b>Mean</b>	<b>Standard Deviation</b>
Customer performance	3.64	0.490

*Note: All variables used a 5-point likert scale (1= much worth, 5= much better)*

T-tests were done to test whether there are significant differences in customer performance among firm size, firm age, and markets the firms work in. Table 5.19 shows significant differences in customer performance (t-value= -2.351,  $p < 0.05$ ) between medium and large firms. Close inspection of the means and t-value reveal that customer performance is higher in large firms compared with medium firms.

Regarding the firm's age, Table 5.19 reveals no significant difference in customer performance (t-value=.887,  $p > 0.05$ ) between new and well-established firms. Close inspection of the mean and t-value indicate that customer performance is higher in new firms that have age of 15 years or less compared with well-established firms which have more than 15 years.

Concerning the markets that the firms work in, table 5.19 presents no significant difference in customer performance (t-value=.484,  $p > 0.05$ ) between the firms work in local markets and others that work in both local and international markets. Inspection of the mean and t-value indicate that customer performance is higher in the firms that operate in local markets

compared with firms work in both local and international markets. The full SPSS output is attached in Appendix B.7.

**Table 5-19 T-test for Marketing Performance**

<i>Firm attribute</i>		<i>Customer performance</i>	
		<i>M</i>	<i>t-value</i>
<i>Firm size</i>	<i>Medium</i>	3.55	
	<i>Large</i>	3.72	-2.351*
<i>Firm age</i>	<i>New</i>	3.67	
	<i>Well established</i>	3.61	.887
<i>Market type</i>	<i>Local</i>	3.66	
	<i>Local &amp; international</i>	3.62	.484

*Note:* \* $p < 0.05$ , \*\* $p < 0.01$ ,  $M = \text{Mean}$ . . *Source:* prepared by researcher from data (2015)

## 5.7. Correlation Analysis

The zero-order correlation was conducted for all dimensions of the constructs operationalized in this study using bivariate correlations. These bivariate correlations allow for preliminary inspection of hypothesized relationships.

Table 5-20 presents that all the hypothesized relationships are in positive correlations. For example the relationship between all the two components of market sensing which represents the independent variable and all the three dimensions of the organizational capabilities are distinctively positive and statistically significant ( $0.638 \leq r \leq 0.782$ ,  $p < 0.01$ ). The table also shows that all the two dimensions of market sensing are significantly correlated with the customer performance ( $0.633 \leq r \leq 0.707$ ,  $p < 0.01$ ). Regarding organizational capabilities the table also reveals that the

three factors of organizational capabilities are significantly correlated with the customer performance ( $0.559 \leq r \leq 0.644$ ,  $p < 0.01$ ). Based on the bivariate correlations there was some expectation that these coefficients would be significant. The full SPSS output is attached in Appendix (B.8).

**Table (5.20 ) Person’s correlation coefficient for all variables.**

	1	2	3	4	5	6	7	8
1. Sensemaking	1							
2. Response	.812**	1						
3. Innovation	.745**	.713**	1					
4. Learning	.782**	.638**	.677**	1				
5. collaboration	.666**	.665**	.748**	.686**	1			
6. Information dissemination	.630**	.520**	.689**	.703**	.630**	1		
7. Responsiveness	.633**	.565**	.578**	.836**	.593**	.713**	1	
8. Customer performance	.633**	.707**	.625**	.559**	.644**	.527**	.522**	1

Source: prepared by the researcher from data (2015). \*\* Correlation is significant at the 0.01 level (2-tailed)

As shown in table (5.20) above the correlation analysis provides strong indicators of associations, thus for more examination of the proposed relationships path analysis through structural equation model (SEM) was conducted to gives the best predictive model of the relationship present among the independent variables. In the following are hypotheses testing the last part of data analysis and findings.

## 5.8. Hypotheses Testing

This section discusses the results of hypotheses of the study. The hypotheses were tested with the path analysis that discloses the effect of independent variables on dependent variables and the effect of mediator and moderator in relationships between variables through the structural equation

modeling (SEM) that grows out of and serves purposes similar to multiple regression, but in more powerful way which takes in account the modeling of interactions between variables, nonlinearities, correlated independents, measurement error, correlated error terms, multiple latent independents each measured by multiple indicators, and one or more latent dependents also each with multiple indicators (Gaskin, 2016). SEM may be used as a more powerful alternative to multiple regression, path analysis, factor analysis, time series analysis, and analysis of covariance. That is, these procedures may be seen as special cases of SEM, or, to put it another way, SEM is an extension of the general linear model (GLM) of which multiple regression is a part. Given that the variables appeared in confirmatory factor analysis encompasses 35 hypotheses in this study. The main effects as well as the mediating effect were examined using path analysis, the statistical procedures of which had been explained in chapter 3.

In order to perform path analysis, it is generally agreed that there are at least the assumptions of model fit should be met. It's given that the model fit was done in (CFA), however the need to do it again in structural model is important in order to demonstrate sufficient exploration of alternative models (Gaskin, 2016). Every time the model changes and a hypothesis are

tested, model fit must be assessed. Thus the Absolute fit indices and Incremental fit indices assumptions are provided below:

### **5.8.1. Absolute Fit Indices**

Absolute fit indices provide the most fundamental indication of how well the proposed theory fits the data, it includes indices like the Chi-Squared test, RMSEA, GFI, AGFI, the RMR and the SRMR the information about each are in the following sub sections.

#### ***5.8.1.1. The relative/normed chi-square/df ( $\chi^2/df$ )***

Due to the restrictiveness of the Model Chi-Square (Hooper, Coughlan, & Mullen, 2008) indicates that researchers have sought alternative indices the relative/normed chi-square ( $\chi^2/df$ ) which means (the model calculated value of chi-square divided by the degree of freedom), as one example of statistic that minimizes the impact of sample size on the Model Chi-Square. The recommendations regarding an acceptable ratio for this statistic range from as high as 5.0 to as low as 2.0 (Hooper et al, 2008).

#### ***5.8.1.2. Root Mean Square Error of Approximation (RMSEA)***

The RMSEA is the second fit statistic reported in SEM to tell us how well the model, with unknown but optimally chosen parameter estimates would fit the populations' covariance matrix (Hooper et al, 2008). In recent years it has become regarded as one of the most informative fit indices due

to its sensitivity to the number of estimated parameters in the model. In other words, the RMSEA favours parsimony in that it will choose the model with the lesser number of parameters. Recommendations for RMSEA cut-off points have been reduced considerably in the last fifteen years. Up until the early nineties, an RMSEA in the range of 0.05 to 0.10 was considered an indication of fair fit and values above 0.10 indicated poor fit, and then it was thought that an RMSEA of between 0.08 to 0.10 provides average fit and below 0.08 shows a good fit (MacCallum et al, 1996, cited in Hooper et al, 2008). However, more recently, a cut-off value close to .06 (Hu & Bentler, 1999) or a stringent upper limit of 0.07 (Steiger, 2007) seems to be the general consensus amongst authorities in this area (Hooper et al, 2008). Finally it is generally reported in conjunction with the RMSEA and in a well-fitting model the lower limit is close to 0 while the upper limit should be less than 0.08.

#### ***5.8.1.3. Goodness-of-fit statistic (GFI) and the adjusted goodness-of-fit statistic (AGFI)***

According to Hooper et al, (2008) the (GFI) was created as an alternative to the Chi-Square test and calculates the proportion of variance that is accounted for by the estimated population covariance, this statistic ranges from 0 to 1 and with larger samples increasing its value and the cut-

off point of 0.90 has been recommended for the GFI however, simulation studies have shown that when factor loadings and sample sizes are low a higher cut-off of 0.95 is more appropriate. On the other hand the value of AGFI which adjusts the GFI based upon degrees of freedom also ranges between 0 and 1 and it is generally accepted that values of 0.90 or greater indicate well fitting models.

#### ***5.8.1.4. Root mean square residual (RMR) and standardized root mean square residual (SRMR)***

The RMR and the SRMR are the square root of the difference between the residuals of the sample covariance matrix and the hypothesized covariance model. Values for the SRMR range from zero to 1.0 with well fitting models obtaining values less than .05, however values as high as 0.08 are deemed acceptable (Hooper et al, 2008). An SRMR of 0 indicates perfect fit but it must be noted that SRMR will be lower when there is a high number of parameters in the model and in models based on large sample sizes (Hooper et al, 2008).

#### **5.8.2. Incremental Fit Indices**

Incremental fit indices are a group of indices that do not use the chi-square in its raw form but compare the chi-square value to a baseline model this means it use to measure how well the model fits in comparison to no



model at all. This category includes Normed-fit index (NFI), Non-Normed Fit Index (NNFI) and Comparative fit index (CFI) (Hooper et al, 2008). The following sub sections will discuss these indices.

#### ***5.8.2.1. Normed-fit index (NFI)***

This statistic assesses the model by comparing the  $\chi^2$  value of the model to the  $\chi^2$  of the null model. Values for this statistic range between 0 and 1 with (Bentler & Bonett, 1980) recommending values greater than 0.90 indicating a good fit. More recent suggestions state that the cut-off criteria should be  $NFI \geq .95$  (Hu & Bentler, 1999).

#### ***5.8.2.2. Non-Normed Fit Index (NNFI)***

Non-Normed Fit Index (NNFI), also known as the Tucker-Lewis index (TLI), is an index that prefers simpler models. Recommendations as low as 0.80 as a cutoff have been preferred however Bentler and Hu (1999) have suggested  $NNFI \geq 0.95$  as the threshold.

#### ***5.8.2.3. Comparative fit index (CFI)***

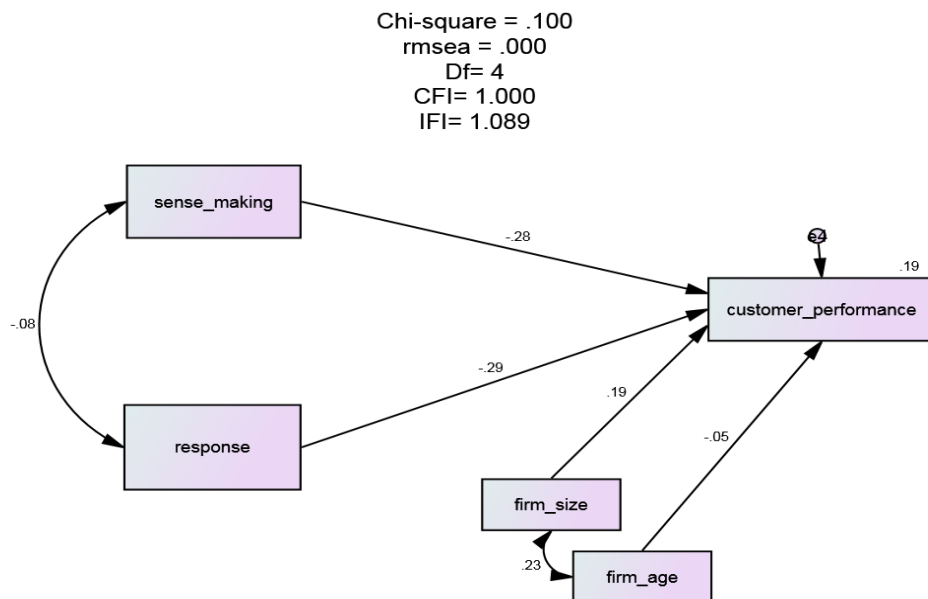
This statistic assumes that all latent variables are uncorrelated (null/independence model) and compares the sample covariance matrix with this null model. The values for this statistic range between 0.0 and 1.0 with values closer to 1.0 indicating good fit. A cut-off criterion of  $CFI \geq 0.90$  was initially advanced however, recent studies have shown that a value greater

than 0.90 is needed in order to ensure that miss-specified models are not accepted (Hu & Bentler, 1999). From this, a value of CFI  $\geq 0.95$  is presently recognized as indicative of good fit (Hu & Bentler, 1999). Today this index is included in all SEM programs and is one of the most popularly reported fit indices due to being one of the measures least affected by sample size (Fan, Thompson, & Wang, 1999).

### 5.8.3. The Relationship between Market Sensing and Marketing Performance.

This section aims to investigate the effect of Market Sensing dimensions on the marketing performance dimensions which represented by customer performance as shown in Exhibit (5.4) below.

*Exhibit (5.4) the relationship between market sensing and customer performance.*



*Source: prepared by the researcher from data (2015).*

From the above figure two hypotheses were developed to be tested. In order to test these hypotheses, path analysis in (SEM) using AMOS was conducted to tests the effect of control variables (firm age and firm size) on customer performance firstly. Then to test the impacts of market sensing dimensions on customer performance. The results of path analyses showing Model fit parameters consistent with recommendation for  $CMIN/DF < 2$ ,  $0 < RMSEA < 1$ ,  $0 < GFI < 1$ ,  $0 < AGFI < 1$ ,  $0 < RMR < 1$ ,  $0 < NFI < 1$ ,  $0 < CFI < 1$ , and  $PCLOSE > 0.05$ . Table (5.21) presents the achieved model fit indices, which are quite reasonable values to indicate the model fit. The full AMOS output is attached in Appendix (B.8).

**Table (5.21) the achieved model fit values**

$\chi^2/df$	RMSEA	GFI	AGFI	RMR	NFI	NNFI	CFI	PCLOSE
0.025	0.000	1.00	0.999	0.001	0.998	1.258	1.00	1.00

*Source: prepared by the researcher from data (2015).*

Also Table 5.22 summarizes the results of regression analysis. The first control variables (firm size) shows significant effect (estimate=.113,  $p < 0.01$ ) on customer performance, while the second one (firm age) reveals without significant effect (estimate=-.030,  $p > 0.05$ ) on customer performance.

Further analysis of the results in table 5.22 showed that the two components of market sensing have significant relationship with customer performance, though the results indicate a positive relationship between the

two variables with values of (estimate=-.190, p<0.001; estimate=-.221, p<0.001) respectively to (sensemaking and response) on customer performance. These results give support to hypotheses H1.1a (The sensemaking and customer performance) and H1.1b (The response and customer performance.). Thus hypothesis H1.1 which states that there is a positive relationship between market sensing and customer performance was fully supported. The full AMOS output is displayed in Appendix B.8.

**Table (5.22) Regression Weights: (Group number 1 - Default model)**

	Estimate	S.E.	C.R.	P	results
customer performance <--- firm size	.113	.040	2.801	.005	-----
customer performance <--- firm age	-.030	.040	-.762	.446	-----
customer performance <--- sensemaking	-.190	.045	-4.169	***	<b>Supported</b>
customer performance <--- response	-.221	.051	-4.353	***	<b>Supported</b>

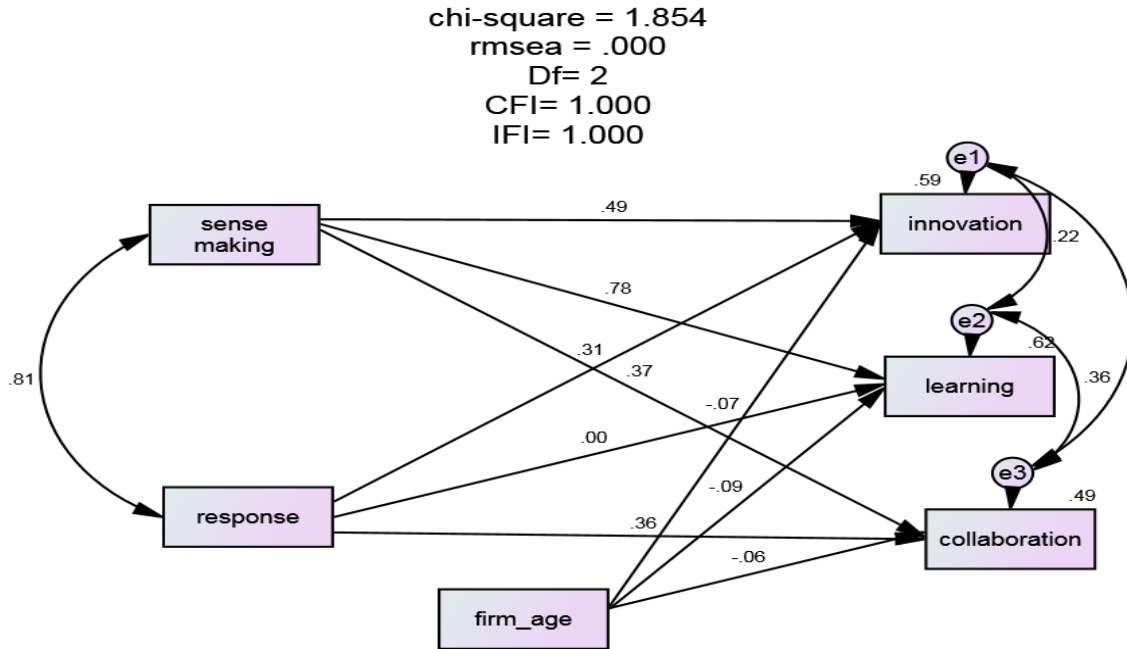
*Source: prepared by the researcher from data (2015).*

#### **5.8.4. The Relationship between Market Sensing and Organizational Capabilities.**

This section aims to investigate the second hypotheses in this study which assumes that the market sensing dimensions have positive relationship with the organizational capabilities dimensions as shown in Exhibit (5.5) below.

Based on the below figure six hypotheses were developed to be tested. Therefore, to test these hypotheses, a similar process of path analysis using AMOS was conducted to predict Firstly, the effect of control variable (firm age) on organizational capabilities. And secondly, to disclose the impacts of market sensing dimensions on organizational capabilities.

*Exhibit (5.5) the relationship between market sensing and organizational capabilities.*



*Source: prepared by the researcher from data (2015).*

With respect to the model fit cutoff appeared in Table (5.11) above, the results of path analysis showing Model fit parameters consistent with recommendation as follow, CMIN/DF=.927, RMSEA=.000, GFI=.997, AGFI=.964, RMR=.012, NFI=.997, CFI=1, and PCLOSE=.541. Table (5.23) below presents the model fit measures and their interpretations.

**Table (5.23) the model fit measures**

Measure	Estimate	Threshold	Interpretation
CMIN	1.854	--	--
DF	2	--	--
CMIN/DF	.927	Between 1 and 3	Excellent
GFI	0.997	>0.95	Excellent
AGFI	0.964	>0.80	Excellent
CFI	1.000	>0.95	Excellent
SRMR	0.012	<0.08	Excellent
NFI	0.997	>0.95	Excellent
RMSEA	0.000	<0.06	Excellent
P Close	0.541	>0.05	Excellent

*Source: prepared by the researcher from data (2015).*

Table 5.24 summarizes the results of regression analysis. The control variable (firm age) showed no significant effect on the components of organizational capabilities ( $p > 0.05$ ) in all cases, the values of estimates for the relationship between firm age and organizational capabilities (innovation, learning and collaboration) are (-.101, -.118, and -.059) respectively.

Further analysis of the results in table 5.24 showed that the two components of market sensing have significant relationship with the all components of organizational capabilities except the relationship between response and learning capability.

Concerning the proposed relationship between market sensing and innovation capability the output for estimates shows significant relationship between sensemaking and innovation (estimates=.533,  $p < 0.001$ ), while the relationship between response and innovation reveals significant (estimates=.321,  $p < 0.001$ ). Therefore this result indicates a positive

relationship between market sensing and organizational innovation capability. These results give support to hypotheses H2.3a (The sensemaking and innovation capability) and H2.3b (response and innovation capability). Thus hypothesis H2.3 which states that there is a positive relationship between market sensing and innovation capability was fully supported.

In terms of the exchange between market sensing and learning the regression weights shows significant relationship between sensemaking and learning (estimates=.827,  $p < 0.001$ ) and no significant effect between response and learning (estimates=-.001,  $p > 0.05$ ). Though, the outcomes indicate a positive relationship between market sensing and organizational learning capability. These results give support to hypotheses H2.2a (The sensemaking and learning capability) and it will not support H2.2b (response and learning capability). Thus hypothesis H2.2 which states that there is a positive relationship between market sensing and learning capability was partially supported.

Regarding the effect of market sensing on collaboration the regression weights output shows significant relationship between sensemaking and collaboration (estimates=.278,  $p < 0.001$ ) and significant effect between response and collaboration (estimates=.259,  $p < 0.001$ ). Thus, the outcomes indicate a positive relationship between market sensing and organizational

collaboration capability. These results give support to hypotheses H2.1a (The sensemaking and collaboration capability) and H2.1b (response and collaboration capability). Thus hypothesis H2.1 which states that there is a positive relationship between market sensing and collaboration capability was fully supported.

**Table (5.24) Regression Weights: (Group number 1 - Default model)**

	Estimate	S.E.	C.R.	P	Label
collaboration <--- response	.259	.066	3.915	***	par_1
collaboration <--- firm age	-.059	.052	-1.125	.261	par_5
learning <--- firm age	-.118	.064	-1.837	.066	par_6
learning <--- response	-.001	.082	-.008	.993	par_7
innovation <--- sensemaking	.533	.089	6.012	***	par_8
innovation <--- response	.321	.086	3.749	***	par_9
innovation <--- firm age	-.101	.067	-1.497	.134	par_10
collaboration <--- sensemaking	.278	.069	4.056	***	par_11
learning <--- sensemaking	.827	.084	9.799	***	par_12

*Source: prepared by the researcher from data (2015).*

In accordance with the above mentioned the general trend of the exchange between market sensing and organizational capabilities was supported. Table (5.25) presents the summery of hypotheses testing results for the relationship between market sensing and organizational capabilities. The full AMOS output is displayed in Appendix B.9.



Table (5.25) summary of hypotheses testing results for the relationship between market sensing and organizational capabilities.

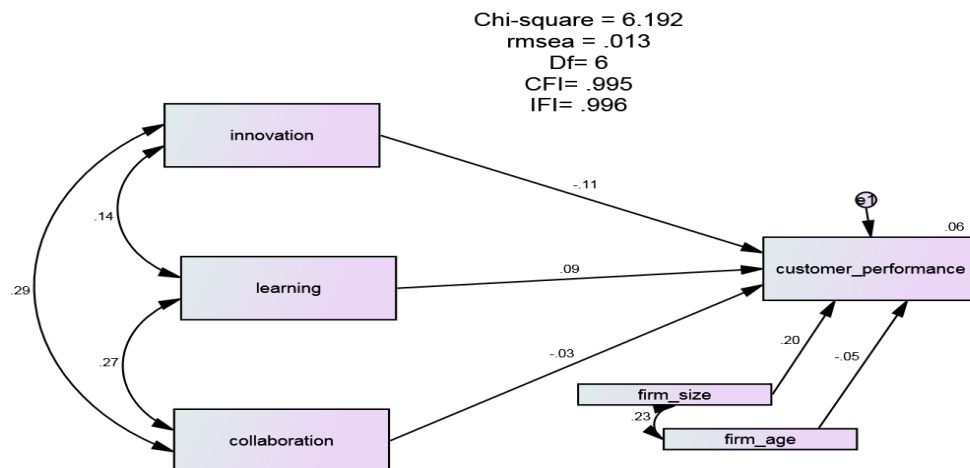
Item	Statement of hypothesis: there is appositive relationship between,	Remark
H2	Market sensing and organizational capabilities.	Supported
H2.1	Market sensing and collaboration.	Fully Supported
	H2.1a Sensemaking and collaboration.	Supported
	H2.1b Response and collaboration.	Supported
H2.2	Market sensing and learning.	partially supported
	H2.2a Sensemaking and learning.	Supported
	H2.2b Response and learning.	Not Supported
H2.3	Market sensing and innovation.	Fully Supported
	H2.3a Sensemaking and innovation.	Supported
	H2.3b Response and innovation.	Supported

Source: prepared by researcher from data (2015)

### 5.8.5. The Relationship between Organizational Capabilities and Customer Performance.

This section concerns with testing of third hypotheses in this study which assumes that the organizational capabilities such as (collaboration, learning, and innovation) have positive relationship with customer performance as shown in Exhibit (5.6) below.

Exhibit (5.6) the relationship between organizational capabilities and customer performance.



Source: prepared by the researcher from data (2015).

Depending on the above figure three hypotheses were developed to be tested. Thus, to test these hypotheses, a process of path analysis using AMOS was conducted to firstly, assesses the effect of control variables (firm age and firm size) on customer performance. And secondly, to sacrifices the impacts of organizational capabilities dimensions on customer performance. Regarding the model fit recommendation AMOS output showing Model fit indices as follow, CMIN/DF=1.032, RMSEA=.013, GFI=.989, AGFI=.960, RMR=.010, NFI=.889, CFI=.995, and PCLOSE=.653. Table (5.26) below presents the model fit measures and their interpretations.

**Table (5.26) the model fit measures**

Measure	Estimate	Threshold	Interpretation
CMIN	6.192	--	--
DF	6	--	--
CMIN/DF	1.032	Between 1 and 3	Excellent
GFI	0.989	>0.95	Excellent
AGFI	0.960	>0.80	Excellent
CFI	0.995	>0.95	Excellent
SRMR	0.010	<0.08	Excellent
NFI	0.889	>0.95	Acceptable
RMSEA	0.013	<0.06	Excellent
P Close	0.653	>0.05	Excellent

*Source: prepared by the researcher from data (2015).*

Table 5.27 summarizes the results of regression analysis. The first control variables (firm size) showed significant effect on customer performance (estimate=.114,  $p < 0.01$ ), while the second one (firm age) showed no significant effect on customer performance (estimate=-.027,  $p > 0.05$ ). On the other hand all the components of organizational capabilities (innovation, learning and collaboration) showed no significant relationship

with customer performance ( $p > 0.05$ ) while the values of estimates for each are (-.078, .064, and -.027) respectively.

With respect to the relationship between organizational capabilities and customer performance Table (5.27) shows no significant relationship between the components of organizational capabilities (innovation, learning and collaboration) and customer performance, this means that the relationship between innovation and customer performance was not significant (estimate=-.078,  $p > 0.05$ ), in addition to the relationship between learning and customer performance was not significant (estimate=.064,  $p > 0.05$ ) and moreover the exchange between collaboration and customer performance also not significant (estimate=-.027,  $p > 0.05$ ).

The above results regarding the relationship between (innovation, learning and collaboration) and customer performance indicates no relationship between organizational capabilities and customer performance. These results were not supported hypotheses H3.1a (innovation capability and customer performance), H3.1b (learning capability and customer performance) and finally H3.1c (collaboration capability and customer performance) also not supported. Thus, hypothesis H3.1 which states that there is a positive relationship between organizational capabilities and customer performance was not supported.

**Table (5.27) the Regression Weights: (Group number 1 - Default model)**

	Estimate	S.E.	C.R.	P	Label
customer performance <--- innovation	-.078	.053	-1.457	.145	
customer performance <--- learning	.064	.051	1.249	.212	
customer performance <--- collaboration	-.027	.062	-.429	.668	
customer performance <--- firm size	.114	.044	2.622	.009	
customer performance <--- firm age	-.031	.043	-.724	.469	

*Source: prepared by the researcher from data (2015).*

Table (5.28) presents the summary of hypotheses testing results for the relationship between organizational capabilities and customer performance.

The full AMOS output is displayed in Appendix B.10.

*Table (5.28) summary of hypotheses testing results for the relationship between organizational capabilities and customer performance.*

<i>Item</i>	<i>Statement of hypothesis: there is appositve relationship between,</i>	<i>Remark</i>
<b>H3</b>	<b><i>Organizational capabilities and marketing performance.</i></b>	<b><i>Not Supported</i></b>
<b>H3.1</b>	<b><i>Organizational capabilities and customer performance.</i></b>	<b><i>Not Supported</i></b>
	H3.1a Collaboration and customer performance	Not Supported
	H3.1b learning and customer performance	Not Supported
	H3.1c innovation and customer performance	Not Supported

*Source: prepared by the researcher from data (2015).*

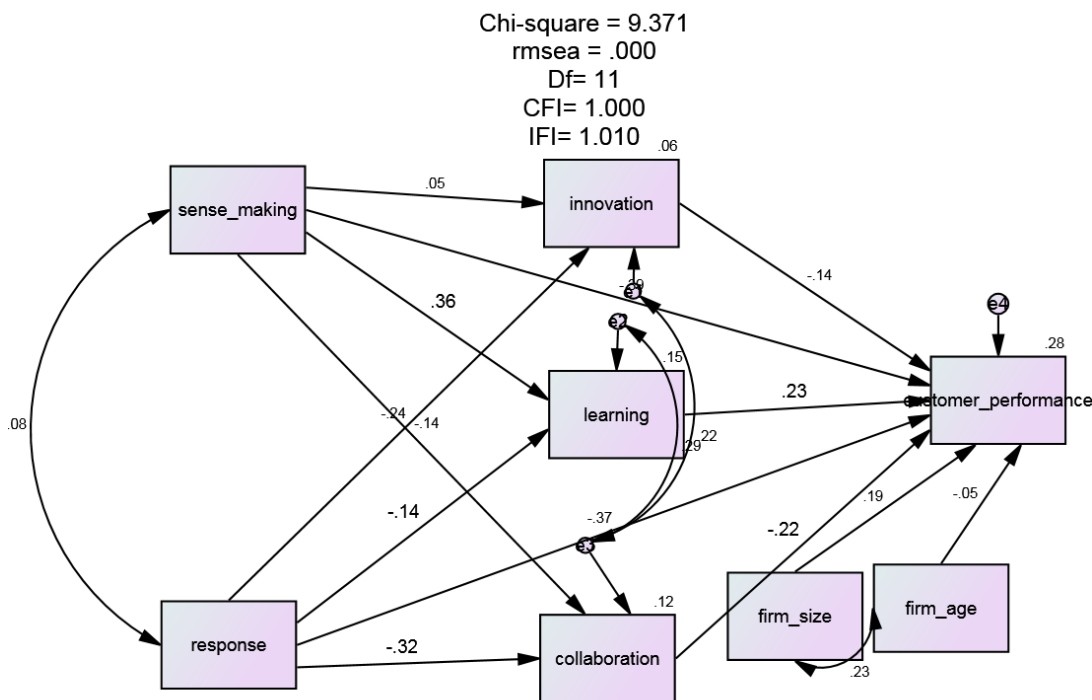
### **5.8.6. The Mediating Role of Organizational Capabilities**

The fourth part of hypotheses testing in this study deals with the mediating effect of organizational capabilities witch included in H4. The support from the first three hypotheses provides the initial steps required to test the fourth hypothesis in the study which predicts whether organizational capabilities (collaboration, learning and innovation) may be a mediating

variable between the market sensing (sensemaking and response) and customer performance. As shown in figure 5.7 below.

As recommended by Baron and Kenny (1986) in literature a three-step hierarchical regression must be conducted to test the hypotheses of mediator. First step, the independent variable must affect the dependent variable significantly ( $\beta_1$  must be significant). Second step, the independent variable should affect the mediating variable ( $\beta_2$  must be significant). Third step, mediating variable must influence the dependent variable significantly ( $\beta_3$  must be significant).

**Figure (5.7) the mediating effect of organizational capabilities.**



Source: prepared by the researcher from data (2015).

