


# Antecedents and Outcomes of Resources Recombination in the Context of Higher Education Industry at United Arab Emirates

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**ABSTRACT**

*Given the paradigm shift in the United Arab Emirates' (UAE) economy from a fuel-based model to a service-based model made it worthy to examine what was happening in the UAE higher education sector where the UAE currently devotes approximately 25 percent of the total of federal government spending tons on education and the overall literacy rate is 90%. (Wikipedia.org). Coupled with quest towards a knowledge-based economy, lack of clear RR measurement scale, and the increased need for competitiveness in the higher education sectors, has called for the need to study the resources reconfiguration in UAE higher education institution (HEI) competitiveness.*

*The purpose of this thesis is to gain a deeper understanding of the Resources Recombination (RR) phenomenon with special reference to the context of UAE HEI competitiveness and to critically assess the impact of Internal Marketing Orientation (IMO) and Dynamic Capabilities (DC) on the RR. RR has garnered lots of interest in the past decades in both the academic and the practitioner communities. Though some amount of literature exists on the area of RR, it is primarily implicit, and no particular scale exists for the assessment or measurement of RR.*

*A mixed research method is considered in a sequential exploratory research design, building on the need to explore the area of RR in HEI competitiveness prior to overall quantitative empirical assessment of HEI competitiveness model. Examining the effect of a specific set of DC – namely the firm`s Sensing Capabilities, Learning Capabilities, Integrating Capabilities, and Coordinating Capabilities, and the constructs of IMO- namely Information Generation, Information Dissemination and Information Responsiveness on RR in firms, this research sheds light on what it explains as the competitive heterogeneity and variance in resource value creation across firms. This research contributes to the resource and competence-based research by presenting and empirically testing a conceptual model of factors influencing RR in firms.*

*It is worth mentioning that this study is predominantly explanatory even though an exploratory observation was conducted first. The study is conducted in 3 phases, including Study One which is Qualitative Exploratory Phase (Interview Data Collection), Study Two is Quantitative Exploratory Phase (Survey Questionnaire Data Collection) and Study Three is Quantitative Explanatory Phase (Main Study Phase for testing the research hypotheses). Study One was conducted with the help of 21 interviews with respondents being faculty and non-faculty in*

*UAE HEIs. Study Two consisted of 453 respondents consisting of both faculty and non-faculty members and Study Three surveyed 636 respondents consisting of only faculty members. Three main data collection instruments were used for the present study – an interview guide for the qualitative aspect and a survey questionnaire for the two quantitative aspects of the investigation. Study One and Study Two were combined in a sequential exploratory mixed research design where the quantitative study built on the outcome of the interviews to establish more relevant findings.*

*The findings of Study Two were later employed in Study Three to test the research framework. The findings of Study One entailed a total of 64 individual themes representing resources (21 themes), business processes (29 themes) and complementary factors (14 themes). Based on a critical analysis of findings, the sensemaking framework of RR in business organisations was proposed. The Study Two was built on the 64 main themes derived from Study One. The measurement model of resources recombination consisted of five main factors; (1) asset, research and affiliation processes, (2) automated technology management, (3) financial support for HR and departmental initiatives (4) mainstream staff rewards and retention and (5) institutional brand image appeal. A survey was run to help gather responses to validate the model. Thorough Structural Equation Modelling methodologies were implemented to ensure a highly parsimonious fit model was arrived. An exploratory factor analysis (EFA) was first conducted to explore the pattern of factors. A confirmatory factor analysis (CFA) was then conducted in a measurement model to re-affirm the patterns, their validity, and reliability. A total of 12 items under 5 factors remained in Study Two.*

*Study Three adapted the RR construct as defined by the Study Two. It also combined literature and existing measurement on IMO, DC, and competitiveness to arrive at and enable the testing of the research hypothesis. Similarly, an EFA was conducted followed by a CFA and subsequently the main structural model. A total of 64.7% of the hypotheses were supported, establishing DC and IMO as important antecedents for the development of RR and competitiveness as a performance outcome.*

***Keywords**: Resources Recombination; Dynamic Capabilities; Internal Market Orientation; Higher Education Competitiveness*

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## GLOSSARY

| Abbreviation | Explanation |
|---|---|
| ADEC | Dhabi Education Council |
| AGF | Adjusted Goodness of Fit |
| AMOS | Analysis of Moment Structures |
| AVE | Average Variance Extracted |
| CAA | Commission for Academic Accreditation |
| CAIC | Consistent Akaike Information Criterion |
| CBV | Competence Based View |
| CFA | Confirmatory Factor Analysis |
| CFI | Comparative Fit Index |
| CHEDS | Centre for Higher Education Data and Statistics |
| CMB | Common Method Bias |
| CR | Composite Reliability |
| DC | Dynamic Capabilities |
| DCT | Dynamic Capabilities Theory |
| EFA | Exploratory Factor analysis |
| GFI | Goodness of Fit |
| HEI | Higher Educational Institutions |
| HOD | Head of Department |
| IM | Internal Marketing |
| IMO | Internal Marketing Orientation |
| KHDA | Knowledge Human Development Authority |
| KMO | Kaiser-Meyer-Olkin |
| MI | Modification Index |
| ML | Maximum-Likelihood |
| NFI | Normed Fit Index |
| OECD | Organization for Economic Cooperation and Development |
| PAF | Principal Axis Factoring |

| | |
|---|---|
| PCA | Principal Component Analysis |
| RBV | Resource Based View |
| RMSEA | Root Mean-Squared Residual |
| RMSR | Root Mean Squared Residual |
| RR | Resource Recombination |
| SEM | Structural Equation Modelling |
| SO | Strategic Orientation |
| SPSS | Statistical Package For Social Sciences |
| TLI | Tucker Lewis Index |
| UAE | United Arab Emirates |
| VRIN | Rare, Valuable, Difficult to Imitate and Non-Substitutable |
| x2 | Chi-Square |
| x2/df | Normed Chi Square |

## WORK FROM THIS THESIS

**Papers *(In pipeline)***

- Conceptualizing and Validating Resource Recombination in Context of Higher Educational Institution Competitiveness –*in process.*

- A conceptual model of competitive learning capability: an integration of internal market orientation, exploration capability and resource recombination -*Asia Pacific Journal of Business Administration*

- Resource Recombination in UAE Higher Education Institution: An internal perspective of Marketing Orientation and Dynamic Capabilities-*International Journal of Organizational Analysis.*

**Conferences**

- Muneeb. Dilnaz (2016): " Internal Marketing In Higher Education: Building On Dynamic Capabilities Towards New Service Development "; Thesis proposal. Proceedings of NUBS Conference, *The Nottingham University Business School Conference, April 26-27, 2016, Malaysia*.

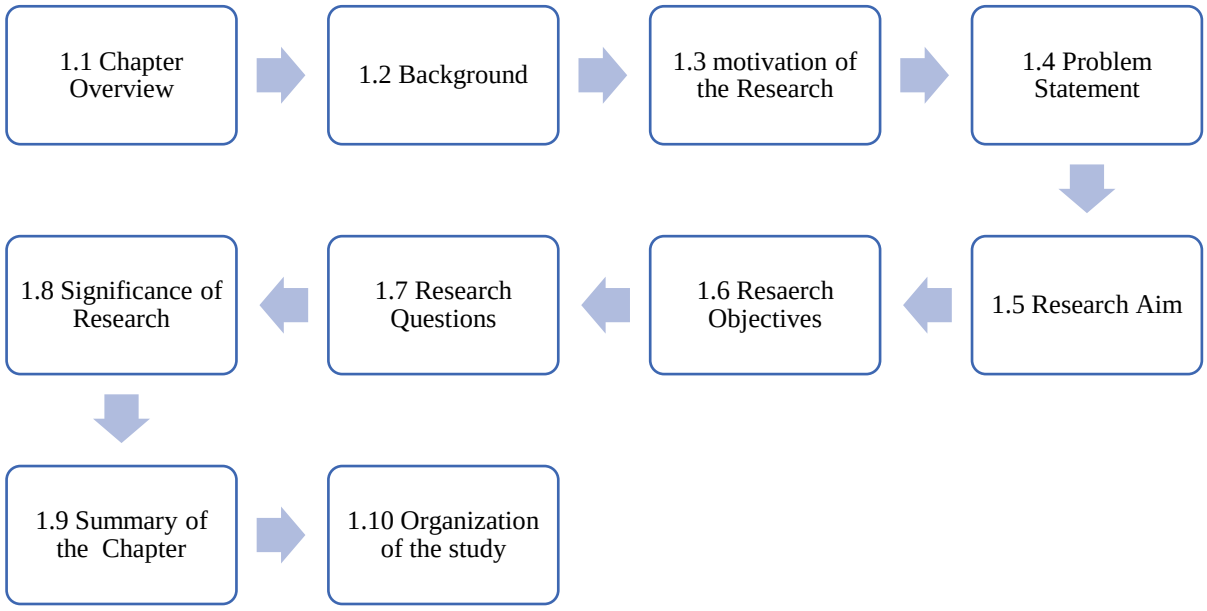
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# CHAPTER ONE: INTRODUCTION

## 1.1 Chapter Overview

The introductory chapter presents the background of the study, the research motivation, the research problem, followed by the aim of the study. Next, the chapter discusses research objectives and questions backing up the importance of the study with the justification towards the service sector in general and HEI in particular. In the end, the chapter provides the organisation of the study concluded with a summary of the chapter.

***Figure 1.1 Chapter 1 Organization***




## 1.2 Background

The need for critical management of resources has always been essential to organisations before and now. Effective resource management, however, is more crucial now because of the dynamic environments of firms where fierce competition for survival and efficiency are the norm (Hawass, 2010, Holcomb et al., 2009, Eisenhardt and Brown, 1999). When resources are synthesised and reconfigured, a strong synergy and novelty for improved efficiencies,

strategies and resource usage are produced simultaneously (Harrison et al., 1991, Harrison et al., 2001). Such reconfiguration of resources results into a productive heterogenous mix that is difficult for the competitors to copy through a process known as Resources Recombination (RR). RR is defined as the recombination of resources in new ways in order to develop new, innovative products or services or enter new markets (Schumpeter, 1934; Schreyögg and Kliesch, 2003).

The process of resources recombination gets its importance in the service sector, given the contribution of this sector to the prosperity and growth in many economies around the world (OECD, 2011). The World Trade Organisation (WTO), 2012 posits that the service sector contributes a significant rate of 73%, 54%, and 47% to GDPs in developed, emerging and developing economies respectively. In addition, the service sector provides support and anchor for other sectors of the world economies (OECD 2001; Garner 2004; D'Agostino et al. 2006; Chesbrough and Spohrer 2006). Among the world economies, United Arab Emirates (UAE) is one of the mot successful countries due to its diversification strategies based on investments in service sector. According to Augustine (2017), service sector is the key driver of UAE's trade growth between now and 2030. According to HSBC Trade Forecast, amid the low oil price environment and global macroeconomic volatility, businesses in UAE focusing on the services industry are expected to perform better as compared to other sectors in the UAE. UAE has focused on the need to build a knowledge-based economy by focusing on sectors requiring high skills such as energy, tourism, aviation and biotechnology sectors of the economy. As UAE heavily depends on service sector, Higher Education (HE) sector which is an integral part of service sector, receives heavy investment from UAE government (CHEDS, 2012; UAE interact, 2014). Services and resource usage in HEI appear complex due to the mix of its public and private activities from services to students, research and publication, internationalisation, to services from non-faculty actors who serve as the bedrock and pillar. Like any other

institution, HEI are complex organization and face resource management challenges, given the shift in educational pattern from elite to masses (Taylor et al., 2013). Hence, from the tangible to the intangible part of resources in higher education institutions (HEIs), the acquisition of better integration and realignment of focus for efficiency and effectiveness is essential (Pollitt, 1990), and this can be done through RR. The strategic role of organizational resources has received increased attention in empirical research in recent years. For example, measuring resource use in relation to school national and global rankings (Schlesselman & Coleman, 2013), graduation rates of students (Anstine, 2013), student success (Sav, 2013), and faculty hiring (Becker et al., 2011) are argued to be better outcomes of their resource management and combination of HEI. The growing interest in RR placed on the importance of resources integration phenomenon in the service industry in general and HEI in particular makes it interesting to explore the RR concept in the context of UAE HEI.

Apart from service sector, RR is also known for restructuring manufacturing resources at high speed and low cost through the building of multifunctional resources and coordination processes (Seebacher & Winkler, 2014). RR in a manufacturing sector is a broad concept that includes labour, machinery, material handling, routing and mix flexibility (Zhang et al., 2003) and makes it easier to recombine resources, extend the range of use of scarce resources, reduce switching costs, speed resource recombination and facilitate synergy creation (Seebacher & Winkler, 2014). Therefore, RR in manufacturing may influence business model or new/existing business processes design by removing internal resource constraints.

The RR scenario in HEIs (service sector) is totally on the opposite version of manufacturing requirement. A lack of fit of the HEIs resources may create internal constraints on business model or new/existing business processes design. For example, the most important barrier for the business model or new/existing business processes design derives from inflexibility in HEIs resources (Amit & Zott, 2015). HEI should therefore align their internal capabilities with the

constraints and opportunities embedded in the external environment to promote a new business model or new/existing business processes design. Despite this, little effort has been made to investigate how to overcome this constraint to promote business model or new/existing business processes design and subsequent firm performance. To address this gap, this study investigates how HEI generally and UAE HEIs specifically affects business model or new/existing business processes design and resulting firm performance. The literature suggests that a business model or new/existing business processes design is a firm-centred, boundary spanning system of activity designed to create and capture value (Zott & Amit, 2015).

The HEIs literature also argues that the role of HEI is contingent on the market environment. In particular, the new generation of information technologies makes searching for internal market more efficient and facilitates direct interaction with customers. This increase both the intensity of competition and the heterogeneity of demand (Picard & Okubo, 2012). However, the literature offers little insight into the role of internal HEI in business model or new/existing business processes design and its variance according to the market environment. Therefore, this study will examine how RR affects efficiency and novelty centred business model and/or new/existing process design and consequent HEI's performance.

As such, a well-structured process of RR including new programmes, student exchange programmes, joint research collaborations, networking, conferences, and new campuses etcetera offers a strong base for this research to examine the concept of RR activities in the HEI sector in the context of UAE.

### 1.3 Motivation of the Research

As discussed above, the extant literature shows a strong need for the conceptualization of resources recombination in the firms (Anand & Ward, 2004; Neufeld, 2015; Ambulkar 2014, Cecere, G. & Ozman, M., 2014; Sears, J. & Hoetker, G. 2014). In this regard, examining the

process of resources reconfiguration in the context of UAE HEI serves two main purposes of the overall author's research interest. First, resources recombination is studied through the lens of resource-based and competence-based research to provide a framework for understanding the complex interplay of existing/current resources and existing/current business processes in the context of HEI. In the domain of resource and competence based research, less attention has been paid to the processes through which resources are leveraged to create value for external stakeholders. Hence, these insights significantly add to resource-based and competence-based literature and to the more profound understanding of RR operationalisation in the firm (Hawass, 2010),

Second, Higher Education sector in the UAE has witnessed mass development in quality, diversity, and number of the programs and its providers. Focus on the UAE higher educational sector makes it worthy to investigate the role of HE industry in UAE quest to develop a knowledge-based economy towards national Vision 2021 (CHEDS, 2012; UAE interact, 2014), guided by the important pillars as set by the World Bank.

### 1.4 Problem Statement

Research has shown that resources recombination is source of entrepreneurial activities within the organizations (Brown et al., 2001, Lumpkin and Dess, 1996, Guth and Ginsberg, 1990, Stopford and Baden-Fuller, 1994). And there is consensus that the innovation of the firms mainly depends on the way it reconfigures and synergizes it existing resources in novel ways through resources recombination (Horx, 2011; Burnet, 2009). Moreover, the agreement among researchers about RR being the source of new products and services (Majumdar, 1998, Penrose, 1959), the competitive advantages (McGrath et al., 1995) and the creation of wealth (Grant, 1991, Teece et al., 1997), cements the fact that RR is actually a source of innovation, as can be seen in case of invention of iPod by Apple Inc. (Van Rijnbach, 2010). Apple Inc. made use of already existing technologies (MP3 and the touch screen) coupled with iTunes, its business

model and strategies, an entirely new product was launched that gave Apple Inc. a break through and paved its way towards sustainability in the market. Further building up on Schumpeterian thoughts on RR as a means of innovation, "*through a reconfiguration of existing resources within the firm, or through the integration of new resources into their existing resource base, firms can introduce new products and services or enter into new markets*" (Wiklund et al., 2002, p. 152, referring to Schumpeter, 1934) supports the empirical assumptions as confirmed by Gassmann and Enkel (2006) that 80% of innovations happens as a result of recombining the existing technologies, knowledge, products and service.

Furthermore, Maranto and Gómez (2007) found that internal capabilities are more important than financial resources in increasing competitive advantages: This not only makes the resource recombination of existing resources an essential element of the firms but may also mean that the acquisition of new resources may therefore be less important than the recombination of available resources. This idea was empirically confirmed by DeSarbo et al. (2007), who investigated the relationship between the capabilities and general firm performance of 216 cross-industry US firms. They ascertained that the best performers tended to be able to utilise their resources recombination more efficiently than their competitors. In another study, Newbert (2008) conducted extensive research in the micro and nanotechnology industry with a sample of 664 firms and reported no differences in the relevance of resource recombination by firm size. As both large organizations and small firms can benefit from resource recombination, this underlines the relevance of efficient resource utilisation in firms. Exploring RR can provide useful insights into how new and existing resources and processes can be recombined in novel ways and what all capabilities or strategies are required for successful recombination process. (Sirmon et al., 2007; Marsh and Stock, 2006; Helfat et al. 2007; Pavlov and El Sawy 2011; Kogut and Zander, 1992; Schumpeter, 1934).

Although, there is growing interest in the area of RR and how firms can use valuable resources for resources recombination (Sirmon et al., 2007, p. 288; Priem & Butler, 2001), however, few publications can be found on how organization plan and execute their resources management activities towards creating value for the firms (Sirmon et al., 2007, Barney & Arikan, 2001), therefore leading to a dearth of detailed understanding of the concept. Thus, a major objective of this study is to conceptualize the RR phenomenon i.e. to investigate how new and existing resources and new and existing business processes recombine in a novel manner to ensure maximum resource utilization and attempts to present an empirically validated measurement scale of RR.

In addition to the conceptualization of RR, this study also seeks to investigate the contingency factors of RR. The recombination processes of the resource and capabilities are dependent on very important competency assets of organisations. However, in the extant literature, only a few competency factors or antecedents of RR have been explored (Madsen 2010, Hawass, 2010; Rothearmel and Hess, 2007; Zahra and Wiklund, 2002, Galunic and Rodan, 1998). Very little research has been offered in the area of RR strategies required to provide useful insights into how new and existing resources and processes can be recombined in novel ways and what all capabilities or strategies are required for successful recombination process. (Sirmon et al., 2007). Among the antecedents explored are entrepreneur and network orientation, risk management resource infrastructure, technological capabilities, knowledge structures, organizational culture, alliance strategies (Neufeld, 2015; Ambulkar 2014, Cecere, G. & Ozman, M., 2014; Sears, J. & Hoetker, G. 2014; Abrosini 2009; Eliasson et al 2002; Sav, 2012 and Lowry, 2004). Despite its importance, the conceptual and empirical investigation on the fact that RR requires right strategies from DC point of view and a strong IMO by firms (Fang et al., (2014); and Nikbin et al. (2010) is still lacking and requires urgent attention. As such,

this study investigates IMO and DC as important strategies and antecedents that have impact on the recombinative capabilities of the organization.

On the outcome side of RR, though RR is claimed to be source of competitive advantage and a means of creating wealth, very few empirical studies have been conducted applying the concept of RR to the firm's performance (Wiklund and Shepherd, 2009, Wiklund et al., 2002, Kogut and Zander, 1992, Grant, 1996, Galunic and Rodan, 1998). Therefore, in addition to exploring the antecedents, the outcomes effects of RRs on firm's performance as well merit investigation (Isobe, 2008).

Summarizing the above research problem, this study attempts to contribute to research stream in the area of strategic management and innovation by conceptualizing RR, investigating IMO and DC as antecedents and the competitiveness as a consequence of RR in the context of HEI in UAE. Subsequently, the study discusses the research aims, objectives and research questions.

**1.5 Research Aim**

This research aims to explore the resources recombination in relation to competitiveness in higher education from an internal perspective of marketing orientation and dynamic capabilities. In other words, the aim is to investigate the role of IMO and DC on HEI Resource Recombination. Ultimately, this study seeks to establish an overall model of RR in the context of HEI competitiveness. It must be emphasised that the primary focus of the study is to explore the Resource Recombination concept from IMO and DC perspectives.