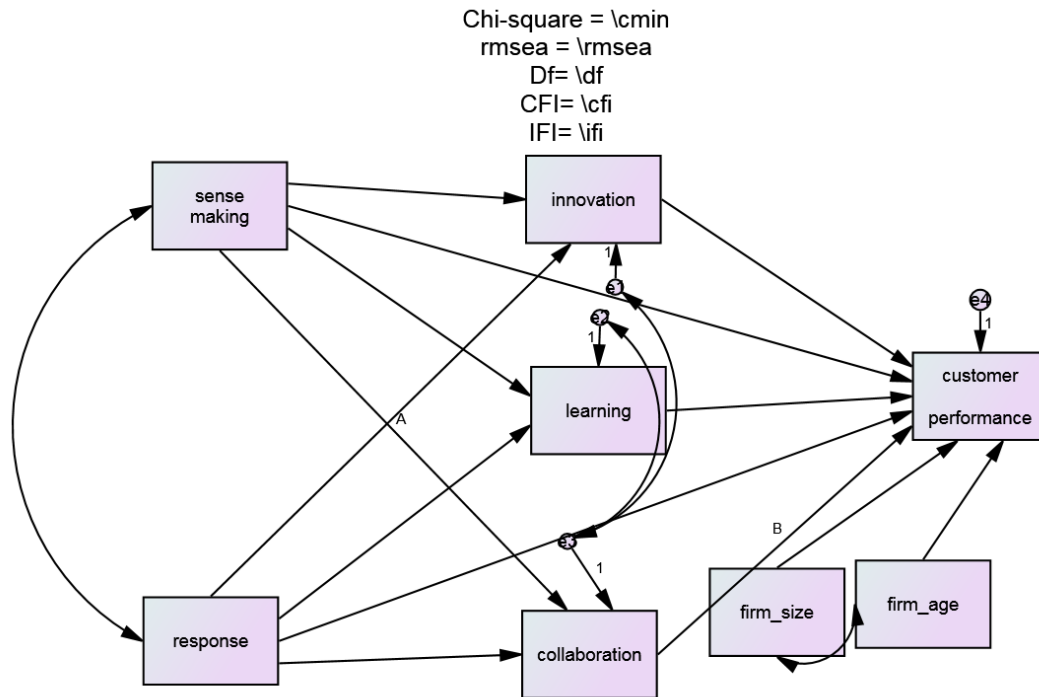
On the other hand, in order to find whether mediator is fully or partially mediating the relationship between the independent variable and dependent variable, the impact of independent variable on dependent variable controlling for mediating variable should be zero or  $\beta_4$  is not significant in fully mediator, while partial mediator exists once  $\beta_4$  is significant but reduced.

Despite the method outlined by Kenny (e.g., Baron & Kenny, 1986; Kenny *et al.*, 1998) is the most commonly used approach in the literature (Patricia A. Frazier, 2004) however, to fulfill the condition for testing the mediation effect of organization capabilities in this study the direct and indirect effect was conducted to examine firstly, the direct effect between market sensing and customer performance then the indirect effect to this relation through the organizational capabilities. Given that the third assumption of Kenny approach was not satisfied in this study, in which the mediating variable must significantly influence the dependent variable ( $\beta_3$  must be significant), this means that the relationship between the organizational capabilities and customer performance is not significant. The results of the direct and indirect effect analyses were discussed in the next subsections. The AMOS output is shown in Appendix (B.11).

### 5.8.6.1. The Mediating Role of Collaboration Capability in the Relationship between Market Sensing and Customer Performance

In this subsection the collaboration capability was hypothesized to mediate the relationship between market sensing and customer performance. However, to test this hypothesis an examination of whether collaboration mediates the relationship between sensemaking and customer performance as shown in figure 5.8 below must be estimated firstly, then secondly, the examination of whether collaboration mediates the relationship between response and customer performance.

Figure (5.8) the mediating role of collaboration capability between S and CP relationship.



Source: prepared by the researcher from data (2015).

Concerning the model fit recommendation AMOS output showing Model fit indices as follow, CMIN/DF=.852, RMSEA=.000, GFI=.987, AGFI=.956, RMR=.008, NFI=.944, CFI=1, and PCLOSE=.853. Table (5.29) below presents the model fit measures and their interpretations.

**Table (5.29) the model fit measures**

Measure	Estimate	Threshold	Interpretation
CMIN	9.371	--	--
DF	11	--	--
CMIN/DF	.852	Between 1 and 3	Excellent
GFI	0.987	>0.95	Excellent
AGFI	0.956	>0.80	Excellent
CFI	1.000	>0.95	Excellent
SRMR	0.008	<0.08	Excellent
NFI	0.944	>0.95	Acceptable
RMSEA	0.000	<0.06	Excellent
P Close	0.853	>0.05	Excellent

*Source: prepared by the researcher from data (2015).*

The result of regression weights presented in Table (5.30) which represents the direct effects shows sensemaking significantly influence customer performance ( $p < 0.01$ ), sensemaking significantly influence collaboration capability ( $p < 0.05$ ), and collaboration capability significantly influence customer performance ( $p < 0.05$ ). Thus, the satisfaction of these three assumptions indicates that the collaboration capability has established mediating effect.



**Table (5.30) regression weights for direct effect: (Group number 1 - Default model)**

		Estimate	S.E.	C.R.	P	Label
learning	<--- sensemaking	.355	.069	5.159	***	par_3
innovation	<--- response	-.256	.078	-3.279	.001	par_4
learning	<--- response	-.152	.077	-1.978	.048	par_5
collaboration	<--- response	-.302	.066	-4.556	***	par_6
collaboration	<--- sensemaking	-.120	.059	-2.024	.043	A
innovation	<--- sensemaking	.046	.070	.652	.514	par_10
customer performance	<--- innovation	-.097	.047	-2.045	.041	par_12
customer performance	<--- learning	.156	.049	3.195	.001	par_13
customer performance	<--- collaboration	-.177	.058	-3.032	.002	B
customer performance	<--- sensemaking	-.262	.048	-5.481	***	par_14
customer performance	<--- response	-.276	.051	-5.354	***	par_15
customer performance	<--- firm size	.114	.038	2.988	.003	par_16
customer performance	<--- firm age	-.031	.037	-.828	.408	par_17

*Source: prepared by the researcher from data (2015).*

On the other hand, Table (5.31) illustrates the indirect effect shows significant relationship between sensemaking and customer performance through collaboration capability. This, result confirmed the mediating role of collaboration capability in the relationship between sensemaking and customer performance. Thus, the summing up of the direct and indirect effect indicated a partial mediation of collaboration capability with the above mentioned relationship.

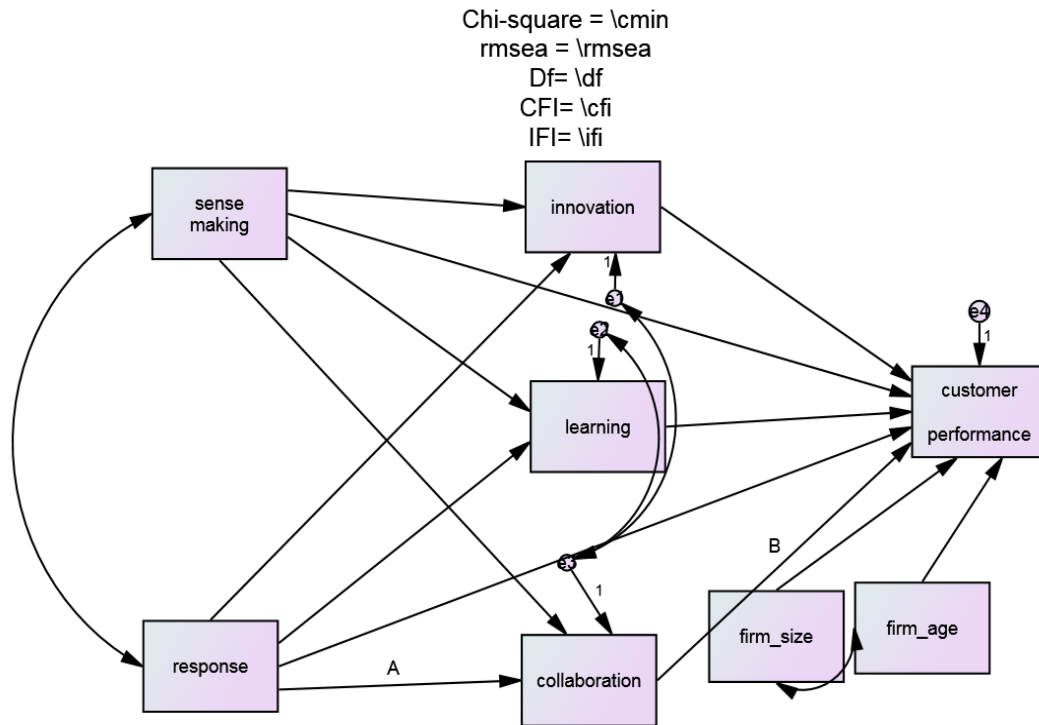
**Table (5.31) User-defined estimands for indirect effect: (Group number 1 - Default model)**

Parameter	Estimate	Lower	Upper	P
A x B	.021	.004	.052	.038

*Source: prepared by the researcher from data (2015).*

With regards to the examination of whether collaboration mediates the relationship between response and customer performance as depicted in figure (5.9), AMOS output presents sufficient a model fit values showed in

*Figure (5.9) the mediating role of collaboration capability between R and CP relationship.*



*Source: prepared by the researcher from data (2015).*

Table (5.29) while the result of regression weights for the direct effects Table (5.32) shows response significantly influence customer performance ( $p < 0.01$ ), response significantly influence collaboration capability ( $p < 0.01$ ), and collaboration capability significantly influence customer performance ( $p < 0.05$ ). Thus, the satisfaction of these three assumptions indicates that the collaboration capability has established mediating effect.

**Table (5.32) regression weights for direct effect: (Group number 1 - Default model)**

			Estimate	S.E.	C.R.	P	Label
learning	<---	sensemaking	.355	.069	5.159	***	par_3
innovation	<---	response	-.256	.078	-3.279	.001	par_4
learning	<---	response	-.152	.077	-1.978	.048	par_5
collaboration	<---	response	-.302	.066	-4.556	***	A
collaboration	<---	sensemaking	-.120	.059	-2.024	.043	par_9
innovation	<---	sensemaking	.046	.070	.652	.514	par_10
customer performance	<---	innovation	-.097	.047	-2.045	.041	par_12
customer performance	<---	learning	.156	.049	3.195	.001	par_13
customer performance	<---	collaboration	-.177	.058	-3.032	.002	B
customer performance	<---	sensemaking	-.262	.048	-5.481	***	par_14
customer performance	<---	response	-.276	.051	-5.354	***	par_15
customer performance	<---	firm size	.114	.038	2.988	.003	par_16
customer performance	<---	firm age	-.031	.037	-.828	.408	par_17

*Source: prepared by the researcher from data (2015).*

On the other hand, Table (5.33) illustrates the indirect effect shows significant relationship between response and customer performance through collaboration capability ( $p < 0.05$ ). This, result confirms the mediating role of collaboration capability in the relationship between response and customer performance. Thus, the summing up of the direct and indirect effect indicated a partial mediation of collaboration capability with the above mentioned relationship.

**Table (5.33) User-defined estimands for indirect effect: (Group number 1 - Default model)**

Parameter	Estimate	Lower	Upper	P
A x B	.053	.022	.103	.003

*Source: prepared by the researcher from data (2015).*

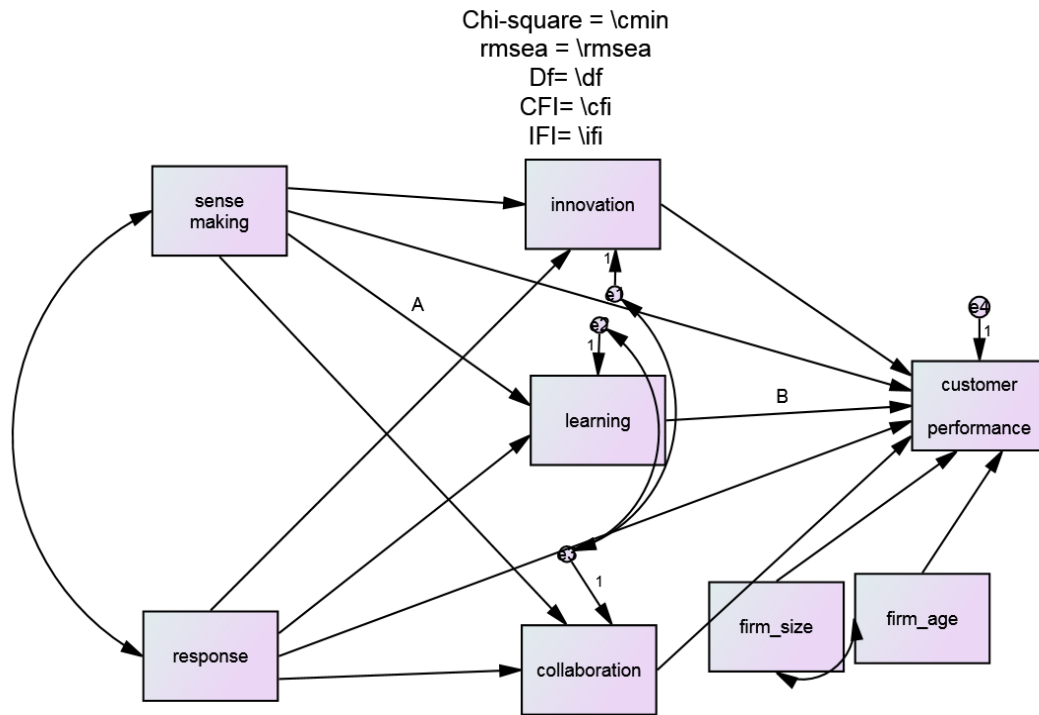
Given all the above mentioned the hypothesis of collaboration as organizational capability mediates the relationship between the market sensing and customer performance is supported in this study.

### **5.8.6.2. The Mediating Role of Organizational Learning Capability in the Relationship between Market Sensing and Customer Performance.**

In this part the organizational learning capability was hypothesized to mediate the relationship between market sensing and customer performance. However, to test this hypothesis an examination of whether learning capability mediates the relationship between sensemaking and customer performance as shown in figure 5.10 below must be estimated firstly, then, the prediction of whether learning mediates the relationship between response and customer performance must be tested secondly.

To examine the mediating role of learning in between sensemaking and customer performance, AMOS output presents sufficient indices of model fit showed in Table (5.29), while the result of regression weights for the direct effects Table (5.34) shows sensemaking significantly influence customer performance ( $p < 0.01$ ), sensemaking significantly influence learning capability ( $p < 0.01$ ), and learning capability significantly influence customer performance ( $p < 0.05$ ). Thus, the satisfaction of these three assumptions indicates that the learning capability has established mediating effect.

Figure (5.10) the mediating role of learning capability between S and CP relationship.



Source: prepared by the researcher from data (2015).

Table (5.34) regression weights for direct effect: (Group number 1 - Default model)

		Estimate	S.E.	C.R.	P	Label
learning	<--- sensemaking	.355	.069	5.159	***	A
innovation	<--- response	-.256	.078	-3.279	.001	par_3
learning	<--- response	-.152	.077	-1.978	.048	par_4
collaboration	<--- response	-.302	.066	-4.556	***	par_5
collaboration	<--- sensemaking	-.120	.059	-2.024	.043	par_9
innovation	<--- sensemaking	.046	.070	.652	.514	par_10
customer performance	<--- innovation	-.097	.047	-2.045	.041	par_12
customer performance	<--- learning	.156	.049	3.195	.001	B
customer performance	<--- collaboration	-.177	.058	-3.032	.002	par_13
customer performance	<--- sensemaking	-.262	.048	-5.481	***	par_14
customer performance	<--- response	-.276	.051	-5.354	***	par_15
customer performance	<--- firm size	.114	.038	2.988	.003	par_16
customer performance	<--- firm age	-.031	.037	-.828	.408	par_17

Source: prepared by the researcher from data (2015).

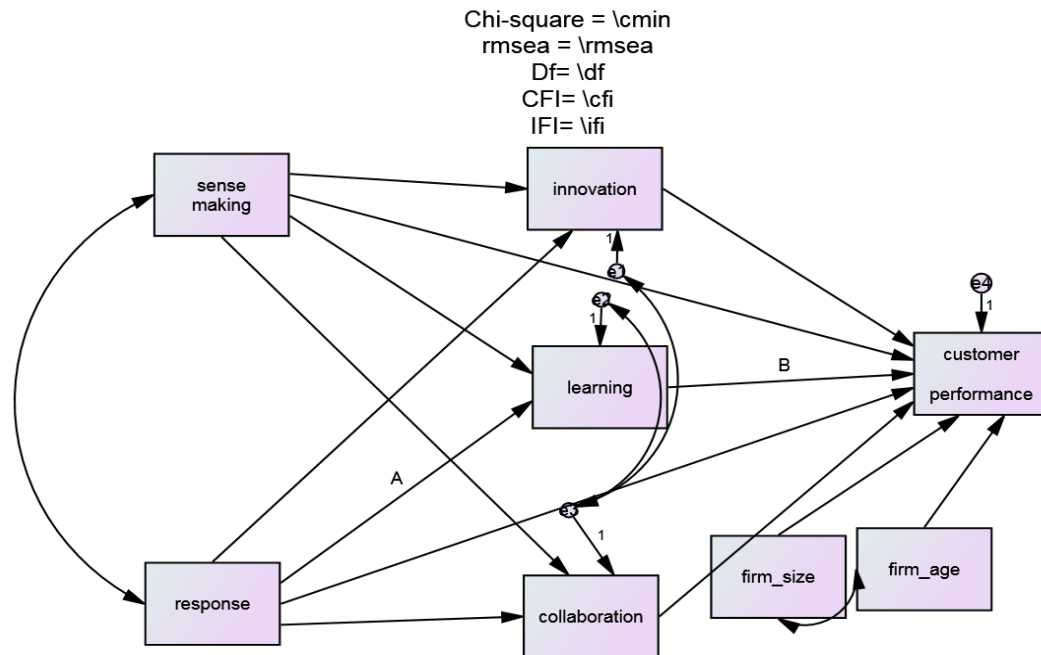
On the other hand, Table (5.35) illustrates the indirect effect shows significant relationship between sensemaking and customer performance through learning capability. This, result confirmed the mediating role of learning capability in the relationship between sensemaking and customer performance. Thus, the summing up of the direct and indirect effect indicates a partial mediation of learning capability with the above mentioned relationship.

**Table (5.35) User-defined estimands for indirect effect: (Group number 1 - Default model)**

Parameter	Estimate	Lower	Upper	P
A x B	.056	.021	.106	.007

*Source: prepared by the researcher from data (2015).*

**Figure (5.11) the mediating role of learning capability between R and CP relationship.**



*Source: prepared by the researcher from data (2015).*

In terms of the prediction of whether learning mediates the relationship between response and customer performance as depicted in figure (5.11), a satisfied model fit parameters shown in Table (5.29). While the result of regression weights for the direct effects Table (5.36) shows response significantly influence customer performance ( $p < 0.001$ ), response significantly influence learning capability ( $p < 0.05$ ), and learning capability significantly influence customer performance ( $p < 0.01$ ). Thus, the satisfaction of these three assumptions indicates that the learning capability has established mediating effect.

**Table (5.36) regression weights for direct effect: (Group number 1 - Default model)**

		Estimate	S.E.	C.R.	P	Label
learning	<--- sensemaking	.355	.069	5.159	***	par_3
innovation	<--- response	-.256	.078	-3.279	.001	par_4
learning	<--- response	-.152	.077	-1.978	.048	A
collaboration	<--- response	-.302	.066	-4.556	***	par_5
collaboration	<--- sensemaking	-.120	.059	-2.024	.043	par_9
innovation	<--- sensemaking	.046	.070	.652	.514	par_10
customer performance	<--- innovation	-.097	.047	-2.045	.041	par_12
customer performance	<--- learning	.156	.049	3.195	.001	B
customer performance	<--- collaboration	-.177	.058	-3.032	.002	par_13
customer performance	<--- sensemaking	-.262	.048	-5.481	***	par_14
customer performance	<--- response	-.276	.051	-5.354	***	par_15
customer performance	<--- firm size	.114	.038	2.988	.003	par_16
customer performance	<--- firm age	-.031	.037	-.828	.408	par_17

*Source: prepared by the researcher from data (2015).*

On the other hand, Table (5.37) illustrates the indirect effect shows no significant relationship between response and customer performance through learning capability ( $p < 0.05$ ). This, result confirms no mediating role of

learning capability in the relationship between response and customer performance. Thus, the summing up of the direct and indirect effect indicated that there is no mediation of learning capability with the above mentioned relationship.

**Table (5.37) User-defined estimands for indirect effect: (Group number 1 - Default model)**

Parameter	Estimate	Lower	Upper	P
A x B	-.024	-.061	-.003	.060

*Source: prepared by the researcher from data (2015).*

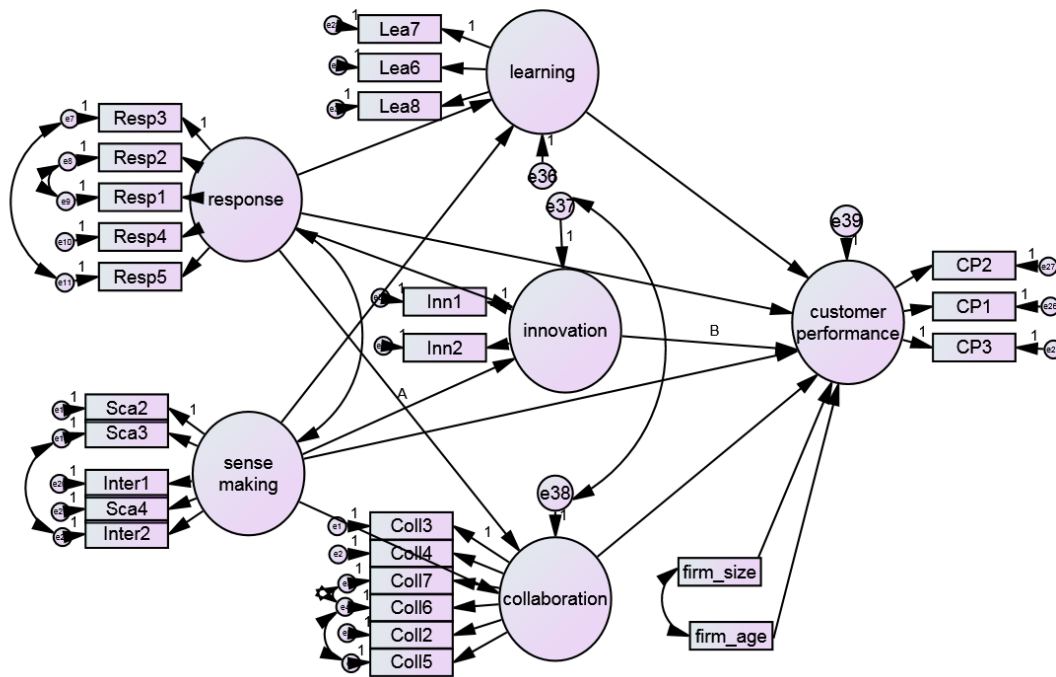
Given all the above mentioned the hypothesis of learning as organizational capability mediates the relationship between the market sensing and customer performance is supported in this study.

### **5.8.6.3. The Mediating Role of Organizational Innovation Capability in the Relationship between Market Sensing and Customer Performance.**

The organizational innovation capability was hypothesized to mediate the relationship between market sensing and customer performance. However, to test this hypothesis an examination of whether innovation capability mediates the relationship between sensemaking and customer performance as shown in figure 5.12 below must be estimated firstly, then, the prediction of whether innovation mediates the relationship between response and customer performance must be tested secondly.



Figure (5.12) the mediating role of innovation capability between S and CP relationship.



Source: prepared by the researcher from data (2015).

To examine the mediating role of innovation in between sense making and customer performance, AMOS output presents sufficient indices of model fit showed in Table (5.29), while the result of regression weights for the direct effects Table (5.38) shows sense making significantly influence customer performance ( $p < 0.01$ ), no significant influence between sense making and innovation capability ( $p > 0.05$ ), and innovation capability significantly influence customer performance ( $p < 0.05$ ). Thus, innovation capability violated the second assumption of the mediating effect; in which the independent variable must significantly influence the mediating variable

( $\beta_2$  must be significant). Thus, innovation capability could not establish the mediation effects.

**Table (5.38) Regression Weights for direct effect: (Group number 1 - Default model)**

		Estimate	S.E.	C.R.	P	Label
learning	<--- sensemaking	.355	.069	5.159	***	par_3
innovation	<--- response	-.256	.078	-3.279	.001	par_4
learning	<--- response	-.152	.077	-1.978	.048	par_5
collaboration	<--- response	-.302	.066	-4.556	***	par_6
collaboration	<--- sensemaking	-.120	.059	-2.024	.043	par_10
innovation	<--- sensemaking	.046	.070	.652	.514	A
customer performance	<--- innovation	-.097	.047	-2.045	.041	B
customer performance	<--- learning	.156	.049	3.195	.001	par_12
customer performance	<--- collaboration	-.177	.058	-3.032	.002	par_13
customer performance	<--- sensemaking	-.262	.048	-5.481	***	par_14
customer performance	<--- response	-.276	.051	-5.354	***	par_15
customer performance	<--- firm size	.114	.038	2.988	.003	par_16
customer performance	<--- firm age	-.031	.037	-.828	.408	par_17

*Source: prepared by the researcher from data (2015).*

Beside the direct effects Table (5.39) illustrates the indirect effect shows no significant relationship between sensemaking and customer performance through innovation capability ( $p > 0.05$ ). This, result indicates no mediating role of innovation capability in the relationship between sensemaking and customer performance. Thus, the summing up of the direct and indirect effect indicated no mediation of innovation capability with the above mentioned relationship.

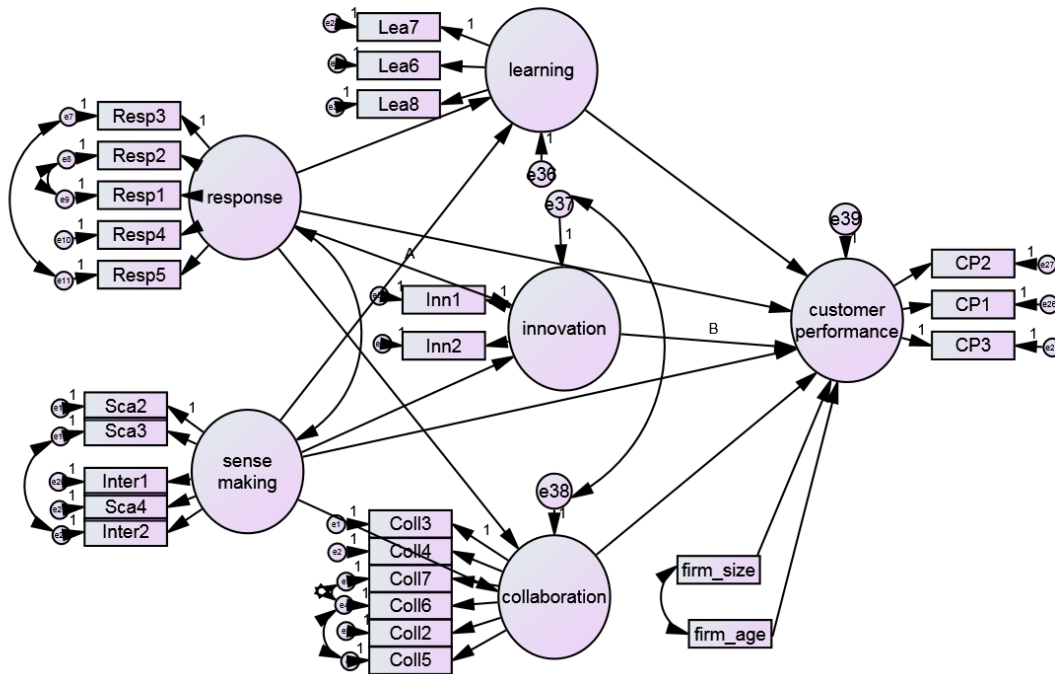
**Table (5.39) User-defined estimands for indirect effect: (Group number 1 - Default model)**

Parameter	Estimate	Lower	Upper	P
A x B	-.004	-.028	.005	.350

*Source: prepared by the researcher from data (2015).*

Regarding the test of whether innovation capability mediates the relationship between response and customer performance as depicted in figure (5.13), a satisfied model fit parameters shown in Table (5.29).

*Figure (5.13) the mediating role of innovation between response and customer performance.*



*Source: prepared by the researcher from data (2015).*

The result of regression weights for the direct effects Table (5.40) shows response significantly influence customer performance ( $p < 0.001$ ), response significantly influence innovation capability ( $p < 0.01$ ), and innovation capability significantly influence customer performance ( $p < 0.05$ ). Thus, the satisfaction of these three assumptions indicates that the innovation capability has established mediating effect.

**Table (5.40) Regression Weights for direct effect: (Group number 1 - Default model)**

			Estimate	S.E.	C.R.	P	Label
learning	<---	sensemaking	.355	.069	5.159	***	par_3
innovation	<---	response	-.256	.078	-3.279	.001	A
learning	<---	response	-.152	.077	-1.978	.048	par_4
collaboration	<---	response	-.302	.066	-4.556	***	par_5
collaboration	<---	sensemaking	-.120	.059	-2.024	.043	par_9
innovation	<---	sensemaking	.046	.070	.652	.514	par_10
customer performance	<---	innovation	-.097	.047	-2.045	.041	B
customer performance	<---	learning	.156	.049	3.195	.001	par_12
customer performance	<---	collaboration	-.177	.058	-3.032	.002	par_13
customer performance	<---	sensemaking	-.262	.048	-5.481	***	par_14
customer performance	<---	response	-.276	.051	-5.354	***	par_15
customer performance	<---	firm size	.114	.038	2.988	.003	par_16
customer performance	<---	firm age	-.031	.037	-.828	.408	par_17

*Source: prepared by the researcher from data (2015).*

Also Table (5.41) illustrates the indirect effect shows significant relationship between response and customer performance through innovation capability ( $p < 0.05$ ). This, result indicates a mediating role of innovation capability in the relationship between response and customer performance. Thus, the summing up of the direct and indirect effect indicated partial mediation of innovation capability with the above mentioned relationship.

**Table (5.41) User-defined estimands for indirect effect: (Group number 1 - Default model)**

Parameter	Estimate	Lower	Upper	P
A x B	.025	.005	.060	.040

*Source: prepared by the researcher from data (2015).*

Given all the above mentioned the hypothesis of innovation as organizational capability mediates the relationship between the market sensing and customer performance is partially supported in this study. Table (5.42) combines all the direct and indirect effects for the mediating of

organizational capabilities between market sensing and customer performance.

*Table (5.42) summary of the direct and indirect effect for mediating of organizational capabilities*

Hypotheses	Direct effect	indirect effect	Evidence
Sensemaking (learning ) customer performance	.355***	.056**	Partial mediation
Response (learning ) customer performance	-.152*	-.024	No mediation
Sensemaking (collaboration) customer performance	-.120*	.021*	Partial mediation
Response (collaboration ) customer performance	-.302***	.053**	Partial mediation
Sensemaking (innovation) customer performance	.046	-.004	No mediation
Response (innovation) customer performance	-.256**	.025*	Partial mediation

Source: prepared by the researcher from data (2015). \* = p < 0.05 \*\* = p < 0.01 \*\*\* = p < 0.001

Table (5.43) presents the summary of hypotheses testing results for the mediating effect of organizational capabilities in the relationship between market sensing and customer performance. The findings implied that the two component of market sensing (sensemaking and response) influences the customer performance of firms operated in Sudan through collaboration, learning and innovation capability. These results indicated that collaboration is the major organizational capabilities through which the two component of market sensing effect customer performance, followed by learning and innovation capability.

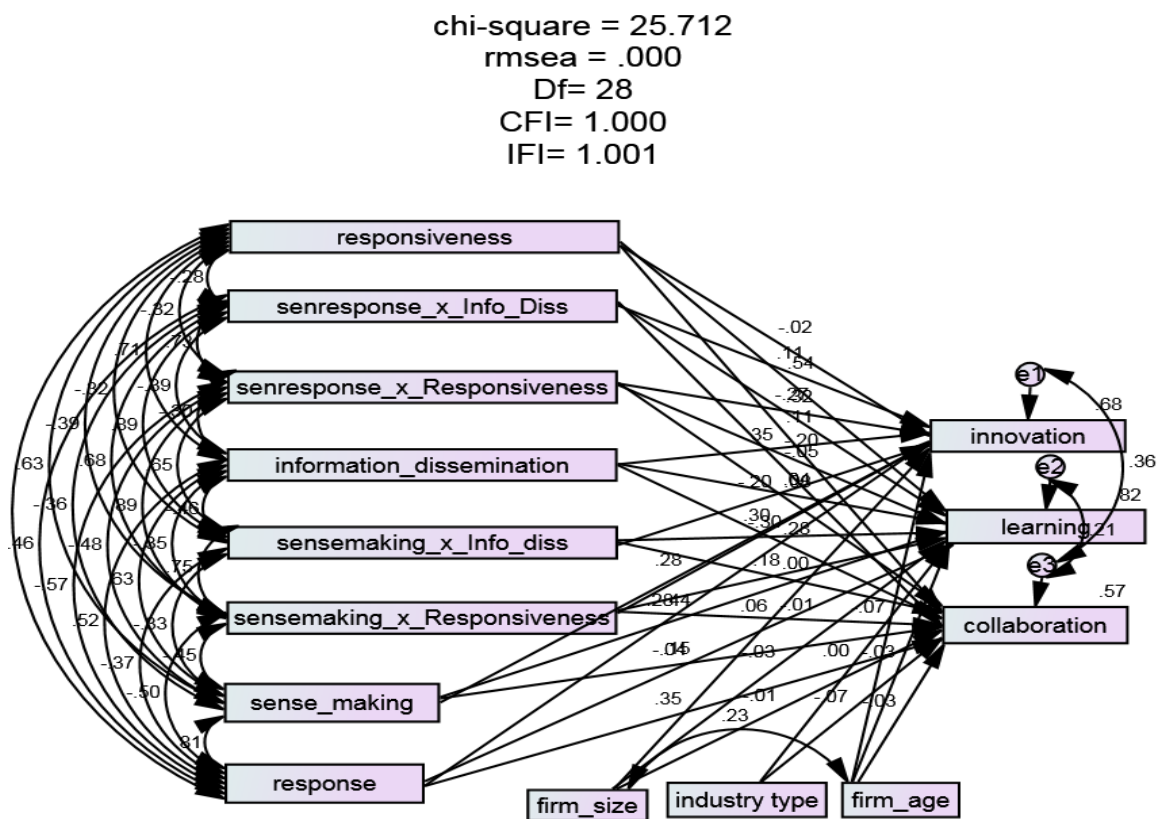
*Table (5.43) summary of hypotheses testing results for the mediating effect between MS and CP.*

Item	Statement of hypothesis: organizational capabilities mediates the relationship between,	Remark
<b>H4</b>	<b>Market sensing and customer performance.</b>	<b>partially Supported</b>
<b>H4.1</b>	<b>Market sensing (collaboration) customer performance.</b>	<b>Fully Supported</b>
	H4.1a Sensemaking (collaboration) customer performance	Supported
	H4.1b Response (collaboration ) customer performance	Supported
<b>H4.2</b>	<b>Market sensing (learning) customer performance.</b>	<b>partially Supported</b>
	H4.2a Sensemaking (learning ) customer performance	Supported
	H4.2b Response (learning ) customer performance	Not Supported
<b>H4.3</b>	<b>Market sensing (innovation) customer performance.</b>	<b>partially Supported</b>
	H4.3a Sensemaking (innovation) customer performance	Not Supported
	H4.3b Response (innovation) customer performance	Supported

### 5.8.7. The Moderating Effects of Internal Market Orientation

The fifth hypothesis predicts that the two dimensions of internal market orientation (information dissemination and responsiveness) moderate the relationship between market sensing and organizational capabilities, as shown in Figure 5.14 below.

Figure (5.14) them moderating effect of internal market orientation in MS – OCs relationship.



Source: prepared by the researcher from data (2015).

In order to test this hypothesis many criteria must be met. These criteria can be classified as global or local tests. According to Gaskin, (2016) in arranging for a hypothesis to be supported global tests of model fit are the first assumption must be met, to let a local test (p-value) to have meaning. Next is the global test of variance explained or R-squared. Lastly, if a regression weight is significant, but is in the wrong direction, our hypothesis is not supported. Instead, there is counter-evidence.

In brief the conditions for testing moderating variable are, observing significant p-values and good model fit, but the R-square must be greater than 0.025 to explain sufficient variance in the dependent variable. Also the process requires introduction of a multiplicative interaction term into the path analysis. Accordingly, four interaction terms were created by multiplying the values of market sensing by the values of hypothesized internal market orientation.

To make obvious if the moderator effect is present on the proposed relationship; three or four maximum conditions were used. First, the model fit indices is adequate. Second, the P-value is significant. Third, the R-square must explain sufficient variance in the dependent variable. Fourth, the interaction term is also statistically significant. Additionally, in order to establish whether moderator is a pure or a quasi-moderating this research

applied the criteria mentioned by Sharma et al (1981). If the coefficients of both the multiplicative interaction term and the moderator variable are significant, the moderator is a quasi-moderator. However, if the coefficient of the multiplicative interaction term was significant and the coefficient of the moderator variable effect was not significant, the moderator is a pure moderator. A pure moderator effect implies that the moderator variable (internal market orientation) modifies the relationship (i.e. the regression coefficient) between the predictor variable (market sensing) and criterion variable (three types of organizational capabilities).

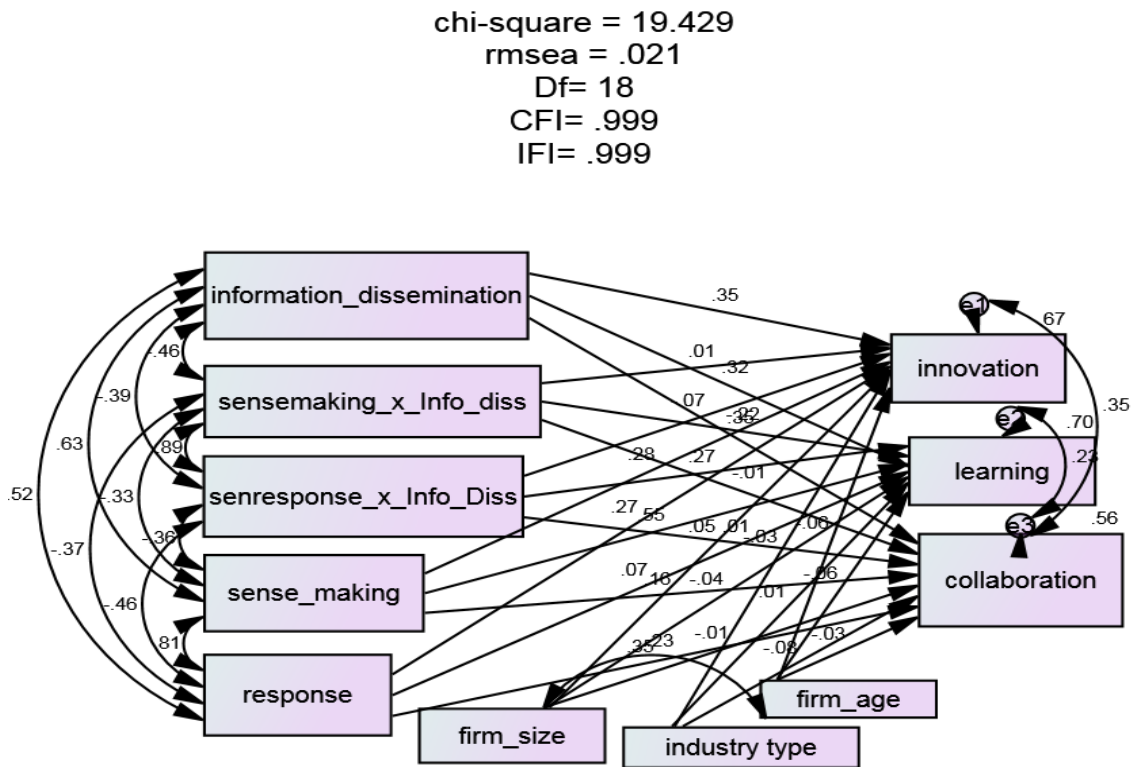
On the other hand, in order to illustrate the nature of moderator effect, a graphical representation was carried out for each significant effect. This process was carried out for testing the moderating effect of each of the two variables (information dissemination and responsiveness) on each of the relationship that link the two components of market sensing (sensemaking and response) with the three types of organizational capabilities (innovation, learning and collaboration capability). This study also splits each component of market sensing and internal market orientation into two groups (low and high) to see how the moderator has change the relationship. The analyses began with information dissemination and followed by responsiveness.



### 5.8.7.1. The Moderating Effect of Information Dissemination on the Relationship between Market Sensing and Organizational Capabilities

In the beginning, figure (5.15) presents the model for the moderating role of information dissemination in the relationship between market sensing and organizational capabilities as follow:

Figure (5.15) the moderating effect of information dissemination in MS – OCs relationship



Source: prepared by the researcher from data (2015).

Concerning the model fit recommendation AMOS output showing Model fit indices as follow, CMIN/DF=1.079, RMSEA=.021, GFI=.980, AGFI=.927, RMR=.026, NFI=.985, CFI=.999, and PCLOSE=.779. Table (5.44) below presents the model fit measures and their interpretations.

**Table (5.44) the model fit measures**

Measure	Estimate	Threshold	Interpretation
CMIN	19.429	--	--
DF	18	--	--
CMIN/DF	1.079	Between 1 and 3	Excellent
GFI	0.980	>0.95	Excellent
AGFI	0.927	>0.80	Excellent
CFI	0.999	>0.95	Excellent
SRMR	0.026	<0.08	Excellent
NFI	0.985	>0.95	Excellent
RMSEA	0.021	<0.06	Excellent
P Close	0.779	>0.05	Excellent

*Source: prepared by the researcher from data (2015).*

**Table (5.45) Regression Weights for direct and moderating effect: (Group number 1 - Default model)**

			Estimate	S.E.	C.R.	P	Label
collaboration	<---	Response	.249	.066	3.771	***	par_1
learning	<---	Response	.071	.078	.905	.366	par_2
innovation	<---	Response	.278	.083	3.339	***	par_3
innovation	<---	Information dissemination	.352	.060	5.857	***	par_4
learning	<---	Information dissemination	.316	.056	5.598	***	par_5
collaboration	<---	Information dissemination	.240	.048	5.033	***	par_6
innovation	<---	Sensemaking x Info diss	.005	.051	.090	.928	par_7
learning	<---	Sensemaking x Info diss	-.107	.048	-2.235	.025	par_8
collaboration	<---	Sensemaking x Info diss	-.002	.040	-.052	.959	par_9
collaboration	<---	Response x Info Diss	.003	.040	.067	.946	par_10
learning	<---	Response x Info Diss	.127	.047	2.693	.007	par_11
innovation	<---	Response x Info Diss	-.033	.050	-.652	.515	par_12
collaboration	<---	sensemaking	.119	.070	1.702	.089	par_13
learning	<---	sensemaking	.584	.083	7.021	***	par_14
innovation	<---	sensemaking	.302	.088	3.410	***	par_15
collaboration	<---	Firm age	-.032	.050	-.648	.517	par_16
collaboration	<---	Industry type	-.074	.049	-1.502	.133	par_17
learning	<---	Industry type	.013	.058	.223	.823	par_27
innovation	<---	Industry type	-.036	.062	-.581	.561	par_28
learning	<---	Firm size	-.062	.060	-1.019	.308	par_31
collaboration	<---	Firm size	-.010	.051	-.191	.848	par_32
learning	<---	Firm age	-.077	.059	-1.300	.194	par_34
innovation	<---	Firm age	-.085	.063	-1.351	.177	par_35
innovation	<---	Firm size	.069	.064	1.074	.283	par_36

*Source: prepared by the researcher from data (2015).*

Table (5.45) shows the results of direct and moderating effects of information dissemination on the relationship between market sensing and organizational capabilities are as follows:

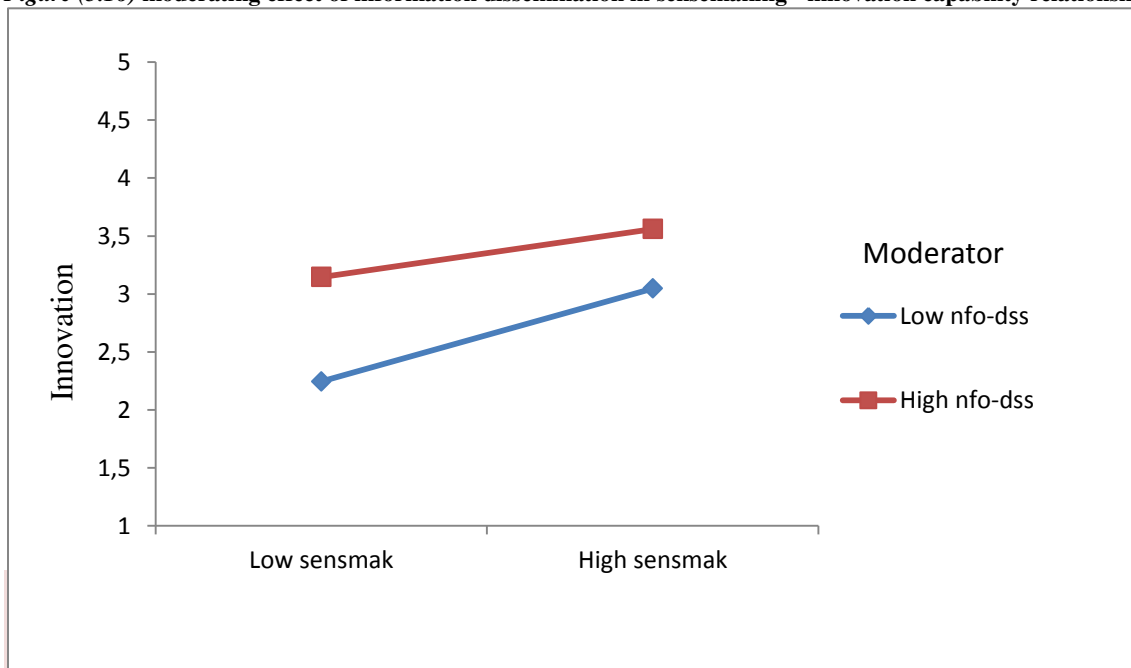
#### **5.8.7.1.1. The Moderating Effect of Information Dissemination in the Relationship between Market Sensing and Innovation Capability.**

This subsection proposed that information dissemination would moderate the relationship between market sensing and innovation capability. The results in Table (5.45) show that the interaction term of sensemaking and information dissemination was not significant (estimate=.005,  $p > .05$ ) for predicting innovation capability. The results also indicate that R square change about 8% of the variance in the relationship between market sensing and innovation capability was explained by information dissemination and the model as a whole was fit in Table (5.44). Further inspection reveals that the coefficient of the information dissemination effect was significant (estimate=.352,  $p < .001$ ). However, information dissemination shows no moderating effect between market-sensing and innovation capability. The AMOS output is shown in Appendix (B.12).

Figure 5.16 shows the moderating effect of information dissemination on the relationship between sensemaking and innovation capability in which the information dissemination dampens the positive relationship between

sensemaking and innovation capability. This result indicates that firms that are facing low level of information dissemination show positive impact of sensemaking on innovation capability at a high range of sensemaking. However, for the firms that facing high level of information dissemination, sensemaking was found to have a weak positive influence on innovation capability at low range of sensemaking. These indicate that in both low and high level of information dissemination, sensemaking was found to influence continuously the innovation capability. However, in the low level of information dissemination the effect of sensemaking on innovation is strong than at high level of information dissemination.

**Figure (5.16) moderating effect of information dissemination in sensemaking - innovation capability relationship**

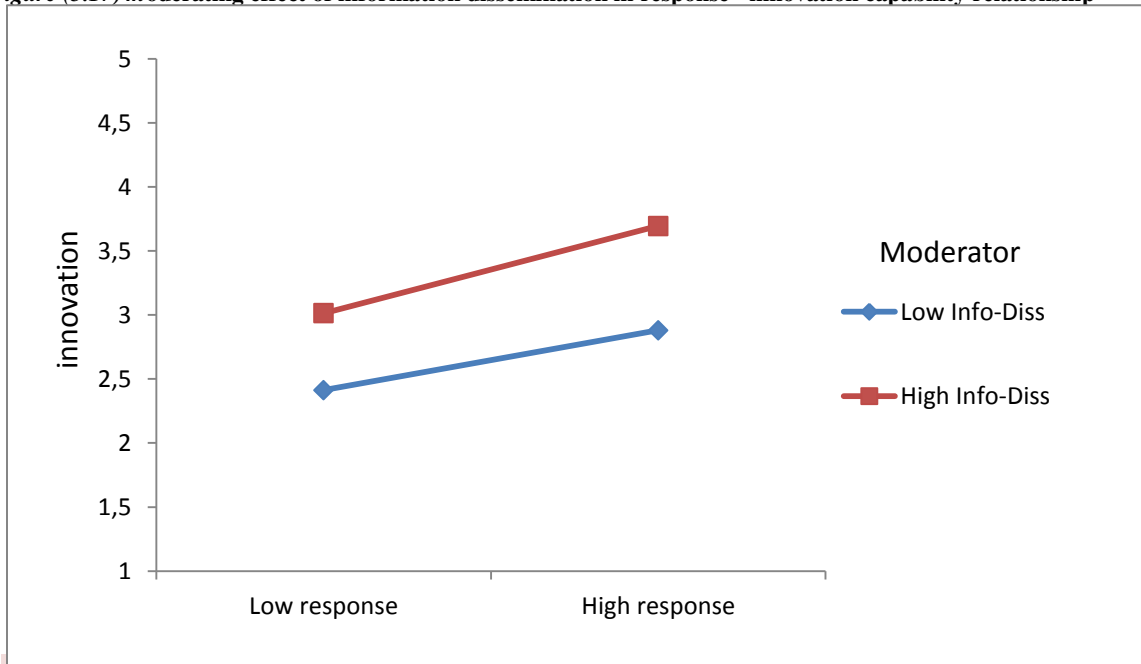


Information dissemination dampens the positive relationship between sensemaking and innovation.

Source: prepared by the researcher from data (2015).

Regarding the moderating effect of information dissemination on the relationship between response and innovation capability, Figure 5.17 shows this relationship. It can be observed from the figure that Information dissemination strengthens the positive relationship between response and innovation. Additionally, the Figure shows that in high range of response, firms that facing high information dissemination were seen to achieve greater innovation capability compare with the firms that facing low information dissemination. However, from low range of response firms that were facing with low information dissemination achieve innovation capability less than firm facing high information dissemination.

**Figure (5.17) moderating effect of information dissemination in response - innovation capability relationship**



Information dissemination strengthens the positive relationship between response and innovation.

*Source: prepared by the researcher from data (2015).*

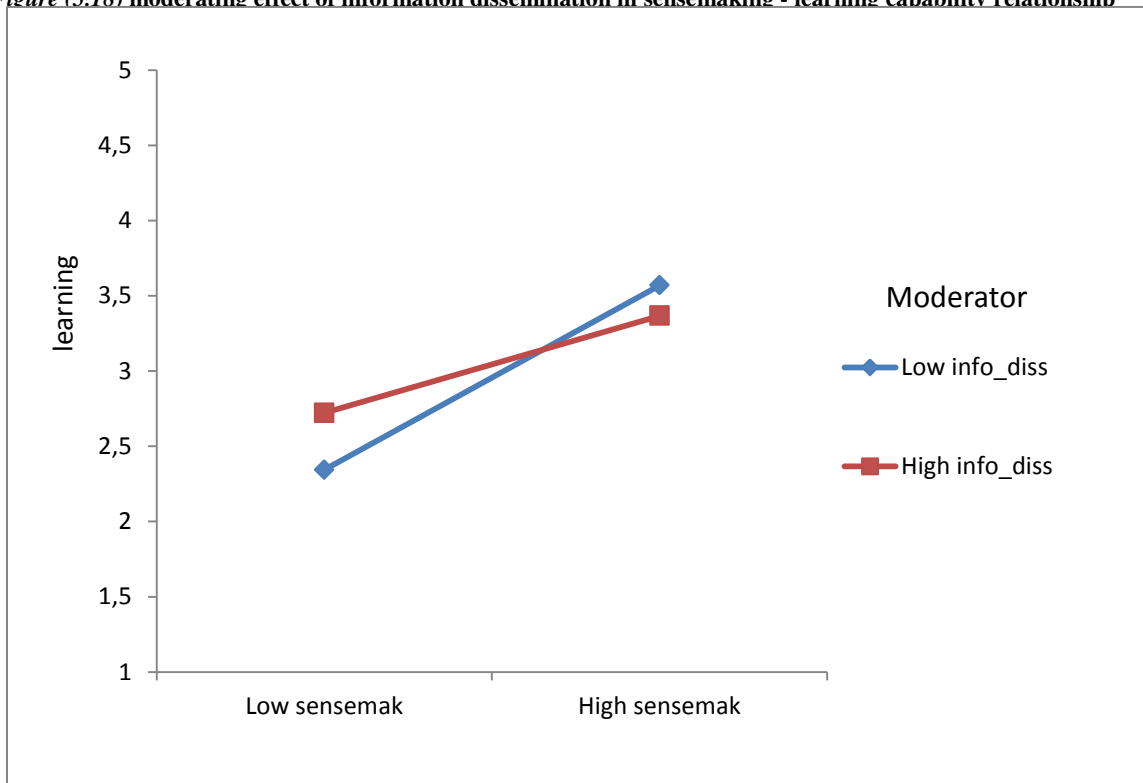
The results presented in the two figures above demonstrate that the hypothesis which proposed that information dissemination would strengthen the positive relationship between market sensing and innovation capability was partially supported.

#### **5.8.7.1.2. The Moderating Effect of Information Dissemination in the Relationship between Market Sensing and Learning Capability.**

This subsection proposed that information dissemination would moderate the relationship between market sensing and learning capability. The results in Table (5.45) show that the interaction term of sensemaking and information dissemination was significant (estimate=-.107,  $p < .05$ ) for predicting learning capability. The results also indicate that R square change about 8% of the variance in the relationship between market sensing and learning capability was explained by information dissemination and the model as a whole was fit in Table (5.44). Further inspection reveals that the coefficient of the information dissemination effect was significant (estimate=.316,  $p < .001$ ). However, information dissemination shows no moderating effect between market-sensing and learning capability because the regression weight of the interaction term is significant but is in wrong direction. The AMOS output is shown in Appendix (B.12).

Figure 5.18 shows the moderating effect of information dissemination on the relationship between sensemaking and learning capability in which the information dissemination dampens the positive relationship between sensemaking and learning capability. This result indicates that firms that are facing low level of information dissemination show positive impact of sensemaking on learning capability at a high range of sensemaking. However, for the firms that facing high level of information dissemination, sensemaking was found to have less influence on learning capability at low range of sensemaking. These results indicate that in both low and high level

**Figure (5.18) moderating effect of information dissemination in sensemaking - learning capability relationship**

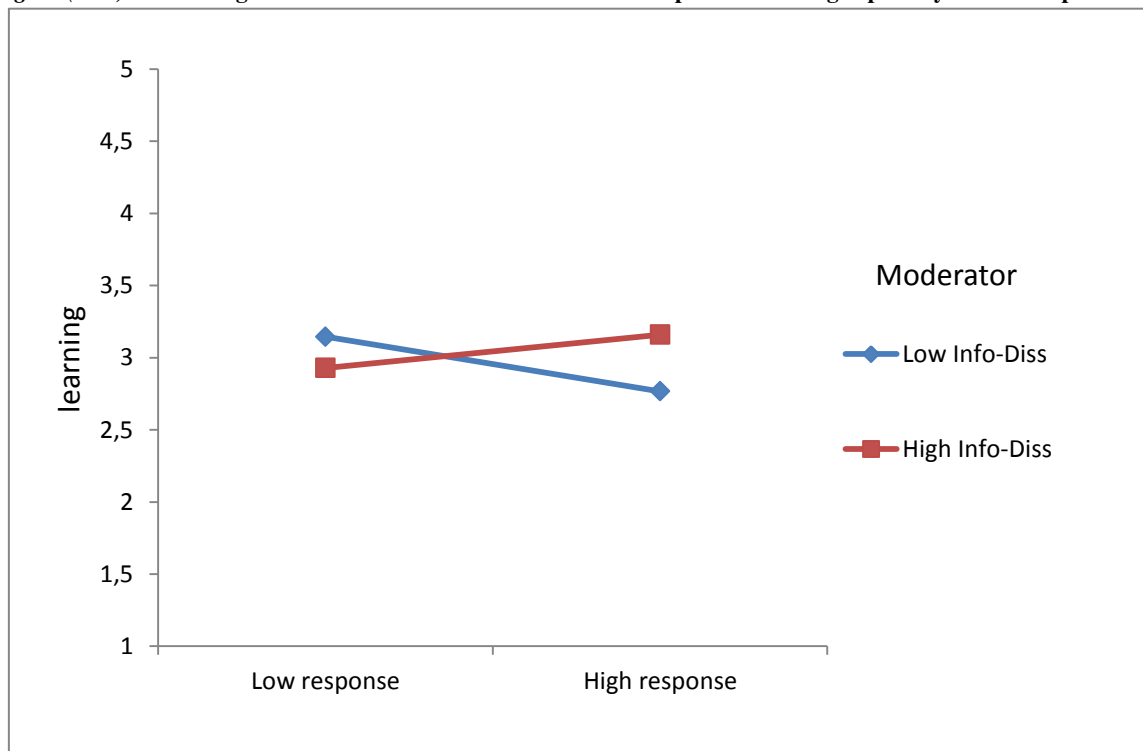


Information dissemination dampens the positive relationship between sensemaking and learning.

of information dissemination, sensemaking was found to influence learning capability but to some extent. However, in the low level of information dissemination the effect of sensemaking on learning is strong than at high level of information dissemination.

Concerning the moderating effect of information dissemination on the relationship between response and learning capability, Figure 5.19 demonstrates that Information dissemination dampens the negative relationship between response and learning.

*Figure (5.19) moderating effect of information dissemination in response - learning capability relationship*



Information dissemination dampens the negative relationship between response and learning.



Additionally, the Figure shows that in high range of response, firms that facing high information dissemination were seen to achieve a weak positive relationship between response and learning capability compare with the firms that facing low information dissemination were seen to achieve negative relationship between response and learning capability. However, from low range of response firms that were facing with low information dissemination achieve learning capability greater than firm facing high information dissemination which reflects a negative relationship between response and learning capability.

Summing up the results presented in the two figures above demonstrate that the hypothesis which proposed that information dissemination would strengthens the positive relationship between market sensing and learning capability was not supported.

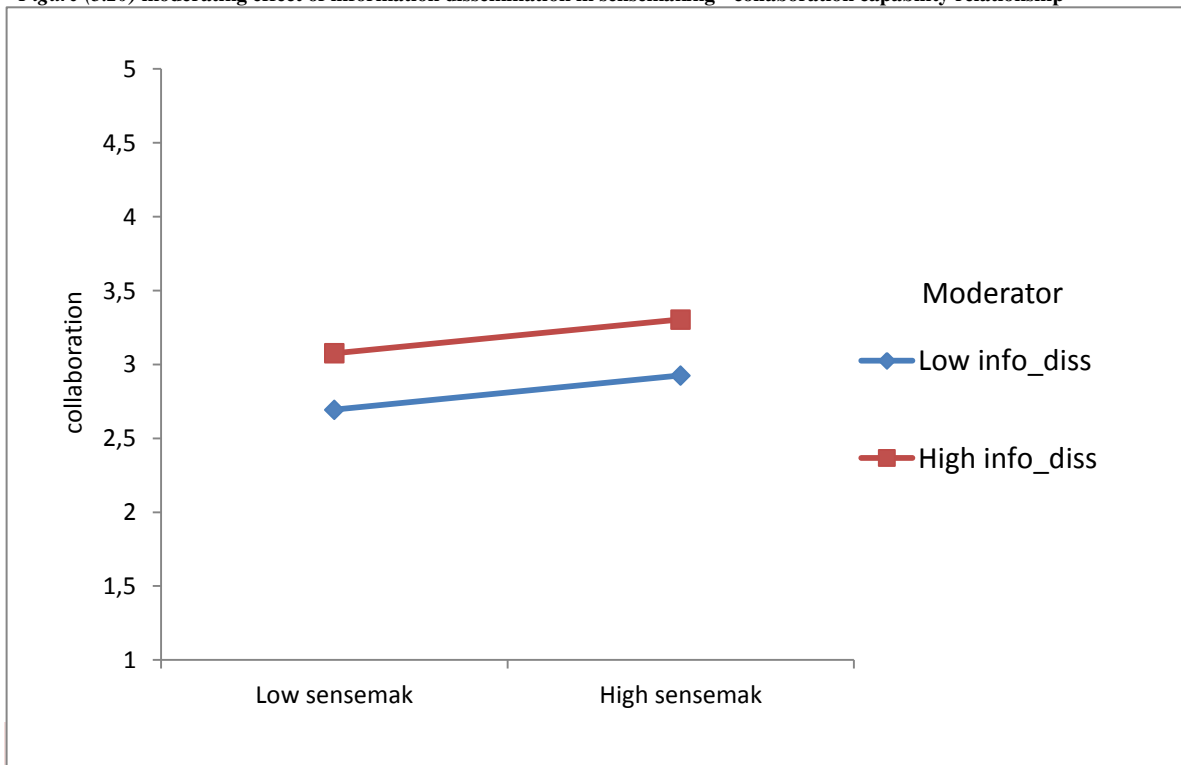
#### **5.8.7.1.3. The Moderating Effect of Information Dissemination in the Relationship between Market Sensing and Collaboration Capability**

This part proposed that information dissemination would strengthen the positive relationship between market sensing and collaboration capability. The results in Table (5.45) show that the interaction term of sensemaking and information dissemination was not significant (estimate=-.002,  $p>.05$ ) for predicting collaboration capability. The results also indicate that R

square change about 7% of the variance in the relationship between market sensing and collaboration capability was explained by information dissemination and the model as a whole was fit in Table (5.44). Further inspection reveals that the coefficient of the information dissemination effect was significant (estimate=.240,  $p < .001$ ). However, information dissemination shows no moderating effect between market sensing and collaboration capability. The AMOS output is shown in Appendix (B.12).

Figure 5.20 shows the moderating effect of information dissemination on the relationship between sensemaking and collaboration capability in

*Figure (5.20) moderating effect of information dissemination in sensemaking - collaboration capability relationship*



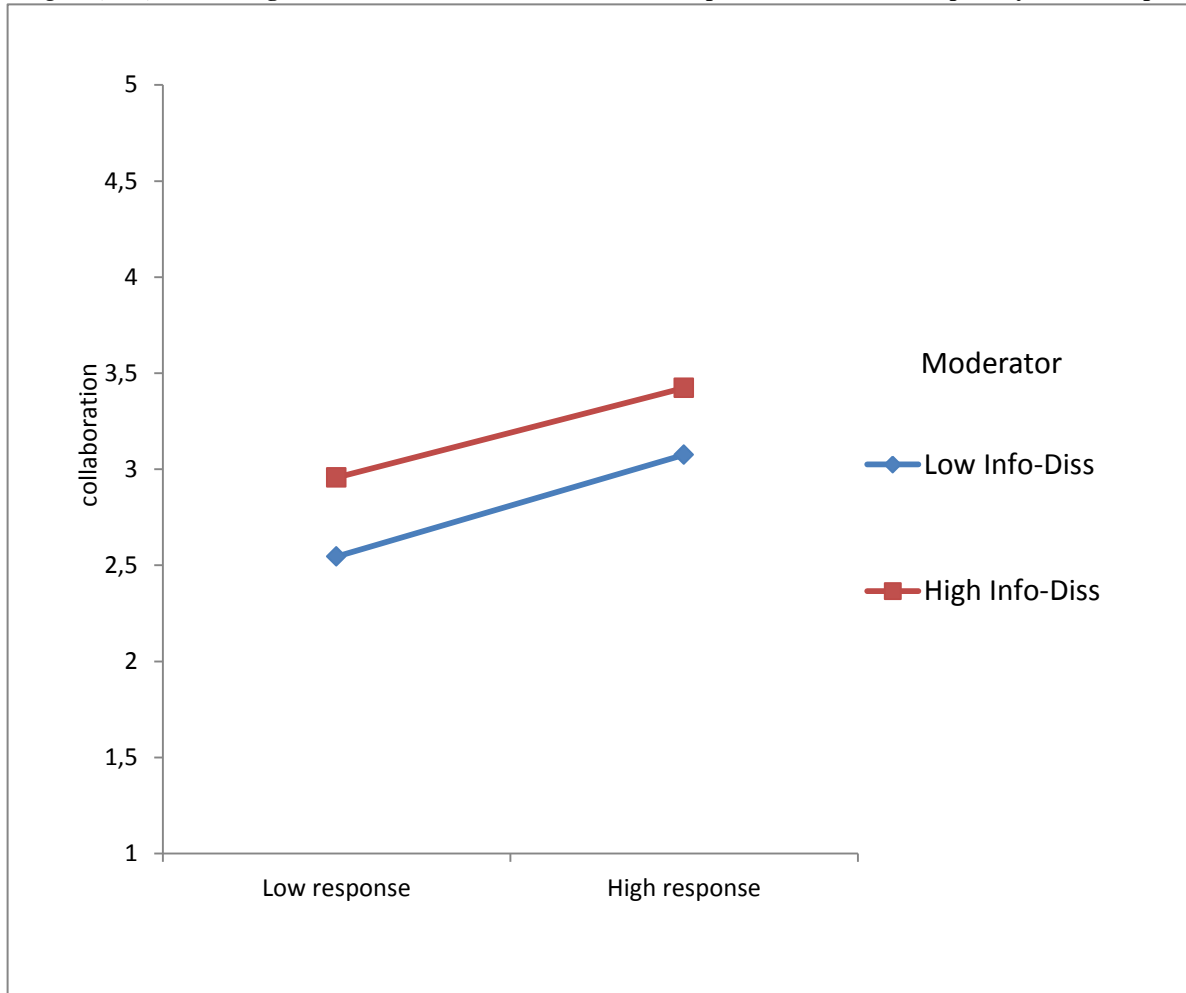
Information dissemination dampens the positive relationship between sensemaking and collaboration.

which the information dissemination dampens the positive relationship between sensemaking and collaboration capability. This result indicates that firms that are facing low level of information dissemination show positive impact of sensemaking on collaboration capability at a high range of sensemaking. However, for the firms that facing high level of information dissemination, sensemaking was found to have similar influence on collaboration capability at low range of sensemaking. These indicate that in both low and high level of information dissemination, sensemaking was found to influence continuously the collaboration capability but the degree of influence to some extent is weak.