This research proposes that the resources that the firm possess are a vital source of competitive advantage if bundled and leveraged innovatively through the process of Resource Recombination. Thus, both IMO and DC are considered as the antecedents of RR, though not the only antecedents, but the most important ones, as supported by Resource-based research

(Barney, 1991; Penrose, 1959; Rumelt, 1987) and competence-based research (Teece et al., 1997). Hence, to address such issue, this study aims to contribute empirically by testing the associations among the antecedents (IMO and DC) and the outcomes of RR (competitiveness).

### 1.6 Research Objectives

The primary objective of this study is to investigate the antecedents and outcomes of resources recombination in the context of higher education industry at UAE". Specific objectives are as follows:

I. To examine how the concept of Resource Recombination can be operationalised and measured in view of firm's competitiveness?
II. To investigate the extent to which Internal Marketing Orientation facilitates Dynamic Capabilities and Resources Recombination?
III. To assess the extent to which Dynamic Capabilities facilitate Resource Recombination?
IV. To investigate the extent to which Resource Recombination facilitates firm's Competitiveness.

### 1.7 Research Questions

It is essential to comprehend that the first research objective which informs the first research question is exploratory and constitutes an initial exploratory phase. As elaborated as part of the introduction, the exploratory phase of the present study is justified considering there is a lack of contextual indicators and absence of a precise measurement of the central phenomenon of how RR is operationalised and measured.

The present study, therefore, attempts to measure RR in the context of HEI competitiveness. After the initial phase of the research and with the help of inductive analytical procedures, further hypotheses and inter-relations are observed in addition to the conceptual framework.

Nonetheless, based on the sequential exploratory research design, the main phases of the study are presented with their respective research questions below:

***Exploratory Phase – Qualitative and Quantitative***

I. How can the concept of Resource Recombination be operationalized and measured in view of firm's competitiveness?
   a. What are the new and existing resources that add to the institutional competitiveness?
   b. What are the new and the ongoing business processes that contribute to the institutional competitiveness?
   c. How are the new and existing resources and the new and the ongoing business process recombined to produce new product/services?

***Explanatory Phase – Quantitative***

II. What is the effect of Internal Market Orientation on Dynamic Capabilities and Resources Recombination towards firm's Competitiveness?
   a. To what extent does Internal Marketing Orientation positively drive the development of Dynamic Capabilities of the firms?
   b. To what extent does Internal Marketing Orientation positively facilitate Resources Recombination of the firm?
   c. To what extent does Internal Marketing Orientation facilitate firm's competitiveness?

III. What is the contribution of Dynamic Capabilities to Resources Recombination defined in context of firm's competitiveness?
   a. To what extent do Dynamic Capabilities facilitate resource recombination in context of firm's competitiveness?

IV. What is the effect of Resource Recombination on firm's competitiveness?
   a. To what extent does optimum Resources Recombination lead to competitiveness?

## 1.8 Significance of the Research

The recombination of the resources in HE is a very important subject in the body of knowledge surrounding HEI competitiveness. Environmental changes like diversification, internationalization, decentralization, privatization and increased competition effect the operationalization of HEI (Nicolescu, 2009). Entreated with the best use of resources, education institutions strive to acquire and exploit their resources in different manners. Based on leads from William (2014) on the need for future research on institutional resources management in HEI, he stressed on the benefits of how tangible and intangible resources can be bundled and integrated to form organisational capabilities. Therefore, keeping in mind the "public good" nature of HEI services and the importance of resource bundling, makes the subject of resources recombination even more important. The importance of this study lies in conceptualizing the RR phenomenon and empirically testing the relationship among the antecedents and consequences of RR. By doing so, this sutdy provides theory-based evidence of how resources can be bundled and reconfigured and how its effects the outcomes. Consequently, the finding of this study will contribute to the literature on RR, its antecendents of IMO and DC and competitiveness. This research also contributes to the resource and competence-based research stream in the area of strategic management.

Apart from theoretical significance, the results of this study have practical significance for the HEI managers and especially for the strategic management of HEI. The findings suggest that RR is one of the important constructs that contribute to the competitiveness of the HEI sector. Based on reviews of current management practice, the concept of RR is still uncommon and insufficiently functioned in strategic management. Consequently, by elaborating on the source of variance in firm performance, this study serves as a manual for HEI managers. And, it also serves as a platform for improving the internal market policies and the the fact that HEI should be abreast of sensing and capitalizing on its important dynamic capabilities to succeed in the

market. Most importantly, the findings of the study offer knowledge on effective resource planning and management practices. The study also serves as a guidance for HEI managers to implement IMO policies thus ensuring employees are at the best of their performance.

## 1.9 Summary of the Chapter

This chapter presented a preamble on the need, gaps and significance of this research by arguing that RR from the IM angle and the capabilities of institutions may and can produce a synergy that can enhance the performance and better resource use of Universities and Colleges in the HEI which has not been done yet. Hence study will be done based on the critical research questions and objectives raised. In the next chapter, it is argued on why HEI is the choice for this study considering the roles these institutions play in the service industry and how such insight could compliment the resource use and management.

## 1.10 Organization of the Study

The present investigation covers six main chapters.

### *1.10.1 Chapter One*

Chapter one of the thesis presents the background of the study which elaborates on why the selected topic is of interest. The background is relevant to highlight the need to pay attention to the internal elements of strategic management. Emphasis is placed on the ability to control internal resources of the organisation towards more predictable financial and operational outcomes. Even in cases of external events, strategic motives of the organisation can only be channelled from an internal perspective. The section concludes on the justification of why the key variables of IMO, DC, and RR are selected based on their internal orientation.

The initial chapter of the study further elaborates on the research problem or the problem statement. This area emphasises the research literature gaps which the study seeks to contribute to their closure. Vital statistics of enrolment and graduations from the various public and

private institutions in UAE indicate the increasing competitiveness of the private domain to both nationals and non-nationals. Key objectives of the study are presented, and the need for a dual phase research in a sequential exploratory mixed research design is justified.

Much is emphasized on the significance of the study in the three main areas of its contribution to current knowledge, the importance of the study to the service sector and competitiveness and branding of HEI. Elaborating on the significance of the study is vital to inform the main areas of implications depending on the direction of the results.

### *1.10.2 Chapter Two*

Chapter two presents an overview of the scope and location of the study. A brief overview of UAE is given specifically looking at the educational sector. The scope of study elaborates on the higher education institution and its contribution to economic development in UAE. The chapter begins by offering an overview of United Arab Emirates, paying close attention to the geographical and economic environment. Further discussed is the role of HEIs in implementing economic development in the form of knowledge-based economic development. Lastly, it presents the sector of HEIs in UAE and how they operate, including how they are distributed.

This chapter is important to the present investigation as it offers an avenue to appreciate the environment within which the study is conducted. It also helps understand the nature and depth of key external factors of the study location. This understanding is critical in the event of comparison and generalisation of results to other studies in diverse locations. Furthermore, it helps to appreciate the role of higher education institutions in catalysing rapid economic growth through learning, research and service. Insight in this area is crucial as it helps to appreciate the recommendations of the present study in bridging the knowledge gap in the educational sector. The scope of the study elaborates on the UAE service sector with particular attention to

the HEI sector. An overview of the institutions and faculty members who remain the primary focus of the study is also presented.

### *1.10.3 Chapter Three*

Chapter three introduces the theoretical underpinnings of the research. The chapter discusses the various arguments in the pertinent literature that supports or surrounds the various hypotheses to be tested in areas of the conceptual framework.

Other key areas of the chapter centre on the concept of RR and its essence. Further attention is also given to the other primary variables of the study which includes IMO and DC. Towards the end of the chapter, the interrelationship between the variables of the study is presented. The conceptual framework is finally presented followed by an empirical review of pertinent literature. An integrated learning framework is conceptualised based on the underlying theories of the study. The framework is later combined with the classical research model of the study to permit comparison of models in analysis. Pertaining to the present study, the research gap was presented after a thorough review of surrounding literature.

### *1.10.4 Chapter Four*

Chapter four presents the methodological considerations of the study; it elaborates on the philosophical position of the researcher, the research design, population and sampling techniques, sources of data, data collection approach and other data analysis techniques used for the investigation. Towards the end of the chapter, key limitations and ethical considerations are presented. The chapter is presented paying particular attention to the need for credibility, validity and authoritativeness of findings.

Generally, the researcher follows a realist group of methodological paradigms and believes that the methods adopted to serve the research needs are peculiar to the demands of the research needs and what it needs to accomplish. A mixed method is adopted as justified in the

introductory section of the study and accordance with the philosophical position of the study. The population of the study is justified together with the carefully considered sampling techniques. Other areas such as the sampling size, data collection instrument, measurements and indicators are all justified to support the main purpose of the methodology.

### *1.10.5 Chapter Five*

Considering a sequential exploratory research design is adopted, two phases of data collection and analysis are conducted. Chapter five presents the research results and findings of the exploratory phase which considers the first research question. Inductive based analytical procedures are used to analyse results qualitatively to arrive at findings which informs key inter-relationships in the conceptual framework of the study. This phase was also in an attempt to define RR in HEI competitiveness, with particular regard to the role of RR in the conceptual framework of the study.

After the results and analysis are presented for the exploratory aspects of the study, the phase two of the study is carried out to validate the RR model drawn from Study One.

### *1.10.6 Chapter Six*

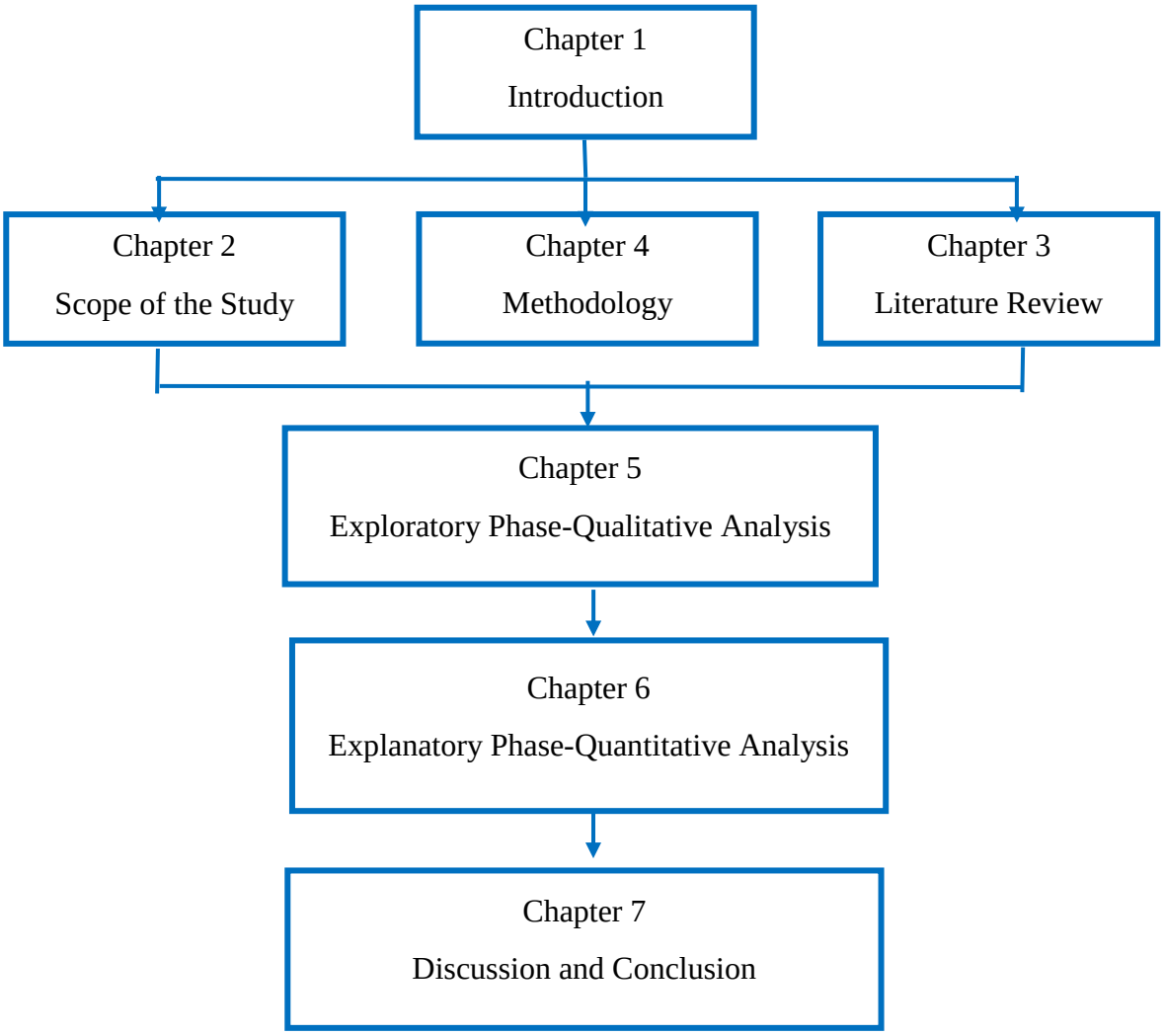
In chapter 6, the third phase of the study is presented. The results are discussed to comprehend how the findings link with other aspects of the study and the conceptual framework of the study. The quantitative analysis is presented. The main hypotheses of the study are empirically tested to arrive at key outcomes that support the various models of the study. The multiple models of the study are compared and contrasted to observe the degree to which the competitive learning capability model, the classic model of HEI competitiveness and the integrated model of HEI competitiveness compare with one another.

### *1.10.7 Chapter Seven*

Chapter seven presents the discussion of research findings for all the three phases of the study. The section of chapter commences presenting the outcome and implications of findings pertaining to the preceding chapter. Key hypotheses are empirically tested and examined. Towards the end of the chapter, the results are discussed thoroughly to arrive at overall implications of the study. Key implications are discussed paying attention to the findings of the study together with literature and empirical backings. Implications are discussed paying attention to the implications to the body of knowledge, the service sector and the HEI sector.

It further presents the conclusions and recommendations of the study. Conclusions are established within the scope of the research questions to be achieved. Key conclusions are presented in all areas of the research objectives. Recommendations are offered to key stakeholders such as administrators and decision-making units in UAE universities. Other vital recommendations are offered to players within the service sector and the UAE government regarding the quest for knowledge-based economic development. The overall structure of the thesis is presented in Figure 1.2.

***Figure 1.2 Structure of the Thesis***

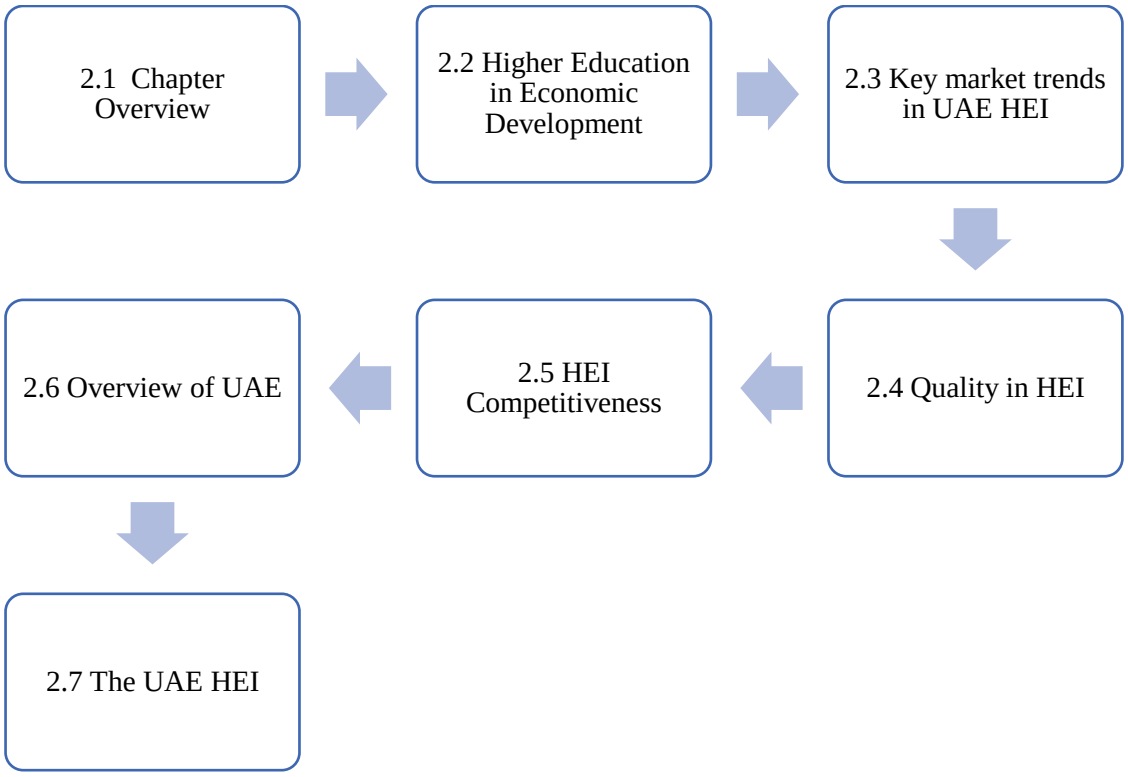


# CHAPTER TWO: SCOPE AND LOCATION OF THE STUDY

## 2.1 Chapter Overview

This chapter presents the functional scope and location of the study. In the same manner, the concepts and theories surrounding the study will be discussed in next chapter. The present chapter commences with discussing the role of HEI towards society and economy of the country and the market trends of HE. It is followed by discussion of quality and competitiveness of HEI. Next, towards the end of the chapter, an overview of UAE and UAE HEI is discussed in detail.

***Figure 2.1 Chapter 2 Organization***



## 2.2 The fundamental role of Higher Educational Institutions in Economic Development

Higher education plays an important role not only in promoting human and social development but economic as well. HEIs influences development directly and indirectly through teaching, service and research. The concept of development is seen as a continuous process of improvement where education, research and service are key factors in creating change. According to Faure (1972), it is about learning to be, to do and to live together. Chapman & Austin (2002, p. 5) add that HEI was at its low point in the 1980s. At this time, they had no impact on economic and social growth because most universities at that time were unable to meet their expectations set for them; HEIs at that time were less concerned with regional or national problems, and HEIs had a "low rate of return".

Recently, the UN has considered the role of HEIs in development more important. HEI is necessary to all parts of development - environment, poverty alleviation, culture, health care and human rights (Zaglul, Sherrard & Juma, 2006; Bok, 1984). Taylor & Fransman (2004) asserts the role of HEIs as the model of social change through the transmission of knowledge. “Development-oriented higher education” constitutes “the total commitment to sustainable human development for the survival of humanity as a core value of higher education” (Obanya, 2002).

According to Sutton and Barto (1998), HEIs provides skills, training and knowledge to enable people to perform specific tasks. With HEI, social and moral values are imbued in students thus, helping in preserving culture (Taylor & Fransman, 2004). Task Force (2000; 44) and Dewey (1916) agree that HEIs helps to cultivate democratic values and international citizenship (Delanty 2008). It is believed that higher education should produce socially responsible graduates who can move the nation towards prosperity and success (Thompson & Daniel, 1996; McMahon, 2000; Task Force 2000; 87).

Faure's (1972) notion of learning to be, learning to live together, learning to do and learning to know is crucial to the contribution of UNESCO's work on the role of HEI in development which strives to include how students act as agents for change. Mott (2005) emphasises how teaching, research and service promote community change through university education and numerous programmes.

Scientific innovation through research also fosters economic growth and promotes knowledge and understanding. Pyle and Forrant (2002) cite an example of how R&D at the Lowell Centre along with other universities contributed to development in the USA. Obanya (2002, p. 12) also asserted the use of research for developmental reasons. Ultimately, research in HEI contributes to policy decision-making mechanisms in HEIs. As quoted by Taylor (2008, pp. xxvi):

> *"Research is assumed to be a vital part of the role of HEIs. However, there is a growing need to question the paradigms of knowledge and innovation that inform the research carried out by HEIs and its application in wider society; and the way that society and human development needs shape the research agenda itself..."*

According to UNESCO (2004), HEIs can foster sustainable development by connecting knowledge generation with the transfer of knowledge to society. To assert this, Cortese (2003) quotes that:

> *"Higher education institutions bear a profound, moral responsibility to increase the awareness, knowledge, skills, and values needed to create a just and sustainable future. Higher education often plays a critical but often overlooked role in making this vision a reality. It prepares most of the professionals who develop, lead, manage, teach, work in, and influence society's institutions."*

Despite the role of HEIs in development, certain challenges hinder their ability to research, teach and implement projects. They include, inadequate facilities, being under-funded (World Bank, 2002), having a weak faculty (Chapman & Austin, 2002, p. 187; Ayuba, 2000), low levels of teacher training (Task Force 2000, p. 74; Chapman & Austin, 2002, p. 17), weak infrastructure and lack of flexibility.

Having discussed the importance of HEI toward societal and economic development and fostering teaching and research, next section highlights the trends and developments in higher education industry.

### 2.3 Key Market Trends in the Higher Educational Sector

In the developed societies, the major providers of knowledge are higher education institutions. Higher education is a means of transforming human beings into human resources and is regarded as a source of wealth for economy of any country (Geethanjali et al. 2008). In recent decades, countries have experienced a significant expansion in higher education. In most countries, higher education has become a central component. Economic development is dependent on the availability of educated and skilled workforce and also on technological improvements that raise productivity. Thus, the higher education system contributes to national competitiveness.

In many countries, autonomy is extended to higher education institutions; this helps increase the flexibility required to meet the needs of the society and the economy. Autonomy in HEI entails academic freedom, institutional autonomy and financial autonomy. According to Antlov (2002), the last few years have witnessed the increasing marketization of public institutions given ongoing global developments such as global processes of deregulation, downsizing of social services, privatisation and reduced public spending.

Most HEIs are either publicly or privately owned. Public owned HEIs are mostly founded and controlled by the state. Private, on the other hand, are not operated or supported by the government. The rapid growth of private HEIs in response to high demand has gained much attention over the recent years.

In UAE, private universities are either owned locally or managed by foreign institutions (Wilkins 2010). According to the UAE Embassy (2017):

> "*The UAE is home to a wide range of universities, both public and private. UAE citizens can attend government institutions free of charge, and the UAE has one of the highest application participation rates in the world,"* (UAE Embassy, 2017, p. 1).

Further to the global education trends, the global tertiary enrolments and student's mobility has seen increase followed by the fast-growing world trade and globalization trends over the past 20 years. Progressively, such expansion is an opportunity for government to deliver on national priorities and contribute to their economy. Some of the key trends in global tertiary education has been due 1) international students' mobility; 2) the trends of global higher education partnerships – including provision of degrees off-shore and teaching partnerships; 3) patterns in research output; and 4) international research and degree collaboration. (*britishcouncil.org*)

### 2.4 Quality in Higher Education

The expansion of higher education has given rise to the attention paid to quality teaching offered to the students. Jones (2003) and Jones (2004) assert that quality in higher education has become a central focus for private universities. Harvey and Green (1993) generated a concept for quality and postulated five aspects of quality in higher education. These include i) exceptional (defines quality as a level of excellence which cannot be attained by most people), ii) transformative (when quality is able to empower and enhance students), iii) value for money (being able to achieve effective and efficient education at the lowest cost), iv) fitness of purpose

(quality is described as the ability of an institution to meet its mission) and v) perfection (when quality aims at a zero-defect).

From this classification, one can further define quality teaching as "teaching that transforms students' perception and the way they go about applying their knowledge to real-world problems." This classification has been further modified by Newton (2006). According to EUA (2009) quality must be contextualised. Ehlers (2009) argues that quality has shifted from a mechanistic to a holistic and cultural view. Further research into the study of quality by Biggs (2001) emphasises the need to get teachers to teach better as this would improve quality enhancement.

Furthermore, Henard & Roseveare (2012) agreed that initiatives such as setting up teaching and learning centres; educating people on innovation funds, excellence awards and recruitment criteria; along with promoting student achievements and evaluation through counselling, career advice and programme ratings; peer-reviewing and benchmarking of practices help improve quality teaching. Henard (2010) asserts that quality teaching is likely to improve research activities. Hau (1996) agrees to the "zero-defect" aspect of quality cited by Harvey and Green (1993). He asserts that quality in higher education emanates from a "never-ending" reduction and elimination of defects (OECD Thematic review of tertiary education, 2006);

> *"A culture of quality in higher education system, shared by the academic management, staff and students help to strengthen academic quality"* (Toma & Naruo, 2009, p. 575).

Studies have shown the effect of quality on customer satisfaction which directly leads to an increase in students' number and confidence level of the institution (Shah, 2009).

Information plays a central role in quality as it remains an important resource in all socio-economic and organisational life. Adequate information is essential for producer effectiveness

(Dill & Soo, 2004). Attempts have been made to overcome the lack of information available in higher education through government regulation and intervention.

Another perspective to observe quality education is interaction with stakeholders. Since 1990's, there has been a demand for the increase in the interaction between the universities and their external stakeholders. External stakeholders refer to all groups or individual coming outside the university. These groups usually interfere to ensure the achievement of the university's objectives (Amaral & Magalhães, 2002; Freeman, 1984; Jongbloed et al., 2008). These external stakeholders include students and their parents, public authorities and partners. Jongbloed (2003) assert that university students and their parents who are usually poorly informed about the quality of educational programmes are referred to "immature consumers." Thus, they cannot assess the quality of education. This problem emanates from the deceleration between the time of "purchase" (enrolment) and "consumption" (learning experiences).

Hence due to recent trends in HE, the quality of HEI has become a biggest concern to all the stakeholders, that centres on many factors including transparency of information. Carrying the discussion on quality of education further ahead, the next section present the discussion on HEI competitiveness.

### 2.5 HEI Competitiveness

A growing pressure has been placed on education as it has become increasingly important for economic and social development. An important factor of economic growth is knowledge, thus, the need to learn has become a never-ending lifelong process. As a country becomes developed, the role of education in economic and social development becomes more important.

There is an increased need for competitive advantage in the higher education sector (Eckel, 2007; Jiang, 2008; Martin & Lázaro, 2011; Erickson, 2012; De Haan 2015), especially considering its globalised nature and higher staff attrition for best talents. Intense competition

for students, staff and research funds (Hemsley-Brown,2012; Hemsley-Brown & Oplatka, 2006) which are critically linked to intelligence generation, dissemination and responsiveness from the perspective of IMO and DC in organizations remains a challenge.

The talent war or competition for brightest mind is one of the major transformation factors in the higher education world (Wildavsky, 2010). Wildavsky (2010) posits that such a trend should not be feared, rather it should be welcomed because of the opportunities it brings along. Since 1999, a 40 percent increase has been observed in international student mobility accounting for nearly three million international students studying outside their home countries. Countries like India, China and Saudi Arabia are competing for best talent from universities across the world including Oxford and Harvard. Wildavsky (2010) further argues that such struggle for brightest brain results in providing more education opportunities to more students than ever before. Such trends create need for the HEI's to remain competitive not only in their respective nations but international markets (Arambewela & Hall, 2006; Chan & Dimmock, 2008; Wilkins & Huisman, 2011).

Cheung & Chan (2010) stress that competitiveness is not just in the area of service generation or profitability but in all areas of market position, program or course delivery, access to research funds, possession of quality teaching and research capabilities among others.

As a result of the development of modern "knowledge economy" – one evolving from the production of land, labour and capital to that of knowledge and information; the most effective modern economies are those not only producing a vast number of knowledge and information but also making it accessible to people. There is a continuous growing level of competition in the educational sector. Some factors of competitiveness in HEI include education and research quality, brand image, staff recruitment, high quality of service, and diversification of product,

technology, number of professors per student, the development level of a website, geographic location among several others.

According to Johnson & Yelland (2008), there is a high demand of HEI especially since the emergence of information systems and knowledge as a competitive variable. This has impacted funding, quality, initiative and governance. There is, therefore, the need for managers to think in competitive terms. In this highly competitive environment, where rankings and positions are seen as benchmarks for performance, HEIs are constantly under pressure to fight for a place in the global higher education market (Altbach, 2008).

HEIs are faced with certain issues like funding, equity `and access, internalization, quality, collaboration, and research (Hasan 2004). According to Funda (2008, pp. 9, 13), the higher the level of development, the higher the rules and expectations placed on the quality of education. For HEIs to create a competitive market position, it is imperative that it takes on the concept and philosophy of marketing (Simic & Carapic, 2008, p. 8). Quality is explained in terms of readiness of use (Juran, 1982), value added (Shammon, 1997, pp. 94-97) and as a constant improvement. In the marketing field, a service is said to be of quality if it meets the customer's expectation (Juran, 1988). According to Ivosevic et al., (2006, p. 5), education quality is

> *"the continuous process of fulfilment of set education standards."*

On the other hand, Barnett (1992, p. 61) defines it as

> *"evaluation of the process of education shown through the process of improving educational development of beneficiaries … in order to reach set goals."*

Peter & Waterman (1986) mentioned three factors that determine quality: 1) the requirements of the customers, (2) the need for organizational excellence and (3) efficiency and responsibility toward stakeholders.

The focus of marketing efforts in the area of higher education is on the service quality of education. It is the factor of differentiation from competitors that creates customer loyalty and satisfaction, retains best staff and students and creates brand image of the HEI. However, over time due to internal and external factors, the concept of quality in higher education has changed and is understood in various forms and terms. It is more of a subjective perception and a multidimensional concept. According to UN Declaration on higher education (Ivošević et al. 2006, 11), quality is a multidimensional concept that covers all its functions and activities: teaching and academic programs, research, scholarships, staff, students, buildings, equipment, academic environment, service and community. Furthermore, the quality of HE is related to three casual values: people, purpose, and process (Taylor, 1992).

The other definition of higher education can be classified into two groups (Stimac 2012) i.e. output quality and process quality. Output quality defines education service quality in terms of its compatibility with institution's mission, customer satisfaction and achieving excellence; whereas process quality emphasizes the attainment of its objectives through efficient deployment of management and administrative tasks.

In order for Higher Education Institutions (HEIs) to provide the competitive service quality that meets the expectations of students in Great Britain, Hill (1995) emphasized on the need for a continuous gathering of information about students' expectations during and after studies. Also, Douglas et al (2006) reported a number of material goods such as classrooms, IT, and student restaurant as contributing to the service quality of education.

There are certain challenges which face HEIs and if not taken into consideration can slow their chances of adapting to the changing environment. They include the inadequate application of existing quality control mechanism, fragmentation of knowledge and commercialization of scientific projects. Furthermore,according to Arambašic (2009, p. 4) HEIs are faced with the

impact of the changing environment where they have to attract customers and meet the requirements of the government, ministry of education and the public.

There is, therefore, the need to incorporate marketing orientation into higher education to meet these requirements in the face of increased competition. This will help HEIs to face the challenge of adapting to changes in the environment by producing a "learning environment" and meet the needs of their customers. Higher education can be defined within the marketing orientation context as the exchange process where institutions offer different knowledge, skills and competencies and preparation for a career to their customers. This is done by using different resources in return for the commitment of time and energy and tuition fees from their stakeholders.

Since the ultimate goal of HEIs is to deliver high-quality services, it is imperative that stakeholders assist in the fulfilment of such service. To fulfil this goal, HEIs must implement marketing both on strategic and operational levels to create a more flexible system. However, Birnbaum (2000) argues that implementing the marketing into higher education is still open for discussion.

Having discussed the role, the key market trends and the quality of HEI, the next section will look into HEI in the context of UAE thus highlighting the importance of location and scope of the study.

### 2.6 Overview of the UAE and the role of the Education Sector

Founded on 2nd December 1971, UAE is made up of seven sheikhdoms (emirates) founded on the brink of the Arabian Gulf to the north, Oman and the Gulf of Oman to the east, and Saudi Arabia to the south. It gained independence from the United Kingdom in 1971. It covers an area of 30,000 square miles and its climate is hot and humid (Bradshaw et al., 2004).

The seven emirates include Abu Dhabi, Ajman, Al Fujairah, Dubai, Ras al Khaymah, Sharjah and Umm al Quwain. Abu Dhabi covers the largest area (83%) of the entire UAE and controls similarly the largest share of oil reserves. The political power mainly resides in state of Abu Dhabi, however, president of the UAE is selected from the group of monarchs. Arabic is the official language and Islam is the official religion and there is about 80% of expatriates residing in UAE.

Forty-five years ago, the UAE was among the under-developed countries of the world. Today, it is considered one of the most industrialized nation that did not go through stages of hypothetical development as other developed go through. UAE relies primarily on natural gas (BMI, 2013). The county has depended on oil and natural gas resources to hold its economy for the last 4-5 decades.

Because the UAE controls the world's largest oil reserve, large oil revenues have supported UAE to move rapidly to be a highly developed economy within shorter time. As such it enjoys a solid economic base and strong political power. To ensure political rest in the region, the UAE emirates gives a greater participation of its public in its governance. (CIA, 2015).The country has made considerable progress in key sectors such as transportation, education, healthcare and the retail sectors among other, even though these areas of high diversification are usually led by the Dubai Emirate.

This section presented an overview of UAE to emphasize the fact that UAE is one of the fastest growing economy and discussed its rapidly growing economic developments that has fuelled its education system progress. This is followed by discussing HEI in UAE context given the fact the HEI in UAE is one the major contributor to the GPD of UAE economy.

## 2.7 The UAE Higher Education Sector

Education is on the main agenda of UAE. According to Bradshaw, Tennant & Lydiatt (2004), economic growth has been achieved through a developed educational system which equips students with science and knowledge. Education in the UAE can be general, religious or technical.

The education history of UAE has been unstable until1950's, where the education was limited to Islamic teachings in the villages. There was, in fact, no trend of schools until the early 1970s when the formal educational system was established. (Al-Fahim, 2006). The rise of mass education begun in 1971 supported by the late H.H. Sheikh Zayed and fuelled with the substantial oil revenues and the prosperity of the region's economy. The massive growth in a number of schools and expatriate teachers resulted in an education crisis. Because as the education expanded, problems like inadequate no. of teachers, poor curricula, low student results, unsatisfactory teacher's performance and low professionalism and management issues were brought into light (Gaad, 2004).

This further provoked the need to put strategic plans in place to raise the standards of education to international level (Thorne, 2011). To meet increasing demand, authorities such as the Abu Dhabi Education Council (ADEC) and the Knowledge and Human Development Authority (KHDA) were setup to ensure successful implementation of the policies. (Al-Amiri, 2012). To further strengthen the education sector, UAE government had taken several initiatives, including recruitment of teachers from abroad, improved learning outcomes, additional classroom facilities, increased focus on professional development, autonomy for teachers among others.

Above all, the shift towards a knowledge-based economy with efforts guided by the important pillars as set by the World Bank to the knowledge economy was put in place, and these include

economic incentive, institutional structure, education system, innovation, and information and communications technology, supported by UAE Vision 2021. On the Emirates level, the government of Abu Dhabi has identified nine pillars that will form the architecture of the emirate's vision for its social, political, and economic future in 2030. One of these pillars is a sustainable knowledge-based economy and premium education, and one of the key priority areas of this vision is social and human resources development. Since the massive influx, the UAE HEI has been continuously growing in terms of the number of institutions, programs, diversity of students, and the quality of education. In the Middle East and Gulf region, significant investments in higher education have been observed (Kierfve, 2014). The educational market in the region currently values at $128 billion according to a study by Al (Masah Capital Limited,2016). This is expected to almost double by 2020, to an amount of $237 billion (Kierfve, 2014). International HE enrolment is expected to double to more than 262 million by 2025 (Maslen, 2012). This expansion is mainly as a result of the emergence of knowledge-based and technology-driven economies in the region.

To further elaborate on the scope of the study, it is important to add that the UAE remains one of the key countries of the region, in particular, to have made huge investments and commitments to Higher Education. The market for higher education in the UAE is a dynamic market and a fast-growing area of the UAE economy (Reuters, 2013). Moreover, as a part of its innovative strategy,

Focus on the UAE higher educational sector is justified considering the role of higher educational institutions in UAE quest to develop a knowledge-based economy towards national Vision 2021 (CHEDS, 2012; UAE interact, 2014).

Due to the fact that UAE education sector is still undergoing heavy changes and implementing new strategic plans towards its improvements, it is challenging to find the authentic and

accurate source of information and statistics on education. There are couple of internet sources that provide some data, but the most authentic are two sources are Centre for Higher Education Data and Statistics (CHEDS), and Scientific Research and Federal Competitiveness and Statistics Authority (FSCA). The data for this study is fetched from CHEDS, 2012 as it could not be combined or drawn from both the sources, given the discrepancies in HEI listings, dates recorded, and amount of information presented.

According to CHEDS, a total of 102 institutions were registered in UAE as at 2012. The statistics in accordance with the Emirates are presented in Table 2.1. CHEDS is the centre for higher education data and statistics, located within the Commission for Academic Accreditation (CAA) in the Ministry of Higher Education and Scientific Research. It is important to note that the precise number of these figures varies due to unrecorded developmental changes that may be due to closure, merger or acquisition of HE institutions. The figures in below tables include all type of HEIs in UAE, representing federal, CAA, Non-CAA, for profit, non-profit, and branch campuses.

***Table 2.1 Distribution of Higher educational institutions in UAE***

| **Type** | | **No.** | **Emirate of Operation (Main Campus or Branch Campus)** | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | **Abu Dhabi** | **Dubai** | **Sharjah** | **Ajman** | **Ras Al Khaimah** | **Fujairah** | **Umm Al Quwain** |
| **Federal/Governmental** | | 3 | 3 | 2 | 1 | X | 1 | 1 | x |
| **CAA-licensed - Private** | **Operational** | 59 | 20 | 28 | 6 | 4 | 3 | 2 | x |
| | **Establishment Stage** | 7 | 1 | 3 | 1 | 1 | X | X | 1 |
| **CAA-licensed – other** | | 6 | 4 | 1 | 1 | X | X | X | x |
| **TOTAL** | | 75 | 28 | 34 | 9 | 5 | 4 | 3 | 1 |
| **not CAA-licensed - Free zone or others** | | 27 | X | 21 | X | X | 6 | X | X |
| **Grand total** | | **102** | **29** | **56** | **8** | **5** | **10** | **3** | **1** |

*Source*: CHEDS (2012)

Whereas the Federal institutions are established across the Emirates to serve the whole country form a variety of locations, CAA licensed and non-CAA (free zones and others) are established within the confines of specific Emirates (CHEDS, 2012). The public Universities include UAE University (UAEU) in Al Ain, Zayed University in Abu Dhabi and Dubai, the Higher Colleges of Technology with 16 separate campuses in five Emirates namely Abu Dhabi, Al Ain, Dubai, Sharjah, Ras Al Khaimah, and Fujairah. Except for UAEU, none of the remaining offers PhD programs. As at the end of 2012, over 41,000 students were enrolled in this area.

As observed in Table 2.2, the CAA licensed institutions are separated into two main areas – operational and establishment stages. CAA licensed institutions basically refer to private non-federal institutions who are under the jurisdiction of the Commission of Academic Accreditation of the Federal Ministry of Higher Education and Scientific Research. Enrolment in CAA licensed institutions reached close to 75,000 as at the end of 2012. The last category of institutions is the non-CAA licensed institutions; these constitute 27 institutions in Dubai (21) and the Emirate of Ras Al Khaimah (6). Enrolment stood at about 15,000 as at the end of 2013. Total enrolment in the entire UAE was about 131,000 as at the end of 2012/2013 academic year according to CHEDS (2012).

Statistics on the Effective Full Time (EFT) faculty members in the country, who serve as the primary population of the study, is around 7,550 including full time and part time faculty across 102 Institutions (Table 2.2). The Centre for Higher Education Data and Statistics (CHEDS), a statutory arm of the Commission for Academic Accreditation in the Ministry of Higher Education and Scientific Research, is the national body for the collection, analysis and reporting of data on higher education in the UAE. Table 2.2 further elaborates on other proportions of female full-time, female part-time, male part-time, and male full-time faculty. Considering non-CAA institutions accounts for 27 of the total number of institutions, this was translated into the proportion of faculty members to close the gap in non-CAA faculty

membership. Table 2.3 below shows the percentage representation of Federal (3%), CAA (70.5%) and Non-CAA (26.5%) institution among the total of 102 institution across UAE.

***Table 2.2 Higher Educational Institutions Faculty Members in UAE – Detailed View***

| HEI | FT | PT | EFT | FT-Male | FT-Female | PT-Male | PT-Female |
|---|---|---|---|---|---|---|---|
| **Federal** | 2380 | 109 | 2434.5 | 1546 | 834 | 29 | 80 |
| **CAA** | 3109 | 850 | 3534 | 2227 | 882 | 432 | 418 |
| **Total** | 5489 | 959 | 5968 | 3773 | 1716 | 461 | 498 |
| **Non-CAA** | - | - | 1,582* | - | - | - | - |
| **Grand Total** | | | **7550** | | | | |

*Source*: CHEDS (2012).
*Note*: * Estimated based on the proportion of institutions in the non-CAA sector. 26.5% of 5968.

***Table 2.3 Higher Educational Institutions % representation based on types of HEI.***

| Type of HEI | No. of HEI | % representation of HEI |
|---|---|---|
| **Federal** | 3 | 3% |
| **CAA** | 72 | 70.5 |
| **Non-CAA** | 27 | 26.5 |
| **Total** | **102** | **100** |

Considering data on non-CAA faculty members was not available or presented by the Centre for Higher Education Data and Statistics, projections were made based on this area to cover the entire population of institutions presented in Table 2.1 as presented in Table 2.2. A combined total of full time and part time faculty members leads to a total of 7,550 members, including federal, CAA and Non-CAA.