Concerning the moderating effect of information dissemination on the relationship between response and collaboration capability, Figure 5.21 demonstrates this relationship. It can be observed from the figure that Information dissemination dampens the positive relationship between response and collaboration. Additionally, the Figure shows that in high range of response, firms that facing high information dissemination were seen to achieve positive relationship between response and collaboration capability similarly to the firms that facing low information dissemination were seen to achieve a positive relationship between response and collaboration capability. These results indicate that in both low and high

level of information dissemination, response was found to influence continuously the collaboration capability but to some extent may intercept.

*Figure (5.21) moderating effect of information dissemination in response - collaboration capability relationship*



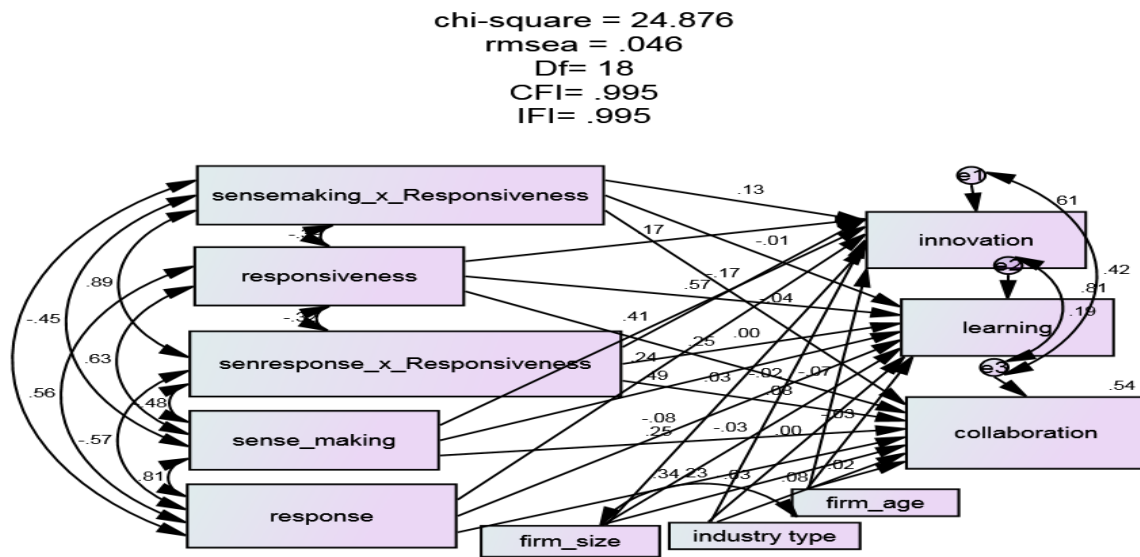
Information dissemination dampens the positive relationship between response and collaboration.

Generally the results presented in the two figures above demonstrate that the hypothesis which proposed that information dissemination would strengthens the positive relationship between market sensing and collaboration capability was not supported.

### 5.8.7.2. The Moderating Effect of Responsiveness in the Relationship between Market Sensing and Organizational Capabilities

In the first stage, figure (5.22) presents the model for the moderating role of responsiveness in the relationship between market sensing and organizational capabilities as follow:

*Figure (5.22) the moderating effect of responsiveness in MS – OCs relationship*



Source: prepared by the researcher from data (2015).

Concerning the model fit recommendation AMOS output showing Model fit indices as follow, CMIN/DF=1.382, RMSEA=.046, GFI=.975, AGFI=.909, RMR=.027, NFI=.981, CFI=.995, and PCLOSE=.515. Table (5.46) below presents the model fit measures and their interpretations.

**Table (5.46) the model fit measures**

Measure	Estimate	Threshold	Interpretation
CMIN	24.876	--	--
DF	18	--	--
CMIN/DF	1.382	Between 1 and 3	Excellent
GFI	0.975	>0.95	Excellent
AGFI	0.909	>0.80	Excellent
CFI	0.995	>0.95	Excellent
SRMR	0.027	<0.08	Excellent
NFI	0.981	>0.95	Excellent
RMSEA	0.046	<0.06	Excellent
P Close	0.515	>0.05	Excellent

*Source: prepared by the researcher from data (2015).*

Table (5.47) shows the results of direct and moderating effects of responsiveness in the relationship between market sensing and organizational capabilities are as follows:

**Table (5.47) regression weights for direct and moderating effect: (Group number 1 - Default model)**

	Estimate	S.E.	C.R.	P	Label
collaboration <--- Response	.245	.068	3.590	***	par_1
learning <--- Response	-.087	.063	-1.378	.168	par_2
innovation <--- Response	.253	.092	2.760	.006	par_3
innovation <--- Sensemaking x Responsiveness	.066	.058	1.149	.250	par_4
learning <--- Sensemaking x Responsiveness	-.007	.040	-.173	.863	par_5
collaboration <--- Sensemaking x Responsiveness	-.016	.043	-.361	.718	par_6
innovation <--- responsiveness	.142	.054	2.642	.008	par_7
learning <--- responsiveness	.466	.037	12.620	***	par_8
collaboration <--- responsiveness	.145	.040	3.618	***	par_9
innovation <--- Response x Responsiveness	-.082	.057	-1.439	.150	par_10
learning <--- Response x Responsiveness	-.001	.039	-.013	.990	par_11
collaboration <--- Response x Responsiveness	.028	.043	.649	.516	par_12
collaboration <--- Sense making	.182	.070	2.605	.009	par_13
learning <--- Sense making	.518	.064	8.049	***	par_14
innovation <--- Sense making	.446	.093	4.774	***	par_15
collaboration <--- Firm age	-.023	.052	-.437	.662	par_16
collaboration <--- Industry type	-.078	.051	-1.538	.124	par_17
learning <--- Industry type	.002	.047	.041	.967	par_26
innovation <--- Industry type	-.025	.068	-.361	.718	par_27
learning <--- Firm size	-.039	.048	-.801	.423	par_30
collaboration <--- Firm size	-.029	.052	-.546	.585	par_31
learning <--- Firm age	-.041	.048	-.870	.384	par_33
innovation <--- Firm age	-.096	.069	-1.386	.166	par_34
innovation <--- Firm size	.047	.070	.676	.499	par_35

*Source: prepared by the researcher from data (2015).*

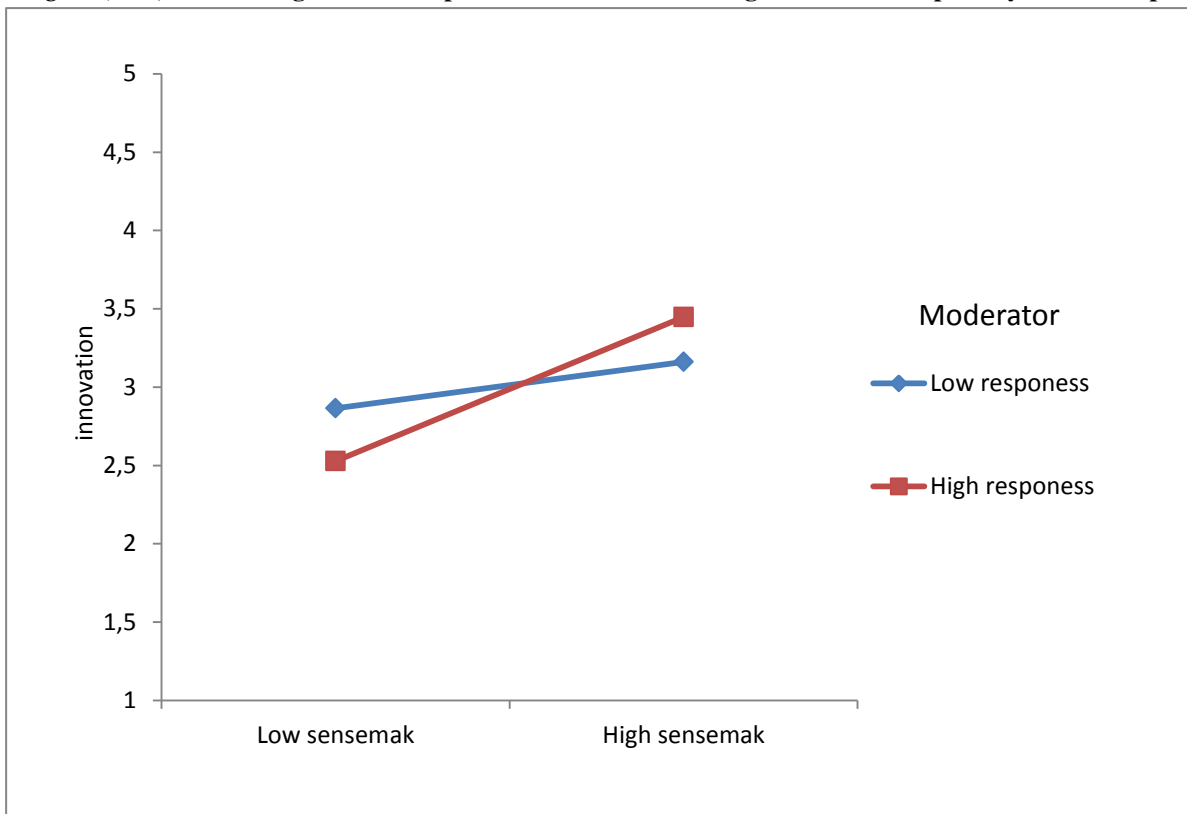
### **5.8.7.2.1. The Moderating Effect of Responsiveness in the Relationship between Market Sensing and Innovation Capability.**

This subsection proposed that responsiveness would moderate the relationship between market sensing and innovation capability. The results in Table (5.47) show that the interaction term of sensemaking and responsiveness was not significant (estimate=.066,  $p>.05$ ) for predicting innovation capability. The results also indicate that R square change about 2% of the variance in the relationship between market sensing and innovation capability was explained by information dissemination and the model as a whole was fit in Table (5.46). Further inspection reveals that the coefficient of the responsiveness effect was significant (estimate=.142,  $p<.01$ ). However, responsiveness shows no moderating effect between market sensing and innovation capability because the R square not explains sufficient variance. The SPSS output is shown in Appendix (B.13).

Figure 5.23 shows the moderating effect of responsiveness in the relationship between sensemaking and innovation capability in which the responsiveness strengthens the positive relationship between sensemaking and innovation capability. This result indicates that firms which are facing high level of responsiveness show positive impact of sensemaking on innovation capability at a high range of sensemaking. However, for the firms

that facing low level of responsiveness, sensemaking was found to have less influence on innovation capability at low range of sensemaking. These indicate that in high level of responsiveness, sensemaking was found to influence continuously the innovation capability. However, in the high level of responsiveness the effect of sensemaking on innovation is stronger than at low level of responsiveness.

**Figure (5.23) moderating effect of responsiveness in sensemaking - innovation capability relationship**

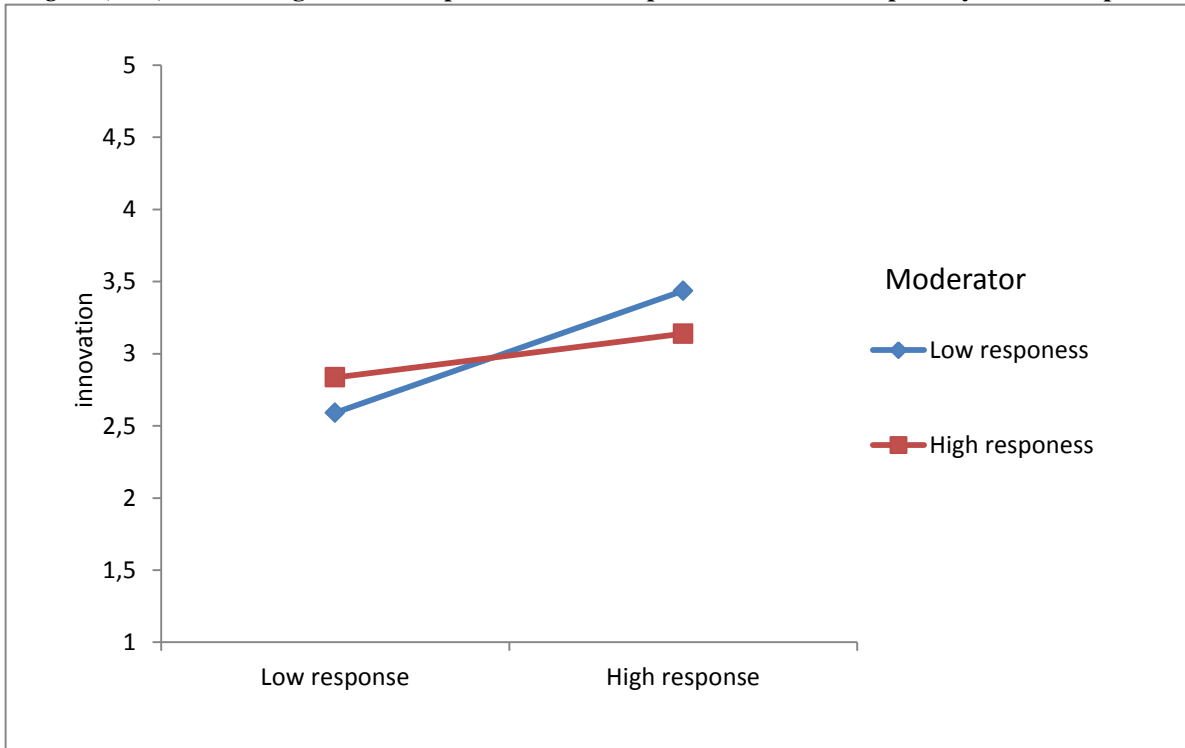


Responsiveness strengthens the positive relationship between sensemaking and innovation.



Regarding the moderating effect of responsiveness on the relationship between response and innovation capability, Figure 5.24 shows this relationship. It can be observed from the figure that responsiveness dampens the positive relationship between response and innovation. Additionally, the Figure shows that in high range of response, firms that facing high responsiveness were seen to achieve less innovation capability compare with the firms that facing low responsiveness. However, from low range of response firms that were facing with low responsiveness achieve innovation capability less than firm facing high responsiveness.

**Figure (5.24) moderating effect of responsiveness in response - innovation capability relationship**



Responsiveness dampens the positive relationship between response and innovation.

*Source: prepared by the researcher from data (2015).*

The results presented in the two figures above demonstrate that the hypothesis which proposed that responsiveness would strengthen the positive relationship between market sensing and innovation capability was partially supported.

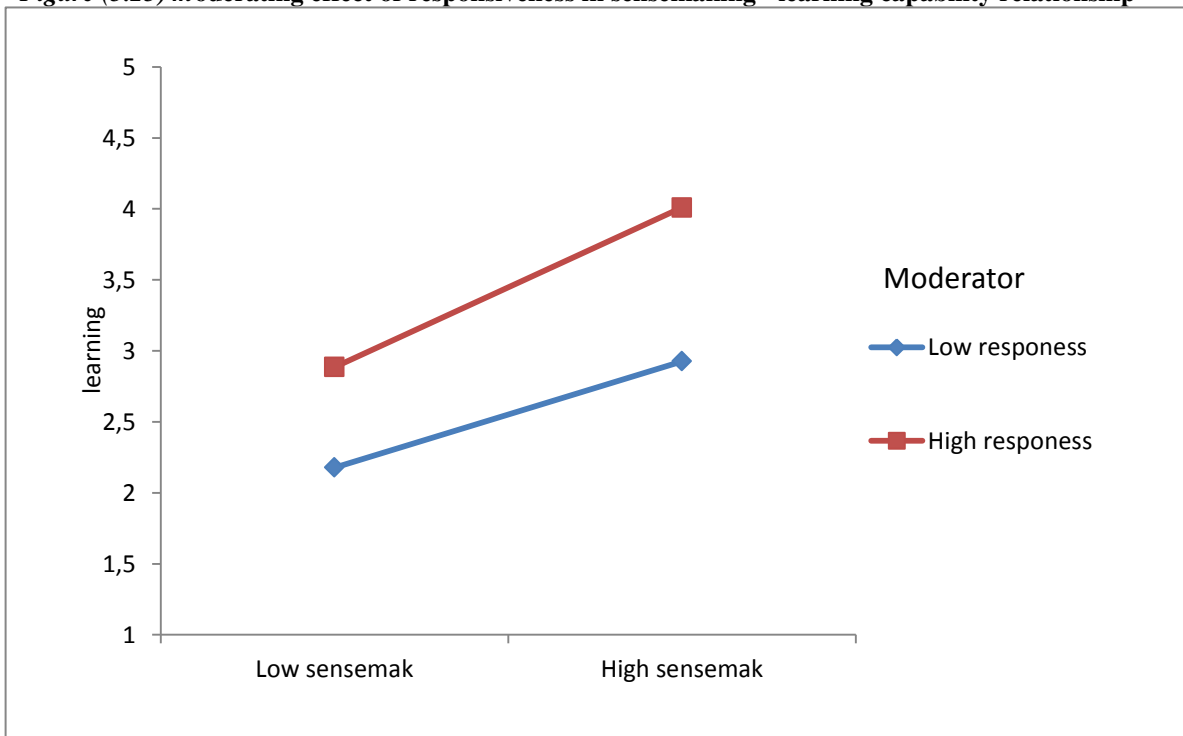
#### **5.8.7.2.2. The Moderating Effect of Responsiveness in the Relationship between Market Sensing and Learning Capability.**

This part proposed that responsiveness would moderate the relationship between market sensing and learning capability. The results in Table (5.47) show that the interaction term of sensemaking and responsiveness was not significant (estimate=-.007,  $p > .05$ ) for predicting learning capability. The results also indicate that R square change about 19% of the variance in the relationship between market sensing and learning capability was explained by responsiveness and the model as a whole was fit in Table (5.46). Further inspection reveals that the coefficient of the responsiveness effect was significant (estimate=.466,  $p < .001$ ). However, responsiveness shows no moderating effect between market sensing and learning capability. The SPSS output is shown in Appendix (B.13).

Figure 5.25 shows the moderating effect of responsiveness on the relationship between sensemaking and learning capability in which the responsiveness strengthens the positive relationship between sensemaking

and learning capability. This result indicates that firms those are facing low level of responsiveness show positive impact of sensemaking on learning capability at a high range of sensemaking. However, for the firms that facing high level of responsiveness, sensemaking was found to have positive influence on learning capability at low range of sensemaking. These results indicate that in both low and high level of responsiveness, sensemaking was found to influence continuously the learning capability. However, in the high level of responsiveness the effect of sensemaking on learning is strong than at low level of responsiveness.

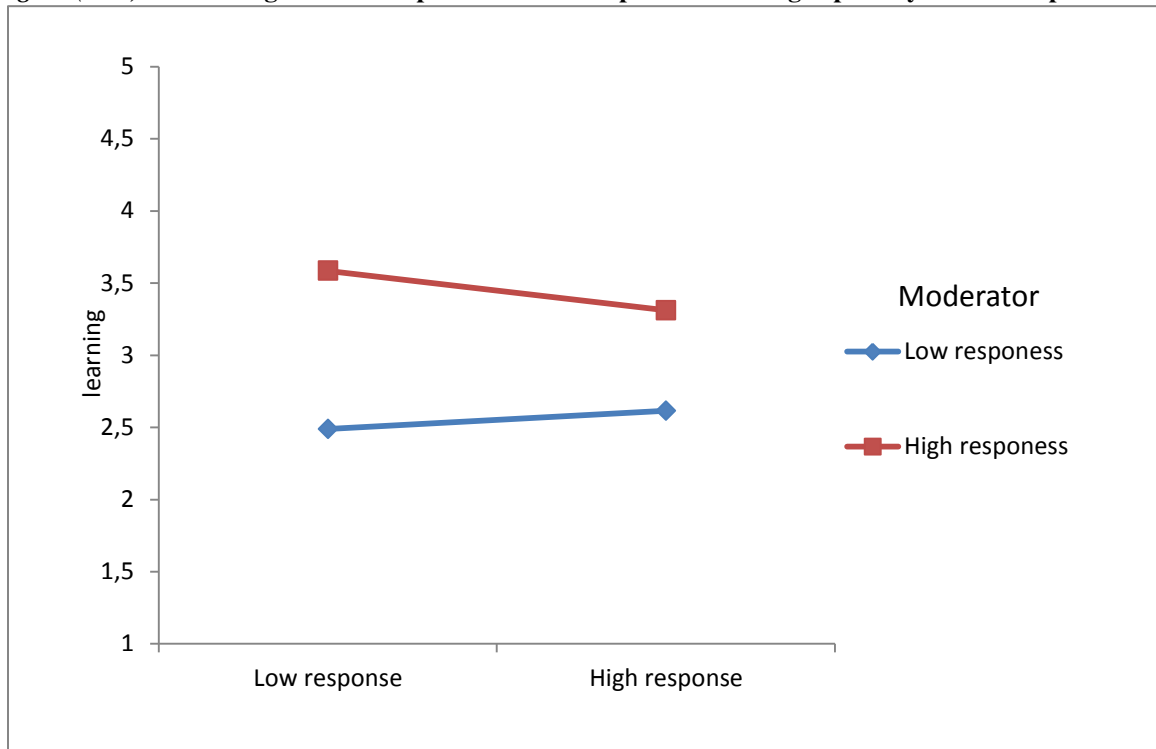
**Figure (5.25) moderating effect of responsiveness in sensemaking - learning capability relationship**



Responsiveness strengthens the positive relationship between sensemaking and learning.

Concerning the moderating effect of responsiveness on the relationship between response and learning capability, Figure 5.26 demonstrates this relationship. It can be observed from the figure that responsiveness strengthens the negative relationship between response and learning.

**Figure (5.26) moderating effect of responsiveness in response - learning capability relationship**



Responsiveness strengthens the negative relationship between response and learning.

Additionally, the Figure shows that in high range of response, firms that facing high responsiveness were seen to achieve negative relationship between response and learning capability compare with the firms that facing low responsiveness were seen to achieve weak positive relationship between response and learning capability. However, from low range of response firms that were facing with low responsiveness achieve small learning

capability than firm facing high responsiveness which reflects a negative relationship between response and learning capability.

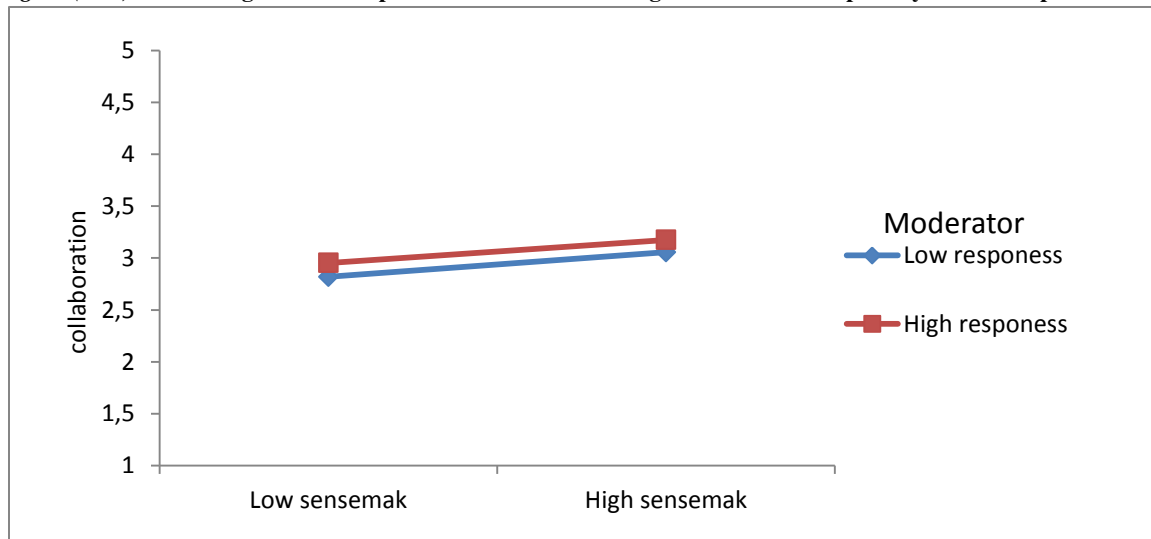
Summing up the results presented in the two figures above demonstrate that the hypothesis which proposed that responsiveness would strengthen the positive relationship between market sensing and learning capability was partially supported.

#### **5.8.7.2.3. The Moderating Effect of Responsiveness in the Relationship between Market Sensing and Collaboration Capability**

This part proposed that responsiveness would strengthen the positive relationship between market sensing and collaboration capability. The results in Table (5.47) show that the interaction term of sensemaking and responsiveness was not significant (estimate=-.016,  $p > .05$ ) for predicting collaboration capability. The results also indicate that R square change about 5% of the variance in the relationship between market sensing and collaboration capability was explained by responsiveness and the model as a whole was fit in Table (5.46). Further inspection reveals that the coefficient of the responsiveness effect was significant (estimate=.145,  $p < .001$ ). However, responsiveness shows no moderating effect between market sensing and collaboration capability. The AMOS output is shown in Appendix (B.13).

Figure 5.27 shows the moderating effect of responsiveness on the relationship between sensemaking and collaboration capability in which the responsiveness dampens the positive relationship between sensemaking and collaboration capability. This result indicates that firms which are facing low level of responsiveness show positive impact of sensemaking on collaboration capability at a high range of sensemaking. However, for the firms that facing high level of responsiveness, sensemaking was found to have similar influence on collaboration capability at high range of sensemaking. These indicate that in both low and high level of responsiveness, sensemaking was found to influence continuously the collaboration capability but the degree of influence to some extent is weak and it may intercept at specific point in a high range of sensemaking.

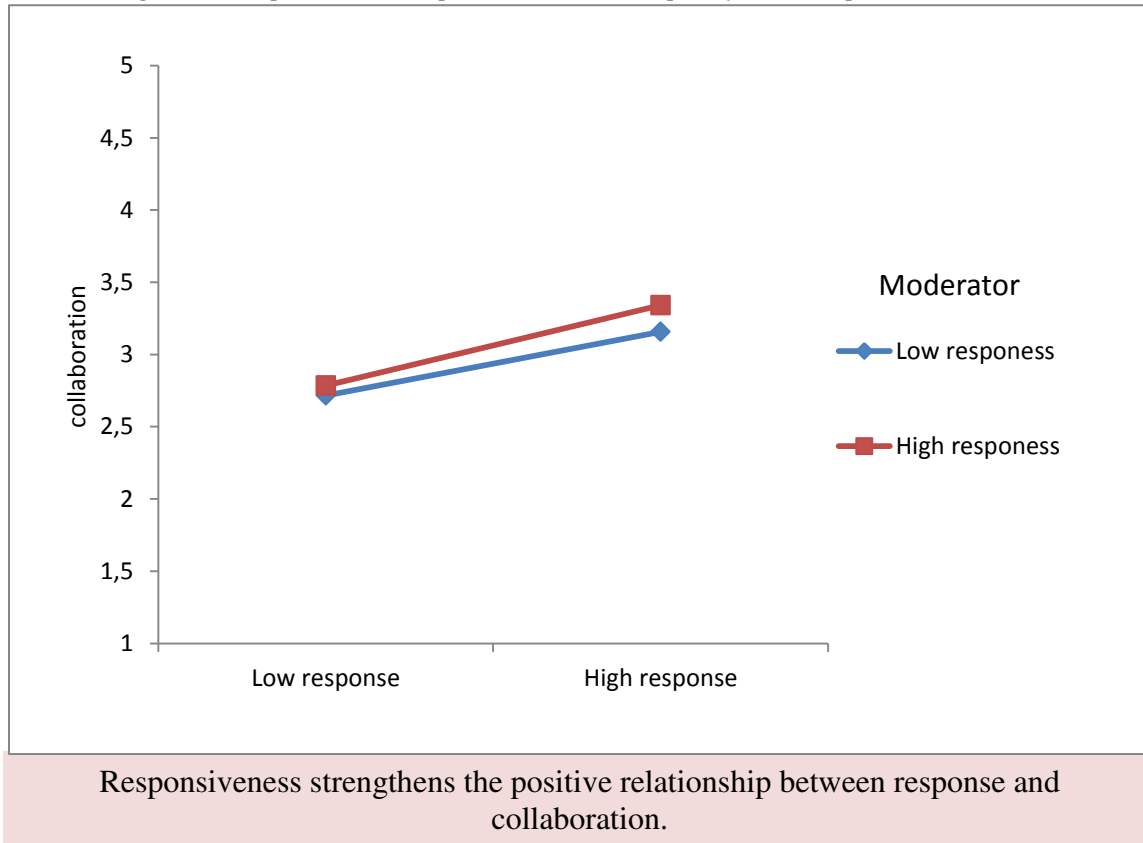
**Figure (5.27) moderating effect of responsiveness in sensemaking - collaboration capability relationship**



Responsiveness dampens the positive relationship between sensemaking and collaboration.

With respect to the moderating effect of responsiveness on the relationship between response and collaboration capability, Figure 5.28 demonstrates that responsiveness strengthens the positive relationship between response and collaboration.

5.28: Moderating Effect of Responsiveness in Response - Collaboration Capability Relationship



Additionally, the Figure shows that in high range of response, firms that facing high responsiveness were seen to achieve positive relationship between response and collaboration capability greater than the firms that facing low responsiveness were seen to achieve a positive relationship between response and collaboration capability. While in low range of response firms with high level of responsiveness were seen to achieve a

positive influence than the firms with low responsiveness but, they were near to intercept in this point. These results indicate that in both low and high level of responsiveness, response was found to influence continuously the collaboration capability.

Generally the results presented in the two figures above demonstrate that the hypothesis which proposed that responsiveness would strengthens the positive relationship between market sensing and collaboration capability was partially supported.

In accordance with the above mentioned Table (5.48) presents the summery of hypotheses testing results for the moderating effect of internal market orientation in the relationship between market sensing and organizational capabilities. The findings implied that the two component of internal market orientation (information dissemination and responsiveness) generally moderates the relationship between market sensing and organizational capabilities of firms operated in Sudan in different forms. However, the hypothesis of information dissemination strengthens the positive relationship between market sensing and organizational capabilities were just appeared in the relationship between response and innovation capability. While for responsiveness strengthens the positive relationship between market sensing and organizational capabilities were just appeared in



the relationship between sensemaking and innovation and in the relationship between sensemaking and learning, in addition to the relationship between response and collaboration.