The next chapter explores relevant literature, detailing the principles, elements, categories and how IMO, DC and RR have been adopted and used by firms for productivity and

competitiveness. It links existing theoretical assertions to the setting of HEI with focus on the theoretical and conceptual frameworks where the emphasis will be laid on DCT, RBV and CBV as theories and perspectives underpinning the study. The central concepts of the study and what other researchers have written concerning these are discussed.

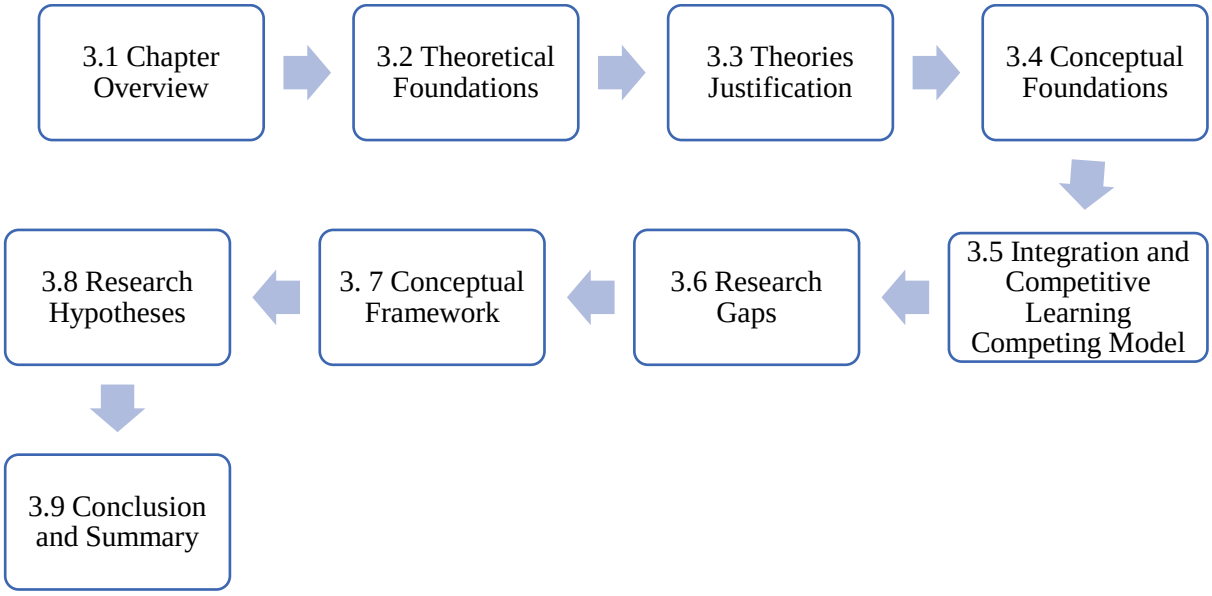
The current chapter discussed the scope and the context of the study highlighting HEI being the important sector that needs attention from RR perspective. Next chapter will discusses the theoretical and conceptual foundations of the study thus developing the conceptual model and hypothesis pertaining to the study.

# CHAPTER THREE: LITERATURE REVIEW

## 3.1 Chapter Overview

This chapter aims to provide a theoretical foundation, comprehensive critical review of relevant literature, and develop a conceptual framework with the purposes to address previous chapter raised research questions. Based on Figure 3.1, the chapter begins with a detail explanation of dynamic capabilities theory (DCT), resource-based view (RBV), and competence-based view (CBV) in order to provide a clear understanding of the main theories underpinning this research. The second section provides a review of literature on the concepts of IMO, DC, RR and highlights the gaps in the literature. The third section provides an illustration of the conceptual framework with the construction of research hypothesis. Finally, a summary of the chapter is presented in the last section.

***Figure 3.1 Chapter 3 Organization***

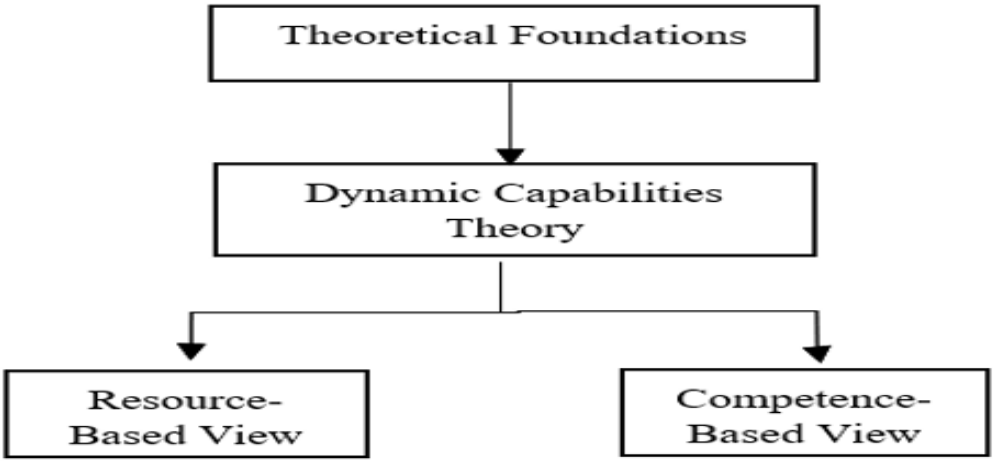



## 3.2 Theoretical Foundations

The concept of RR has remained central to strategic management doctrine considerably contributing to the resource and competence-based research of organisations. Ultimately, the

resource and competence-based research have played an underlying role as the parent theory for exploring the novelty of RR. Building on this notion and central to the present study, the chapter reviews contemporary theories on the resource and competence-based research for a detailed examination of RR concept. To understand the RR phenomenon with special reference to the context of UAE HEI competitiveness and the impact of IMO and DC on the RR, this study has identified three mainstream management theories: dynamic capabilities theory (DCT), resource-based view (RBV), and competence-based view (CBV). Figure 3.2 shows in diagrammatic form of the three underpinning theories and they are presented separately in the following sections.

***Figure 3.2 Underpinning Theories***




### *3.2.1 The Dynamic Capability approach to organisational competitiveness*

According to Helfat and Peteraf (2003), an organizational capability is the firm's ability to utilize organizational resources efficiently and effectively to achieve its goals and objectives. There are two types of organizational capabilities namely operational also called ordinary capabilities and dynamic capabilities (Ali & Christofferson, 2011). According to Collis (1994), operational capabilities are lower-order capabilities which are described as the purposive combinations of resources to permit an organization or institution to perform functional activities (Ali & Christofferson, 2011; Helfat & Winter, 2011; Winter, 2003) and operational

activities include logistics, marketing and sales or manufacturing. Operational capabilities are static and cannot meet the challenges posed by the dynamism and turbulences in the organizational environment (Kaur & Mehta, 2016b). In view of this, firms possessing operation capabilities can only maintain their stability by "producing and selling the same product, on the same scale and to the same customer population over time" (Winter, 2003, p. 992). Hence it just assists firms with day to day operations according to Zollo & Winter (2002) and Winter (2003), while dynamic capabilities helps to maintain status quo (Helfat et al., 2007, p.34).

On the other hand, DC has its origins from a study by Schumpeter's (1934) based on the creative destruction of existing resources and novel combination into new operational capabilities. Building on Schumpeter's studies, his ideas were further developed in studies, such as architectural innovation (Abernathy & Clark, 1986), configuration competence (Henderson & Cockburn, 1994), and combinative capabilities (Kogut & Zander, 1992). Additions to the original model of DC have led to more resilient propositions to address strategic management problems.

In a bid to achieve and sustain competitive advantage, Teece et al. (1997) proposed the DC approach as an important model that takes into consideration the sources and creation of wealth within an environment of rapid technological change. Teece et al. also emphasize that this concept is critical to the environment where there is rapid change facilitated by innovation-based competition, price-performance rivalry, the existence of a gap for performance improvement within the company and industry, and the improvements in returns and the existence of what they refer to as "creative destruction" of existing competencies. Teece et al., (1997) defined DC as:

*"A firm's strategic ability to combine inside and outside competencies to address volatile environments and periods of rapid change"* (Teece et al., 1997 p516).

Eisenhardt & Martin (2000, p. 1107) on the other hand DC as:

> *"The firm's processes that use resources – specifically the processes to integrate, reconfigure, gain and release resources – to match and even create market change. Dynamic capabilities thus are the organisational and strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve, and die".*

DC has also been described as a set of complicated routines by Zollo & Winter (2002), and as comprising of a variety of managerial and organisational processes (Helfat et al., 2007). The managerial and organizational processes capabilities consisting of reconfiguration, leveraging, learning and knowledge creation, integration, and sensing and seizing are considered core DCs by a large number of studies including Ambrosini et al., (2009), Barreto (2010), Bowman & Ambrosini, (2003) and Teece (2007). Some strategic orientations based on the RBV follow a static view of resources; whereas, DC stress continuous resources renewal as per changing needs of the environment.

Before the advent of the DC approach to strategic orientation, Teece et al., (1997) argue that many of the strategic management models that were proposed were only surrounding what they referred to as "loosely structured frameworks or paradigms". Among existing management literature, three main strategic frameworks which informed the building of the DC model include Porter (1980) competitive forces, Shapiro (1989) game theory and Barney's (1991) VRIO (value, rare, inimitable & organisation) model of strategic management.

Porter's (1980, p.4) framework looks at the competitive position from a defensive perspective within the industry in which a firm operates. As opposed to the competitive forces, Shapiro (1989) proposed business strategy from a unique perspective, using game theory to analyse competition between rivalries, referred to as the strategic conflict model. The third approach to strategic management was a resource-based view that emphasised that the firms with superior

systems and structures are more likely to remain profitable and competitive. Here, competitiveness is gained from the ownership of firm-specific resources that are scarce or not possessed by competitors. It does not look at the economic profits gained from market positioning instead it looks at how valuable, rare, inimitable and non-substitutable resources can be channelled to the benefit of the organisation (Barney, 1991; Nelson, 1991; Peteraf, 1993).

These approaches of DC to strategies view the creation of wealth from different angles and perspectives. Each approach addresses complementary, yet different questions. Both the competitive forces and strategic conflict approach have a market power approach to strategy and view profits as steaming from a number of strategies employed; here, companies focus on gaining uniqueness and increasing the cost of rivalry and the business is set to compete within a tightly knitted industry of competitors (Teece, 1984). The DC model and the resource-based view perspectives take an efficient approach to strategy modelling and offer a broader picture of a firm's strategic orientation. Having defined operational capabilities and dynamic capabilities as the organisational and strategic routines, the focus of the study is DC towards organisations performance.

Aside from the traditional frameworks, many investigations in strategic orientation and strategic management have adopted a particular perspective or limited approach to observation on the resource-based, the competitive forces and the strategic conflict approach. Johnson et al., (2012) conceptualised market orientation from a set of strategic orientation dimensions. Griffith et al., (2012) defined strategic orientation based on competitive intensity and market dynamism; these two perspectives as discussed earlier forms the boundary between two models of competitive forces; these include strategic conflict on the one hand and the resource-based view and DC model on another hand (Teece et al., 1997). Taking such a combined perspective

must have proven insightful conceptually but did not allow Griffith et al., (2012) room for in-depth coverage of these perspectives.

The relationship between dynamic capabilities and competitive advantage of firms is debatable (Krzakiewicz, 2013; Chaharmahali & Siadat, 2010). Some researchers reasons that the limited role of DC (Zott, 2003) and its indirect impact on firm's performance (Nieves & Haller, 2014; Cepeda & Vera, 2007;Wang & Ahmed, 2007) DC cannot be considered a source of competitive advantage (Ogunkoya et al., 2014; Easterby-Smith & Prieto, 2008; Zahra, Sapienza, & Davidsson, 2006; Winter, 2003; Eisenhardt & Martin, 2000), while other researchers agree that DC's are the source of competitive advantage (Kaur & Mehta, 2017; Lee et al., 2016; Wang et al., 2015; Li & Liu, 2014; Aramand & Valliere, 2012; Arndt, 2011; Helfat & Peteraf, 2009; Ambrosini & Bowman, 2009; Helfat et al., 2007;Teece, 2007; Teece et al., 1997; Teece & Pisano,1994). However, recently researchers have started to explore the relationship between DC and its performance empirically and conceptually, following the call for research by Barreto (2010, p.275f) "future research should continue to explore these relationships between DCs and intermediate outcomes, on one hand, and between intermediate outcomes and performance, on the other hand, to better assess which dynamic capabilities and intermediate outcomes deserve more attention".

### *3.2.2 The Resource-Based View approach to organisational competitiveness*

According to the RBV theory, a competitive advantage is achieved through the analysis of the internal environment of the firm and thus puts emphasis on the firm level. When the firm possesses rare, difficult to imitate and valuable resources, it leads to the creation of competitive advantage (Barney, 1991). If the firm manages to protect the resources against imitation, transfer or substitution it is capable of sustaining the competitive advantage over long time periods. In conclusion, the resources have to be valuable, rare, inimitable and non-substitutable (VRIN) in order a short-term competitive advantage to be transformed into a sustainable

competitive advantage (Barney, 1991; Peteraf, 1993). The RBV asserts that the firm must possess resources that are rare, valuable, difficult to imitate and non-substitutable (VRIN) (e.g. Barney, 1991, Grant, 1991) in order to gain competitive advantage. However, looking more closely into the RBV, it is argued that possession of VRIN is not sufficient alone, rather the resources must be synchronised and managed effectively in order to realise competitive advantage. (e.g. Hansen et al., 2004, Kor and Mahoney, 2005, Holcomb et al., 2009).

Indeed, the above characteristics sustain the VRIN criteria according to which, the resources should be valuable, meaning that a resource should help firm adopt a value creating strategy by surpassing its competitors or lessens its own weaknesses (Barney, 1991). It should be mentioned that rents deriving from adopted strategy must be higher than the costs connected to the investment in the resource (Zambon, 2017). Secondly, the resource ought to be rare, the price of which is defined at such a level to reach the future returns. Thirdly, it is very important for the resource to be inimitable. It is a general rule, formulated by Barney (1991) that when a resource is controlled by a unique firm this consists a source of a competitive advantage. According to the author the more unknown the source is, the more inimitable is the resource. Finally, a resource has to be imperfectly substitutable. When competitors manage to create a substitute resource then the competitive advantage is destroyed.

The four mentioned criteria (VRIN) sustain the necessary conditions for the achievement of sustainable competitive advantage. Besides, Conner and Prahalad (1996) and Kellermanns, et al (2016) confirm that knowledge is the basic element of the RBV theory. More specifically, knowledge-based resources refer to skills, abilities and learning capacity. Moreover, unique historic conditions, causal ambiguity, social complexity and tacit knowledge are the most probable characteristics that lead to sustainable competitive advantage (Lippman & Rumelt, 1982; Barney, 1981; Kull, Mena, & Korschun, 2016; Shoemaker, 1990. as cited in Andersén, Jansson, & Ljungkvist, 2016). The RBV perspective argues that a firm is a collection of VRIN

(Wernerfelt, 1984; Penrose, 1959, Wernerfelt, 1984, Peteraf, 1993, Barney, 1991), thus implying that resources alone cannot be a source of competitive advantage to the firm. (Hawass, 2010).

However, there have been reported many arguments relative to the RBV theory. Firstly, it is rather utopian for a resource to exist that concentrates on all of the four mentioned characteristics. In addition, the RBV theory is based on the firm's own power and resources ignoring all the external effects deriving from the outside of the firm (Bamiatzi, Cavusgil, & Hult, 2016). At this point, RBV seems to ignore Porter's (1980) and SWOT analysis, the latter of which takes into consideration both internal and external factors (strengths, weaknesses, opportunities, threats). Moreover, if causal ambiguity is a probable source of sustainable competitive advantage then it is very possible the advantage to be transformed into a weakness since the firm is not for sure in place to control the resource (Lipmman & Rumelt, 1982; Acharya & Jena, 2016)

Following the RBV approach, the IMO is deployed as a means of creating competencies in organisations. That is, IMO is used as a philosophy for managing the organisation's human resources based on a marketing perspective to build internal competencies for external success (George & Gronroos, 1989). Thus, it is argued that the IMO is capable of linking organisational competencies and business performance. Therefore, the main objective of the IMO is to translate the business strategy by adjusting the IMO in order to create the required competencies and, hence, improve business performance (Ibrahim, 2017). On the contrary, the underlying concept of IMO offers a platform where the people (internal customers) are considered internal strategic factors (resources) that contribute to the success of an organisation. Furthermore, as mentioned earlier, IM and IMO are used interchangeably and are strategies to enhance internal market (employees) performance. This implies that IMO considered as a subset of the RBV perspective and could be viewed as a way of enhancing a

resource and make it more valuable and difficult to imitate. This makes employers more effective and enables them to have more impact and this enhance the organisation's performance (Bolden, 2016).

Besides the driver of organizational success, internal marketing is also considered as a philosophy/strategy of valuing and treating employees as an intermediate set of customers inside the firm and enhances the value provided to employees with the aim of encouraging them to align with strategic marketing objectives. Thus, the internal market is a core internal resources which is the connecting hub between competitive advantage and RR (Nyberg et al., 2013). The human asset needs to be leveraged through continuous internal orientation to promote their competency development (DC), which can be source of successful RR. When an organisation encourages its employees to learn and think 'outside of the box' (Baker and Sinkula, 1999; Sinkula et al., 1997), it creates a culture that encourages generative learning (Slater and Narver, 1995). As new insights and knowledge keep evolving in learning organization (Mavondo et al., 2005), this helps organization to remain abreast of market changes and hence new opportunities. In fact, organizational learning capabilities and market orientation serves as a driver of organizational success (Jimenez and Navarro, 2007).

Such learning organization strives for enhancing its employee's competency that drives successful RR. This all-embracing role of the resource-based view perspective to strategic management justifies the internal marketing orientation as the starting point of success for any organisation. This position is not new; similar claims are reinforced by Nyberg et al. (2013) in which their arguments on the importance of internal market orientation is based upon RBV theory which was reflected by Barney (1991). A compelling explanation to the RBV phenomenon was demonstrated by Nyberg et al. (2013) that since each employee is different and possesses different types of traits (such as valuable, rare, non-imitable and non-

substitutable) therefore each human will exhibit different behaviour in similar context. The organization should invest in their individual employee's needs and wants.

On the other hand, the DC has emerged as a source of competitive advantage (Teece, Pisano & Shuen, 1997) and goes beyond the idea that sustainable competitive advantage is based on a firm's acquisition of valuable, rare, inimitable and non-substitutable (VRIN) resources. DC are responsible for enabling organizations to integrate, marshal and reconfigure their RR to adapt to the rapidly changing environments (Teece, 2016). Thus, DCs are processes that enable an organization to reconfigure its strategy and RR to achieve sustainable competitive advantages and superior performance in rapidly changing environments. Despite the wealth of studies discussing the idea of DC, to advance further requires a collective effort on the part of researchers both to illustrate concepts related to the RBV and how to link them with empirical practices within organizations.

Moreover, it views a firm as a portfolio of tangible and intangible resources including human resources and capabilities: the ability to recombine resources in an innovative and efficient manner constitute "the firm's capabilities" (Wernerfelt, 1984; Barney, 1991). In this view, competitive advantage is: "when a firm is implementing a value creating strategy not simultaneously being implemented by any current or potential competitors" (Barney, 1991, p. 102) and sustainable competitive advantage is: "when a firm is implementing a value creating strategy not simultaneously being implemented by any current or potential competitors and when these other firms are unable to duplicate the benefits of this strategy" (Barney, 1991, p. 102). These ideas emerged from VRIN resources (Barney, 1991; Tondolo & Bitencourt, 2014).

In light of the above arguments, RBV provides a firm basis to explain the use of internal marketing orientation policies to leverage the firm's DC towards organisational competitiveness in the form of RR. Furthermore, the concept of RR has its root in RBV research

stream (Schmitt et al, 2018). and a closer observation of the RBV of strategic management reinforces the assertion that to establish competitiveness, resources must not lie dormant; rather, true competitiveness is achieved through the art of recombining the resources in an innovative manner. As a result, evidence is given by research findings that a substantial proportion of variance in resource productivity across firms can be explained by the differences attributed to the firm`s DCs relevant for the selection and recombination of resources, while the availability of resources only builds the basis for the development of RRs.

One of the issues that emerges from these conclusions is that firms should leave their traditional views and focus on merely possessing the "right" resources to take on a more holistic approach towards developing the necessary capabilities to manage those resources (Endsley, 2017). Thus, rather than solely focusing on specific characteristics of the resource base, which except for resource quality and diversity proved to be irrelevant in regard to performance outcome of RR anyway, special emphasis should be given by managers on the development of DCs.

The recombination of resources results in a heterogeneous mix of resources and capabilities making it more challenging for the competitors to imitate the firm's strategies (Wemerfelt, 1984).

### *3.2.3 The Competence Based View approach to organisational competitiveness*

The literature on RBV and CBV have shown that both are the main research streams of strategic management and both have key commonalities that complement each other (Hawass, 2010). CBV has not been given enough attention in the literature as compared with its RBV counterpart. A few studies such as Helfat & Peteraf (2003) paid attention to RBV and CBV but without a clear emphasis on differences between these two approaches. As such, constructs of organisational competitiveness that are established from an RBV perspective, nearly always have some elements of CBV central to these constructs. While both focus on resource

utilisation, CBV emphasises the efficient and effective combination of these resources, an attribute which is implicit to RBV.

The competence- based movement, as initiated by Sanchez et al. (1996); Teece et al. (1997); Hamel and Prahalad (1994) among others, is an undoubtedly a dominant theory in the field of strategic management with the focus on sustaining competitive advantage (Barney 2002; Bresser et al. 2000). The discussion on competence movement addressed in competence -based theory gained independent theoretical perspective from the RBV as it became dominant and independent competence-based view theory by iteslef, however it is noteworthy that competence-based view has its roots in resource-based view.

In contrast to the RBV, the CBV sees competitive advantages as not solely derived "mechanically" from the availability and quality of resources as well as how they are efficiently combined. The CBV observes that competitiveness involves the ability to "utilise" these resources more effectively (Moldaschl, 2006). Ultimately both the RBV and CBV build on the firm's ability to establish competitiveness through resources. In fact, more often than not, the differences between RBV and CBV have been overlooked; however, CBV observes the ability of the organisation and not just the tendency to achieve competitiveness through resources and their application.

In light of this, the emergence of a firm can be regarded as a try to make use of the opportunities, a division of work force. Individuals are equipped with specific knowledge, skills, and motivation in an inter-personal comparison. They will pool their inputs by making use of the firm as an institution if they perceive the chance to overcome certain constraints they cannot overcome by their own.

Furthermore, in order to reconfigure its internal resource structure, the contemporary studies within the field of organizational learning and the competence-based research stream

concentrate more on the development of "overall organizational competence", or so-called DC's as compared to "core competence" (Schreyögg and Kliesch, 2003; Dosi et al., 2000). In CBV terms, competencies are nothing else but inter-personal patterns of action which rest upon the division of work and which support a goal-oriented social interaction of persons in a non-random manner (Künneke, 2017). Accordingly, the development of competences requires a specific organizational environment which fosters asset refinement processes. A typical example is DC in context of the present investigation; the role of "competences" in resource utilisation has not precisely been left out of literature surrounding this construct (Helfat, 1997; Helfat *et al.,* 2007; Peteraf *et al*., 2009; Teece et al., 1997). Contemporary scholars following the CBV, therefore, have emphasised the importance of the micro foundations of DCs (e.g. Teece, 2007,), their determinants (e.g. Hawass, 2010), and perceived role for value creation in firms (e.g. Barreto, 2010, Pavlou and El Sawy, 2011). The concept of DC is well addressed in CBV research and has gained popularity in the beginning of the 21th century and is highly recognized within the strategic management research (Dosi and Marengo 2000; Foss 2001; Madhok 2002; Schreyögg, 1999). Hence, the DC approach - implicitly and explicitly - analyses the recombination of organisational routines and processes in regard to the continuous development of new RRs (Teece et al., 1997).

The ability of a manager or an organisation to recombine resources has been a central aspect of RR. Managers first need to have the skill and competence to manage resources to recombine them effectively. Originally posited by Penrose (1959), resources and materials are not relevant themselves. There is the need to focus on the value and benefits that are realized from the implementation of these resources. Even though the distinction between resources and the benefits they offer is not distinguishable, it is still critical to understand that all resources have their unique benefits that remain inseparable from the usage of these resources (Penrose, 1959, p. 25). The RBV perspective argues that a firm is a collection of VRIN (Wernerfelt, 1984;

Penrose, 1959, Wernerfelt, 1984, Peteraf, 1993, Barney, 1991), thus implying that resources alone cannot be a source of competitive advantage to the firm. (Hawass, 2010). Nevertheless, in order to realize performance potentials, a firm must possess DC to face the challenges of changing need of the environment. This leads to an assertion that CBV is considered to have roots in RBV and is considered a branch of RBV that essentially focuses on a firm's ability to recombines its resources to achieve competitive advantage. As such that the concept of RR and the DC approach is deeply rooted in the intersection of the RBV and the CBV.

A key difference between the RBV and CBV is the chain of causality: Whereas the RBV concludes that superior resources will cause performance differences among firms, the CBV prefers a more subtle reasoning. Homogeneous assets and heterogeneous resources are the starting point of the chain. However, the resource endowment is not enough in order to explain performance differences. The firm itself has to be in a position to make use of these resources in a goal and market-oriented way. This is only possible in case of available action-related competences. They unfold the potential of resources and enable the firm to adapt to the requirements in target markets instantly in a non-random manner. Researchers suggest that a firm needs to hold not unique resources but furthermore specific competencies to transform existing resources into actual competitive advantages in the market and thus to realise competitive advantages. Sears & Hoetker (2014) argue that real economic value is gained through novel re-combinations. These novel re-combinations can only be established when the firm possesses the ability to utilise resources innovatively, efficiently and effectively.

Given the commonalities and the consideration of RBV and CBV as a single theory makes most of the criticism of the RBV theory applicable to CBV theory. RBV focus on the possession of resources, whereas CBV focus on the competencies to effectively utilize/recombine these resources. This effective recombination ability is translated into the construct of resources recombination (Savino et al., 2017). The successful recombination of

resources through organizational capabilities and competencies serves as a differentiating point of performance, in the event of the same amount and type of resources given to all the players in the market.

### 3.3 Theories Justification

A theoretical foundation based on DCT, RBV, and CBV is used to describe the integration of IMO, DC and RR in firm's competitiveness. The objectives of the study focus mainly to gain a deeper understanding of the RR phenomenon with special reference to the context of UAE HEI competitiveness and to critically assess the impact of IMO and DC on the RR. Based on the research questions that emphasize on IMO, DC and RR in the context of HEI competitiveness, the three theories are found to be suitable for evaluating RR in HEIs competitiveness. In this sense, these theories are used to measure the resource base, knowledge base and competence base of a firm by evaluating the gap between the IMO, DC and RR towards the firm's competitiveness.

In view of the previous subtopics of theoretical foundation, the in-depth applicability of these three theories discussed as follow. On the similar note, theories relating to these three constructs can also be related to the common theme of learning orientation (Mayer & Sparrowe, 2013) where the elements of DCT and RBV is integrated with the elements of CBV, that together provide useful insights into the learning phenomenon translated into successful RR as explained in detail in section 3.7. Integrating the elements of DCT and RBV, that focuses on learning/ acquired knowledge (as resources and capabilities) with the elements of CBV, which focus on not only acquiring the resource (acquired knowledge), but the "utilization" of the acquired resources to transform and bundle the resources (RR) in a novel way. Hence, combining the element of DCT, RBV, and CBV allows for the better understanding of acquiring and hence utilisation of resources and capabilities in learning phenomenon. In

summary, the concept of IMO, DC and RR are profoundly entrenched in the DCT, RBV, and CBV research streams.

## 3.4 Conceptual Foundations

In this section, the fundamental constructs that underlie the research model are defined, discussed and critically evaluated based on pertinent literature.

### *3.4.1 Definition and Concept of Resource Recombination*

Discovered and first used by Schumpeter in 1934, resources recombination which is also called 'Schumpeterian innovation' is widely considered as an innovation when it comes to organisations managing its resource in a competitive world. It practically consists of conceptual and physical materials (Nelson & Winter, 1982, p 30), and defined by scholars as "through a reconfiguration of existing resources within the firm, or through the integration of new resources into their existing resource base, firms can introduce new products and services or enter into new markets" (Eliasson et al., 2002, p. 152, referring to Schumpeter, 1934). Thus, as argued by Holcomb and colleagues (2009):

> "*Efficient production with heterogeneous resources is a result not of having better resources but in knowing more accurately the relative productive performance of those resources*" (Holcomb et al., 2009, p. 457), emphasis included in the original by Alchian and Demsetz, (1972, p. 793).

The combination of resources either tangible or intangible has not been a recent phenomenon. The private and public sector have used this innovation to manage its resources for better performance, enhance sustainability and achieve the going concern concept (Hernandez & Grayson,2012; Shuen, Feiler, & Teece, 2014; Zolfagharian & Hirunyawipada, 2015). Firms competencies or competitiveness are optimal and occur when they synthesise or reconfigure their resources (Zolfagharian & Hirunyawipada, 2015).

Empirical research has proven that resource integration is as important as possessing the resources (Hansen et al., 2004). This supports the proposition that possession of resources is not enough alone, rather RR is the key to wealth creation for an organisation (Grant, 1991, Sirmon & Hitt, 2003, Helfat et al., 2007; Sirmon et al., 2007). New combinations of resources generate new products, goods, and services (Majumdar, 1998; Penrose 1959) that give a company a competitive advantage (McGrath et al., 1995) and enable it to create wealth.

For Kurzhals, (2015), RR describes how new innovative products, services, and ideas are developed as a result of the recombination of existing available resource in an organisation. The RR process is laid on existing systems, using the resources from which the firms are built in new and potentially recuperating forms (Grant, 1996, Henderson & Clark, 1990, Kogut & Zander, 1992). Considering the resource scare status and the complex knowledge dynamics, firm build new kind of products, reinvent the existing ones, bring dynamism and staying on top with innovations through an intelligent combination of all forms of resources (technology, knowledge and physical resources) are critical for firms to achieve better performances and competitiveness (Omotayo, 2015).

This means that knowledge synthesis, integration, and crossing is at the centre line and premise for this innovation and concept (Burnett, 2009). Zahra & Wiklund, (2002); Galunic & Rodan, (1998) and Gassmann & Enkel (2006) argued that 80% of all innovations are based on existing knowledge, technologies, products and services which again affirms that innovation drives RR. Aside from that, RR is again considered as a wealth creation model (McGrath et al, 1995) for owners and society (Galunic & Rodan, 1998; Moran & Ghoshal, 1999; Rumelt,1987).

Subsequently, innovation research has explored various means of promoting RR (Bartel & Garud, 2009; Greer & Lei 2012). Nevertheless, the overwhelmingly complex literature has produced mixed results (Keupp et al. 2012). In particular, an understanding of the main

dynamics resource scarcity and RR is still lacking, despite the need to make the processes less time consuming and uncertain (Pisano, 2017). Furthermore, most recently, studies have investigated in detail the importance of RR for innovation activities. While some have confirmed the adverse impact of resource scarcity on innovations (Love and Roper, 2015; Kogan et al., 2017), others have claimed that such constraints may actually have a positive impact on creativity and innovative ideas (Weiss et al., 2011; Woschke et al., 2017). The case for a positive impact is based on studies ranging from analyses of the impact of resource scarcity on the general growth of firms (Mishina et al., 2004: Coad et al., 2016) to investigations of specific internal conditions that enabled positive results despite limited resources (Weiss et al., 2011; Woschke et sl., 2017). Although there have been many studies on this topic, research that distinguishes the impact of resource scarcity between innovation and RR is missing thus impacted the performance benefit of RR. This should be considered a crucial research gap since it has been suggested that the ability to 'create something from nothing' depends upon the magnitude a firm is seeking to overcome its constraints by using RR. As a matter of fact, these combinations are also a significant source of the competencies firms develop and use in pursuit of their goals (Grant, 1991; Kurzhals, 2015; Galunic & Rodan, 1998) which offers them a competitive edge over other industry players. However, with all these positive outcomes of RR in organisations, Zahra & Wiklund, (2002), Galunic & Rodan, (1998) posits that the increase in performance claim by scholars of RR is lacking and not explicit (Kurzhals, 2015). Hence it is again essential to establish and explore since there has not been enough research on the performance benefits of RR linking to IMO and DC.

***Flexibility in Resource Recombination***

According to OECD Report (OECD,1986), flexibility is the ability of organisation, systems and individuals to adapt successfully to changes by taking on new strategies; it is considered to play a significant role in the workplace. There is the need for organisations to adopt a more

flexible approach to deal with the changes of the environment (Volberda, 1996) and for employees to adopt a flexible approach to their jobs and careers (Hill et al., 2008). Flexibility may be defined as the motivation and ability of employees to work long hours and take up more tasks while adapting easily. Hill et al. (2008, p. 151) define workplace flexibility as the "degree to which workers are able to make choices to arrange core aspects of their professional lives." In light of this definition, flexibility refers to the "free choice" employees have on where, why and how they work.

When flexibility is low, administrative relations of organisations become tight (Barrett & Weinstein, 1999). There is, therefore, the need to adopt operational, structural and strategic flexibility (Volberda, 1996). Four dimensions of flexibility include temporal (Eppink 1978), range (Eppink 1978), intention (Volberda, 1996) and focus (Ansoff, 1984). Atkinson also outlined two types of flexibility – numerical and functional.

Sanchez (1995) and Volberda (1996) emphasise that as a result of the growing advancement of technology and hyper-competitiveness in markets, companies are being pressured into finding ways to adapt to these changes. As competition among companies increases, there is the need to alter organisational activities over a short period (Volberda, 1996). Sanchez (1995) and Volberda (1996) mentioned an advancement of technology as a reason for companies to take on a more flexible approach.

An example of such technological advancement is information systems. Organizations make use of ICT to create a flexible environment and gain a competitive advantage. Using Information system to gain a competitive advantage is based on the effective management of IT equipment like committed human resources, reusable technology base and a positive relationship between IT and management of an organisation (Ross et al., 1996).

When faced with challenges and pressure from competitors, an organisation must remain flexible if they must control the situation (Moorman & Miner, 1998). According to Correa & Gianesi (1994), change is the reason for flexibility. Also, Zajac et al. (2000) assert change to be a process firms face using different measures based on dynamic capabilities. These dynamic capabilities are what create the foundations of organisational flexibility. According to Volberda (1996, p. 361), organisational flexibility is defined

> *"as a managerial task, managerial capabilities that provide the firm with flexibility and; an organisational design task or the changeability of the organisation".*

Managerial flexibility is a subset of organisational flexibility. Flexible management affects the operative, structural and strategic levels of companies. Volberda (1996) argues that financial flexibility has a role to play in achieving managerial flexibility. According to Trigeorgis (1996), Copeland & Antikarov (2001) and Mun (2006), managerial flexibility can be defined as the ability of management to change its decisions in response to unanticipated market development. From the definition, companies with high managerial flexibility face strong real options effects.

According to Dutton & Jackson (1987), managers in different organisations of the same industry have different views about the environment and the way it impacts them. A manager's perception of his/her organisation's external environment is influenced by his/her background and experiences (Daft & Weick 1984). The three main dimensions of flexibility as a managerial task include variety (range), speed (time) and cost. Companies that take a flexible approach to gain a competitive advantage as they raise customer expectation. It makes them "redefine market uncertainties" or control what "customers have come to expect from a particular industry" (Gerwin, 1993).

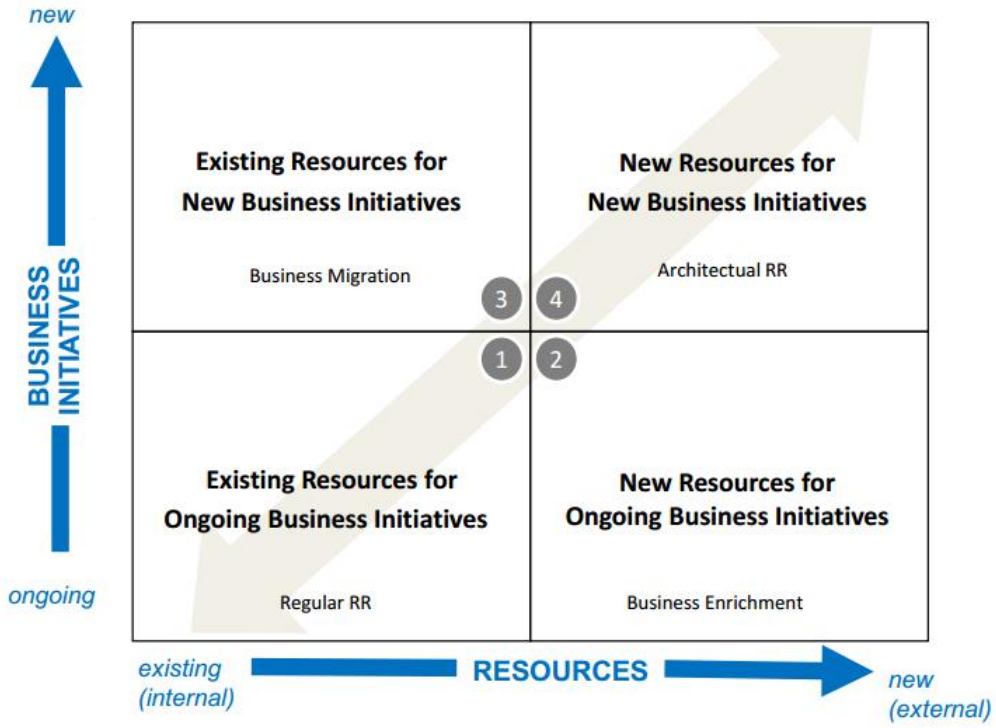
Managerial flexibility is measured using "fit" as the interconnection between two variables - internal and external (Rowe & Wright, 1997; Wright and Snell, 1998). The degree of flexibility is dependent on the manager's interpretation of the flexibility demanded by the environment. Others have proposed four types of managerial flexibility; the first is strategic flexibility which according to Aaker & Mascarenhas (1984) is the ability to adapt to environmental changes. Tansuhaj (2001) on the other hand define this type as the tendency of an organisation to handle economic challenges. The second type of managerial flexibility is structural flexibility; this may be "less formalised" and "more decentralised". The third is operational which handles changes in the environment but not a change in the relationship between the company and the environment (Eppink, 1978). The last type which is internal and external scopes comprises intentional components that decide the way companies handle change (Evans, 1991). Flexibility in all areas is critical to harnessing to efforts of recombination.

Even though resources assume varied forms, attempt to propose a model in this area has considered the "newness" of a resource or a business process (Zahra & Wiklind, 2002). Kurzhals (2015) identified four main quadrants of RR capabilities based on Zahra & Wiklind's (2002). Kurzhals (2015) used this model to explore what RR constitutes (Figure 3.3). The present study builds on Kurzhals' (2015) model to further explore and conceptualise the area of RR. This model informs the collection of empirical evidence at the exploratory stage of the study. Particular focus was on any new and existing resources as well as new and existing business processes in UAE HEIs and how these new and existing resources, as well as new and existing business processes, have been combined or re-combined to establish the competitive position of the HEI in question.

Insight in this area was critical to draw a matrix of inter-relationships between new and existing resources as well as new and existing business processes, to arrive at a model of RR in HEI competitiveness. This model is combined with the competitive learning capability model, the

traditional conceptual model of the present investigation, to arrive at a holistic model of HEI RR towards organisational competitiveness.

***Figure 3.3 Model of Resource Recombination***




*Source: Kurzhals (2015)*

This model of RR defines the concept as the firm's ability to innovatively combine existing and new resources with existing and new business processes. Resources have generally been defined from two main perspectives of tangible and intangible resources by Jugdev et al., (2007), Mathur et al., (2007) and Mathur et al., (2013). Example of tangible resources in HEIs includes the physical assets and facilities development involves provision of buildings, classrooms, hostels, staff quarters, workshops, laboratories, ICT centers, libraries, health centers and sports facilities. (Musa & Ahmad, 2012). Intangible resources include intellectual property, corporate culture, management processes, annual reports of the school, interviews with faculty and staff members, students' reports and deliverables, administration documentation and technology infrastructure reports (Secundo et al., 2010)

Business processes, on the other hand, represent the activities and approaches to management within the organisation in focus. RR mainly represent the combination of not just any sets of resources but those that help establish a competitive advantage. A close observation of Yates (2012) project management resources model reveals that business processes are predominantly centred on organisational capabilities and include product development processes among others.

#### *3.4.1.1 Empirical Review on Resources Recombination*

Below is the empirical review of influential studies surrounding the construct of RR; this is presented in Table 3.3. It may be observed that most of the studies presented here focused on the use of literature review and qualitative or explorative technique to mine insight into RR. The role of subjective observations as well as the reading of meanings through implications is central to the Galunic & Rodan (1998), Ambrosini et al., (2009), Eliasson et al., (2002) and other such studies such as Neufeld (2015) in this category.

One study that ventured into the use of a more objective and robust methodology in this area is Ridder (2012) exploration of external dynamic capabilities as opposed to an internally focused definition of DC in the present investigation. Ridder (2012) particularly provides critical conceptual insight on how a firm may gain control not only over its internal resources but external-based resources through environmental scanning, the establishment of external alliances, and external corporate venturing.