*Table (5.48) summary of results for testing the moderating effect between market sensing and organizational capabilities.*

<i>Item</i>	<i>Statement of hypothesis: internal market orientation moderates the relationship between,</i>	<i>Remark</i>
<b>H5</b>	<b><i>Internal market orientation moderates the relationship between market sensing and organizational capabilities.</i></b>	<b>Partially Supported</b>
<b>H5.1</b>	<b><i>Info diss moderate market sensing - organizational capabilities relationship.</i></b>	<b>Partially Supported</b>
<b>H5.1.1</b>	<b><i>Info diss moderate market sensing-innovation relationship.</i></b>	<b>Partially Supported</b>
	H5.1.1a Info diss moderate sensemaking –innovation relationship.	Not Supported
	H5.1.1b Info diss moderate response–innovation relationship.	Supported
<b>H5.1.2</b>	<b><i>Info diss moderate market sensing - learning relationship.</i></b>	<b>Not Supported</b>
	H5.1.2a Info diss moderate sensemaking – learning relationship.	Not Supported
	H5.1.2b Info diss moderate response – learning relationship.	Not Supported
<b>H5.1.3</b>	<b><i>Info diss moderate market sensing - collaboration relationship.</i></b>	<b>Not Supported</b>
	H5.1.3a Info diss moderate sensemaking – collaboration relationship.	Not Supported
	H5.1.3b Info diss moderate response – collaboration relationship.	Not Supported
<b>H5.2</b>	<b><i>Responsiveness moderate market sensing - organizational capabilities relationship.</i></b>	<b>Partially Supported</b>
<b>H5.2.1</b>	<b><i>Responsiveness moderate market sensing - innovation relationship.</i></b>	<b>Partially Supported</b>
	H5.2.1a Responsiveness moderate sensemaking –innovation relationship.	Supported
	H5.2.1b Responsiveness moderate response–innovation relationship.	Not Supported
<b>H5.2.2</b>	<b><i>Responsiveness moderate market sensing - learning relationship.</i></b>	<b>Partially Supported</b>
	H5.2.2a Responsiveness moderate sensemaking – learning relationship.	Supported
	H5.2.2b Responsiveness moderate response – learning relationship.	Not Supported
<b>H5.2.3</b>	<b><i>Responsiveness moderate market sensing - collaboration relationship.</i></b>	<b>Partially Supported</b>
	H5.2.3a Responsiveness moderate sensemaking – collaboration relationship.	Not Supported
	H5.2.3b Responsiveness moderate response – collaboration relationship.	Supported

Source: prepared by researcher from data (2015)

## 5.9. Summary of the chapter

This chapter concerns with data analysis that was generated from firms operated in Sudan to show the findings for testing the hypotheses of the study. For analyzing data different statistical systems and techniques were used. For example, IBM (SPSS and AMOS) statistics version 23 were conducted in this study in addition to other techniques like data cleaning

which used for detecting and removing errors and inconsistencies to improve the quality of data followed by the validity and reliability to insure the goodness of measures for the study variables. Then, to identify the characteristics of all variables under study beside, responding firms and respondents descriptive statistical techniques were used. Furthermore, Person's correlations were also implemented to identify the interrelationships among all the variables. Finally, path analysis in AMOS was used to test the direct and indirect effects for testing the hypotheses. The coming chapter presents discussion and conclusion which includes results, implications and limitations of the study.

# **CHAPTER SIX**

## **DICUSSION AND CONCLUSION**

### **6.0. Introduction**

The previous chapter was concerned with the data analysis and findings. Thus in this chapter the findings are firstly illustrated, followed by discussion of the results in light of theories and previous studies. Then implications of findings for theory and management are developed. After that, directions for future research based on limitations were identified. Lastly, an overall conclusion of the study is made.

### **6.1. Recapitulation of the Study Findings**

This study aimed to investigating the relationship between market sensing and marketing performance. The study as well examined the relationship between market sensing and three types of organizational capabilities. The relationship between organizational capabilities and marketing performance was also explored. Moreover, the study tried to determine the mediating effect of organizational capabilities in the relationship between market sensing and marketing performance besides the moderating effect of internal market orientation on the relationship between market sensing and organizational capabilities. Small and medium sized

firms (SMFs) were chosen because they are a source of economic development through its vast creation of employment, provide training grounds, wealth creation and innovation by introducing competitive strategies which set them apart from other firms (Thwala, Ajagbe, Enegbuma, Bilau, & Long, 2012). Five research questions were outlined to achieve the aims of the study. The questions are as follows:

- (1) What is the relationship between market sensing and marketing performance?
- (2) To what extent market sensing can contribute in creating organizational capabilities?
- (3) What is the relationship between organizational capabilities and marketing performance?
- (4) Do the organizational capabilities mediate the relationship between market sensing and marketing performance?
- (5) Does internal market orientation moderate the relationship between market sensing and organizational capabilities?

Based on literature review, the study identified the variables to be focused on and to include three components of market sensing (sense, sensemaking, and response) and two dimensions of marketing performance (market performance and customer performance). This is in addition to three

types of organizational capabilities (learning, innovation, and collaboration) and three dimensions of internal market orientation (information generation, information dissemination, and responsiveness). The data for this research was obtained from a cross-sectional survey on 179 large, medium, and small firms in Sudan. The convenient sampling technique was used in selecting a sample for this study. Data collection was done through a structured questionnaire survey directed to either the general manager, or branch manager, or deputy, or director, or marketing and sales manager in each firm. The response rate achieved from the survey was 84%, which was considered satisfactory for the study purposes.

With respect to the above outlined questions the first hypothesis predicts that there is a positive relationship between market sensing and marketing performance. The results revealed that there is a positive relationship between one component of market sensing and customer performance, i.e. response has positive relationship with customer performance. However, the second component sensemaking shows no significant positive relationship with customer performance. These results generally indicate that market sensing is partially relates positively with marketing performance.

The second hypothesis in this study predicts that the two market sensing components (sensemaking and response) have a positive relationship with

the three types of organizational capabilities (learning, innovation, and collaboration). The results predict that sensemaking show significant positive relationships with all three types of organizational capabilities. However, the results show that response has a significant positive relationship with two types of organizational capabilities while organizational learning capability remains insignificant.

The third hypothesis predicts that organizational capabilities (learning, innovation, and collaboration) have a positive relationship with marketing performance (customer performance). The results indicate only organizational collaboration capability showed a significant relationship with customer performance while learning capability and innovation capability shows no significant positive effect on customer performance as sub dimension of marketing performance.

The fourth hypothesis predicts that the three types of organizational capabilities (learning, innovation, and collaboration) mediate the relationship between market sensing components (sensemaking and response) and one dimension of marketing performance (customer performance). The results implied that the mentioned components of market-sensing influences customer performance through collaboration only. At the same time, the results found that the two other components of organizational capabilities

could not establish the mediation effects in the relationship between market sensing and marketing performance (customer performance).

The fifth hypothesis predicts that the two dimensions of internal market orientation (information dissemination and responsiveness) moderate the relationship between market sensing and organizational capabilities. The result of testing this hypothesis revealed that information dissemination moderate the relationship between market sensing (sensemaking and response) and innovation capability. Information dissemination was found to moderate only the relationship between response and innovation capability. Regarding the relationship between market sensing and the other organizational capabilities (learning and collaboration) information dissemination showed no moderation in the relationship between the two components of market sensing (sensemaking and response) and the other organizational capabilities (learning and collaboration).

With regard to responsiveness as a moderator between market sensing and organizational capabilities, the results revealed that it moderates the relationship between one component of market sensing (sensemaking) and innovation capability. Responsiveness was also found to moderate the relationship between sensemaking and learning capability. In addition, the results showed that responsiveness moderates the relationship between

response and collaboration capability. In general the above mentioned results indicates that responsiveness was partially moderate the relationship between market sensing (sensemaking and response) and the organizational capabilities (innovation, learning and collaboration).

## **6.2. Discussion**

Based on the above mentioned, this section further discusses the research findings. The discussion is based on theoretical viewpoint, empirical evidence and conceptual studies that are considered to be suitable for this study. The discussion covers the relationship between market sensing and marketing performance and organizational capabilities, beside the relationship between organizational capabilities and marketing performance. Furthermore, the discussion will extends to cover the mediating effect of organizational capabilities in the relationship between market sensing and marketing performance as well as the moderating effect of internal market orientation in between market sensing and organizational capabilities and the control variables.

### **6.2.1. The Relationship between Market Sensing and Marketing Performance.**

The first objective in this study was to investigate the relationship between market sensing and marketing performance. As mentioned in chapter two, this objective was considered as essential agenda in this study



because of the fact that measuring marketing performance has become a priority for marketing executives in many organizations (Clark, Abela, & Ambler, 2006). Moreover, performance evaluation is often employed as the basis for corporate reward and punishment; hence, selecting the appropriate measurement index becomes ever more important (Tseng, 2014). Thus the ability to measure marketing performance has an important impact on general firm performance and the relative significance of the marketing function in the middle of other departments of a company. In the following subsections the discussion of findings which are partially consistent with the previous studies and contradicted in other parts.

#### **6.2.1.1. Market Sensing and Customer Performance.**

The results of path analysis showed that the two component of market sensing (sensemaking and response) was positively significant with customer performance as measured by customer satisfaction, decreasing customer complains, understanding customer needs, brand awareness, and the number of transactions per customer relative to competitors in same industry.

The results indicate that sensemaking has a significant relationship with customer performance. This means that as a firm gets involved in superior sensemaking it provides a means to secure and understand customers’

preferences and avoids mistakes. According to Krush, Agnihotri, Trainor, and Nowlin, (2013) firms with increasing levels of sensemaking will be able to offer market relevant products and services that are argued to influence customer satisfaction. This result is in line with (Krush, Agnihotri, Trainor, & Nowlin, 2013) which demonstrates that sensemaking is positively and statistically significant with customer performance, and Neill, McKee, and Rose, (2007) which argues that developed sensemaking capability increases the potential range of strategic responses and, ultimately, enhances customer-based performance. In contrast this result does not support the findings of a prior study by Carrington and Tayles, (2011) which showed insignificant relationship between sensemaking and performance.

Similarly, response to market sensing in this study was found to have a significant and positive relationship with customer performance. This relationship exists because of the fact that firms with high organizational responsiveness may utilize their various resources to meet the customer's needs or react to the competitor's decisions, moreover, Wei and Wang, (2011) argue that maintaining and enhancing a firm's responsiveness to environmental changes may create competitive advantage and thereby enhance a firm's financial performance. This result was in contradiction with

(Jiménez-Jiménez & Cegarra-Navarro, 2007) that demonstrated a non-significant relationship between responsiveness and performance.

Bearing in mind the above mentioned results concerning the exchange between market sensing components and customer performance, the results are to some extent in line with (Osakwe, Chovancova, & Ogbonna, 2016) which addresses empirical support that market sensing capability contribute significantly to SMEs profitability. While a result of Ardyan, (2016) shows a contradiction that market sensing capability has a positive effect but not significant relationship to SMEs performance. In a same vein Olavarrieta and Friedmann, (2008) also demonstrates that a firm's market sensing capability appears to enhance a firm's new product performance, but that is not the case with overall performance. Also this results is consistent with (Gonzalez-Benito, González-Benito, & Muñoz-Gallego, 2009) which addressed the significant and positive contribution of behavioral market orientation to all performance measures, and (Lettice, Tschida, & Forstenlechner, 2014) suggests that market orientation positively and significantly impacts on subjective performance and job satisfaction.

In general these results are coherent with a number of scholars in literature like (Day, 1994; Everett, 2014; Foley & Fahy, 2004; Wilden, Gudergan, & Lings, 2009; Lindblom, Olkkonen, Mitronen, & Kajalo, 2008;

Bailey, 2014), beside others, who are discussed market sensing concept and most of them indicates that market sensing capability is important in developing market focus to enhance the organizational performance.

### **6.2.2. The Relationship between Market Sensing and Organizational Capabilities.**

The second objective in this study was to examine the exchange between market sensing and organizational capabilities, as they are rarely studied together in the obtainable literature. Addressing this relationship is crucial, since there has been no study conducted on how firms in Sudan establish or set up their organizational capabilities and/or competences that are related to market sensing in search for better performance and competitive advantage.

The construct of organizational capabilities as mentioned in chapter two was operationalized to include innovation, learning and collaboration. In accordance with the findings in literature market sensing was posited to have significant and positive relationship with organizational capabilities. A close inspection to the results of testing this relationship revealed that some of the findings are consistent with previous research while some are not as discussed in the following subsections.

#### **6.2.2.1. Market Sensing and Innovation Capability.**

This study pointed out that the two dimensions of market sensing namely; sensemaking and response are positively related to innovation

capability. These results are coinciding with previous studies like (Fang, Chang, Ou, & Chou, 2014) that indicate a positive relationship between market sensing and innovation, and (Song, Wei, & Wang, 2015) which argued, that implementing market orientation as the right marketing strategy is the key to increase firm's innovation performance. This result supports the idea of firms that build strategy based on market sensing capability approach will contribute to their long term sustainability since it focuses on the stated needs and wants of the customers (Zehir, Köle, & Yıldız, 2015). This is because it is through market-sensing and customer-relating the valuable market information is brought into the firm and it can be used to encourage creativity within the firm, given that market-sensing and customer-response capabilities allow the firm to continuously keep an eye on customer trends and to respond to market changes while a potential strategic skylight of opportunity is open (Racela, 2014).

#### **6.2.2.2. Market Sensing and Learning Capability.**

The outcomes in this study shows statistical significant and positive relationship between sensemaking and learning capability and no significant effect between response and learning. Thus the two dimensions of market sensing, sensemaking and response indicate partial support to learning capability. These results are coinciding with Rupcic, (2006) who states that

strong market orientation is a prerequisite towards achieving the highest benefits of learning. The fundamental argument to the case of partial support from market sensing to learning capability, is that the firms in Sudan have the capability to proactively sensing trends and events in the market place to tap and learn from market-based information that resides in stakeholders who include customers, competitors, channel members and suppliers, but they were not have the ability to formulate appropriate responses at the right time (see. (Kamya, October, 2012)). In that sense, Rupcic, (2006) concluded that the market orientation (market sensing) effect is determined by the company's customer response capability and vice versa. Customer response capability is composed of two aspects: customer response expertise and customer response speed. Customer response expertise refers to the extent to which the organization's response effectively meets customer needs, while customer response speed refers to the extent to which its response to customer needs is quick. Both components are important: lack of expertise will not solve the customer's problem, while the delayed reaction may result in an equal dissatisfaction.

#### **6.2.2.3. Market Sensing and Collaboration Capability.**

The findings in this study shows statistical significant and positive relationship between sensemaking and collaboration capability and

significant effect between response and collaboration. Thus the two dimensions of market sensing, sensemaking and response indicate a positive link between market sensing and collaboration capability. Despite the scarcity of empirical evidence on the link between market sensing and collaboration capability however, these results support the assertion of the Tsai, Tsai, and Wang, (2012) who found that technological capacity and promotion capacity enhance the effect of supplier collaboration on new product performance. These results support the idea that the implications for market sensing provides insights into the gap between marketing managers and their creative staff through facilitating the discussion, the lessons and the recommendations (Prince & Priporas, 2014), which basically depends on collaboration capability. Thus the market sensing in firms operated in Sudan is directly contributes to collaboration capability.

### **6.2.3. The Relationship between Organizational Capabilities and Marketing Performance.**

The third research objective hunts to explain the relationship between the three elements of organizational capabilities and marketing performance. Examining these relationships is essential because an attempts to considerable amount of previous studies mostly showed a highly significant and positive association between organizational capabilities and firm

performance (Ouakouak, Ouedraogo, & Mbengue, 2014), while to some extent they were neglected the marketing performance field that can be recognized from the three components of organizational capabilities.

Results in chapter five presents the prediction of the relationship between the three components of organizational capabilities and marketing performance as represented by customer performance. These results provide supports to some of scholars examinations, while are contradicted with the others. An additional explanations and discussions for this association are in the following sub-sections.

#### **6.2.3.1. Innovation Capability and Customer performance.**

This part deals with the relationship between innovation capability and customer performance as first sub-hypothesis of the main relationship between organizational capabilities and marketing performance. The findings show no significant relationship between innovation capability and customer performance. This finding is in contradiction with a number of scholars for example, Olavarrieta and Friedmann, (2008) asserted that organizational innovativeness, as a firm's capacity to lead an industry in innovations by launching new products or services, was found to be positively associated with overall firm performance and new product performance. Likewise, Zafar, Hafeez, and Shariff, (2016) provides a



number of scholars (Bierly & Chakrabarti, 1996; Brown & Eisenhard, 1995; Caves & Ghemawat, 1992; Damanpour & Evan, 1984; Damanpour *et al.*, 1989; Hansen *et al.*, 1999; Roberts, 1999; Schulz & Jobe, 2001; Wheelwright & Clark, 1992), who are addressed that innovation positively effects organizational performance. Furthermore, innovation capability is significantly related to market performance (Tutar, Nart, & Bingöl, 2015). The logic behind this contradiction is the responded firms are operated in Sudan which characterised as one of the under developed countries, this means that a number of factors may exist to influence the innovation capability including, the lack of collaboration between firms and Universities as well as research centers, firms culture, organizational characteristics, managerial and environmental characteristics. Given that the lack of attention to the role of science, technology and innovation in social and economic development was the main factor for this contradiction. In this sense and in accordance with Neely and Hii, (1998) the literature suggests that there are many of both internal and external barriers to a firm's innovation. The external barriers include the lack of infrastructure, deficiencies in education and training systems, inappropriate legislation, an overall neglect and misuse of talents in society. Some major internal barriers include rigid organizational arrangements and procedures, hierarchical and

formal communication structures, conservatism, conformity and lack of vision, resistance to change, and lack of motivation and risk-avoiding attitudes. This finding implies that the innovation activities of firms operated in Sudan have not enhanced their customer performance.

#### **6.2.3.2. Learning Capability and Customer Performance.**

This section predicts the relationship between learning capability and customer performance as a second sub-hypothesis of the main relationship between organizational capabilities and marketing performance. The findings show no significant relationship between learning capability and customer performance. Despite the empirical research on the link between organizational learning and market performance is still scarce (Kamya, October, 2012). However this finding contradicts with Kamya, (2012) who states that a significant body of literature emphasizes that organizational learning is a strong source for gaining competitive advantage which in turn implies achieving better organizational performance. Also this result not support Goh, Elliott, and Quon, (2012) which indicates a positive relationship between learning capability and organizational performance, with strong results for non financial than financial performance.

### **6.2.3.3. Collaboration Capability and Customer Performance.**

This part explains the relationship between collaboration capability and customer performance as third sub-hypothesis of the main relationship between organizational capabilities and marketing performance. The findings show no significant relationship between collaboration capability and customer performance. This finding contradicts with Iyer, (2011) who indicates a positive link between collaboration and better operational performance. Also this result not supports the argument that, the existence of specific collaborative capabilities may help explain why some firms perform better than others when engaged in close collaboration activities (Knudsen & Nielsen, 2010). The logic behind this contradiction is that the value of collaborative capability lies in its ability to integrate and leverage the organizational and individual mechanisms that govern inter-firm relationships (Knudsen & Nielsen, 2010). This means that the firms in Sudan has aproblems associated with trust, commitment and communication that appears in literature as amain sources of collaboration capability. In this sense K and J, (2006) conceptualized Collaboration capability as a multi-dimensional construct consisting of three dimensions: trust, communication and commitment, and defined as “actor’s capability to build and manage

network relationships based on mutual trust, communication and commitment”.

#### **6.2.4. The Mediating Role of Organizational Capabilities.**

The fourth research objective of this study concerns with testing whether the three dimensions of organizational capabilities (innovation, learning and collaboration) mediate the exchange between market sensing and customer performance. Generally, examining this relationship is important because the process through which market sensing enhance customer performance has often been overlooked in previous studies.

From theoretical point of view, the links between market sensing, organizational capabilities and customer performance was operationalized as a conservative mediated relationship, thus response as one of market sensing dimensions was not significantly related to learning capability. Given that the second assumption of Kenny approach was not satisfied in this relationship, in which the independent variable must significantly influence the mediating variable. While, the other dimension of market sensing was statistically related to the three dimensions of organizational capabilities. In general, these results are in line with the scholars in the field of strategic management and marketing whom are begun to demonstrate how organizational capabilities may play a mediating role in the relationship

between any resources whether its tangible and/or intangible and firm performance (HassabElnaby, Hwang, & Vonderembse, 2012; Ouakouak, Ouedraogo, & Mbengue, 2014; Hwang, 2011; Tuan & Takahashi, 2009). Thus the following subtitles present the results discussion of mediating effects to the three dimensions of organizational capabilities in the exchange between market sensing and customer performance.

#### **6.2.4.1. The Mediating Role of Innovation Capability in the Relationship between Market Sensing and Customer Performance.**

This section deals with the mediating effect of innovation capability in the relationship between market sensing and customer performance. The result was partially support the mediating effect of innovation capability in this relationship.

Regarding the mediating effect of innovation in the relationship between sensemaking and customer performance the results obtained from summing up the direct and indirect effect indicates no mediation effect to innovation capability in this relationship. The result also indicates that innovation capability partially mediates the relationship between response and customer performance. This confirms that firms with greater capacity to innovate will be more successful in responding to their environments and develop new capabilities leading to competitive advantage and superior performance. These results are consistent with some of the previous studies for example,

the assertion of Maydeu-Olivares and Lado, (2003) demonstrates that taken separately both innovation degree and innovation performance completely mediate the impact of market orientation on business performance. While Zehir *et al.*, (2015) shows that innovation capability as a partial mediator variable in the relationship between the cultural construct of market orientation and export performance, and Ardyan, (2016) who asserted that product innovation success becomes the best mediating variable of market sensing capability on SMEs performance. Also the results coincide with (Olavarrieta & Friedmann, 2008) which predicts that organizational innovation as knowledge-related resources mediate the relationship between market orientation and new product performance, similar to the case of overall performance. Market sensing is like market orientation, helps the firms in identifying hidden needs of the customers which helps in introducing new products and services to fulfill the needs of customers (Zafar, Hafeez, & Shariff, 2016). Also dynamic capability (DC) address how competences are renewed over time so as to provide innovative responses to competitor's strategy changes (Wang C.-H. , 2015).

#### **6.2.4.2. The Mediating Role of Learning Capability in the Relationship between Market Sensing and Customer Performance.**

This sub-section concerns with the mediating effect of learning capability in the relationship between market sensing and customer

performance. The result was partially support the mediating effect of learning capability in this relationship.

Regarding the mediating effect of learning in the relationship between sensemaking and customer performance the results obtained from summing up the direct and indirect effect indicates partial mediation effect to learning capability in this relationship. The result also indicates that learning capability not mediates the relationship between response and customer performance. These results confirm the argument of Teece et al. (1997) suggesting that organizational learning is one of the strategic valuable capability that works out as a source in knowledge transmission, and therefore positively associated with KM (Rehman, Asghar, & Ahmad, 2015). Further in process of market sensing capabilities, market researchers applying many tools such as questionnaires, interviews, feedback forms and much more to study customer behavior in the market in arrange to achieve their goals and objectives. In this way, an organization can get better understanding about their customers such as their needs, wants, liking and disliking etc. This indicates that learning capabilities boost the organizational performance through exploiting what are known and exploring new domains of market intelligence for future exploitation. This outcome is in line with the result of Rehman, Asghar, and Ahmad, (2015)

demonstrating that organizational learning fully mediates the relationship between knowledge management practices and overall organizational performance. Also the findings are to some extent consistent with (Hsu & Fang, 2009) suggesting that human capital and relational capital actually improve new product development performance through organizational learning capability.

#### **6.2.4.3. The Mediating Role of Collaboration Capability in the Relationship between Market Sensing and Customer Performance.**

This part discusses the mediating effect of collaboration capability in the relationship between market sensing and customer performance. The result was fully support the mediating effect of collaboration capability in this relationship.

Concerning the mediating effect of collaboration in the relationship between sensemaking and customer performance the results obtained from summing up the direct and indirect effect indicates partial mediation effect to collaboration capability in this relationship. The result also indicates that collaboration capability partially mediates the relationship between response and customer performance. These results confirm the idea that, the openness towards external knowledge sources results in a variety of collaborative activities such as joint ventures, partnerships, research consortia, network relations, etc (Knudsen & Nielsen, 2010). The findings of this relationship



are in line with resource based view and dynamic capabilities. Dynamic capabilities suggest that resources are developed through specialized routines that create different competencies (Teece *et al.*, 1997). In this sense Teece, (2007) defined the deployment of dynamic capability as the process of sensing and seizing market chances and reconfiguring the resource base.

According to K and J, (2006) collaboration capability can be seen as a source for competitive advance, as it is a valuable, difficult to imitate, rare and socially complex capability. Collaboration capability is especially important in dynamic and uncertain environment providing more unusual situations demanding coordinated action (K & J, 2006). Hence, knowing how to collaborate helps the firm to create and transfer knowledge for innovation and better performance.

#### **6.2.5. The Moderating Effect of Internal Market Orientation.**

The fifth main research objective of this study was to investigate the optimistic interaction effects of internal market orientation and market sensing on organizational capabilities. Despite earlier scholars are to some extent have not so far incorporated market sensing (sensemaking and response) and internal market orientation (information dissemination and responsiveness) simultaneously as interaction in discussions. However the findings of the six sub hypotheses generated from H5 show the

complementary results these two specific resources encompass on some of the organizational capabilities (innovation, learning and collaboration). Accordingly the following subsections will discuss the pattern of these interesting findings.

#### **6.2.5.1. The Moderating Effect of Internal Information Dissemination in the Relationship between Market Sensing and Innovation Capability.**

This section discusses the interaction effect of information dissemination and market sensing on innovation capability to explain the moderating role of internal information dissemination in this relationship.

The general result shows that internal information dissemination moderates the relationship between one component of market sensing (response) and innovation capability. Hence, internal information dissemination strengthens the positive relationship between response and innovation capability. This indicates that, at the time that a firm facing a high level of internal information dissemination, the high response to generated and disseminated information leads the firm to achieve greater innovation capability. This suggests that a firm that facing high level of internal information dissemination as a result of business environmental change is highly need to concentrates in market sensing that would encourage a firm to be innovative in managing environmental change to keep survive in the future. Also whenever, a firm is confronted by the fierce

competition in business environment, there will be a high range of internal information dissemination as strategy to enhance innovation capability by utilization of greater market sensing. This result support Fang, Chang, Ou, and Chou, (2014) who argue that motivating employees to be sensitive to market changes and encouraging them to build and maintain good customer relationship is more important for an organization to develop organizational capabilities that help in achieving superior performance.

The result also shows that firms facing low level of internal information dissemination show unimportant increases at low response range to keep the firm innovative when information dissemination remain stable. The logic behind this is contingency theory argues that there is no best way to make decisions and to organize a company. Thus, organization's decisions and actions are contingent on internal and external situations (Hwang, 2011). Thus, rapidly disseminating of new intelligence to functional unit and coordinating the unit's synergistic is required (Wang, 2015), to help the firm in the interpretation of the information sourced from firm's environment and subsequently facilitate organizational innovation capability. According to sensemaking perspective firms scan the environment to gather information or data about real or potential changes in the market, and then they jointly interpret or make sense of that collected

information (Wei & Wang, 2011). As a result of interpretation and/or sensemaking firms have to respond in order to adapt to environmental changes. Based on the above mentioned the internal information dissemination have joint effect with MS on innovation capability was justified.

#### **6.2.5.2. The Moderating Effect of Information Dissemination in the Relationship between Market Sensing and Learning Capability.**

This section discusses the interaction effect of information dissemination and market sensing on learning capability to explain the moderating role of internal information dissemination in this relationship.

The overall result shows that internal information dissemination was not moderates the relationship between the components of market sensing (sensemaking and response) and learning capability. Hence, internal information dissemination dampens the positive relationship between sensemaking and learning capability and the negative relationship between response and learning capability. In sensemaking learning capability relationship the result revealed that sensemaking was not found to influence learning capability in firms that facing high level of internal information dissemination in the high range of sensemaking, while at the low level of internal information dissemination the effect of sensemaking on learning increases. In response learning capability relationship the result showed that

response was found to negatively influence learning capability in firms that facing low level of internal information dissemination in the high range of response, while at the high level of internal information dissemination the effect of response on learning is slight. Possible justification for this result lies on the fact that the rigidity of a firm's arrangement and procedures and their lack of understanding let the firms in Sudan disable to integrate sensemaking and internal information dissemination to gain knowledge. This because data are obtained by observing and documenting facts; information is obtained by analyzing and processing data; and knowledge requires cognition, experience, and understanding (Richards & Kabjian, 2001). In this sense Richards and Kabjian, (2001) argues that recognizing the distinctions between data, information, and knowledge not always an easy task is crucial to developing management approaches that leverage their relative values.

#### **6.2.5.3. The Moderating Effect of Information Dissemination in the Relationship between Market Sensing and Collaboration Capability.**

In this interaction effect the general result shows that internal information dissemination was not moderates the relationship between the components of market sensing (sensemaking and response) and collaboration capability. Thus, internal information dissemination dampens the positive relationship between market sensing and collaboration

capability. In both high and low levels of internal information dissemination was found to weakly influence continuously the collaboration capability. According to Vučić, (2009) most of the scholars argue that trust is a necessary and critical condition for the long-term relationships, exchange of resources, making risky investments, reducing uncertainty and sharing novel ideas. Trust is important when business activities involve uncertainty, resources are scarce, and information is limited (Staber, 1996). In a same vein, a general consensus among researchers concluded that the intra organizational trust is important in a range of activities and organizational processes, such as teamwork, leadership, direction of the objectives, evaluation of performance and cooperative behavior that benefits the organizations and its members (Borges & Gonçalo, 2010). Thus, the lack of trust and commitment in these firms may justify this result.

#### **6.2.5.4. The Moderating Effect of Responsiveness in the Relationship between Market Sensing and Innovation capability.**

For moderating effect of responsiveness in the relationship between market sensing and innovation capability, the general result shows that responsiveness moderates the relationship between one component of market sensing (sensemaking) and innovation capability, that is responsiveness strengthens the positive relationship between sensemaking and innovation capability. This result indicates that firms which are facing

high level of responsiveness show the positive impact of sensemaking on innovation capability at a high range of sensemaking. However, for the firms that facing low level of responsiveness, sensemaking was found to have less influence on innovation capability at low range of sensemaking. This result coincides with environmental scanning theory which argues that, organizations scan the environment in order to understand the external forces of change so that they may develop effective responses which secure or improve their position in the future (Choo, 2001). Also, inter-functional coordination entails the collaboration of different units that can facilitate the generation, collection, and dissemination of market intelligence pertaining to innovation development across functional areas (Wang, 2015). Thus, in accordance with Kohli and Jaworski, (1990) “Responsiveness is the action taken in response to intelligence that is generated and disseminated”. Responsiveness represents a firm’s market sensing activities (Wei & Wang, 2011). In this context responsiveness to internal information generation and dissemination interact with the process of market sensing by adding value through effective response to employees’ needs as internal customers, this would encourage a firm to be innovative.

In contrast, the general result also shows that responsiveness was not moderates the relationship between the other component of market sensing

(response) and innovation capability, that is responsiveness dampens the positive relationship between response and innovation capability. Additionally, the Figure shows that in high range of response, firms that facing high responsiveness were seen to achieve less innovation capability compare with the firms that facing low responsiveness and vice versa with low range of response. The justification for this result according to Rupcic, (2006) is the extent of connection between the functions or corporate units influence the ability to generate market information, distribute and act upon it. Similarly, a centralized structure is known to contribute to the efficient decision-making but also hinders market response due to centralized information-sharing channels. Formalized structures are known to focus on internal issues rather than on external orientation impeding market intelligence gathering and adequate organizational response. Also the relationship between the market information system and organizational responsiveness is stronger in firms pursuing an innovative strategy than in firms that are not pursuing an innovative strategy (Wei & Wang, 2011).