***Table 3.1 Empirical Review of RR***

| **Author Information** | **Variables & Measurements** | **Findings & Recommendations** |
|---|---|---|
| *Author*:<br>Sears, J. & Hoetker, G.<br><br>*Title*:<br>Technological overlap, technological | *Variables used:*<br>Technological capabilities, Human knowledge,<br>Knowledge redundancy<br><br>*Measurements*: | Findings indicated a negative relationship between target overlap and the value created by the target's capabilities. Based on the literature review, findings |

| | | |
|---|---|---|
| capabilities, and resource recombination in technological acquisitions<br><br>*Year*:<br>2014<br><br>*Journal*:<br>Strategic Management Journal<br><br>*Country*:<br>USA | Variables were measured using cumulative abnormal returns (CAR) of the acquirer's stock.<br><br>*Methods*:<br>A sample obtained from SDC Platinum's Mergers and Acquisition database from 1995-2004 | present a negative relationship between target overlap and the value created by the target's capabilities over the positive relationship and no monotonic relationship<br><br>Future research should focus on the micro-foundations of the relationship between overlap, capabilities, and acquisition performance. Future research could also generalise findings to knowledge recombination in acquisitions more generally, although that would require controlling for motives. |
| *Author*:<br>Galunic, C. & Rodan, S.<br><br>*Title*:<br>Resource Recombination in the firm: Knowledge structures and the potential for Schumpeterian innovation<br><br>*Year*:<br>1998<br>*Journal*:<br>Strategic Management Journal<br><br>*Country*:<br>France | *Variables Used:*<br>Firms resources and capabilities, competencies, RR<br><br>*Measurements*:<br>Literature review; no empirical assessment; no specific measure of variables<br><br>*Method*:<br>Literature review | From the literature review, it is indicated that resource input and know-how are two elements needed for product resources<br><br>There are no recommendations for future studies. |
| *Author*:<br>Eliasson et al<br>Title:<br>Entrepreneurial Management and Schumpeterian Resource Recombinations | *Variables used:*<br>Strategic Orientation, RR, entrepreneurial culture, growth orientation, resource orientation, management structure, reward system.<br><br>*Method*: | Based on the findings it was observed that strategic orientation, growth orientation, and entrepreneurial culture include all aspects of entrepreneurial leadership. |

| | | |
|---|---|---|
| *Year*:<br>2002<br><br>*Journal*:<br>Babson Entrepreneurship Research Conference<br><br>*Country*:<br>Colorado | Telephone interview<br><br>*Measurements*:<br>Variables were measured by analysing data obtained from Statistics Sweden | Future studies should focus on the impact of entrepreneurial resource recombination on financial performance. |
| *Author*s:<br>Ambrosini et al<br>Title:<br>Dynamic Capabilities: An exploration of how firms renew their resource base<br><br>*Year*:<br>2009<br><br>*Journal*:<br>British Journal of Management<br><br>*Country*:<br>UK | *Variable used:*<br>DC, environmental states, incremental DC, renewing DC, regenerative DC<br><br>*Measurements*:<br>Variables were measured by analysing CEOs in different firms | From the literature review, it was indicated that incremental and renewing DC influence the resource base; regenerative dynamic capability influence incremental and renewing dynamic capability. Also, while regenerative DC might influence the dynamic capability of a firm, it does not guarantee the survival of the firm.<br><br>Future research studies should focus on researching the three levels of dynamic capability |
| *Author:*<br>Cecere, G. & Ozman, M.<br><br>*Title:*<br>Innovation, Recombination and Technological Proximity<br><br>*Year*:<br>2014<br><br>*Journal*: | *Variables used:*<br>Recombinative capabilities, innovation, alliance strategies, proximity<br><br>*Measurements:*<br>Variables were measured by analysing 71 firms in the ICT sector | Based on the findings, there was an increase in recombination in the ICT sector as a result of industrial and technological dynamics. Also, recombination positively influences innovative capabilities<br><br>Future research should focus on finding out the relationship between recombination and the launching of new products; there is the need for a detailed case study to fully understand the mechanisms of recombination and implications for innovation |

| | | |
|---|---|---|
| Journal of the Knowledge Economy<br><br>*Country*:<br>New York, USA | | |
| *Author*:<br>Ann-Kristen Ridder<br><br>*Title:*<br>External Dynamic Capabilities: Creating Competitive Advantage in Innovation via External Resource Renewal<br>*Year:*<br>2012<br><br>*Journal:*<br>School of Business and Economics<br><br>*Country*:<br>The Netherlands | *Variables used:*<br>DC, external seizing DC, external reconfiguring DC, technological resources, competitive advantage<br><br>*Measurements*:<br>Variables were measured by surveying data from managers of 6 firms; standard scale development procedure was also used. All items were rated on a seven-point Likert scale<br><br>*Methods:*<br>Face-to-face Interviews | Based on the findings, competitive advantage depends on the ability to innovate firms to perceive new opportunities; external DC has a positive influence on technological resource access. Also, technological resource base acts as a mediator competitive advantage in innovation and external DC.<br><br>Future studies should focus on investigating marketing and managerial resource and capabilities. |
| *Author*:<br>Neufeld, S. C.<br><br>*Title*:<br>Schumpeter's Entrepreneurial Function in Today's Large Corporation<br><br>*Year*:<br>2015<br><br>*Journal*:<br>Newcastle University Business School<br><br>*Country*:<br>UK | *Variables used*:<br>Economic change, uncertainty, organisational learning, innovation, corporate entrepreneurship<br><br>*Measurements*:<br>Data was collected from interview questions, and seven (7) key themes emerged; also, a pilot study of 17 interviews in a large company | Findings indicated that corporate function of finance, accounting and controlling have no contribution to entrepreneurial function.<br><br>Future studies should focus on specific industries; it should also focus on highlighting the difference in entrepreneurial functions when incremental and radical innovation is investigated separately. Entrepreneurial roles should be investigated using quantitative research and surveys. |

### *3.4.2 Definition and Concept of Internal Market Orientation*

In order to implement strategies successfully, there is the need for cooperation at all levels of the organisation (Crittenden, 1991). Consensus exists that the role of employees in establishing customer value is vital, and this has become particularly essential considering satisfied employees are more inclined to employ optimum effort necessary to serve customers, in line with corporate strategies (Locke & Latham, 1990; Weatherly & Tansik, 1993). Internal Marketing (IM) theorists have proposed that it is impossible for firms to provide better service to external customers than that which they provide to their internal customers (George, 1990; Gronroos, 1983). It is said that only after active internal exchanges have occurred can successful external exchanges between employees and customers take place. Accordingly, implementing an IM program encourages organisations to build productive relationships with its employees, based on a commitment to providing superior job-related value for employees by understanding and meeting their expressed and latent needs (Boukis & Gounaris, 2014).

In acknowledging IM program, the Social Exchange theory and the Equity theory constitute the theoretical cornerstones of IMO implementation (Adams, 1963; Homans, 1958). These two fundamental and interrelated theoretical perspectives explain how service firms through delivering higher levels of job-related value can enhance the formation of fruitful and harmonic relationships between managers and employees. Despite the use of underpinning theories of IMO which are Social Exchange and Equity theory, this study focuses on the concept of IMO as a strategic orientation and the RBV perspective.

There are various definition of IM and scholars like George (1990), Gronroos (1985) and Ballantyne (2000) defined IM as the application of marketing tools to the employee market side of the firm. In adding, Rafiq & Ahmed (2000) define IM as:

> *"A planned effort using a marketing-like approach to overcome organisational resistance to change and to align, motivate and inter-functionally coordinate and integrate employees towards the effective implementation of corporate and functional strategies to deliver customer satisfaction through a process of creating motivated and customer-oriented employees".*

Subsequently, Lings and Greenley (2005) conceptualized IM as the implementation of marketing concept within an organization's, and further conceptualized IMO as a set of managerial behaviours that have the potential to influence employee behaviour which would in turn affect customer satisfaction. They built on the work of Kohli and Jaworski (1990) and proposed three behavioural dimensions associated with IMO, which are (1) Internal Information Generation - manifests in two modes; the use of written media like job satisfaction surveys and face-to-face interactions like appraisals, interviews; Informal information generation which is based on physical employee-manager interactions that occur on a day-to-day basis. (2) Internal Communication/Information Dissemination - communication is the inter-organizational and intra-organizational transfer of information aimed at enhancing relationship and productivity within the organization, (Johike et al 2000; Johike and Dale, 2000), and (3) Responsiveness to the Internal Market - external market where firms design products based on market information, the firm should design jobs that meets the needs of employees (internal customers) and satisfy them.

As observed throughout the definition of IM and IMO, fundamental similarities exist. The definitions are very similar and inseparable. IMO, which is considered the same and used interchangeably with IM, has remained inseparable from the strategic orientation of contemporary organisations (Shahri & Andervazh, 2015). The concept of IM was born with the aim of developing employee-targeted marketing strategies, efficiency improvement, and effectiveness in work activity while delivering quality services to customers, yet at the

satisfaction of employees (Berry et al., 1976). On the other hand, IMO has led to improvements, efficiency, and effectiveness in work activity, while delivering quality service to customers (Eriksson, 2014). Ultimately, the concept of IM has gained both internal and external relevance according to Gronroos (1990) & George (1990) and Collins & Payne (1991). Whereas internal benefits constitute employee satisfaction and increased productivity, external relevance includes customer satisfaction and customer loyalty.

As a matter of fact, Greene et al., (1994) argue that the concepts of IMO permit the management of inter-relationships between employees and the employer using marketing techniques within the internal environment of the business enterprise. They serve as mediating variables between employee commitment and performance (Bae & Ha, 2014). Used interchangeably in the remaining areas of the present study, the primary purpose of IMO is to promote the establishment of internal relationships (Rafiq& Ahmed, 1993), so that the strategy of the company is directed towards the adequate satisfaction of internal customers' needs (Bansal & Harchol-Balter, 2001; Collins & Payne, 1991).

In fact, IM and IMO have been given attention considering its ability to sustain service performance levels among other performance outcomes (Tortosa et al., 2009). Even so, Jaworski and Kohli (1996) and, Kohli and Jaworski (1990) argued that IM is vital for sustaining superior service performance in organizations. Furthermore, Boukis and Gounaris (2014) added that there is an increased need for top management to be committed to the satisfaction of employees to create a climate that induces productivity and customer value towards overall profitability. Ultimately, employees constitute the IM environment of the organisation and should be treated as the most valuable assets and the internal customers of the organisation (Papasolomou-Doukakis, 2002).

On the items used to measure IMO, Ruizalba et al., (2014) adapted 22-items from Lings & Greenley (2005) and Gounaris (2008), and this is also in line with Lings & Greenly (2010) conceptualisation. Lings (2004) observed the non-existence of a reputable scale for the measurement of IMO and suggested the need to adapt the MARKOR framework originally proposed by Kohli et al., (1993). Therefore, for the present study, these lines of IMO measurement including Kohli et al., (1993), Lings (2004), Gounaris (2008), Ruizalba et al., (2014) and Lings & Greenley (2005) are observed to be in consensus and adapted for IMO measurement.

#### *3.4.2.1 Empirical Review on Internal Market Orientation*

The empirical review of IMO summarised in Table 3.1 define and synthesise the construct of IMO. Even though past studies extensively address the significance of IMO towards firms, Gounaris et al. (2010), Lings and Greenly (2009), Shahri and Anderevazh (2015), and Nikbin et al. (2010) argued that the relationship between IMO and customer quality and value, external orientation, customer orientation are still lacking. Furthermore, Bae and Ha (2014) emphasis managers should reinforce flexibility and commitment through work standardisation and intelligence generation. However, pertained to the above studies, none of the studies so far described nor related the variables of market orientation, customer value, internal marketing and marketing philosophy in a cluster towards IMO. Furthermore, studies have been done in the area of HEI linked with IMO strategy (Carter, & Yeo, 2016; Hall & Witek, 2016) but none emphasized the four variables (market orientation, customer value, internal marketing and marketing philosophy) as a cluster. As a result, it is a strong indication that this research highlights the gap in their work and will extend their work and contribute to the body of knowledge in IMO perspective.

Other influential studies here include Bae & Ha (2014); these authors argue IMO from a resource-based view perspective. The study focused on sales managers in the Korea

transportation sector and administered a survey questionnaire with the help of online data collection approach, telephone and personal visits. This methodology helped establish IMO as one of the many facilitators of international orientation in the firm. The next study supporting IMO, Lings & Greenley (2009), focused on proposing a measurement scale for IMO by building on the theoretical underpinnings of MO.

Other supporting literature such as Tsai et al., (2012), Shahri & Anderevazh (2015) are empirically reviewed in support of measuring the Internal-Market Orientation from varied perspectives as presented in Table 3.1.

***Table 3.2 Empirical Review on IMO***

| **Author Information** | **Variables and Measurements** | **Findings & Recommendations** |
|---|---|---|
| *Author:*<br>Gounaris et al.,<br><br>*Title:*<br>Internal-market orientation: a misconceived aspect of marketing theory<br><br>*Year:*<br>2010<br><br>*Journal:*<br>Journal of Marketing<br><br>*Country:*<br>Athens, Greece | *Variables used:*<br>Market orientation, customer value, internal marketing, marketing philosophy<br><br>*Method of Measurement:*<br>Variables were measured after analysing data from 127 financial service providers and their customers. Also, the use of INDSERV and IMO measured using the scale reported by Gounaris (2008). | Findings indicated that there is the need to develop a more balanced view of marketing. MO and IMO although different, interrelate in reflecting a broadened view of marketing. The broadened views of marketing philosophy are extroverted.<br><br>Future studies should focus on the relationship between IMO and customer quality and value. The relationship between MO and employee value should be considered as well. The potential further enhancing the scope of marketing philosophy should be investigated. Lastly, there is the need to focus on the implications of marketing and human resource functions. |
| *Author:*<br>Bae & Ha<br><br>*Title*:<br>The Moderating Effects of Internal Orientation and | *Variables used:*<br>Commitment, Transportation service, International orientation, MO, resource-based theory | Findings indicated that small-scale firms are experts in international transportation systems. Their customers are provided with services like inspection and clearance. It also |

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| Market Orientation on the Relationships between Commitment and Transportation Service: An Approach to International Freight Forwarders<br><br>*Year:*<br>2014<br><br>*Journal:*<br>The Asian Journal of Shipping and Logistics<br><br>*Country:*<br>Korea | *Measurement and Method:*<br>Variables are measured using a seven-point Likert scale<br><br>*Method:*<br>Questionnaires were administered to sales managers of 800 firms. The survey was conducted by mail, telephone, fax and personal visits | shows a high correlation between the variables.<br><br>There are no recommendations for future studies. However, managers can increase commitment through work standardisation and intelligence generation; managers can reinforce flexibility and commitment through work standardisation and intelligence generation. |
| Author:<br>Lings & Greenley<br><br>Title:<br>Internal market orientation and market-oriented behaviours<br><br>*Year*:<br>2009<br><br>*Journal*:<br>Emerald Insight<br>Countries:<br>Australia, UK | *Variables Used*:<br>MO, IMO, employee in-role behaviour (IRB).<br><br>*Method*:<br>Quantitive Approach. Administered through questionnaires<br><br>*Measurements*:<br>IMO was measured using the scale reported by Lings and Greenley (2005) consisting of 16 items measuring the five behavioural components of IMO. MO was measured using MARKOR scale. | Based on findings, it was indicated that IMO has a positive consequence for employees market-orientedness and in-role behaviour. Also, it was observed that the three-dimensions of market orientation are related.<br><br>Future studies should focus on examining the relationship between IMO and other external orientations of the organisation. |
| *Author*:<br><br>Shahri P. S. B. & Anderevazh, L. (2015).<br>*Title*:<br>Investigating the Impact of Internal Marketing on Customer Orientation<br><br>Year:<br>2015<br><br>*Journal*: | *Variables used*:<br>IM, customer orientation, customer satisfaction<br><br>*Measurements*:<br>Descriptive-survey; a total of 250 questionnaires was distributed and developed on a five-point Likert scale | Based on findings, it was indicated that IM affects organisational commitment significantly in a positive relationship. Customer orientation affects organisational commitment significantly. It also showed that IM affects customer orientation. There is a significant positive relationship between customer orientation and customer satisfaction. IM affects customer satisfaction through customer orientation. There are |

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| European Online Journal of Natural and Social Sciences<br><br>*Country*<br>Iran | | no recommendations for future studies |
| *Author*:<br>Tsai, Y. et al.<br><br>*Title*:<br>Internal Marketing Establishes the Culture of Marketing Orientation<br><br>*Year*:<br>2012<br><br>*Journal*:<br>International Journal of Operational Management, Marketing and Services<br><br>*Country*:<br>Taiwan | *Variables used:*<br>IM, MO, Internal marketing service training, rewarding performance<br><br>*Measurements*:<br>Variables were measured by analysing a cross-sectional study of 491 questionnaires for high-level managers of Taiwanese district hospitals.<br><br>*Method*:<br>Administered using a questionnaire | Findings indicated that it was observed that an effective service organisation increases customer satisfaction. An active communication system can lead to a reduction in conflicts within a service organisation.<br><br>There are no recommendations offered for future studies. However, it is important to note that service requires an interaction between employees and customers; good service is as a result of the commitment of both the employee and the organisation. |
| *Author*:<br>Wagner Mainardes & Santos dos Cerqueira<br><br>*Title*:<br>Measuring the Internal-Market Orientation in the Public Sector<br><br>*Year*:<br>2015<br><br>*Journal*:<br>Rev. of contemporary business, entrepreneurship and economic issues<br><br>*Country*:<br>New York, USA | *Variables Used:*<br><br>Internal market orientation in the public sector, job satisfaction,<br><br>*Measurements*:<br>IMO was measured using the model of Gounaris (2006), Linear regression model; variables were measured using a five-point Likert scale indicating "1=strongly disagree" to "5=strongly agree".<br><br>*Method:*<br>The method was quantitative; administered using a questionnaire | Based on the findings, it was indicated that job satisfaction is influenced by the presence of value exchange, internal segment market, job description, training and management concern; the attitude of private sector workers and public servants varies.<br><br>There is the need for internal market orientation because of the direct relationship between the commitment to internal customers and the performance of an organisation.<br><br>Future studies suggest that indicators for public sector should be increased. |

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| *Author*:<br>Nikbin, D. et al.<br><br>*Title*:<br>The Relationship between Internal Marketing and Implementation of Strategic Orientations in Malaysian Service Industry<br><br>*Year*:<br>2010<br><br>*Journal*:<br>International Journal of Business and Management Science<br><br>*Country*:<br>Malaysia | *Variables*:<br>IM, job satisfaction, organisational commitment, implementation of strategic orientations<br><br>*Measurements*:<br>A pilot study was used to distribute the questionnaires to 35 managers, a 5-point Likert scale ranging from "1=strongly disagree" to "5=strongly agree" was used to measure IM, job satisfaction, implementation of strategic orientation and organisational commitment, Varimax rotation method was applied to all variables<br><br>*Method*:<br>Questionnaire | Based on the findings, it was observed that there is a positive relationship between job satisfaction and organisational commitment. Also, it was found that the implementation of strategic orientation is positively affected by job satisfaction. There is an insignificant relationship between organisational commitment and implementation of strategic orientation. Lastly, the relationship between IM and implementation of strategic relationship is interceded by job satisfaction and organisational commitment.<br><br>Future studies should take into account the measurement of IM using more factors from Ahmed & Rafiq (2003). Also, variables that can affect the relationship between IM and implementation of strategic orientation should be observed. |

### *3.4.3 Definition and Concept of Dynamic Capabilities*

Having defined Dynamic Capability as the overarching theory and as the organisational and strategic routines, this section will proceed to explore the different types of DC in order to understand the impact of each of DC on RR and firm competitiveness.

A number of DC typologies have been proposed. These include March (1991) exploration and exploitation dimensions, Zollo & Winter (2002) searching, selection routinization model, Eisenhardt & Martin (2000) acquisition, integration and reconfiguration model among several others including Teece (2007) and Madsen (2010). The present study is in consensus with Kurzhals (2015) that popular models in this area can be segmented into four main areas of

sensing, learning, integrating and coordinating stages in accordance with Pavlou & El Sawy (2011) proposition.

Fundamentally, all models in the area of DC lies between the ends of exploration and exploitation continuum as originally proposed by March (1991). Teece (2007, p.1319) on the subject, proposed that:

> *"dynamic capabilities can be disaggregated into the capacity (1) to sense and shape opportunities and threats, (2) to seize opportunities, and (3) to maintain competitiveness through enhancing, combining, protecting, and, when necessary, reconfiguring the business enterprise's intangible and tangible assets".*

Teece (2007) assertion is in line with Pavlou & El Sawy (2011) even though they separate the last dimension on exploitation into two components of integrating capacity and coordinating capacity. It is important to note that only a few studies have attended to the RBV perspective empirically (Miller & Shamsie, 1996; Pavlou & El Sawy, 2011). Pavlou & El Sawy (2011) nonetheless the four-component model of dynamic capabilities inform the present investigation and are thoroughly discussed. Key indicators in this area are adapted for the present investigation as considered by Kurzhals (2015).