#### **6.2.5.5. The Moderating Effect of Responsiveness in the Relationship between Market Sensing and Learning Capability.**

With respect to the interaction effect for testing the moderation of responsiveness in between market sensing and learning capability relationship. The overall result shows that responsiveness was moderate only



the relationship between one component of market sensing (sensemaking) and learning capability, in which the responsiveness strengthens the positive relationship between sensemaking and learning capability. This result indicates that firms those are facing low level of responsiveness show positive impact of sensemaking on learning capability at a high range of sensemaking. However, for the firms that facing high level of responsiveness, sensemaking was found to have greater positive influence on learning capability at high range of sensemaking. This result support the argue that intelligence generation raises the possibility for effective learning, improving the level of expertise employed in responding to customers and generating certain behavioral outcomes (Rupcic, 2006). This is because the generated knowledge base allows a more comprehensive understanding of current customer needs and therefore a quicker response.

Concerning the moderating effect of responsiveness on the relationship between response and learning capability, it can be observed from the figure that responsiveness strengthens the negative relationship between response and learning. Moreover, the Figure shows that in high range of response, firms that facing high responsiveness were seen to achieve negative relationship between response and learning capability compared with the firms that facing low responsiveness were seen to achieve weak positive

relationship between response and learning capability. This result can be justified by the logic that weaker customer intelligence generation results in greater uncertainty as a result of lower understanding of customer needs (Rupcic, 2006). Thus, it can be concluded that the market orientation effect is determined by the company's customer response capability that composed of two aspects (Rupcic, 2006): customer response expertise and customer response speed. Customer response expertise refers to the extent to which the organization's response effectively meets customer needs, while customer response speed refers to the extent to which its response to customer needs is quick.

#### **6.2.5.6. The Moderating Effect of Responsiveness in the Relationship between Market Sensing and Collaboration Capability.**

This part concerns with proposed that responsiveness would strengthen the positive relationship between market sensing and collaboration capability. The overall result shows that responsiveness was moderate only the relationship between one component of market sensing (response) and collaboration capability. The overall result demonstrates that responsiveness strengthens the positive relationship between response and collaboration. Further, the Figure shows that in high range of response, firms that facing high responsiveness were seen to achieve positive relationship between response and collaboration capability greater than the firms that facing low

responsiveness were seen to achieve a positive relationship between response and collaboration capability. While in low range of response firms with high level of responsiveness were seen to achieve a positive influence than the firms with low responsiveness but, they were near to intercept in this point. The logic for this result is that response to external customers' needs through market sensing is absolutely integrates responsiveness to internal customers' needs through the process of internal market orientation.

With respect to the moderating effect of responsiveness in the relationship between sensemaking and collaboration capability, Figure 5.27 demonstrates that responsiveness dampens the positive relationship between sensemaking and collaboration capability. This result indicates that firms which are facing low level of responsiveness show positive impact of sensemaking on collaboration capability at a high range of sensemaking. However, for the firms that facing high level of responsiveness, sensemaking was found to have similar influence on collaboration capability at high range of sensemaking. These indicate that in both low and high level of responsiveness, sensemaking was found to influence continuously the collaboration capability but the degree of influence to some extent is weak and it may intercept at specific point in a high range of sensemaking. This result can be justified that in highly turbulent business environments, a firm

faces difficulty in interpreting the needs of the customers and in forecasting market trends. As a result, having relevant and accurate information for decision making becomes more critical for the success of the firm (Hwang, 2011).

#### **6.2.6. Effect of Control Variables.**

To gain better estimates for predicting the hypothesized relationships, the study employ several control variables that previous research has shown to influence organizational capabilities, (industry type, firm age and firm size) within firms and that are typically employed as control variables in the literature on performance as general (e.g. Chen, Li, & Evans, 2012). If these variables affect the dependent variables, including them as control variables may prevent biased parameter estimates of the hypothesized effects (Korhonen-Sande & Sande, 2014). However, the t-test examinations indicate that these variables, namely; firm age (newly and well-established firm) and firm size (large and medium firm) in addition to industry type (commercial and industrial firm) were appear to have an impact on some of organizational capabilities, and customer performance. These two control variables are incorporated in the multiple regression models and the results confirmed the suitability of having them included in the regression analysis.

The first control variable that showed a significant impact on customer performance of the large firms in comparison with the medium firms is firm size. These results confirm (Chen, Li, & Evans, 2012) which showed that firm size influencing organizational performance components, among which is customer-based performance. This result can be associated with the fact that large firms in Sudan with more than 150 employees have high innovation capability compared with the medium firms (less than 150 employees). This means that firms with high innovation capability have the ability to develop unique ways of delivering superior value to customers through a better understanding of customer needs and effective interactions. In this sense Nguyen, Yu, Melewar, and Gupta, (2016) believes that a superior market performance requires not only information on customers, but also, to proactively implement innovative activities such as organizational learning, orientation towards markets, and internationalization efforts. In contrary this result also not harmonized with previous study that shown firm size is not statistically significant in its relationship to customer performance, similar to the case of firm age on customer performance (Krush, Agnihotri, Trainor, & Nowlin, 2013).

Firm age was the second control variable that showed a significant impact on the two dimensions of organizational capabilities namely;

innovation and learning capability. For the collaboration capability, while the mean values show general decrease in collaboration capability in well-established firms compared with new established firms, the differences are not significant. For the case that firm age showed significant impact on innovation can be connected to the fact that new firms are highly innovative because their innovative efforts do not cannibalize their existing products or require them to filter new knowledge through organizational routines and structures that are ill-suited to that purpose (Katila & Shane, 2005). Therefore, these results indicate that newly established Sudanese firms can enjoy superior innovation and learning capability compared with a well-established firm.

The third control variable that has influence on organizational capabilities is industry type. This variable showed a significant effect on collaboration capability. The mean and t-value indicate that industrial firms have the higher level of collaboration than commercial firms in Sudan. Today in industrial firms workers often work in production groups, or pods which means they require a jobs that have much closer coordination among the parties involved in producing the product. Interaction jobs include most office jobs that require close coordination of many different people in order to complete the work. For instance, creating a Web site for a firm requires

collaboration among senior management, marketing professionals, Web designers, and information technology specialists who can implement the site. This indicates that all the firms that operated in Sudan have an equal chance of being successful in establishing collaboration capability through the process of market sensing.

### **6.3. The Major Results of the Study.**

The above discussion indicates the key results of this study to be summarize as follows:

1. Market sensing is having the necessary antenna to perceive change and prepare organizations for effective response. This would hearten Sudanese firms to further strategies based on market intelligence that obtained through the process of sensemaking.
2. Market sensing is highly adopted in Sudanese firms. Most of these firms are local and they were emphasized more on response and sensemaking because, they may have an accessible amount of resource and capabilities that are more visible in society.
3. Market sensing has a positive relationship with customer performance, because the similar emphasis on response and sensemaking from Sudanese firms appears to be the most important drivers for enhancing a firm's customer performance.

4. In Sudan sensemaking and response are the most powerful market sensing components to shape organizational capabilities (show a significant positive relationship on all the three types of organizational capabilities), however response was not significant on learning capability.
5. The firm's activity about organizational capabilities (innovation, learning and collaboration) in Sudan reveals without any significant contribution in customer value creation, that is why they are not showed any significant impact on customer performance?.
6. The collaboration capability in Sudanese firms is the major organizational capabilities through which the two component of market sensing (sensemaking and response) effect customer performance, followed by learning capability which mediates sensemaking to customer performance relationship, then innovation capability in between response and customer performance exchange shaping the mediation effect.
7. Internal market orientation construct includes only two dimensions they are information dissemination and responsiveness.
8. The optimistic interaction effects of internal market orientation (information dissemination and responsiveness) and market sensing (sensemaking and response) shows the complementary results these two



specific resources encompass on organizational capabilities (innovation, learning and collaboration).

9. The firm's responsiveness is the most important internal market orientation context that firms operated in Sudan pursued to adopt market sensing in arrange to develop and deploy their organizational capabilities, while information dissemination recorded partial support to moderation effect on the relationship between market sensing and innovation capability.

#### **6.4. Implications of the Study.**

This part highly concentrated in the outcomes of this study to be presented in terms of their contributions. The theoretical implications for this study will be discussed firstly, and then the practical implications are also explained.

##### **6.4.1. Theoretical Implications.**

Within the context of firms from different industries the study was come out with several implications to marketing theory. The first theoretical contribution of this study, it explored the precursors for enhancing marketing performance exhibited by firms through the theoretical lens of resource based view and dynamic capability theory. In doing so the findings identifies that market sensing is the most important driver for enhancing marketing performance of the firms. This result is in line with resource based view and

dynamic capability theory because this study considers market sensing as a critical constituent of dynamic capabilities in the background of identifying opportunities (Teece, 2007). Furthermore, this study operationalized market sensing as strategic resource since it fulfilled the RBV resource characteristics (valuable, scarcity, inimitable and non substitutable) that enable the firm to sustain competitive advantage in terms of customer performance. Moreover, by investigating the aspects of market sensing this study confirms the argument of (Bailey, 2014) that there is a clear link to market learning theory and organizational learning which divided into information acquisition, information dissemination, and shared interpretation.

The second theoretical contribution, it attempts to bridge the knowledge gap by addressing the value of market sensing as driver of such organizational capabilities like innovation, learning and collaboration, as they are hardly ever examined together in literature. The results consists with the findings in literature that market sensing was posited to have significant and positive relationship with organizational capabilities.

The third theoretical contribution concerns with the exchange between organizational capabilities and customer performance. Studies based on resource based view argue that the impact of capabilities on performance is

governed by two characteristics of the knowledge that drive them; lacking imitability and imperfect mobility enable capabilities to be quite protected from competitors (Helfat & Peteraf, 2003; Teece *et al.*, 1997). Another logic for these relationships stems from the fact that the three types of organizational capabilities are the intangible resources; intangible resources are seen as key determinants to the firm's success by numerous research (e.g., Day 1994; Grant, 1996; Eisenhardt & Martin, 2000). Therefore, this study highlights the importance of the organizational capabilities in developing customer performance in the firm. In terms of the effects of organizational capabilities on customer performance, all the components of organizational capabilities showed no significant association with customer performance.

The fourth theoretical contribution is in attempt to extend market sensing in proving new relationships this study highlighted the mediating effect of organizational capabilities (innovation, learning and collaboration) in the exchange between market sensing and customer performance. The findings of the study concerning the mediation effect have a number of theoretical contributions. Firstly, these results provide support for theoretical explanations of firm performance based on firm-specific resources and organizational capabilities approaches (e.g., Ouakouak, *et al.*, 2014;

HassabElnaby, *et al.*, 2012; Tuan and Takahashi, 2009). Secondly, organizational capability has been considered as a major source of sustainable competitive advantage (Ouakouak, *et al.*, 2014) this conceptualizing organizational capabilities as inimitability and imperfect mobility resource demonstrate that superior market sensing can enable firms achieve a competitive advantage. Finally, results indicated that collaboration capability is the major organizational capabilities through which two components of market sensing (sensemaking and response) effect customer performance, followed by learning capability and then innovation capability. These results imply that not all capabilities have equal impact in the relationship between resources and performance.

The fifth theoretical contribution of this study deals with the moderating effect of internal market orientation in the relationship between market sensing and organizational capabilities. It has been disputed that the important contribution can be created by examining a mechanism that put together the contributions of many areas and resources that assist in developing firm-specific strategic marketing processes (Krush *et al.*, 2013). This study suggests that examination of the interaction effect of market sensing and internal market orientation explains the complementary scope of the two resources. In doing so, the study answers the researchers calls for

more examination of the interplay between market orientation and other organizational resources or capabilities and its influence on firm performance ( Narver and Slater, 1990; Song *et al.*, 2008; Stam and Elfring, 2008; Wang, 2008) and a better understanding of the interaction of marketing resources (Vorhies & Mogan, 2005). Findings also demonstrate that firms can develop exchange relationship with their employees that, in turn leads to enhance higher levels of market performance because of an obligation to reciprocate. As such the study contributes to the social exchange literature by illustrating the complementary nature of social exchange relationships in examining the interplay effect of market sensing and internal market orientation on organizational capabilities (innovation, learning and collaboration). This is reflected by the interaction effect of internal information dissemination and responsiveness respectively, on the relationship between sensemaking and organizational capabilities, and on the exchange between response and organizational capabilities. In course of action for generating antecedents to organizational capabilities, the study highlighted the value of interaction between resources as a new approach that was conducted in researches. This is predominantly significant in today's challenging business environment.

#### **6.4.2. Managerial Implications.**

The findings of the proposed framework provide a number of valuable implications for managerial practice. First, managers of the firms operated in Sudan are highly needs to engage in market sensing to gain market intelligence by gathering, disseminating and responding to information in arrange to succeed in relation to those of its rivals in the market in terms of customer satisfaction, understanding customer needs and increasing customers' awareness of brand.

Second, this study suggests that firms can develop market sensing as an adaptive tool for organizational capabilities (innovation, learning and collaboration) and performance to face the business environmental changes.

Third, the model addresses single of the serious questions of how the process of market intelligence contributes in establishing the firm's organizational capabilities. The results offer fresh viewpoint on this matter and underline the importance of market information process by indicating positive links from market sensing to organizational capabilities.

Fourth, from managerial point of view the findings obtained from testing the conceptual framework of this study improves the common understanding among decision makers, which makes the firm more likely to be able to effectively respond to environmental changes.

Fifth, managers need to pay greater attention to the situation under which all the components of organizational capabilities (innovation, learning and collaboration) appears without significant effect on customer performance.

Sixth, Managers needs to understand that linking marketing effort indirectly through collaboration or innovation or any other capability like learning is necessarily than directly link to firm performance. Testing the mediation effect demonstrates that collaboration is the major organizational capability through which market sensing effect customer performance, followed by learning and innovation capability, generally indicating partial mediation of organizational capabilities in this relationship. Managers must understand the importance of collaboration as well as learning and innovation capability that must be involved to translating the adequate market information obtained through market sensing towards firms customer performance.

Seventh, from managerial point of view also, the outcomes afford prescriptive direction concerning the value of investigative the integration effect of internal market orientation and market sensing. Testing the moderation effect of internal market orientation confirm the value of interaction between internal market orientation and market sensing in

making managers aware to cope with change and complexity of firms' environment in Sudan. Moreover managers organize suitable training for research and development staff, including the techniques to assemble timely market intelligence, the employ of the correct sources of intelligence, and the consideration of the limitations of intelligence (Krush *et al.*, 2013).

Eighth, the government must pay greater attention to the role of science, technology and innovation in social and economic development. This need a sustainable development of infrastructure, improvement in education and training systems, appropriate legislation, an overall utilization of talents in society, excellent governmental policies and etc....

Ninth, firms must devote a great efforts to overcome the major internal barriers include rigid organizational arrangements and procedures, hierarchical and formal communication structures, conservatism, conformity and lack of vision, resistance to change, and lack of motivation and risk-avoiding attitudes.

### **6.5. Limitations of the Study.**

Similar to any other researches, this study also confronted by a number of limitations that should be took about in order to be path for future study regarding this theme. Firstly, the hypotheses of this study were tested using cross-sectional data. However causality cannot be determined from cross-



sectional data (Ozkaya et al, 2015). Therefore a longitudinal data will be valuable to assess the conceptual model of this study.

Second, as a result of data analysis this study takes into account only customer performance which conceptualized as the firm's ability to (achieve customer satisfaction, understand customer needs, increasing customers' awareness of brand, decrease customer complaints and maximize number of transaction per customer) as a firm's marketing performance indicator, potentially limiting to make generalizations. However in (Nguyen B., Yu, Melewar, & Gupta, 2016) market performance focuses on financial and customer performance. While other scholars (Clark, 2000; Morgan, et al. 2002) conceptualized marketing performance to includes dimensions of (effectiveness, efficiency, and adaptiveness). Furthermore, the information of marketing performance indicator was only measured by subjective opinions.

Third, another limitation is to make analysis only on SMEs that are operating in Khartoum State. Although Khartoum State covers most of the SMEs in Sudan and so appropriate to make generalization.

Fourth, as mentioned before, the variables used in the conceptual model of this study are hardly ever examined together in the literature. For this reason the study aims to complete this gap as much as possible and also

think that it provides compelling evidence for future work to gain further insight into market sensing, organizational capabilities and customer performance parameters.

Fifth, the focus of this study is to examine the moderating effect of internal market orientation between market sensing and organizational capabilities, this study was not exploring other possible antecedents to the relationship between organizational capabilities and customer performance.

Finally, this study conducted a convenience sampling where the size of sample is restricted to 179 questionnaires. This as such, might decrease the opportunity to generalize findings. Additionally the study relies on the responses of top and middle managers where self-administrated survey was used. In this point, self reported bias could be an issue.

## **6.6. Future Directions of Research.**

Based on the above mentioned limitations, this study provides several suggestions which were taken as an opportunity for future examinations. First, instate of cross-sectional data a longitudinal data was suggested as an opportunity for future research project to determine the causality of understanding the exchange and interactive nature of the relationship between market sensing, organizational capabilities, customer performance and internal market orientation.

Second, measuring marketing performance has become a priority for marketing executives in many organizations (Clark, Abela, & Ambler, 2006). Moreover, performance evaluation is often employed as the basis for corporate reward and punishment; hence, selecting the appropriate measurement index becomes ever more important (Tseng, 2014). This was considered as fruitful suggestion for future studies to conduct a multi-dimensional construct to marketing performance, as well as objective performance indicators such as analyzing the balance sheets of the companies is suggested for further researches to be conducted.

Third, to make generalization extended it can be beneficial for future researches to make this analysis also on all over Sudan or even on large-scale, global and multinational companies.

Fourth, as they are rarely studied together in available literature, the variables used in the conceptual model of this study can also be applied to other firms operating different areas of the world, moreover, it can be expanded in taking into account of other capabilities. These are also recommended for future researches.

Fifth, future research has to take into consideration the moderating effect of internal market orientation or any other antecedent in organizational capabilities – performance relationship.

Finally, for further credibility to the findings additional outcomes with other samples may be fruitful avenues for future directions. Further, it will be interesting source for future research if the data collected from top and middle managers or from sales and marketing executives only using mail survey.

### **6.7. The conclusion of the Study.**

This study is an attempt to develop a conceptual framework to investigate the link between market sensing and customer performance exploring the mediating role of organizational capabilities in this relationship. Moreover, the study has examined the moderating effect of internal market orientation between market sensing and three organizational capabilities (innovation, learning and collaboration).

This study conducted a convenience sampling among 250 firms from different industries operated in Sudan. The findings demonstrate that market sensing in Sudan consist of two components (sensemaking and response) and firms in Sudan are to some extent implemented market sensing.

Regarding the value of market sensing to Sudanese firms this study indicates empirical evidence that market sensing lead firms in Sudan to sustainable competitive advantage in terms of customer performance, as well as helping them to establish a distinctive organizational capabilities but that

is not the case of organizational capabilities customer performance relationship which showed insignificant relationship. However, these organizational capabilities support the firm in its value creation and eventually enhance customer performance through the mediation effect.

This study further illustrated the importance of social exchange theory in understanding how the relationship between market sensing and organizational capabilities will be influenced by intervene of internal information dissemination and its responsiveness within firms from different industries in Sudan.

In general, the real contribution of this study lies on its theoretical and practical implications as well as its ability to successfully develop suggestions for future academic activities. In addition this study provides managerial advices to the firms in Sudan to develop market sensing as an adaptive tool for capabilities and performance to face the business environmental changes.

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## Appendix A / Appendix A1: Questionnaire Cover letter



بسم الله الرحمن الرحيم

Sudan University of Science and Technology

College of Graduate Studies

Department of Business Administration

### To whom it may concern

Dear/Respected Respondent

### Research Questionnaire

I would like to inform you that know I am in the process of completing my study towards PhD in Business Administration, and this study is provided in fulfillment of the qualification requirements. The research aimed to assess *The Interaction Effect of Market Sensing and Internal Market Orientation on Organizational Capabilities and Marketing Performance*. I'm very appreciative, if you could kindly take a little of your time to complete the attached questionnaire. All information provided is for academic purposes only and will be treated with high respect to protect your confidentiality. I apologize for the length of the questionnaire however the nature of the study does not allow me to make it short in any way. Your co-operation is most valued and appreciated. I take this opportunity to thank you in advanced for your kind participation and timeout return of your completed questionnaire.

With best regards

**PhD Candidate: Abubaker Mohamed Ahmed**

**Tel: 0918050821 / 0124443318**

**Email: [abuhamdiii@yahoo.com](mailto:abuhamdiii@yahoo.com)**

## Appendix A2: English Questionnaire

### Part One: Personal Informational.

Please mark (✓) in front of a phrase that suits you

#### 1.1 Sex

Male                       Female

#### 1.2 Age:

Age group	Less than 30	30- 40	41-50	51-60	More than 60
choice(✓)					

#### 1.3 Marital status

Age group	Married	Divorce	41-50	51-60	More than 60
choice(✓)					

#### 1.3: Academic Qualification:

Qualification	Secondary	Diploma	Bachelor	Higher Diploma	Master	PhD	other
choice(✓)							

#### 1.4: Years of Experience:

Experience	5 or less	6-10	11-15	16-20	More than 21
choice(✓)					

**Part two: Items of the variables.**

**1- Internal market orientation ( 16 items )**

Here we assess the degree of internal market orientation (information generation, information dissemination, and responsiveness) in your firm. Please tick (√) in appropriate responsible box according to the best of your knowledge, using the scale below.

<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neutral</i>				<i>Agree</i>	<i>Strongly Agree</i>
1	2	3				4	5
<b>Information Generation</b>							
I.Code	In our firm we .....	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	
IG1	Understand the needs of our employees before any decisions are made.						
IG2	We meet our employees face to face so as to understand their needs better.						
IG3	Have an important aspect of our work is to check whether our employees are satisfied with their job and to identify any problems they might have.						
IG4	Classifies our employees into well-defined groups according to their individual needs (e.g. health problems, those with dependents, etc.).						
IG5	Always ask ourselves how it will affect the different segments of employees with similar needs and characteristics when we draw up a particular policy or aim to implement it.						
<b>Information Dissemination</b>							
I.Code	Managers and supervisors in our firm.....	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	
ID1	Are genuinely interested in listening to what employees have to say about their work, any problems they might have, and the suggestions they put forward.						
ID2	Encourages employees to talk to them if they have a personal problem that has a negative effect on their performance.						
ID3	Are always available to meet personally with an employee if such a meeting is requested.						



ID4	Spends time with employees, explaining to them the firm's objectives and how these objectives affect what the firm expects from each individual employee.					
<b>Responsiveness</b>						
<b>I.Code</b>	<b>In our firm managers.....</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Neutral</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
Res1	Invest resources (time and/or money) where needed in order to satisfy the specific needs or requirements of employees.					
Res2	Are clearly geared toward solving any problems that employees may have and providing them with the support they need to perform their job well.					
Res3	Are genuinely interested in hearing about and understanding their employees' feelings in so far as these affect their work.					
Res4	Are systematically and continuously organizes training seminars so that employees can develop their skills.					
Res5	Will personally provide training in relation to the new role If an employee is moved to a new task or department.					
Res6	Understand the family needs of employees.					
Res7	Support employees so that they can combine their work and family commitments.					

## 2- Market Sensing

In this part we assess the degree of market sensing (sensing, sensemaking and response) in your firm. Please tick (√) your response using the scale below.

<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly Agree</i>		
1	2	3	4	5		
<b>Sensing</b>						
<b>I.Code</b>	<b>Our firm.....</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Neutral</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
Scal	Actively sense events and trends in					

	our firm environment					
Sca2	Style of information-gathering is systematic.					
Sca3	Gather information regularly from different kinds of sources.					
Sca4	Actively exchange information with other departments.					
<b>Interpretation</b>						
<b>I.Code</b>	<b>Our firm.....</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Neutral</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
Inter1	Style of interpreting the information is analytic.					
Inter2	Spends a considerable amount of time to analyze the gathered information					
Inter3	Actively analyze information before marketing decision-making					
Inter4	Believe that analyzing information is useless when it comes to marketing decision-making					
<b>Response</b>						
<b>I.Code</b>	<b>Our firm.....</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Neutral</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
Resp1	Actively utilize information regarding consumers' needs and intentions when making our marketing decisions					
Resp2	Actively utilize information provided by sales and market share reports regarding our products when making our marketing decisions					
Resp3	Actively utilize data provided by sales and market share reports regarding the products that we represent when making our marketing decisions					
Resp4	Actively utilize information provided by company image studies when making our marketing decisions					
Resp5	Collection and analysis of information always leads to good knowledge.					

### 3- Organizational Capabilities

Here we assess the organizational capabilities, please tick your response using the scale below.

<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly Agree</i>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

<b>Learning</b>						
<b>I.Code</b>	<b>In our firm .....</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Neutral</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
Lea1	There is widespread support and acceptance of the organization's mission statement.					
Lea2	The mission statement identifies value with which all employees must conform.					
Lea3	Managers can accept criticism without becoming overly defensive.					
Lea4	Managers often provide useful feedback that helps to identify potential problems and opportunities.					
Lea5	Managers encourage team members to experiment in order to improve work process.					
Lea6	The new work processes that may be useful to the firm as a whole are usually shared with all employees.					
Lea7	We have a system that allows us to learn successful practices from other organizations.					
Lea8	Current organizational practice encourages employees to solve problems together before discussing them with a manager.					
<b>Innovation</b>						
<b>I.Code</b>	<b>Our firm.....</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Neutral</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
Inn1	Frequently tries out new ideas.					
Inn2	Seeks out new ways to do things.					
Inn3	Is creative in its methods of operation.					
Inn4	Is often the first to market with new products or services.					
Inn5	New product / service introduction has increased over the last five years.					
<b>Collaboration</b>						
<b>I.Code</b>	<b>In our firm we are.....</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Undecided</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
Coll1	Believe in team work as a very common practice.					
Coll2	Willing to cooperate to improve the logistics and shipping processes.					
Coll3	Willing to cooperate to improve the production and operation processes.					
Coll4	Willing to cooperate to improve the quality of products or service.					

Coll5	Able to share mutual responsibility and commitment with our customers.					
Coll6	Ready to inform our customer about any changes in our products.					
Coll7	Able to share duties and responsibilities when necessary.					

#### 4- Marketing Performance.

Please indicate your evaluation of marketing performance that your firm has achieved over the last three years to your major competitors with respect to the following items, using the scale below.

<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly Agree</i>		
1	2	3	4	5		
<b>Market performance</b>						
<b>I.Code</b>	<b>During the last three years relative to our major competitors, this firm has achieved...</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Neutral</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
MP1	Increase the products in the current market of the firm					
MP2	Ability to set reasonable price to products or service.					
MP3	Ability to initiate successful new products					
MP4	Make extensive use of media advertising.					
MP5	First in introducing new products to market.					
<b>Customer performance</b>						
<b>I.Code</b>	<b>During the last three years relative to our major competitors, this firm has achieved...</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Neutral</b>	<b>Strongly Disagree</b>	<b>Strongly Disagree</b>
CP1	Increasing customers' recall the symbol or logo of firm's product or service.					
CP2	Understanding customer needs and requirements					
CP3	The level of customer satisfaction.					
CP4	Minimizing Number of customers' complaints.					
CP5	Improving number of transaction per customer					

## Appendix A3: Arabic Questionnaire

بسم الله الرحمن الرحيم

عزيزي الفاضل/ المدير العام/ مدير فرع/ نائب المدير/ مدير ادارة/ مدير قسم.....

المحترم

أهديكم اطيب التحيات....ويعد

الموضوع : استبانة بحث مقدم لنيل درجة الدكتوراه

أحيطكم علماً بأنني الآن بصدد إجراء بحث علمي لنيل درجة الدكتوراه في إدارة الاعمال بعنوان: أثر التفاعل بين التوجه نحو السوق الداخلي والاستشعار التنظيمي على الاداء التسويقي : الدور الوسيط للقدرات التنظيمية.

تهدف هذه الإستبانة إلى التعرف على آرائكم حول موضوع البحث أعلاه، وعليه اتطلع الى سماحة تعاونكم في ملء هذه الاستبانة كاملةً، واضعين في الاعتبار أن دقة إجاباتكم لها أثر كبير في إثراء هذه الدراسة.

وأود أن أؤكد لكم أن البيانات المقدمة من قبلكم ستحاط بالسرية الكاملة وستستخدم فقط لأغراض البحث العلمي، آملاً أن تحظى هذه الإستبانة بعنايةكم وإهتمامكم.

مع خالص شكري وتقديري لتعاونكم للمساهمة في تعزيز البحث العلمي .....

المشرف المعاون: د. صديق بلل

الدارس: ابوبكر محمد احمد ابراهيم

ت: 0912797197

ت: 0124443318/ 0918050821

E-mail: [siddigb1@hotmail.com](mailto:siddigb1@hotmail.com)

E-mail: [abuhamdiii@yahoo.com](mailto:abuhamdiii@yahoo.com)

الجزء الاول : معلومات عن الشركة:

فضلاً ضع علامة (√) امام الخيار الذي يناسب استجابتك:

1-1 طبيعة عمل الشركة:

تجاري  زراعي  صناعي  خدمي

اخرى  اذكرها .....

2-1 عدد العاملين بالشركة :

اقل من 50 عامل  من 50 إلى 100 عامل  10 إلى 150 عامل  أكثر من 150 عامل

3-1 عمر الشركة :

اقل من 5 سنة  من 5 سنة إلى 15 سنة  أكثر من 15 سنة

4-1 الاسواق التي تعمل فيها الشركة :

محلية  دولية  محلية ودولية

5-1 ملكية الشركة :

سودانية بالكامل  شراكة سودانية اجنبية  اجنبية بالكامل

6-1 عدد المنافسين لمنتجات الشركة

اقل من 5 منافسين  من 5 إلى 10 منافسين  أكثر من 10 منافسين

7-1 المنتجات التي تقدمها الشركة :

استهلاكية  صناعية  خدمية

اخرى  رها .....

## الجزء الثاني: عبارات قياس المتغيرات

### 1-2 التوجه نحو السوق الداخلي

بناءً على معرفتك الجيدة لما يدور داخل الشركة فضلاً عن علامة (√) امام العبارة التي تناسب استجابتك في الجداول ادناه :

إستنباط المعلومة:					
الرقم	نحن في شركتنا.....	وافق بشدة	أوافق	لا ادري	لا اوافق بشده
1	نتفهم احتياجات موظفينا قبل اتخاذ أي قرار				
2	نقابل موظفينا وجهاً لوجه لنتفهم احتياجاتهم بشكل افضل.				
3	من واجبنا التأكد من رضا موظفينا عن وظائفهم وتحديد المشاكل التي يمكن إن تقابلهم.				
4	نقوم بتصنيف موظفينا في مجموعات معروفة حسب احتياجاتهم الفردية ( مثلاً مجموعة المعاقين ، مجموعة الذين لديهم مشاكل صحية .. الخ)				
5	دائماً نسال انفسنا كيف تتأثر القطاعات المختلفة للموظفين ذات الخصائص والاحتياجات المتشابهة عندما نقوم بوضع او تنفيذ سياسة محددة.				
نشر وتبادل المعلومة:					
الرقم	المدرء في شركتنا.....	وافق بشدة	أوافق	لا ادري	لا اوافق بشده
1	مهتمون بالاستماع إلى ما يقوله الموظفين عن اعمالهم وعن المشكلات التي تواجههم والاقتراحات التي يقدمونها.				
2	يشجعون الموظفين بالتحدث اليهم اذا كان لديهم مشاكل شخصية يمكن إن تؤثر سلبياً على ادائهم.				
3	دائماً متواجدون للمقابلة الشخصية مع الموظف على هيئة اجتماع اذا ما طلب منهم ذلك.				
4	يقضون اوقاتاً مع الموظفين يشرحون لهم اهداف الشركة ودور كل موظف في تحقيق هذه الاهداف.				

## الإستجابة

الرقم	المدراء فى شركتنا.....	وافق بشدة	أوافق	لا ادري	لا اوافق بشده
1	يستثمرون موارد الشركة ( الوقت و/او المال) لتلبية الاحتياجات والمتطلبات الاساسية للموظفين.				
2	يساهمون بصورة واضحة في حل المشكلات التي تواجه الموظفين ويقدمون لهم المساعدة التي يحتاجونها لاداء وظائفهم بشكل افضل.				
3	مهتمون بتفهم مشاعر موظفيهم بالقدر الذي يؤثر على ادائهم.				
4	بأستمرار يقومون بتنظيم السمنارات التدريبية لتطوير مهارات موظفيهم.				
5	يقدمون تدريباً يتعلق بالمهام الجديدة اذا ما تم نقل موظف إلى مهمة او قسم جديد.				
6	يتفهمون الاحتياجات الاسرية للموظفين.				
7	يدعمون الموظفين حتى يمكنهم أن يوفقوا بين عمل الشركة والتزامات الاسرة.				



## 2-2 الإستشعار التنظيمي:

المسح					
الرقم	شركتنا.....	وافق بشدة	وافق	لا أدرى	لا اوافق بشدة
1	تقوم بأستشعار الاحداث والاتجاهات في بيئتها.				
2	تقوم بجمع المعلومات بطريقة منتظمة.				
3	تقوم بجمع المعلومات من مصادر مختلفة .				
4	تقوم بتبادل المعلومات مع الاقسام او الادارات الاخرى بصورة نشطة.				
التفسير					
1	شركتنا تقوم بتحليل المعلومات ومن ثم تفسيرها.				
2	شركتنا تحلل المعلومات التي تم جمعها بدقة خلال فترة زمنية كافية.				
3	شركتنا جادة في تحليل المعلومات قبل اتخاذ القرار التسويقي.				
4	شركتنا تعتقد إن عدم تحليل المعلومات في لحظة اتخاذ القرار التسويقي غير مفيد.				
الاستجابة					
1	شركتنا تقوم بالاستفادة بصورة فعالة من المعلومات التي تتعلق بنوايا واحتياجات العميل عند اتخاذ القرارات التسويقية.				
2	شركتنا تقوم بالاستفادة بصورة فعالة من المعلومات المقدمة عن منتجاتها في تقارير المبيعات والحصة السوقية عند اتخاذ القرارات التسويقية.				
3	شركتنا تقوم بالاستفادة بصورة فعالة من المعلومات المقدمة عن منتجاتها في تحليل الربحية عند اتخاذ القرارات التسويقية.				
4	شركتنا تقوم بالاستفادة بصورة فعالة من المعلومات التي تقدمها الدراسات عن الصورة الذهنية للشركة عند اتخاذ القرارات التسويقية.				
5	شركتنا تعتقد إن جمع وتحليل المعلومات دائماً يقود إلى معرفة جيدة.				

### 2-3 القدرات التنظيمية

التعلم					
الرقم	فى شركتنا .....	اوافق بشدة	أوافق	لا أدري	لا اوافق بشده
1	هناك دعم وقبول على نطاق واسع لرسالة الشركة.				
2	رسالة الشركة تحدد القيم التي يجب إن يتوافق معها جميع الموظفين.				
3	المدراء يتقبلون النقد دون الدفاع عن ارائهم بصورة مفرطة.				
4	المدراء دائماً يقدمون معلومات مرتدة (تغذية راجعة عكسية ) مفيدة تساعد في تحديد المشاكل والفرص المحتملة.				
5	المدراء يشجعون اعضاء الفريق على القيام بعملية التجربة لتحسين سير العمل.				
6	عادة ما يتشارك جميع الموظفين في اجراءات العمل الجديدة التي قد تكون مفيدة للشركة .				
7	هناك نظام يسمح بتعلم الممارسات الناجحة من الشركات الاخرى.				
8	الممارسات التنظيمية الحالية تشجع الموظفين على حل المشكلات مع بعضهم قبل مناقشتها مع المدير.				

الإبتكار

الرقم	شركتنا .....	وافق بشدة	أوافق	لا أدري	لا اوافق	لا اوافق بشده
1	تقوم بمحاولة توليد افكار جديدة بصورة دورية.					
2	تبحث عن طرق عمل جديدة لفعل الاشياء.					
3	مبدعة في طرق تشغيلها.					
4	دائما هي السبابة في السوق بمنتجات او خدمات جديدة.					
5	زادت تقديم المنتجات او الخدمات الجديدة خلال الخمس سنوات الماضية.					

التعاون

الرقم	في شركتنا نحن.....	وافق بشدة	أوافق	لا أدري	لا اوافق	لا اوافق بشده
1	نؤمن بالعمل الجماعي كممارسة شائعة جداً.					
2	مستعدون للتعاون لتحسين عمليات الشحن والامداد.					
3	على استعداد للتعاون من اجل تحسين عمليات الانتاج والتشغيل.					
4	على استعداد للتعاون من اجل تحسين جودة المنتجات والخدمات.					
5	مستعدون لاعلام عملائنا عن أي تغيير يحدث في منتجاتنا.					
6	قادرون على مشاركة المسؤولية والالتزام المتبادل مع عملائنا.					
7	قادرون على المشاركة في الواجبات والمسؤوليات عند الضرورة.					

## 2- 4 الاداء التسويقي

هذه العبارات تقيس الاداء التسويقي لهذه الشركة خلال الثلاث سنوات الاخيرة مقارنة بالشركات المنافسة لها، عليه نرجو شاكرًا حسب معرفتك الجيدة لأداء هذه الشركة أكمل الجملة في أعلى الجدول محل النقاط بالعبارات من (1 الى 5) ثم ضع علامة (√) أمام العبارة التي تناسب استجابتك في الجدول ادناه من بين الخيارات التالية ( افضل بكثير، افضل ، لا ادري، اسوأ، اسوأ بكثير ). علماً بأن كلمة المنتجات المستخدمة في الجدول معناها السلع او الخدمات التي تقدمها الشركة.

اداء السوق						
الرقم	خلال الثلاث سنوات الاخيرة.....	افضل بكثير	افضل	لا أدري	اسوأ	أسوأ بكثير
1	زيادة المنتجات داخل الاسواق الحالية للشركة.					
2	اسعار منتجات الشركة .....					
3	طرح منتجات جديدة ناجحة بالشركة .....					
4	الحصة السوقية للشركة .....					
5	مبادرة الشركة في تقديم منتجات جديدة .....					
اداء العميل						
الرقم	خلال الثلاث سنوات الاخيرة.....	افضل بكثير	افضل	لا أدري	اسوأ	أسوأ بكثير
1	معرفة العميل للعلامة التجارية لمنتجات الشركة..					
2	فهم احتياجات العميل ومتطلباته بالشركة .....					
3	مستوى رضا العميل بالشركة .....					
4	انخفاض شكاوى العملاء بالشركة .....					
5	عدد المعاملات لكل عميل بالشركة .....					

### الجزء الثالث: المعلومات الشخصية :

فضلاً ضع علامة (√) امام الاجابة التي تناسب إستجابتك:

1-3 النوع:

ذكور	إنثي

2-3 العمر

30 - 20 سنة	40 - 31 سنة	50 - 41 سنة	60 - 51 سنة	اكتر من 60 سنة

3-3 عنوان الوظيفة:

مدير عام	مدير فرع	نائب مدير	مدير ادارة	مدير قسم

4-3 المؤهل العلمي:

ثانوي	دبلوم وسيط	بكالوريوس	دبلوم عالي	ماجستير	دكتوراة

5-3 سنوات الخبرة

أقل من 5 سنة	من 5 - 10 سنة	من 11 - 15 سنة	من 16 - 20 سنة	أكثر من 21 سنة

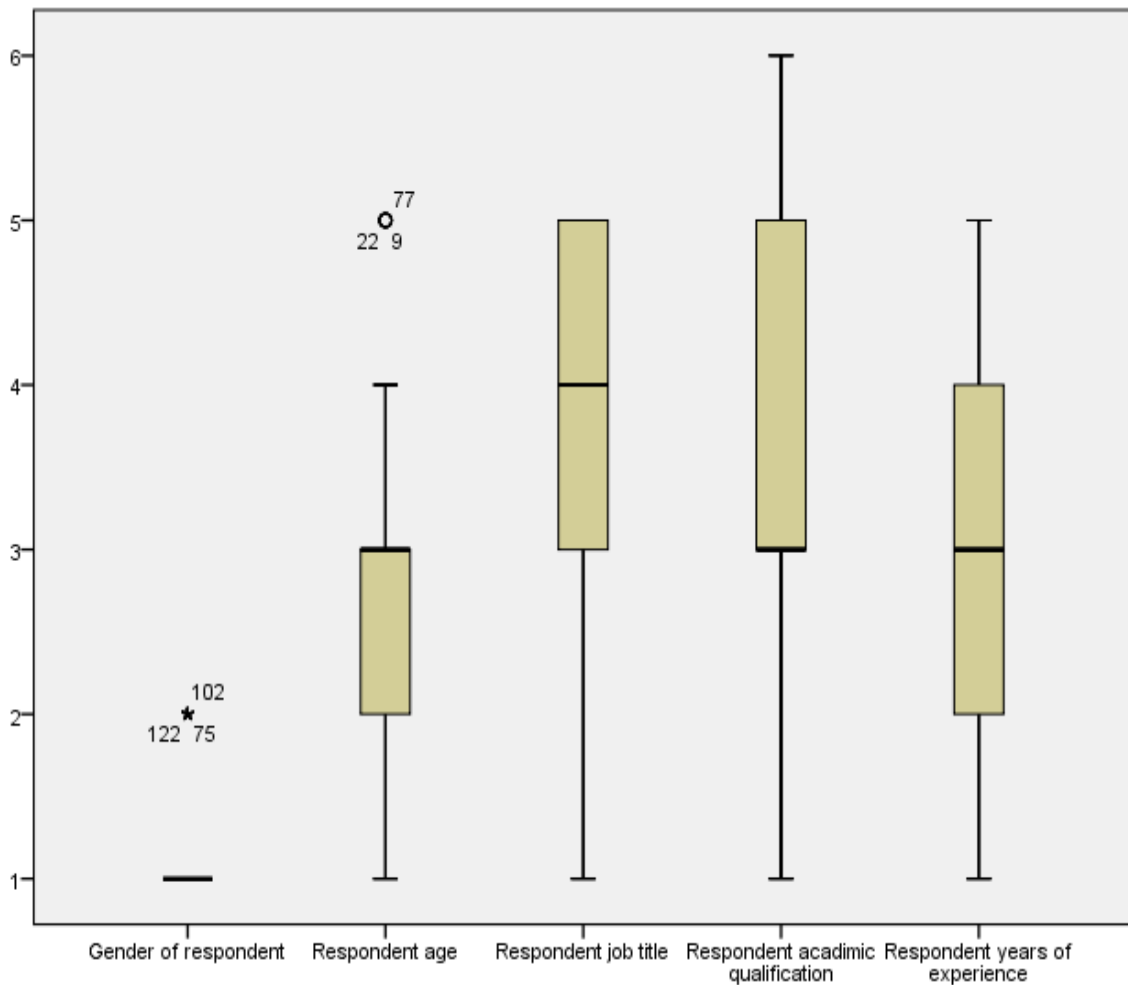
مع خالص الشكر والتقدير

## Appendix B

### AppendixB1: SPSS Output for Outliers

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Gender of respondent	176	98.3%	3	1.7%	179	100.0%
Respondent age	176	98.3%	3	1.7%	179	100.0%
Respondent job title	176	98.3%	3	1.7%	179	100.0%
Respondent academic qualification	176	98.3%	3	1.7%	179	100.0%
Respondent years of experience	176	98.3%	3	1.7%	179	100.0%



**Appendix B2: SPSS Output for profile of responded firms (*frequencies*)**

**Statistics**

	Nature of work	Number of employee	Firm age	market the firms works in	the firm ownershi p	the firm number of competit ors	the firm products
N Valid	179	179	179	179	179	179	179
Missing	0	0	0	0	0	0	0

**Nature of work**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Commercial	50	27.9	27.9	27.9
Agricultural	7	3.9	3.9	31.8
Industrial	84	46.9	46.9	78.8
Services	38	21.2	21.2	100.0
Total	179	100.0	100.0	

**Number of employee**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Less than 50	56	31.3	31.3	31.3
from 50 to 100	31	17.3	17.3	48.6
from 101 to 150	18	10.1	10.1	58.7
More than 150	74	41.3	41.3	100.0
Total	179	100.0	100.0	

**Firm age**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Less than 5 years	24	13.4	13.4	13.4
5 to 15 years	68	38.0	38.0	51.4
More Than 15 years	87	48.6	48.6	100.0
Total	179	100.0	100.0	

**Market the firms works in**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	local	98	54.7	54.7	54.7
	international	4	2.2	2.2	57.0
	local and international	77	43.0	43.0	100.0
	Total	179	100.0	100.0	

**The firm ownership**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Sudanese ownership	137	76.5	76.5	76.5
	Multinational ownership	29	16.2	16.2	92.7
	Owned by other country	13	7.3	7.3	100.0
	Total	179	100.0	100.0	

**The firm number of competitors**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	less than 5 competitors	28	15.6	15.6	15.6
	5 to 10	56	31.3	31.3	46.9
	more than 10	94	52.5	52.5	99.4
	no competitors	1	.6	.6	100.0
	Total	179	100.0	100.0	

**The firm products**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	consumption	56	31.3	31.3	31.3
	industrial	56	31.3	31.3	62.6
	services	65	36.3	36.3	98.9
	agricultural	2	1.1	1.1	100.0
	Total	179	100.0	100.0	



**Appendix B3: SPSS Output for Respondents' Profile (*frequencies*)**

**Statistics**

		Gender of respondent	Respondent age	Respondent job title	Respondent academic qualification	Respondent years of experience
N	Valid	177	179	178	179	179
	Missing	2	0	1	0	0

**Gender of respondent**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	160	89.4	90.4	90.4
	female	17	9.5	9.6	100.0
	Total	177	98.9	100.0	
Missing	System	2	1.1		
Total		179	100.0		

**Respondent age**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 30	26	14.5	14.5	14.5
	30- 40	62	34.6	34.6	49.2
	41-50	56	31.3	31.3	80.4
	51-60	26	14.5	14.5	95.0
	More than 60	9	5.0	5.0	100.0
	Total	179	100.0	100.0	

**Respondent job title**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	General manager	19	10.6	10.7	10.7
	Branch Manager	16	8.9	9.0	19.7
	Deputy	12	6.7	6.7	26.4
	Department manager	77	43.0	43.3	69.7
	marketing manager	54	30.2	30.3	100.0
	Total	178	99.4	100.0	
Missing	System	1	.6		
Total		179	100.0		

**Respondent academic qualification**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Secondary	6	3.4	3.4	3.4
Diploma	13	7.3	7.3	10.6
Bachelor	81	45.3	45.3	55.9
Higher Diploma	13	7.3	7.3	63.1
Master	56	31.3	31.3	94.4
PhD	10	5.6	5.6	100.0
Total	179	100.0	100.0	

**Respondent years of experience**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid less than 5	21	11.7	11.7	11.7
from 5 to 10	46	25.7	25.7	37.4
from 11 to 15	48	26.8	26.8	64.2
from 16 to 20	28	15.6	15.6	79.9
More than 21	36	20.1	20.1	100.0
Total	179	100.0	100.0	

**Appendix B4: SPSS Output for Exploratory Factor Analysis**

**KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.903
Bartlett's Test of Sphericity	4047.467
Approx. Chi-Square	
df	666
Sig.	.000

**Component Transformation Matrix**

Component	1	2	3	4	5	6	7	8	9
1	.455	.442	.392	.389	.310	.268	.214	.226	.169
2	.322	-.561	.632	-.345	-.192	.073	.143	-.010	-.002
3	.578	.042	-.294	-.483	.429	-.242	-.303	.005	.101
4	-.520	-.147	.328	-.102	.764	-.026	-.063	-.026	.013
5	.176	-.323	-.394	.091	.291	.418	.458	-.202	-.437
6	.132	-.565	-.157	.583	.095	-.107	-.227	-.036	.474
7	-.024	-.205	-.095	.060	.023	-.133	-.033	.906	-.325
8	-.173	-.035	-.212	-.341	-.057	.668	-.018	.277	.530
9	-.073	.002	-.138	-.133	.035	-.462	.758	.095	.399

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

### Communalities

	Initial	Extraction
IG4	1.000	.781
IG5	1.000	.592
ID1	1.000	.743
ID2	1.000	.737
ID3	1.000	.762
ID4	1.000	.680
Res2	1.000	.729
Res6	1.000	.785
Res7	1.000	.817
Sca1	1.000	.692
Sca2	1.000	.745
Sca3	1.000	.657
Sca4	1.000	.557
Inter1	1.000	.734
Inter2	1.000	.611
Resp1	1.000	.739
Resp2	1.000	.802
Resp3	1.000	.806
Resp4	1.000	.692
Resp5	1.000	.601
Lea6	1.000	.658
Lea7	1.000	.687
Lea8	1.000	.724
Inn1	1.000	.641
Inn2	1.000	.546
Inn4	1.000	.644
Coll2	1.000	.650
Coll3	1.000	.770
Coll4	1.000	.740
Coll5	1.000	.729
Coll6	1.000	.727
Coll7	1.000	.693
CP1	1.000	.596
CP2	1.000	.682
CP3	1.000	.697
CP4	1.000	.764
CP5	1.000	.585

Extraction Method: Principal Component Analysis.

**Total Variance Explained**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	13.530	36.567	36.567	13.530	36.567	36.567	4.310	11.648	11.648
2	2.482	6.708	43.275	2.482	6.708	43.275	4.067	10.991	22.639
3	1.963	5.306	48.581	1.963	5.306	48.581	3.774	10.201	32.840
4	1.796	4.853	53.434	1.796	4.853	53.434	3.407	9.207	42.048
5	1.514	4.092	57.525	1.514	4.092	57.525	2.945	7.959	50.007
6	1.247	3.369	60.895	1.247	3.369	60.895	2.112	5.708	55.715
7	1.142	3.087	63.982	1.142	3.087	63.982	1.822	4.923	60.639
8	1.112	3.005	66.986	1.112	3.005	66.986	1.790	4.838	65.476
9	1.009	2.726	69.712	1.009	2.726	69.712	1.567	4.236	69.712
10	.859	2.322	72.034						
11	.785	2.121	74.155						
12	.745	2.014	76.169						
13	.722	1.951	78.119						
14	.690	1.866	79.986						
15	.601	1.623	81.609						
16	.590	1.595	83.204						
17	.522	1.411	84.614						
18	.495	1.337	85.952						
19	.471	1.273	87.224						
20	.445	1.203	88.427						
21	.398	1.076	89.503						
22	.394	1.066	90.569						
23	.367	.992	91.561						
24	.342	.924	92.486						
25	.322	.871	93.357						
26	.294	.794	94.151						
27	.271	.734	94.885						
28	.261	.707	95.591						
29	.252	.681	96.272						
30	.231	.625	96.897						
31	.227	.614	97.511						
32	.190	.512	98.023						
33	.171	.462	98.486						
34	.165	.446	98.932						
35	.148	.399	99.331						
36	.130	.352	99.683						
37	.117	.317	100.000						

Extraction Method: Principal Component Analysis.

**Rotated Component Matrix<sup>a</sup>**

	Component								
	1	2	3	4	5	6	7	8	9
Coll3	.776								
Coll4	.754								
Coll7	.735								
Coll6	.699								
Coll2	.687								
Coll5	.672								
Resp3		.810							
Resp2		.795							
Resp1		.777							
Resp4		.720							
Resp5		.491							
ID1			.796						
ID3			.762						
Res2			.755						
ID2			.752						
ID4			.607						
Sca2				.725					
Sca3				.722					
Sca1				.721					
Inter1				.607					
Sca4				.575					
Inter2				.547					
CP4					.749				
CP5					.731				
CP3					.717				
CP1					.601				
CP2					.576				
Lea7						.712			
Lea6						.633			
Lea8						.625			
Res6							.739		
Res7							.682		
Inn4								.718	
Inn1								.486	
Inn2								.454	
IG4									.850
IG5									.538

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.<sup>a</sup>

a. Rotation converged in 7 iterations.

## Appendix B5: SPSS Output for Reliability Analysis

**Case Processing Summary**

		N	%
Cases	Valid	179	100.0
	Excluded <sup>a</sup>	0	.0
	Total	179	100.0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha	N of Items
.585	2

**Case Processing Summary**

		N	%
Cases	Valid	179	100.0
	Excluded <sup>a</sup>	0	.0
	Total	179	100.0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha	N of Items
.878	5

**Case Processing Summary**

		N	%
Cases	Valid	179	100.0
	Excluded <sup>a</sup>	0	.0
	Total	179	100.0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha	N of Items
.847	2

**Case Processing Summary**

		N	%
Cases	Valid	179	100.0
	Excluded <sup>a</sup>	0	.0
	Total	179	100.0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha	N of Items
.840	6

**Case Processing Summary**

		N	%
Cases	Valid	179	100.0
	Excluded <sup>a</sup>	0	.0
	Total	179	100.0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha	N of Items
.896	5

**Case Processing Summary**

		N	%
Cases	Valid	179	100.0
	Excluded <sup>a</sup>	0	.0
	Total	179	100.0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha	N of Items
.890	6

**Case Processing Summary**

		N	%
Cases	Valid	179	100.0
	Excluded <sup>a</sup>	0	.0
	Total	179	100.0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha	N of Items
.772	3

**Case Processing Summary**

		N	%
Cases	Valid	179	100.0
	Excluded <sup>a</sup>	0	.0
	Total	179	100.0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha	N of Items
.692	3

**Case Processing Summary**

		N	%
Cases	Valid	179	100.0
	Excluded <sup>a</sup>	0	.0
	Total	179	100.0

**Reliability Statistics**

Cronbach's Alpha	N of Items
.805	5

a. Listwise deletion based on all variables in the procedure.

**Appendix B6: SPSS Output for Descriptive Analysis**

**Descriptive Statistics**

	N	Mean	Std. Deviation
Innovation	179	4.4728	.70805
Responsiveness	179	3.6593	.84367
Learning	179	3.7373	.69525
Customer performance	179	3.6461	.49072
Sensemaking	179	4.1634	.65286
Information dissemination	179	3.9048	.70141
Response	179	4.1733	.67522
Collaboration	179	4.2017	.48902
Valid N (listwise)	179		

**Appendix B7: SPSS Output for T-tests**

**Appendix B7.1: T-test for Customer Performance Differences between Medium and Large Firms**

**Group Statistics**

	Number of employee	N	Mean	Std. Deviation	Std. Error Mean
Customer performance	Less than 50	87	3.5585	.53427	.05728
	from 101 to 150	92	3.7289	.43245	.04509

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Customer performance	Equal variances assumed	.636	.426	-2.351	177	.020	-.17036	.07247	-.31338	-.02734
	Equal variances not assumed			-2.337	165.529	.021	-.17036	.07290	-.31429	-.02644



**Appendix B7.2: T-test for Organizational Capabilities Differences between Medium and Large Firms**

**Group Statistics**

	Number of employee	N	Mean	Std. Deviation	Std. Error Mean
innovation	Less than 50	87	4.4097	.75016	.08043
	from 101 to 150	92	4.5325	.66437	.06927
learning	Less than 50	87	3.7702	.71215	.07635
	from 101 to 150	92	3.7062	.68132	.07103
collaboration	Less than 50	87	4.2038	.48767	.05228
	from 101 to 150	92	4.1998	.49295	.05139

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
innovation	Equal variances assumed	1.313	.253	-1.161	177	.247	-.12280	.10578	-.33156	.08595
	Equal variances not assumed			-1.157	171.647	.249	-.12280	.10614	-.33232	.08671
learning	Equal variances assumed	1.110	.293	.614	177	.540	.06399	.10415	-.14155	.26953
	Equal variances not assumed			.614	175.235	.540	.06399	.10428	-.14182	.26980
collaboration	Equal variances assumed	.250	.618	.055	177	.956	.00405	.07334	-.14067	.14878
	Equal variances not assumed			.055	176.635	.956	.00405	.07331	-.14063	.14874

**Appendix B7.3: T-test for Organizational Capabilities Differences between New and Well-established Firms**

**Group Statistics**

	Firm age	N	Mean	Std. Deviation	Std. Error Mean
innovation	Less than 5 years	92	4.5675	.65967	.06877
	More Than 15 years	87	4.3726	.74661	.08005
learning	Less than 5 years	92	3.8326	.66000	.06881
	More Than 15 years	87	3.6366	.72081	.07728
collaboration	Less than 5 years	92	4.2601	.45751	.04770
	More Than 15 years	87	4.1400	.51573	.05529

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
innovation	Equal variances assumed	.878	.350	1.853	177	.066	.19487	.10517	-.01268	.40242
	Equal variances not assumed			1.847	171.510	.067	.19487	.10553	-.01344	.40318
learning	Equal variances assumed	.117	.733	1.899	177	.059	.19604	.10322	-.00766	.39974
	Equal variances not assumed			1.895	173.411	.060	.19604	.10347	-.00819	.40027
collaboration	Equal variances assumed	.895	.345	1.649	177	.101	.12001	.07278	-.02362	.26363
	Equal variances not assumed			1.643	171.742	.102	.12001	.07302	-.02413	.26415

**Appendix B7.4: T-test for Customer Performance Differences between New and Well-established Firms**

**Group Statistics**

	Firm age	N	Mean	Std. Deviation	Std. Error Mean
Customer performance	Less than 5 years	92	3.6777	.46066	.04803
	More Than 15 years	87	3.6126	.52122	.05588

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Customer performance	Equal variances assumed	.567	.453	.887	177	.376	.06514	.07343	-.07977	.21005
	Equal variances not assumed			.884	171.527	.378	.06514	.07368	-.08030	.21058

**Appendix B7.5: T-test for Customer Performance Differences between Local and International Firms**

**Group Statistics**

	market the firms works in	N	Mean	Std. Deviation	Std. Error Mean
Customer performance	local	98	3.6623	.47857	.04834
	international	81	3.6265	.50734	.05637

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Customer performance	Equal variances assumed	.128	.721	.484	177	.629	.03576	.07385	-.10998	.18150
	Equal variances not assumed			.482	166.616	.631	.03576	.07426	-.11085	.18238

**Appendix B7.6: T-test for Organizational Capabilities Differences between Local and International Firms**

**Group Statistics**

	market the firms works in	N	Mean	Std. Deviation	Std. Error Mean
innovation	local	98	4.4457	.67919	.06861
	international	81	4.5055	.74441	.08271
learning	local	98	3.7503	.71426	.07215
	international	81	3.7216	.67564	.07507
collaboration	local	98	4.1704	.47805	.04829
	international	81	4.2396	.50233	.05581

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2- tailed )	Mean Differenc e	Std. Error Differen ce	95% Confidence Interval of the Difference	
									Lower	Upper
innovation	Equal variances assumed	.456	.500	-.561	177	.575	-.05981	.10653	-.27004	.15042
	Equal variances not assumed			-.557	163.949	.579	-.05981	.10746	-.27200	.15238
learning	Equal variances assumed	.696	.405	.274	177	.785	.02866	.10468	-.17792	.23523
	Equal variances not assumed			.275	173.770	.783	.02866	.10412	-.17685	.23416
collaboration	Equal variances assumed	.062	.804	-.942	177	.347	-.06921	.07346	-.21418	.07575
	Equal variances not assumed			-.938	167.287	.350	-.06921	.07380	-.21492	.07650

**Appendix B7.7: T-test for Organizational Capabilities Differences between Firms with Low and High Competitors.**

**Group Statistics**

	the firm number of competitors	N	Mean	Std. Deviation	Std. Error Mean
innovation	less than 5 competitors	85	4.4631	.68904	.07474
	more than 10	94	4.4816	.72838	.07513
learning	less than 5 competitors	85	3.7065	.72642	.07879
	more than 10	94	3.7653	.66850	.06895
collaboration	less than 5 competitors	85	4.1965	.51429	.05578
	more than 10	94	4.2065	.46771	.04824

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
innovation	Equal variances assumed	.023	.880	-.174	177	.862	-.01848	.10627	-.22820	.19123
	Equal variances not assumed			-.174	176.631	.862	-.01848	.10597	-.22761	.19065
learning	Equal variances assumed	1.423	.235	-.564	177	.573	-.05881	.10426	-.26457	.14694
	Equal variances not assumed			-.562	171.222	.575	-.05881	.10470	-.26548	.14786
collaboration	Equal variances assumed	1.185	.278	-.136	177	.892	-.01001	.07340	-.15485	.13484
	Equal variances not assumed			-.136	170.495	.892	-.01001	.07375	-.15559	.13557

**Appendix B7.8: T-test for Customer Performance Differences in Firms with Low and High Competitors.**

**Group Statistics**

		the firm number of competitors	N	Mean	Std. Deviation	Std. Error Mean
Customer performance	less than 5 competitors		85	3.6283	.53533	.05806
	more than 10		94	3.6622	.44890	.04630

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Customer performance	Equal variances assumed	.797	.373	-.461	177	.646	-.03391	.07361	-.17918	.11136
	Equal variances not assumed			-.457	164.654	.649	-.03391	.07426	-.18054	.11272

**Appendix B7.9: T-test for Customer Performance Differences between Commercial and High Industrial Firms.**

**Group Statistics**

	Nature of work	N	Mean	Std. Deviation	Std. Error Mean
Customer performance	Commercial	95	3.6154	.53800	.05520
	Industrial	84	3.6807	.43167	.04710

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Customer performance	Equal variances assumed	1.993	.160	-.888	177	.376	-.06529	.07354	-.21041	.07984
	Equal variances not assumed			-.900	175.404	.370	-.06529	.07256	-.20849	.07792

**Appendix B7.10: T-test for Organizational Capabilities Differences between Commercial and High Industrial Firms.**

**Group Statistics**

	Nature of work	N	Mean	Std. Deviation	Std. Error Mean
innovation	Commercial	95	4.3857	.79367	.08143
	Industrial	84	4.5713	.58585	.06392
learning	Commercial	95	3.6913	.73440	.07535
	Industrial	84	3.7893	.64858	.07077
collaboration	Commercial	95	4.1268	.52437	.05380
	Industrial	84	4.2865	.43330	.04728

### Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
innovation	Equal variances assumed	4.694	.032	-1.761	177	.080	-.18569	.10542	-.39374	.02236
	Equal variances not assumed			-1.794	171.702	.075	-.18569	.10352	-.39003	.01865
learning	Equal variances assumed	1.158	.283	-.941	177	.348	-.09800	.10416	-.30356	.10756
	Equal variances not assumed			-.948	177.000	.344	-.09800	.10337	-.30200	.10599
collaboration	Equal variances assumed	.825	.365	-2.204	177	.029	-.15967	.07246	-.30267	-.01668
	Equal variances not assumed			-2.229	176.221	.027	-.15967	.07162	-.30102	-.01833

### Appendix B8: SPSS Output for Pearson's Correlations to All Variables of the Study

#### Pearson's Correlations

		Sensemaking	response	innovation	learning	collaboration	Information dissemination	responsiveness	Customer performance
Sensemaking	Correlation	1	.812**	.745**	.782**	.666**	.630**	.633**	.633**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.000
	N	179	179	179	179	179	179	179	179
response	Correlation	.812**	1	.713**	.638**	.665**	.520**	.565**	.707**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.000
	N	179	179	179	179	179	179	179	179
innovation	Correlation	.745**	.713**	1	.677**	.748**	.689**	.578**	.625**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000	.000
	N	179	179	179	179	179	179	179	179
learning	Correlation	.782**	.638**	.677**	1	.686**	.703**	.836**	.559**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000	.000
	N	179	179	179	179	179	179	179	179
collaboration	Correlation	.666**	.665**	.748**	.686**	1	.630**	.593**	.644**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000	.000
	N	179	179	179	179	179	179	179	179
Information dissemination	Correlation	.630**	.520**	.689**	.703**	.630**	1	.713**	.527**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000	.000
	N	179	179	179	179	179	179	179	179
responsiveness	Correlation	.633**	.565**	.578**	.836**	.593**	.713**	1	.522**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.000
	N	179	179	179	179	179	179	179	179
Customer performance	Correlation	.633**	.707**	.625**	.559**	.644**	.527**	.522**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	
	N	179	179	179	179	179	179	179	179

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

**Appendix B9: AMOS output for The Relationship between Market sensing and Customer Performance.**

**Appendix B9.1: Maximum Likelihood Estimates**

**Regression Weights: (Group number 1 - Default model)**

	Estimate	S.E.	C.R.	P	Label
Customer performance <--- Firm size	.113	.040	2.801	.005	par_1
Customer performance <--- Firm age	-.030	.040	-.762	.446	par_2
Customer performance <--- Sense making	-.190	.045	-4.169	***	par_4
Customer performance <--- response	-.221	.051	-4.353	***	par_5