***Sensing Capability***

Sensing and taking hold of opportunities are critical to current market trends and new technology evolution (Pavlou and El Sawy, 2011). As a capability element, sensing has the knack to spot, understand and pursue opportunities in the surrounding. In particular, Teece et al. (1997, p. 521) posit that sensing involves:

> *"The ability to calibrate the requirements for change and to effectuate the necessary adjustments would appear to depend on the ability to scan the environment, to evaluate*

*markets and competitors, and to quickly accomplish reconfiguration ahead of the competition."*

The sense is important in business situations because of elucidating market information and needs from customers and competitors to stay on top. Since the customer is the focal point, market intelligence is superior and helps businesses maintain a competitive edge over their counterparts (McGrath, 2011). As much as sensing is critical for recombinant innovation to occur, sensing is again essential considering the environment within which organisations operate is not constant (Teece, 2007). New data needs to be collected on a constant basis to capture market intelligence that informs the firm's strategic makeup to address customers successfully.

It is important to mention that in establishing the sensing capability, the firm's ability to access and recognise relevant information is overarching. Hargadon (2002) on the access to information elaborated that firms must be able to foresee future trends to which resources need to be adapted. Even though sensing can be creative or based solely on cognitive processes, they may equally be generated out of knowledge on business processes and trends. In order not to leave "sensing" as a function of chance, it is important to put in place organisational structures to gather information, specify stakeholder needs and guide creative processes.

Pavlou & El Sawy, (2011) on the other hand postulated some basic routines as constituents of sensing capabilities. These include (1) the generation of market intelligence, (2) generation of customer and competitor intelligence and (3) the generation of technological intelligence. Ultimately, getting the market intelligence and information is to enhance know-how and to determine the trend and responsiveness of customers. Sensing can also avail opportunities and strength in addition to the synergies derived from insight (Amit &Shoemaker, 1993; Day, 1994;

Galunic & Rodan, 1998). The capability to sense is fundamental to market intelligence (Pavlou & El Sawy2011).

***Learning Capability***

The ability to overhaul existing capabilities with newly generated knowledge refers to as the capabilities of learning. In their argument on the capabilities on learning, Pavlou & El Sawy (2011) and (Teece, 2007) states that when market opportunities are identified, the capabilities relating to learning and knowledge acquisition and management needs to be entrenched. Sensing and learning capabilities are synergetic capabilities because sensing is much focused on gathering new market intelligence while learning relates more to using the market intelligence to create and generate new knowledge (Hurley & Hult,1998). Zahra & George (2002) intimates that learning capability elements include; acquiring, assimilating, transforming, and exploiting knowledge which is related to articulation, innovation, transformation and brainstorming of knowledge and learning. Knowledge accumulation and retention have become an area of interest to the understanding of learning capability.

Cohen & Levinthal (1990, p. 131) define learning capabilities as a "creative capacity." Others like Van den Bosch et al., (1999) added that learning facilitates their configuration and innovation of new ideas and concepts. As such, learning is one of the most substantial elements and promoters of operational capabilities (Zollo & Winter, 2002). Pavlou & El Sawy (2011) defines learning capacity as the ability of the firm to collect, retain and create new knowledge based on gathered knowledge. Knowledge acquisition according to Wiklund & Shepherd (2003) may be internal or external to the firm.

In similar scope as sensing, essential routines that must be considered in the event of learning include (1) the acquisition and dissemination of external knowledge (2) the creation of new internal knowledge and (3) the accumulation and retention of knowledge internally. Ultimately,

after sensing, it is essential that knowledge is acquired. According to Zahra & George (2002), the diversity of sources from where a firm can gain knowledge is an antecedent of the learning capability of the firm. In the increasingly dynamic environment driven by technology and consumer trends, a firm needs to tap knowledge beyond its comfort zones if competitiveness will be established (Mu & Di Benedetto, 2012).

It is important to add that even though the firm can obtain knowledge from within the form in equal measure as knowledge can be obtained from outside, internal knowledge is subject to key constraints which make it obsolete in only a short time. Wiklund & Shepherd (2003) mention that this is based on the assertion that internal knowledge is generated based on a fixed set of resource and a little introduction of new components while external knowledge is generated based on a large pool of non-ending resources. One way through which internal knowledge can grow is by strengthening its strategic alliances with other organisations through inter-organisational knowledge transaction (Argote et al., 2003).

***Integrating Capability***

After having sensed and learned integration of new resources to enhance reconfiguration of assets, networking of interactions and logic is required (Galunic & Eisenhardt, 2001; Okhuysen & Eisenhardt, 2002). The knowledge copyright must go beyond the individual level top of the organisation or institution for ownership through integration and reconfiguration of operational capabilities (Teece, 1982). Okhuysen & Eisenhardt, (2002), explained integrating capability as the ability to combine individual knowledge with new operational capabilities. Its routine processes are closely linked to the DC nomenclatures; collaborative participation of integrating individual inputs within a section for a collection action (Helfat & Peteraf, 2003). In particular, Teece (2007) views the integration of knowledge as a foundation of DC.

Companies differ in integration capability – the ability to absorb and manage business resources on a continuing basis (Jemison & Sitkin, 1986; Haspeslagh & Jemison, 1991; Collis & Montgomery, 1998; Helfat & Raubitschec, 2000). The concept of integration capability is explained in different ways. Helfat & Raubitschec (2000, p. 964) assert that integrative knowledge is an essential factor in the co-evolution of capabilities. Zollo & Singh (2000) and Zollo & Leshchinskii (2000) add that the two mechanisms of integration capability include a tacit routine for repetitive activities and explicit codification for relatively and infrequent tasks. Integration capability is essential in absorbing the differences among firm's acquisition strategies. This is because integration forms an integral component of acquisition outcomes.

***Coordinating Capability***

With the customer as the focus, coordination is important to harness and merge the activities, task, and resources related to the operational capabilities (Iansiti & Clark, 1994; Helfat & Peteraf, 2003). The coordination ability is explained as the ability to orchestrate and deploy tasks, resources, and activities in the new operational capabilities by Helfat & Peteraf, 2003).

It is worth mentioning, capabilities presented in this model are neither sufficient nor exhaustive but are considered important reconfiguration enablers. Moreover, these capabilities act sequentially to ensure reconfiguration of existing operational capabilities. However, there are reciprocal relationships among these capabilities, which are theorized in the description of the proposed DC.

#### *3.4.3.1 Empirical Review on Dynamic Capabilities*

Below is the empirical review of DC, presented in Table 3.2. Influential studies here include Eisenhardt & Martin (2000), Zollo & Winter (2002), Johnson et al., (2012) among several others. These studies, in particular, adapted mainly mixed methodologies to explore underlying themes of organisational routines, resource utilisation and learning orientation. The use of

learning orientation is recommended by Parida et al., (2016) as considered in the second phase of the present investigation. Other recommendations for future studies are informed by McKelvie & Davidsson (2009) and Parida et al., (2016), which together inform essential literature gaps under observation.

***Table 3.3 Empirical Review of DC***

| **Author Information** | **Variables and Measurements** | **Findings & Recommendations** |
|---|---|---|
| Author:<br>Eisenhardt, K.M. & Martin, J.A<br><br>Title:<br>Dynamic Capabilities: What are they?<br><br>Year:<br>2000<br><br>Journal:<br>Strategic Management Journal<br><br>Country:<br>USA | Variables used:<br>Dynamic capabilities, resource-based view, market dynamism<br><br>Measurements:<br>Variables were measured by analysing the paint industry; Intel's resource allocation process | Findings observed that it was observed that DC is homogenous, flexible; dynamic capabilities are detailed and analytic in dynamic markets. Long-term competitive advantage does not depend on dynamic capabilities.<br>Also, RSV is increased by combining the path-dependent strategic logic of leverage with a part-breaking strategic logic of change.<br><br>There are no recommendations for future studies. |
| *Author:*<br>Zollo, M. & Winter, S.G<br><br>*Title:*<br>Deliberate learning and the evolution of dynamic capabilities<br><br>*Year:*<br>2002<br><br>*Journal:*<br>Organization Science<br><br>*Countries:*<br>France, USA | *Variables used:*<br>DC, organisational routines, knowledge articulation, knowledge codification, task features, experience accumulation<br><br>*Measurements*:<br>Variables are measured based on the arguments drawn from behavioural and cognitive traditions in organisational learning studies.<br><br>*Method*:<br>Literature review | Based on the literature review, it was observed that dynamic capabilities develop through the tacit accumulation of experience, knowledge articulation and knowledge codification process.<br><br>Recommendations for future studies include an insight into the roles articulation and codification play in generating dynamic capabilities. Also, the empirical base of the research should be widened. |
| *Author*:<br>Johnson et al.<br><br>*Title*: | *Variables used:*<br>Market orientation, strategic orientation, aggressiveness, | Findings indicated that it was observed that aggressiveness, risk proclivity and marketing formalisation enhanced market |

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| The role of a firm's strategic orientation dimensions in determining the market orientation<br><br>*Year*:<br>2012<br><br>*Journal*:<br>Industrial Marketing Management<br><br>*Country*:<br>USA | future orientation, marketing formalisation, risk proclivity,<br><br>*Measurements*:<br>The cross-sectional quantitative study, confirmatory factor analysis (CFA)<br><br>*Method*:<br>Quantitative; literature review, interviews | orientation while future orientation suppressed it. Market forces such as technology turbulence and competitive intensity silenced the harmful effects of aggressiveness.<br><br>Future studies should include the use of longitudinal designs to understand the issues presented. Also, future studies should include information from multiple informants and data sources. |
| *Author*:<br>McKelvie, A. & Per Davidsson<br>Title:<br>From Resource Base to Dynamic Capabilities: an investigation of New Firms<br><br>*Year*:<br>2009<br><br>*Journal*:<br>British Journal of Management<br><br>*Country*:<br>USA | *Variables used:*<br>DC, knowledge resources, founder human capital, employee human capital, tangible resources<br><br>*Measurement*:<br>Variables were measured by analysing various qualities and areas of new firms in Sweden; variables paid attention to theoretical relevance and jo specific theories<br><br>*Method*:<br>Quantitative research methodology | Findings indicated that there is a relationship existing among resource types and dynamic capabilities; larger firms are less flexible.<br><br>For future studies, resource improvements, DC and other relationships should be observed with a quantitative, survey-based approach. |
| *Author*:<br>Parida et al<br><br>*Title*:<br>A study of how ICT capabilities can influence dynamic capabilities<br><br>*Year*:<br>2016<br><br>*Journal*: | Variables used:<br>DC, ICT capabilities, adaptive capability, innovation capability, network capability, absorptive capability<br><br>*Method*:<br>Data was collected through a survey study, a pilot-test of 15 CEOs<br><br>*Measurement*:<br>Variables were measured by analysing 291 small high technology firms in Sweden. | It was observed that ICT has a strong influence on the dynamic capabilities of small firms; there is a positive influence on ICT use for communication on adaptive and innovation capabilities. A positive influence of ICT use for internal efficiency on adoptive capabilities exists; a collaborative use of ICT has a positive influence on networking capabilities; the diverse parts of ICT enhance the development of diverse organisational capabilities. |

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| Journal of Enterprise Information Management<br><br>Countries:<br>Sweden, Finland | The absorptive capability was measured based on a review by Lane et al. (2006). | For future studies, a cross-industry sample may be observed. The use of partial least squares (PLS) regression analysis is also recommended. |
| *Author*:<br>Teece, D.J. & Pisano, G.P<br><br>*Title*:<br>The Dynamic Capabilities of Firms: An Introduction<br><br>*Year*:<br>1994<br>*Journal*:<br>Strategic Management Journal<br><br>*Country*:<br>USA | *Variables used:*<br>Market and strategic capabilities, organisational process, position and paths, integration, learning, transformation, assets<br><br>*Measurements*:<br>Variables were measured by analysing a group of workshops | Based on findings, it was observed that competitive success comes from the ongoing development of a firm's asset; competitive advantage results from DC.<br><br>There are no recommendations for future research. However, it is essential to know that dynamic capabilities approach comes from Schumpeterian |
| *Author*:<br>Schilke, O.<br><br>*Title*:<br>On the contingent value of Dynamic capabilities for competitive advantage: The Non-linear moderating effect of environmental dynamism<br><br>*Year:*<br>2014<br><br>*Journal:*<br>Strategic Management Journal<br><br>*Country*:<br>USA | *Variables Used:*<br>DC, competitive advantage, environmental dynamism, alliance management, new product development capability<br><br>*Methods*:<br>qualitative field interviews<br><br>*Measurements*:<br>Variables are tested by analysing 279 firms | Based on findings, it was observed that the relationship between DC and competitive advantage is high under intermediate levels of dynamism and low when dynamism is low or high. It was also observed that the performance of DC is highly complicated.<br><br>Recommendations for future studies were not clearly stated, however, it is essential to investigate effects of other capabilities. Furthermore, more profound insight into the mechanisms shaping the effects of dynamic capabilities. |

### 3.5 Integration of IMO, DC and RR from a Learning Perspective: A Competitive Learning Capability Model

It is a known fact that theories are building blocks of research in management. Researchers gains insights from different theories and perspectives in order to gain a deeper understanding of the phenomena under research. However, due to underlying complexity of subject under research, researchers face challenges in drawing on a single theory and hence seek to combine perspectives from different theories to gain clear understanding. This is same as two firms performing better by forming alliances than a firm performing individually (Mayer & Sparrowe, 2013).

Nonetheless, according to Mayer & Sparrowe, (2013), in order to attempt integration and to gain novel insights, some degree of commonality is important for integrating different theories, concepts, or research stream to arrive at analytical framework. In the context of this study, the overarching theory of DCT and the supporting theory of RBV and CBV that relates to IMO, DC and RR have been integrated through a common theme of learning orientation to arrive at Competitive Learning Competing Model (Figure 3.4). Here the learning orientation is common dependent variable that speaks same learning phenomenon with different explanatory power of IMO, DC and RR. This integration attempt is based on first approach among the four approaches proposed by Mayer & Sparrowe (2013). Such theory and concept integration attempts were made in previous studies by Mayer and Salomon, 2006; Sparrowe and Liden, 2005; Weber and Mayer, 2011; Miles and Snow, 1978; Cropanzano and Mitchell, 2005. The underlying reason for integration of theories and concepts attempt of this study is based on the fact the concepts of IMO, DC and RR do not only hail from a common resource-based and competence-based research stream but have key commonalities with regards to underlying learning phenomenon that translates into increased performance outcomes in terms of RR and hence competitiveness. Integrating the elements of DCT and RBV, that focuses on learning/

acquired knowledge (as resources and capabilities) with the elements of CBV, which focus on not only acquiring the resource (acquired knowledge), but the "utilization" of the acquired resources to transform and bundle the resources (RR) in a novel way. Hence, combining the element of DCT, RBV, and CBV allows for the better understanding of acquiring and hence utilisation of resources and capabilities in learning phenomenon.

Learning orientation stands for the tendency of the organization to create and apply knowledge in organization. Learning orientation is an important antecedent of knowledge management orientation and it is a set of values exhibited by the organization that demonstrate that organization is likely to develop a learning culture (Mahmoud et al., 2016). One of the most important characteristics of learning-oriented firms is that they foresee environmental and market changes and make adjustment by viewing their environment both internally as well as externally and act in their own interests (Mu et al., 2017).

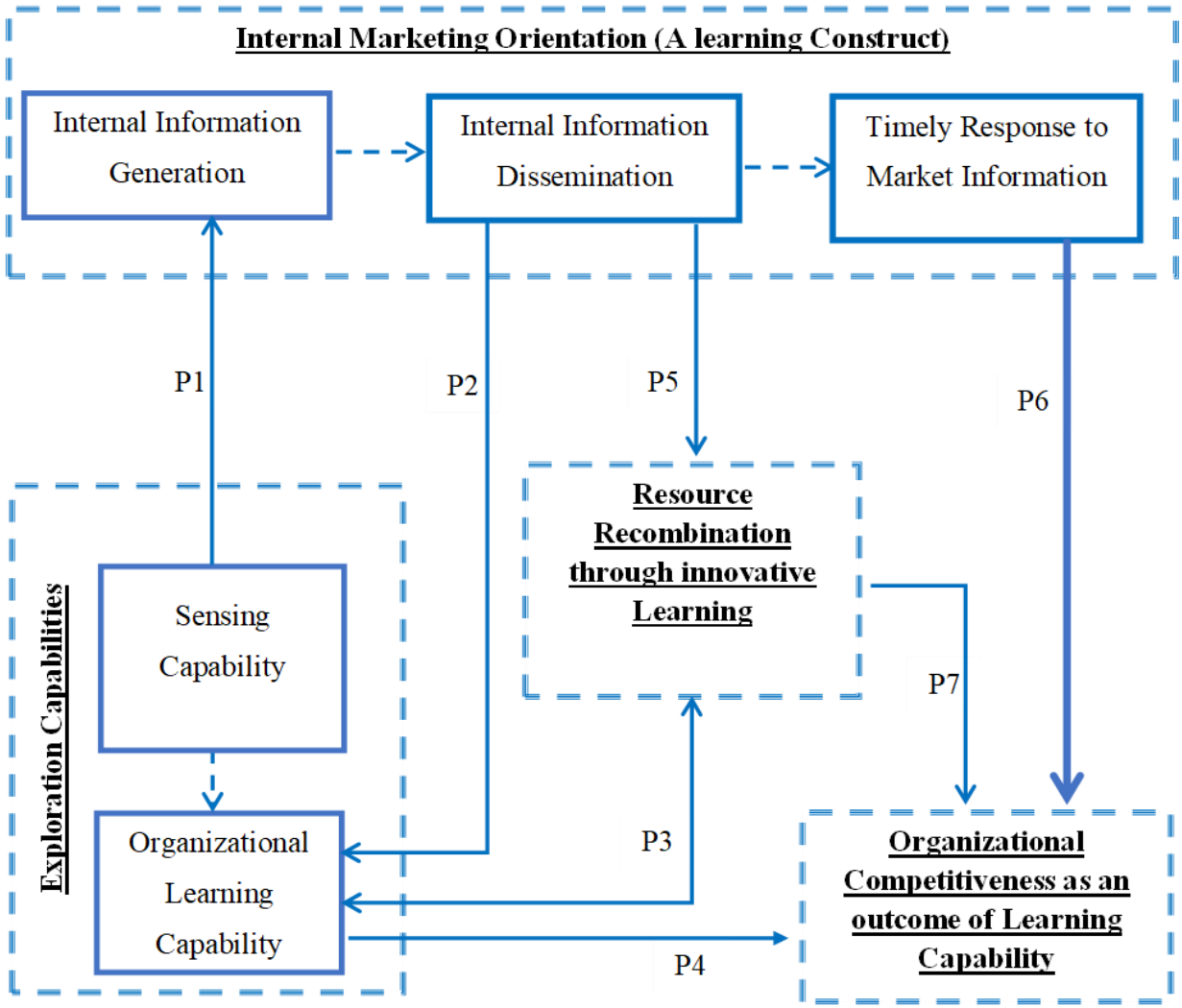
On the justification of IMO to have learning theme in its roots, many studies have so far demonstrated that a specific IMO is an internal strength, neither transparent nor transferable. It can therefore be regarded as one of the resources providing competitive advantage. In this respect Helfat and Peteraf (2015) mentions capabilities of a market-driven organization: market sensing, market relating and strategic thinking. These capabilities are linked to the underlying values of a company, making them a cultural value. In that sense understanding IMO as a business culture has its justification. Furthermore, a business culture is a source of competitive advantage only when it is rare, valuable, and difficult to imitate. However, one must keep in mind that even the values that are most difficult to imitate will eventually be duplicated (Haryanto et al., 2017). That is the reason why IMO should be constantly reassessed and improved according to market conditions. Indeed, the core values of IMO must remain solid regardless of changes a company faces, but the means through which the market-oriented company creates new information and responds to it must evolve.

In view of DC, learning organization theory indicated that an enterprise has to enhance the innovation capability through constantly learning for the long-term survival and development under the competitive environment with high uncertainties (Comlek et al., 2012). Zollo and Winter (2002) regarded DC as the result of learning mechanism. In comparison, a firm encountered more uncertainties and the acquisition of knowledge and resources required organizational loop learning; the learning-oriented cultural atmosphere therefore became extremely important for a firm (Hung et al., 2010). To fulfill the development, firms has to absorb and cultivate new knowledge through commitment to learning, allowing the employees sharing the responsibility with the enterprise through organizational vision, advancing the devotion, and contributing new ideas with creative and open mind to enhance the capability of the organization adapting to external environment (Gomes & Wojahn, 2017). Thus, managers and employees of a firm, from dynamic aspect, integrate resources to enhance the organizational learning ability and the capabilities of sensing external environment changes and coping with risks. In fact, learning orientation drives an enterprise actively pursuing new knowledge and challenging current situations to enhance the innovation capability.