**Standardized Regression Weights: (Group number 1 - Default model)**

	Estimate
Customer performance <--- Firm size	.194
Customer performance <--- Firm age	-.053
Customer performance <--- Sensemaking	-.282
Customer performance <--- response	-.295

**Covariances: (Group number 1 - Default model)**

	Estimate	S.E.	C.R.	P	Label
Sensemaking <--> response	-.012	.012	-1.001	.317	par_3
Firm size <--> Firm age	.056	.019	2.963	.003	par_6

**Correlations: (Group number 1 - Default model)**

	Estimate
Sensemaking <--> response	-.075
Firm size <--> Firm age	.228

**Variances: (Group number 1 - Default model)**

	Estimate	S.E.	C.R.	P	Label
Firm size	.243	.026	9.434	***	par_7
Firm age	.250	.026	9.434	***	par_8
Sensemaking	.182	.019	9.434	***	par_9
Response	.146	.015	9.434	***	par_10
e4	.066	.007	9.434	***	par_11

**Squared Multiple Correlations: (Group number 1 - Default model)**

	Estimate
Customer performance	.190



## Appendix B9.2: Model Fit Summary

### CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	11	.100	4	.999	.025
Saturated model	15	.000	0		
Independence model	5	47.832	10	.000	4.783

### RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.001	1.000	.999	.267
Saturated model	.000	1.000		
Independence model	.020	.915	.873	.610

### Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.998	.995	1.089	1.258	1.000
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

### Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.400	.399	.400
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

### NCP

Model	NCP	LO 90	HI 90
Default model	.000	.000	.000
Saturated model	.000	.000	.000
Independence model	37.832	19.949	63.244

### FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	.001	.000	.000	.000
Saturated model	.000	.000	.000	.000
Independence model	.269	.213	.112	.355

### RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.000	.000	.000	1.000
Independence model	.146	.106	.188	.000

AIC				
Model	AIC	BCC	BIC	CAIC
Default model	22.100	22.867	57.161	68.161
Saturated model	30.000	31.047	77.811	92.811
Independence model	57.832	58.181	73.769	78.769

ECVI				
Model	ECVI	LO 90	HI 90	MECVI
Default model	.124	.146	.146	.128
Saturated model	.169	.169	.169	.174
Independence model	.325	.224	.468	.327

HOELTER		
Model	HOELTER .05	HOELTER .01
Default model	16973	23750
Independence model	69	87

**Appendix B10: AMOS output for The Relationship between Market Sensing and Organizational Capabilities.**

**Appendix B10:1 Maximum Likelihood Estimates**

Regression Weights: (Group number 1 - Default model)						
	Estimate	S.E.	C.R.	P	Label	
Collaboration <--- Response	.259	.066	3.915	***	par_1	
Collaboration <--- Firm age	-.059	.052	-1.125	.261	par_5	
Learning <--- Firm age	-.118	.064	-1.837	.066	par_6	
Learning <--- Response	-.001	.082	-.008	.993	par_7	
Innovation <--- Sensemaking	.533	.089	6.012	***	par_8	
Innovation <--- Response	.321	.086	3.749	***	par_9	
Innovation <--- Firm age	-.101	.067	-1.497	.134	par_10	
Collaboration <--- Sensemaking	.278	.069	4.056	***	par_11	
Learning <--- Sensemaking	.827	.084	9.799	***	par_12	

**Standardized Regression Weights: (Group number 1 - Default model)**

			Estimate
Collaboration	<---	Response	.359
Collaboration	<---	Firm age	-.060
Learning	<---	Firm age	-.085
Learning	<---	Response	-.001
Innovation	<---	Sensemaking	.494
Innovation	<---	Response	.308
Innovation	<---	Firm age	-.072
Collaboration	<---	Sensemaking	.372
Learning	<---	Sensemaking	.780

**Covariances: (Group number 1 - Default model)**

			Estimate	S.E.	C.R.	P	Label
Response	<-->	Sensemaking	.356	.042	8.409	***	par_2
e1	<-->	e3	.072	.013	5.567	***	par_3
e1	<-->	e2	.042	.015	2.869	.004	par_4
e2	<-->	e3	.054	.012	4.526	***	par_13

**Correlations: (Group number 1 - Default model)**

			Estimate
Response	<-->	Sensemaking	.812
e1	<-->	e3	.459
e1	<-->	e2	.220
e2	<-->	e3	.361

**Variances: (Group number 1 - Default model)**

	Estimate	S.E.	C.R.	P	Label
Response	.453	.048	9.434	***	par_14
Sensemaking	.424	.045	9.434	***	par_15
Firm age	.250	.026	9.434	***	par_16
e1	.202	.021	9.434	***	par_17
e2	.183	.019	9.434	***	par_18
e3	.121	.013	9.434	***	par_19

**Squared Multiple Correlations: (Group number 1 - Default model)**

	Estimate
Learning	.615
Innovation	.591
Collaboration	.489

## Appendix B10:2 Model Fit Summary

### CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	19	1.854	2	.396	.927
Saturated model	21	.000	0		
Independence model	6	714.320	15	.000	47.621

### RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.012	.997	.964	.095
Saturated model	.000	1.000		
Independence model	.207	.367	.113	.262

### Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.997	.981	1.000	1.002	1.000
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

### Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.133	.133	.133
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

### NCP

Model	NCP	LO 90	HI 90
Default model	.000	.000	7.497
Saturated model	.000	.000	.000
Independence model	699.320	615.522	790.521

### FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	.010	.000	.000	.042
Saturated model	.000	.000	.000	.000
Independence model	4.013	3.929	3.458	4.441

### RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.000	.000	.145	.541
Independence model	.512	.480	.544	.000

**AIC**

Model	AIC	BCC	BIC	CAIC
Default model	39.854	41.410	100.415	119.415
Saturated model	42.000	43.719	108.935	129.935
Independence model	726.320	726.811	745.444	751.444

**ECVI**

Model	ECVI	LO 90	HI 90	MECVI
Default model	.224	.225	.267	.233
Saturated model	.236	.236	.236	.246
Independence model	4.080	3.610	4.593	4.083

**HOELTER**

Model	HOELTER	HOELTER
	.05	.01
Default model	576	885
Independence model	7	8

**Appendix B 11: AMOS output for The Relationship between Organizational Capabilities and Customer Performance.**

**Appendix B11.1: Maximum Likelihood Estimates**

**Regression Weights: (Group number 1 - Default model)**

	Estimate	S.E.	C.R.	P	Label
Customer performance <--- Innovation	-.078	.053	-1.457	.145	
Customer performance <--- Learning	.064	.051	1.249	.212	
Customer performance <--- Collaboration	-.027	.062	-.429	.668	
Customer performance <--- Firm size	.114	.044	2.622	.009	
Customer performance <--- Firm age	-.031	.043	-.724	.469	

**Standardized Regression Weights: (Group number 1 - Default model)**

	Estimate
Customer performance <--- Innovation	-.111
Customer performance <--- Learning	.095
Customer performance <--- Collaboration	-.034
Customer performance <--- Firm size	.196
Customer performance <--- Firm age	-.054

**Covariances: (Group number 1 - Default model)**

	Estimate	S.E.	C.R.	P	Label
Firm size <--> Firm age	.056	.019	2.963	.003	
Innovation <--> Collaboration	.043	.012	3.768	***	
Innovation <--> Learning	.024	.013	1.834	.067	
Learning <--> Collaboration	.041	.012	3.448	***	

**Correlations: (Group number 1 - Default model)**

			Estimate
Firm size	<-->	Firm age	.228
Innovation	<-->	Collaboration	.294
Innovation	<-->	Learning	.139
Learning	<-->	Collaboration	.268

**Variances: (Group number 1 - Default model)**

	Estimate	S.E.	C.R.	P	Label
Firm size	.243	.026	9.434	***	
Firm age	.250	.026	9.434	***	
Innovation	.168	.018	9.434	***	
Learning	.180	.019	9.434	***	
Collaboration	.129	.014	9.434	***	
e1	.077	.008	9.434	***	

**Squared Multiple Correlations: (Group number 1 - Default model)**

	Estimate
Customer performance	.057

**Appendix B11.2: AMOS Output for Model Fit Summary**

**CMIN**

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	15	6.192	6	.402	1.032
Saturated model	21	.000	0		
Independence model	6	55.829	15	.000	3.722

**RMR, GFI**

Model	RMR	GFI	AGFI	PGFI
Default model	.010	.989	.960	.282
Saturated model	.000	1.000		
Independence model	.022	.901	.861	.643

**Baseline Comparisons**

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.889	.723	.996	.988	.995
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

**Parsimony-Adjusted Measures**

Model	PRATIO	PNFI	PCFI
Default model	.400	.356	.398
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

**NCP**

Model	NCP	LO 90	HI 90
Default model	.192	.000	10.474
Saturated model	.000	.000	.000
Independence model	40.829	21.638	67.594

**FMIN**

Model	FMIN	F0	LO 90	HI 90
Default model	.035	.001	.000	.059
Saturated model	.000	.000	.000	.000
Independence model	.314	.229	.122	.380

**RMSEA**

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.013	.000	.099	.653
Independence model	.124	.090	.159	.000

**AIC**

Model	AIC	BCC	BIC	CAIC
Default model	36.192	37.420	84.003	99.003
Saturated model	42.000	43.719	108.935	129.935
Independence model	67.829	68.320	86.953	92.953

**ECVI**

Model	ECVI	LO 90	HI 90	MECVI
Default model	.203	.202	.261	.210
Saturated model	.236	.236	.236	.246
Independence model	.381	.273	.531	.384

**HOELTER**

Model	HOELTER	HOELTER
	.05	.01
Default model	362	484
Independence model	80	98

**Appendix B 12: AMOS Output for the Mediating Role of Organizational Capabilities in the Relationship between Market Sensing and Customer Performance.**

**Appendix B12.1: Maximum Likelihood Estimates**

**Regression Weights: (Group number 1 - Default model)**

			Estimate	S.E.	C.R.	P	Label
Learning	<---	Sensemaking	.355	.069	5.159	***	par_1
Innovation	<---	Response	-.256	.078	-3.279	.001	par_2
Learning	<---	Response	-.152	.077	-1.978	.048	par_3
Collaboration	<---	Response	-.302	.066	-4.556	***	par_4
Collaboration	<---	Sensemaking	-.120	.059	-2.024	.043	par_8
Innovation	<---	Sensemaking	.046	.070	.652	.514	par_9
Customer performance	<---	Innovation	-.097	.047	-2.045	.041	par_11
Customer performance	<---	Learning	.156	.049	3.195	.001	par_12
Customer performance	<---	Collaboration	-.177	.058	-3.032	.002	par_13
Customer performance	<---	Sensemaking	-.262	.048	-5.481	***	par_14
Customer performance	<---	Response	-.276	.051	-5.354	***	par_15
Customer performance	<---	Firm size	.114	.038	2.988	.003	par_16
Customer performance	<---	Firm age	-.031	.037	-.828	.408	par_17

**Standardized Regression Weights: (Group number 1 - Default model)**

			Estimate
Learning	<---	Sensemaking	.357
Innovation	<---	Response	-.239
Learning	<---	Response	-.137
Collaboration	<---	Response	-.322
Collaboration	<---	Sensemaking	-.143
Innovation	<---	Sensemaking	.048
Customer performance	<---	Innovation	-.138
Customer performance	<---	Learning	.231
Customer performance	<---	Collaboration	-.220
Customer performance	<---	Sensemaking	-.389
Customer performance	<---	Response	-.366
Customer performance	<---	Firm size	.195
Customer performance	<---	Firm age	-.054



**Means: (Group number 1 - Default model)**

	Estimate	S.E.	C.R.	P	Label
Sensemaking	.246	.032	7.718	***	par_22
Response	-.259	.029	-9.045	***	par_23
Firm size	1.413	.037	38.293	***	par_18
Firm age	1.486	.037	39.668	***	par_19

**Intercepts: (Group number 1 - Default model)**

	Estimate	S.E.	C.R.	P	Label
Innovation	.419	.039	10.681	***	par_20
Learning	.316	.039	8.201	***	par_21
Collaboration	1.899	.033	57.128	***	par_24
Customer performance	1.062	.127	8.370	***	par_25

**Covariances: (Group number 1 - Default model)**

	Estimate	S.E.	C.R.	P	Label
Sensemaking <--> response	-.012	.012	-1.001	.317	par_5
e2 <--> e3	.038	.010	3.808	***	par_6
e1 <--> e3	.030	.010	3.026	.002	par_7
Firm size <--> Firm age	.056	.019	2.963	.003	par_10

**Correlations: (Group number 1 - Default model)**

	Estimate
Sensemaking <--> Response	-.075
e2 <--> e3	.290
e1 <--> e3	.223
Firm size <--> Firm age	.228

**Variances: (Group number 1 - Default model)**

	Estimate	S.E.	C.R.	P	Label
Sensemaking	.182	.019	9.434	***	par_26
response	.146	.015	9.434	***	par_27
e1	.157	.017	9.434	***	par_28
e2	.152	.016	9.434	***	par_29
e3	.113	.012	9.474	***	par_30
Firm size	.243	.026	9.434	***	par_31
Firm age	.250	.026	9.434	***	par_32
e4	.059	.006	9.434	***	par_33

**Squared Multiple Correlations: (Group number 1 - Default model)**

	Estimate
Collaboration	.117
Innovation	.061
Learning	.153
Customer performance	.282

**Appendix B12.2: Model Fit Summary**

**CMIN**

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	33	9.371	11	.588	.852
Saturated model	44	.000	0		
Independence model	16	168.044	28	.000	6.002

**Baseline Comparisons**

Model	NFI	RFI	IFI	TLI	CFI
	Delta1	rho1	Delta2	rho2	
Default model	.944	.858	1.010	1.030	1.000
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

**Parsimony-Adjusted Measures**

Model	PRATIO	PNFI	PCFI
Default model	.393	.371	.393
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

**NCP**

Model	NCP	LO 90	HI 90
Default model	.000	.000	9.392
Saturated model	.000	.000	.000
Independence model	140.044	102.904	184.692

**FMIN**

Model	FMIN	F0	LO 90	HI 90
Default model	.053	.000	.000	.053
Saturated model	.000	.000	.000	.000
Independence model	.944	.787	.578	1.038

**RMSEA**

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.000	.000	.069	.853
Independence model	.168	.144	.193	.000

AIC				
Model	AIC	BCC	BIC	CAIC
Default model	75.371	78.886		
Saturated model	88.000	92.686		
Independence model	200.044	201.749		

ECVI				
Model	ECVI	LO 90	HI 90	MECVI
Default model	.423	.433	.485	.443
Saturated model	.494	.494	.494	.521
Independence model	1.124	.915	1.375	1.133

HOELTER		
Model	HOELTER	HOELTER
	.05	.01
Default model	374	470
Independence model	44	52

**Appendix B 12.3: AMOS Output for the Mediating Role of Collaboration Capability in the Relationship between Sensemaking and Customer Performance.**

**Regression Weights: (Group number 1 - Default model)**

			Estimate	S.E.	C.R.	P	Label
Learning	<---	Sensemaking	.355	.069	5.159	***	par_3
Innovation	<---	Response	-.256	.078	-3.279	.001	par_4
Learning	<---	Response	-.152	.077	-1.978	.048	par_5
Collaboration	<---	Response	-.302	.066	-4.556	***	par_6
Collaboration	<---	Sensemaking	-.120	.059	-2.024	.043	A
Innovation	<---	Sensemaking	.046	.070	.652	.514	par_10
Customer performance	<---	Innovation	-.097	.047	-2.045	.041	par_12
Customer performance	<---	Learning	.156	.049	3.195	.001	par_13
Customer performance	<---	collaboration	-.177	.058	-3.032	.002	B
Customer performance	<---	Sensemaking	-.262	.048	-5.481	***	par_14
Customer performance	<---	Response	-.276	.051	-5.354	***	par_15
Customer performance	<---	Firm size	.114	.038	2.988	.003	par_16
Customer performance	<---	Firm age	-.031	.037	-.828	.408	par_17

**User-defined estimands: (Group number 1 - Default model)**

Parameter	Estimate	Lower	Upper	P
A x B	.021	.004	.052	.038

**Appendix B 12.4: AMOS Output for the Mediating Role of Collaboration Capability in the Relationship between Response and Customer Performance.**

**Regression Weights: (Group number 1 - Default model)**

			Estimate	S.E.	C.R.	P	Label
Learning	<---	Sensemaking	.355	.069	5.159	***	par_3
Innovation	<---	Response	-.256	.078	-3.279	.001	par_4
Learning	<---	Response	-.152	.077	-1.978	.048	par_5
Collaboration	<---	Response	-.302	.066	-4.556	***	A
Collaboration	<---	Sensemaking	-.120	.059	-2.024	.043	par_9
Innovation	<---	Sensemaking	.046	.070	.652	.514	par_10
Customer performance	<---	Innovation	-.097	.047	-2.045	.041	par_12
Customer performance	<---	Learning	.156	.049	3.195	.001	par_13
Customer performance	<---	collaboration	-.177	.058	-3.032	.002	B
Customer performance	<---	Sensemaking	-.262	.048	-5.481	***	par_14
Customer performance	<---	Response	-.276	.051	-5.354	***	par_15
Customer performance	<---	Firm size	.114	.038	2.988	.003	par_16
Customer performance	<---	Firm age	-.031	.037	-.828	.408	par_17

**User-defined estimands: (Group number 1 - Default model)**

Parameter	Estimate	Lower	Upper	P
A x B	.053	.022	.103	.003

**Appendix B 12.5: AMOS Output for the Mediating Role of Innovation Capability in the Relationship between Sensemaking and Customer Performance.**

**Regression Weights: (Group number 1 - Default model)**

			Estimate	S.E.	C.R.	P	Label
Learning	<---	Sensemaking	.355	.069	5.159	***	par_3
Innovation	<---	Response	-.256	.078	-3.279	.001	par_4
Learning	<---	Response	-.152	.077	-1.978	.048	par_5
Collaboration	<---	Response	-.302	.066	-4.556	***	par_6
Collaboration	<---	Sensemaking	-.120	.059	-2.024	.043	par_10
Innovation	<---	Sensemaking	.046	.070	.652	.514	A
Customer performance	<---	Innovation	-.097	.047	-2.045	.041	B
Customer performance	<---	Learning	.156	.049	3.195	.001	par_12
Customer performance	<---	collaboration	-.177	.058	-3.032	.002	par_13
Customer performance	<---	Sensemaking	-.262	.048	-5.481	***	par_14
Customer performance	<---	Response	-.276	.051	-5.354	***	par_15
Customer performance	<---	Firm size	.114	.038	2.988	.003	par_16
Customer performance	<---	Firm age	-.031	.037	-.828	.408	par_17

**User-defined estimands: (Group number 1 - Default model)**

Parameter	Estimate	Lower	Upper	P
A x B	-.004	-.028	.005	.350

**Appendix B 12.6: AMOS Output for the Mediating Role of Innovation Capability in the Relationship between Response and Customer Performance.**

**Regression Weights: (Group number 1 - Default model)**

			Estimate	S.E.	C.R.	P	Label
Learning	<---	Sensemaking	.355	.069	5.159	***	par_3
Innovation	<---	Response	-.256	.078	-3.279	.001	A
Learning	<---	Response	-.152	.077	-1.978	.048	par_4
Collaboration	<---	Response	-.302	.066	-4.556	***	par_5
Collaboration	<---	Sensemaking	-.120	.059	-2.024	.043	par_9
Innovation	<---	Sensemaking	.046	.070	.652	.514	par_10
Customer performance	<---	Innovation	-.097	.047	-2.045	.041	B
Customer performance	<---	Learning	.156	.049	3.195	.001	par_12
Customer performance	<---	Collaboration	-.177	.058	-3.032	.002	par_13
Customer performance	<---	Sensemaking	-.262	.048	-5.481	***	par_14
Customer performance	<---	Response	-.276	.051	-5.354	***	par_15
Customer performance	<---	Firm size	.114	.038	2.988	.003	par_16
Customer performance	<---	Firm age	-.031	.037	-.828	.408	par_17

**User-defined estimands: (Group number 1 - Default model)**

Parameter	Estimate	Lower	Upper	P
A x B	.025	.005	.060	.040

**Appendix B 12.7: AMOS Output for the Mediating Role of Learning Capability in the Relationship between Sensemaking and Customer Performance.**

**Regression Weights: (Group number 1 - Default model)**

			Estimate	S.E.	C.R.	P	Label
Learning	<---	Sensemaking	.355	.069	5.159	***	A
Innovation	<---	Response	-.256	.078	-3.279	.001	par_3
Learning	<---	Response	-.152	.077	-1.978	.048	par_4
Collaboration	<---	Response	-.302	.066	-4.556	***	par_5
Collaboration	<---	Sensemaking	-.120	.059	-2.024	.043	par_9
Innovation	<---	Sensemaking	.046	.070	.652	.514	par_10
Customer performance	<---	Innovation	-.097	.047	-2.045	.041	par_12
Customer performance	<---	Learning	.156	.049	3.195	.001	B
Customer performance	<---	Collaboration	-.177	.058	-3.032	.002	par_13
Customer performance	<---	Sensemaking	-.262	.048	-5.481	***	par_14
Customer performance	<---	Response	-.276	.051	-5.354	***	par_15
Customer performance	<---	Firm size	.114	.038	2.988	.003	par_16
Customer performance	<---	Firm age	-.031	.037	-.828	.408	par_17

**User-defined estimands: (Group number 1 - Default model)**

Parameter	Estimate	Lower	Upper	P
A x B	.056	.021	.106	.007

**Appendix B 12.8: AMOS Output for the Mediating Role of Learning Capability in the Relationship between Response and Customer Performance.**

**Regression Weights: (Group number 1 - Default model)**

			Estimate	S.E.	C.R.	P	Label
Learning	<---	Sensemaking	.355	.069	5.159	***	par_3
Innovation	<---	Response	-.256	.078	-3.279	.001	par_4
Learning	<---	Response	-.152	.077	-1.978	.048	A
Collaboration	<---	Response	-.302	.066	-4.556	***	par_5
Collaboration	<---	Sensemaking	-.120	.059	-2.024	.043	par_9
Innovation	<---	Sensemaking	.046	.070	.652	.514	par_10
Customer performance	<---	Innovation	-.097	.047	-2.045	.041	par_12
Customer performance	<---	Learning	.156	.049	3.195	.001	B
Customer performance	<---	collaboration	-.177	.058	-3.032	.002	par_13
Customer performance	<---	Sensemaking	-.262	.048	-5.481	***	par_14
Customer performance	<---	Response	-.276	.051	-5.354	***	par_15
Customer performance	<---	Firm size	.114	.038	2.988	.003	par_16
Customer performance	<---	Firm age	-.031	.037	-.828	.408	par_17

**User-defined estimands: (Group number 1 - Default model)**

Parameter	Estimate	Lower	Upper	P
A x B	-.024	-.061	-.003	.060

**Appendix B13: AMOS Output for the Moderating Effect of information dissemination in MS – OCs relationship.**

**Appendix B13.1: Maximum Likelihood Estimates**

Regression Weights: (Group number 1 - Default model)							
			Estimate	S.E.	C.R.	P	Label
collaboration	<---	Response	.249	.066	3.771	***	par_1
Innovation	<---	Information dissemination	.352	.060	5.857	***	par_2
Learning	<---	Information dissemination	.316	.056	5.598	***	par_3
collaboration	<---	Information dissemination	.240	.048	5.033	***	par_4
Learning	<---	Sensemaking x Info_diss	-.107	.048	-2.235	.025	par_5
collaboration	<---	Sensemaking x Info_diss	-.002	.040	-.052	.959	par_6
collaboration	<---	Response x Info_Diss	.003	.040	.067	.946	par_7
Learning	<---	Response x Info_Diss	.127	.047	2.693	.007	par_8
collaboration	<---	Sensemaking	.119	.070	1.702	.089	par_9
collaboration	<---	Firm age	-.032	.050	-.648	.517	par_10
collaboration	<---	Industry type	-.074	.049	-1.502	.133	par_11
collaboration	<---	Firm size	-.010	<a href="#">.051</a>	-.191	.848	par_21
Innovation	<---	Sensemaking x Info_diss	.005	.051	.090	.928	par_26
Innovation	<---	Response x Info_Diss	-.033	.050	-.652	.515	par_27
Innovation	<---	Sensemaking	.302	.088	3.410	***	par_28
Innovation	<---	Response	.278	.083	3.339	***	par_29
Innovation	<---	Industry type	-.036	.062	-.581	.561	par_30
Innovation	<---	Firm size	.069	.064	1.074	.283	par_31
Innovation	<---	Firm age	-.085	.063	-1.351	.177	par_32
Learning	<---	Firm size	-.062	.060	-1.019	.308	par_33
Learning	<---	Industry type	.013	.058	.223	.823	par_34
Learning	<---	Firm age	-.077	.059	-1.300	.194	par_35
Learning	<---	Response	.071	.078	.905	.366	par_36
Learning	<---	Sensemaking	.584	.083	7.021	***	par_37

**Standardized Regression Weights: (Group number 1 - Default model)**

			Estimate
Collaboration	<---	Response	.348
Innovation	<---	Information dissemination	.352
Learning	<---	Information dissemination	.320
Collaboration	<---	Information dissemination	.348
Learning	<---	Sensemaking x Info_diss	-.220
Collaboration	<---	Sensemaking x Info_diss	-.006
Collaboration	<---	Response x Info_Diss	.008
Learning	<---	Response x Info_Diss	.269
Collaboration	<---	Sensemaking	.161
Collaboration	<---	Firm age	-.034
Collaboration	<---	Industry type	-.076
Collaboration	<---	Firm size	-.010
Innovation	<---	Sensemaking x Info_diss	.009
Innovation	<---	Response x Info_Diss	-.069
Innovation	<---	Sensemaking	.281
Innovation	<---	Response	.267
Innovation	<---	Industry type	-.026
Innovation	<---	Firm size	.049
Innovation	<---	Firm age	-.061
Learning	<---	Firm size	-.044
Learning	<---	Industry type	.009
Learning	<---	Firm age	-.056
Learning	<---	Response	.069
Learning	<---	Sensemaking	.549

**Appendix B13.2: Model Fit Summary**

**CMIN**

Model	NP	DF	CMIN	P	CMIN/DF
Default model	48	18	19.429	.366	1.079
Saturated model	66	0	.000		
Independence model	11	55	1274.025	.000	23.164

**RMR, GFI**

Model	RMR	GFI	AGFI	PGFI
Default model	.026	.980	.927	.267
Saturated model	.000	1.000		
Independence model	.313	.355	.226	.296



**Baseline Comparisons**

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.985	.953	.999	.996	.999
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

**Parsimony-Adjusted Measures**

Model	PRATIO	PNFI	PCFI
Default model	.327	.322	.327
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

**NCP**

Model	NCP	LO 90	HI 90
Default model	1.429	.000	16.353
Saturated model	.000	.000	.000
Independence model	1219.025	1106.537	1338.910

**FMIN**

Model	FMIN	F0	LO 90	HI 90
Default model	.109	.008	.000	.092
Saturated model	.000	.000	.000	.000
Independence model	7.157	6.848	6.217	7.522

**RMSEA**

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.021	.000	.071	.779
Independence model	<a href="#"><u>.353</u></a>	.336	.370	.000

**Appendix B14: AMOS Output for the Moderating Effect of Responsiveness in Market Sensing to Organizational Capabilities Relationship**

**Appendix B14.1: Maximum Likelihood Estimates**

Regression Weights: (Group number 1 - Default model)			Estimate	S.E.	C.R.	P	Label
Learning	<---	Response	-.087	.063	-1.378	.168	par_1
innovation	<---	Sensemaking x Responsiveness	.066	.058	1.149	.250	par_2
learning	<---	Sensemaking x Responsiveness	-.007	.040	-.173	.863	par_3
collaboration	<---	Sensemaking x Responsiveness	-.016	.043	-.361	.718	par_4
learning	<---	Responsiveness	.466	.037	12.620	***	par_5
collaboration	<---	Responsiveness	.145	.040	3.618	***	par_6
learning	<---	Response x Responsiveness	-.001	.039	-.013	.990	par_7
collaboration	<---	Response x Responsiveness	.028	.043	.649	.516	par_8
collaboration	<---	Sensemaking	.182	.070	2.605	.009	par_9
learning	<---	Sensemaking	.518	.064	8.049	***	par_10
collaboration	<---	Firm age	-.023	.052	-.437	.662	par_11
collaboration	<---	Industry type	-.078	.051	-1.538	.124	par_12
learning	<---	Firm size	-.039	.048	-.801	.423	par_22
collaboration	<---	Firm size	-.029	.052	-.546	.585	par_23
collaboration	<---	Response	.245	.068	3.590	***	par_26
innovation	<---	Industry type	-.025	.068	-.361	.718	par_29
learning	<---	Industry type	.002	.047	.041	.967	par_30
learning	<---	Firm age	-.041	.048	-.870	.384	par_31
innovation	<---	Responsiveness	.142	<u>.054</u>	2.642	.008	par_32
innovation	<---	Response x Responsiveness	-.082	.057	-1.439	.150	par_33
innovation	<---	Sensemaking	.446	.093	4.774	***	par_34
innovation	<---	Response	.253	.092	2.760	.006	par_35
innovation	<---	Firm size	.047	.070	.676	.499	par_36
innovation	<---	Firm age	-.096	.069	-1.386	.166	par_37

**Standardized Regression Weights: (Group number 1 - Default model)**

	Estimate
learning <--- response	-.085
innovation <--- Sensemaking x Responsiveness	.127
learning <--- Sensemaking x Responsiveness	-.013
collaboration <--- Sensemaking x Responsiveness	-.043
learning <--- Responsiveness	.567
collaboration <--- Responsiveness	.253
learning <--- Response x Responsiveness	-.001
collaboration <--- Response x Responsiveness	.081
collaboration <--- Sensemaking	.246
learning <--- Sensemaking	.488
collaboration <--- Firm age	-.023
collaboration <--- Industry type	-.081
learning <--- Firm size	-.028
collaboration <--- Firm size	-.029
collaboration <--- response	.343
innovation <--- Industry type	-.017
learning <--- Industry type	.001
learning <--- Firm age	-.030
innovation <--- Responsiveness	.170
innovation <--- Response x Responsiveness	-.166
innovation <--- Sensemaking	.415
innovation <--- Response	.243
innovation <--- Firm size	.033
innovation <--- Firm age	-.068

**Appendix B14.2: Model Fit Summary**

**CMIN**

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	48	24.876	18	.128	1.382
Saturated model	66	.000	0		
Independence model	11	1338.425	55	.000	24.335

**RMR, GFI**

Model	RMR	GFI	AGFI	PGFI
Default model	.027	.975	.909	.266
Saturated model	.000	1.000		
Independence model	.310	.343	.211	.286

**Baseline Comparisons**

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.981	.943	.995	.984	.995
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

**Parsimony-Adjusted Measures**

Model	PRATIO	PNFI	PCFI
Default model	.327	.321	.326
Saturated model	.000	.000	<u>.000</u>
Independence model	1.000	.000	.000

**NCP**

Model	NCP	LO 90	HI 90
Default model	6.876	.000	24.135
Saturated model	.000	.000	.000
Independence model	1283.425	1167.969	1406.271

**FMIN**

Model	FMIN	F0	LO 90	HI 90
Default model	.140	.039	.000	.136
Saturated model	.000	.000	.000	.000
Independence model	7.519	7.210	6.562	7.900

**RMSEA**

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.046	.000	.087	.515
Independence model	.362	.345	.379	.000

## **Appendix C: Publications**

### **Appendix C1:** First Published Article.

The Missing Interaction of Internal Market Orientation and Market Sensing on Innovation Capability. Australian Journal of Basic and Applied Sciences, 11(2) February 2017, pages. 91-103.

### **Appendix C2:** Second Published Article.

Market sensing, innovation capability and market performance: The moderating role of internal information dissemination. International Journal of Advanced and Applied Sciences, 4(8), pages. 56-67.