Resource recombination has also been argued as having "learning" as an underlying element. According to Savino et al., (2017) reconfigurations that significantly enhance innovation result from a complex learning process and firms need to accumulate significant experience to reorganise their resources successfully. In other words, "resources are converted into final products or services by using a wide range of other firm assets and bonding mechanisms such as technology, management information systems, incentive systems, trust between management and labor, and more" (Sikora et al., 2016). Hence, the end products are the final goods and services produced by the firm based on utilizing the competences that it possesses (Teece, 1997, p. 516). Consequently, their competitive performance (e.g. in terms of price and quality) is dependent upon its competences, more specifically its operational capabilities and

DCs. As noted by Galunic and Rodan (as cited in Monteiro et al., 2017,), in either case, the realization of resource recombinations depends upon the flow of competency-related learning between competence areas, irrespectively of what type of RR.

***Figure 3.4 Competitive Learning Capability Model***



The following sub-sections will discuss the fundamental argument of propositions established from the literature in support of the competitive learning capability model.

***P1: Sensing capabilities and Internal Information generation***

As the business environment becomes increasingly turbulent, innovation as a way to capture emerging market needs and sustain competitive advantage becomes more important. Most existing studies examine how organisation encourages external information generation. This approach advocates the external development of organisation (Anderson, 2016) and taps into the external knowledge yet to be possessed by employees. On the other hand, the shift of emphasis from external to internal information generation in the organisation is not surprising. Indeed, organizations sense various concerns and aspects of the external environment which drives their strategic path (Teece, 2007). How organisations deal with these tensions may determine whether or not they achieve sustained performance levels (Jacobs et al., 2013). In spite of this, the ability to continuously learn about markets was coined in the term 'sensing capability' (Teece, et al., 2016) and superior sensing capability is a critical factor driving innovation (Dong et al., 2016). Sensing helps gain insight on market, technological and other opportunities through which an organisation may adopt its internal mechanisms to achieve favourable outcomes. In view of this, among many channels, critical internal information generation activities include research and development surrounding new product creation (Danneels, 2011), internal process reconfiguration (Rindova & Kotha, 2001) among other internal knowledge assets management (Cepeda & Vera, 2007; Marsh & Stock, 2006). These functions have remained central to resource renewal and knowledge gathering process efficiency in the firm (Knoblock, 1995; Poon & Swatman, 1995). However, it is not yet clear how and what practices can support the development of sensing capabilities towards internal information generation and therefore, the first proposition in the competitive learning capability model emanate from these arguments and is presented as follows:

**Proposition 1:** Effective sensing capabilities will significantly support Internal Information generation.

***P2: Information dissemination and learning capabilities***

Volatile environments place stringent demands on information processing in organizations. For an organization to sense, shape and seize opportunities, it must somehow obtain current and reliable information, process and disseminate information. Sheng and Chien (2016) examined that how learning capabilities in an organization can help in attaining market orientation through information dissemination. Najafi et al. (2016) argued that the ability to disseminate information faster that the competitors can add to the competitive advantage. If the organization has the ability to obtain, process and disseminate information faster than the competitors then the organization would be able to notice the changes taking place in their learning capabilities. Due to this the organization would be in a position to maintain or increase the value delivered to the customers. In other word, the organization which is capable of learning can deliver superior customer value. Indeed, learning ability of the organization can be considered as part of the capabilities of the organization (Dixon, 2017). On the other hand, as capabilities or more specifically ability to learn can help an organization to deliver superior customer value. Therefore, it can be said that learning capability adds to market orientation of the organization. While some previous literatures have studied the relationship between disseminating information and the learning capabilities of the firm, research studying impact of organizational learning capabilities is limited. Till date only a handful of studies have examined the relationship between disseminating information and firm success in different contexts (Mai, 2016). In fact, none of these studies have considered organizational learning namely information gathering, information dissemination, responsiveness and assessing the current and future need of the customers, and consequently their effect on learning capabilities.

Therefore, based on this discussion, the second proposition of the competitive learning capability model is established:

**Proposition 2:** Effective process and quality content of information dissemination will significantly strengthen the learning capabilities of the firm.

***P3: Learning capabilities and resource recombination***

Learning is an organisational orientation and is a strategic management construct has remained central to the concept of RR and innovation reconfiguration (Cecere & Ozman, 2014; Van den Bosch et al., 1999). Broadening organisational insights help avail existing and hidden opportunities based on which novel resource recombination may be achieved. Ultimately, without learning, RR may be impossible to achieve. RR may be observed as a repetitive activity and may not be achieved in a single recombination attempt before several alterations. A large and growing number of studies suggests that the amount of RR does not necessarily affect firm performance in general and its learning capabilities in particular. For example, Maranto and Gómezl (2007) and Bouncken et al., (2016) found that learning capabilities are more important than financial resources in increasing competitive advantage. This makes recombination of existing resources an important aspect of an organization but may mean that the recombination of current resources is more important then the acquisition of new resources. This arguemenet was empirically supported by DeSarbo et al. (2007), who investigated the relationship between the general firm performance and the the capabilities of 216 cross-industry US firms. Their study confirmed that the firms that uses their resources more efficiently outperform their competitors. At the same time, it continues to be hotly debated whether organisational learning capabilities best suits the characteristics of resource recombination as far too little attention has been paid to the relationship between resources recombination and organisational learning capabilities. Therefore, based on the above discussion, the third proposition established as follows:

**Proposition 3:** Strong organisational learning capabilities will correspond with effective resource recombination.

***P4: Organisational learning capabilities and competitive market position***

The organisational learning capabilities literature consistently focuses on the importance of competitive market position which the literature defines either as the sum of mid-level market position level or as higher-level market positioning (Merrilees et. al, 2011). In this regard, Najafi et al. (2016) conceptual address of the subject suggests a widening gap between market complexity and organizations' capabilities and calls for a redefinition of these capabilities to add new adaptive capacities to anticipate market changes and become more responsive to them. To avoid rigidity, organizations should enhance such capabilities to acquire new and future-looking intelligence from the market and develop higher-level capabilities such as market sensing and customer-linking capabilities. On the other hand, organisational learning capabilities, which is the process of generating and disseminating market intelligence to create and offer better value to the customer, is a source of advantage for the firm (Triaa et al., 2016). In fact, organisational learning capabilities is "inherently a learning orientation" (Hurley & Hult, 1998, p. 42 as cited in Lee, & Kuo, 2016). In contrast, Day & Schoemaker (2016) argue from organisational learning capabilities perspective as a resource can only be effective to firm's performance objectives with the support of complementary market-related organizational capabilities. This concurs with the above resource-oriented arguments, which suggest a complementary relationship between organisational learning capabilities and competitive market position, as well as a combined effect of the two in enhancing firm performance (Najafiet al., 2016). Although the analysis of learning capabilities has become an increasingly significant study area in recent years, there is a dearth of studies investigating the role of organizational learning in the survival and growth of businesses. With these ascertain, the fourth underlying proposition presented as follows:

**Proposition 4:** Strong organisational learning capabilities will help an organisation achieve a competitive market position.

***P5: Internal information dissemination and resource recombination***

Recent research has highlighted the notion of IMO to address how firms can adapt to volatile environments and renew their resource base (e.g. Teece et al., 1997). There is a rich stream of literature demonstrating how firms use IMOs for adding, shedding, and transforming the resource base (Wang & Kim, 2017). Most of this research focuses on resource creation and reconfiguration within the firm's boundaries, such as the creation, integration, and retention of internal knowledge (Ferreras et al., 2016), the reconfiguration of resources between internal divisions (Hosseini et al., 2017), or the transformation of internal organizational forms and functions (Burke, 2017). In particular, literature has discussed the role of internal information dissemination for creating new product and process innovations that allow firms to create and sustain competitive advantage in changing market conditions (Helfat, 1997 as cited in Pezeshkan et al., 2016). However, more recently it has been argued that, due to accelerating environmental and technological complexities, it becomes problematic to rely too much on internal information dissemination as the sole foundation for competitive advantage. In light of this shift towards internal renewal, a crucial question refers to how firms can effectively use internal information dissemination towards resource recombination and create competitive advantage still a question marks that need to be answered. Furthermore, it remains unclear how firms can create a competitive advantage through effective internal information dissemination which will lead to effective resource recombination in a firm. Therefore, to address this gap, the fifth proposition developed as follow:

**Proposition 5:** Effective internal information dissemination will lead to effective resource recombination.

***P6: Internal market information responsiveness and organisational competitiveness***

Whilst it is essential to have some insight into how organization is affected by the internal market information, it is also desirable for them to consider how some of the environmental forces might be influenced and managed to gain benefits for *organisational competitiveness* (McDonald & Wilson, 2016). With regards to the role of IMO in supporting competitiveness, traditional models of IMO directed towards organisational competitiveness have considered the construct as process-based and hypothesised that internal response to market information drives organisational competitiveness (Jaworski & Kohli, 1993; Ruekert, 1992; Lings & Greenley, 2010). Aside from the direct linkage between internal response to market information and organisational competitiveness, IMO has been associated with several other organisational competitiveness constructs. These include the linkage between IMO and customer satisfaction, employee motivation and overall organisational performance (Lings & Greenley, 2009). Furthermore, it is expected that timely and adequate response to internal market information will help an *organisational competitiveness*. However, this is less possible generally in the case for businesses that is not examining their environment for opportunities and threats in order to establish where they can gain competitive advantage and where their resources might most usefully be concentrated (Schaltegger & Burritt, 2017). Thinking strategically requires an awareness of alternative strategic purposes and objectives and the ability to recognize critically different internal market information. In addition, it requires the ability to diagnose an organization in terms of various critical characteristics and to be able to shape those characteristics so that the organization is best fitted to its environment in order to achieve its strategic purposes and objectives to achieve organisational competitiveness. In view of the above discussion, the sixth proposition is established to bridge this association between IMO and organisational competitiveness:

**Proposition 6:** Timely and adequate response to internal market information will help in achieving organisational competitiveness.

***P7: Resource recombination and organisational competitiveness***

According Teece et al., (1997) the ability to build effective capabilities is a significant driver for organisational competitiveness. Capabilities are nurtured and developed within a firm in order to enhance firm's competitiveness and also react or anticipate market movements. An effective organisational competitiveness measurement system ought to cover all aspects of performance that are relevant for the existence of an organization and the means by which it achieves success and growth such as effective resource recombination. As a result, any firm's competitiveness measurement system ought to include more than just specific measures. Ruizalba & Soares (2016) assessed the degree of satisfaction with a range of organisational competitiveness arising from IMO factors that are used in the strategic process and identified a number of parameters that are considered to be important namely: financial; customer orientation; organizational effectiveness; and innovation. Salau (2017) suggested the linking of strategic objectives with organisational competitiveness helps with the articulation of causality and state that this approach has clear advantages such as helping organizations to gain a thorough understanding of strategy by raising the awareness of strategy throughout the entire organization and by providing a focus to enhance the achievement of the strategic objectives. Even though linking of strategic objectives with organisational competitiveness helps with the articulation of causality and state of clear advantages, there is yet to recognise the important of effective resource recombination in achieving organisational competitiveness. Therefore, based on the above discussion, the seventh proposition ascertain as follow:

**Proposition 7:** Effective resource recombination will help in achieving organisational competitiveness*"*

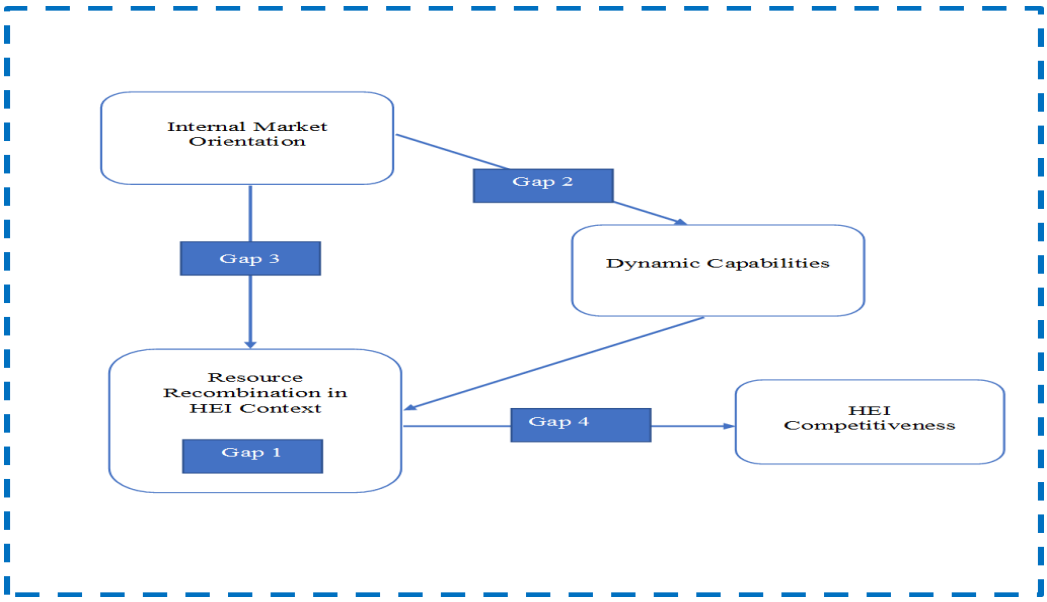
Based on the fundamental argument, seven propositions are established from the literature in support of the competitive learning capability model. Figure 3.4 below illustrated the model with the proposition.

It is essential to finally emphasise that the competitive learning capabilities model is integrated into the primary research model of the study to arrive at a combined model of HEI competitiveness. The propositions established, leads to the below research gaps derived from the literature and also the construction of the research hypotheses as part of the comprehensive model of HEI competitiveness.

### 3.6 Research Gaps

In view of the above discussion and the pictorial representation of the conceptual framework, four gaps identified from the theoretical, conceptual and empirical perspectives and highlighted has unique significance related to theories and contextual relevance. Therefore, Figure 3.5 illustrated the pictorial representation of the four gaps that will be addressed from conceptual and empirical perspectives, both qualitatively and quantitively. All the four gaps highlighted has unique significance related to theories and contextual relevance.

***Figure 3.5 Identified Research Gaps***



Below is the elaboration on each of the research gap identified in the literature.

***Research Gap 1 – Lack of in depth understanding of the RR construct and its measurable model***

There has been relatively little attention to how resources beget further resources in HEI (Hanushek, 2016). In such scenario, possibly the only authors since Wernerfelt (1984) who have begun to consider the interaction of a firm's multiple resources are Hamel and Prahalad (1994). While Hamel & Prahalad have given some compelling examples of RR, one of the major stumbling blocks for the RBV in conceptualizing RR has been that despite the strength of these firms' accomplishments ex post, outcomes seem difficult to predict ex ante (Boardman, Greenberg, Vining, & Weimer, 2017). While an increasing amount of research on HEIs has focused on resource recombination (e.g. Brown et al., 2008; Robertson, 2016), a gap exists in understanding how such recombination is conceptualized, especially in dynamic markets – that is, markets in which the competitive landscape shifts quickly, and change must be promoted to survive (Eisenhardt & Martin, 2000; Felin, & Powell, 2016). Even the RBV of the firm has been a useful framework to study the determinants of value creation (Barney 1991), possessing valuable, rare, inimitable and non-substitutable resources alone does not automatically lead to a sustainable competitive advantage. Rather, the HEI's resources must be managed appropriately to produce value. Eisenhardt and Martin (2000) suggest that new value-creating strategies are generated by the recombination process of resources. In spite of this, the central to this gap is an examination of the antecedents necessary for such conceptualization to occur, and in particular the nature of knowledge in the HEIs. Furthermore, it is argued that several characteristics of knowledge (tacitness, context specificity, dispersion) and its social organization (the way competencies come to be formed and institutionalized) will have important consequences on the likelihoods of resource recombination. Thus, the attempts to

conceptualise and establish a trusted measurement of RR is limited and the present research explores RR as the first research gap of the study (GAP 1).

Despite the increasing number of both theoretical and empirical studies in the field of RR, the importance of RR for a HEI's competitive advantage and performance is not completely clear and lacking (Pezeshkan et al. 2015), suggesting that additional empirical verification of the theory is still needed. This is particularly the case with HEIs that operate in special economic environments such as the emerging market economies. Moreover, Ambrosini and Bowman (2009) state that more work in the field of RR is needed to analyse, among other aspects, whether there are some patterns across the HEIs. The conceptualisation of RR in the context of HEI will offer room to close the other gaps and establish the model of HEI competitiveness by building on indicators critical to HEI success.

***Research Gap 2 – Lack of empirical evidence in establishing IMO as a strategic capabilities' in influencing DC***

Most compelling evidence shows that IMO and DC being strategies embedded at the strategic level of the HEI. However, the influence of IMO towards DC remains as one of the key research gaps of the present study. To elaborate further on this research gap, studies have focused on how marketing orientation (whether internal or external) influence some aspect of strategic competitiveness or strategic orientation. Among the significant studies include Amue (2014) on how market orientation influenced strategic competitiveness sustainability, Grinstein (2008) on the association between market orientation (MO) and several other strategic orientations including innovation orientation, learning orientation, entrepreneurial orientation and employee orientation, IMO on learning orientation Fang et al., (2014); and Nikbin et al. (2010) on IM and strategic orientation. Furthermore, from the DC perspectives, a number of investigations have focused on how one or more characteristics/capabilities influence DC, these include capabilities of the business (Parida et al., 2016), personal characteristics of

entrepreneurs (Zhang & Bruning, 2011), or environmental dynamism in a mediating role on how DC transform into competitive advantage (Schilke, 2014). Considering IMO and DC both being strategies embedded at the strategic level of the HEI, the influence of IMO towards DC remains as one of the key research gaps of the present study (GAP2). Even though some evidence obtained how marketing orientation influence some aspect of strategic competitiveness, there is no clear focus on how IM or IMO drives strategic orientation from the DC perspective in HEI. Therefore, by focusing on IMO as an antecedent of DCs, this gap responds to prior calls for research by studying the antecedents necessary for the development of DCs (Zahra & Wiklund, 2002). In such situation, it is expected that the findings will have theoretical contribution by improving the understanding of the determinants for DCs and respectively RR in HEIs to occur.

***Research Gap 3 – Missing link of the role of IMO as a driver of RR in the firms***

Regardless of the exact form of RR influenced by IMO, past studies hold that RR depends upon competency-related knowledge flows in the firm (e.g., Cantamessa & Montagna, 2016). Based on knowledge flows, all the various ways in which information, know-how, understandings, histories, etc., may be exchanged in the firm regarding competencies. For example, synthesis-based RR may require such knowledge flows to be created between relatively isolated competence areas of IMO (Janssen & Castaldi, 2018). In the case of reconfiguration-based RR, where some stable interactions already exist, new information and insights on IMO competencies may be important to generating alterations in the linkages themselves (Chulkov, 2018). In either case, the realization of RR depends upon the flow of IMO knowledge between competence areas. In turn, these knowledge flows depend upon the basic characteristics of knowledge and its social construction in competencies in the firm (see Henderson and Cockburn, 1994).

While several factors may influence the likelihood of entrepreneurial resource recombination in existing organizations (e.g., its knowledge-based resources, see Galunic & Rodan 1998) a focus on management practices and how they influence resource recombinations may be of particular relevance.

The study aims to investigate the firm's internal orientation towards its employees and its impact on the strategies towards successful RR. It is not surprising that, as firms differ in their ability to manage their resources(employees), the value they extract through RRs varies significantly (Holcomb et al., 2009). Those firms that are internally oriented towards their employees will eventually have employees that have superior knowledge of the firm and are found to be more effective than competitors in adapting strategies that create value for the customers. By bundling and leveraging resources in new ways, allows the exploitation of the value creation potential of those resources (e.g. Hansen et al., 2004, Lippman and Rumelt, 2003, Holcomb et al., 2009). Hence superior performance in the form of RR is expected from motivated employees, and this remains another central gap of the study (GAP 3).

In addition, this research suggests that strategic orientations of the firm specifically its Internal Marketing Orientation play a major role in the development of RR. The underlying assumption is, that while RR is embedded in the firm's routines and processes, they are assumed to being influenced by the institution's framework conditions (at internal level) that the firms has constituted to manage its firm's activities (Teece 2007). Recently there has been growing interest in investigating the antecedents of RR (e.g. Madsen 2010, Hawass, 2010). Though wide range of different strategic orientations has been identified in the literature (Rothaermel and Hess, 2007) at individual and firm level, and discussed as being antecedents of RR (e.g. Kurzhals, 2015, Teece, 2007, Eisenhardt and Martin, 2000), few studies have empirically examined the relationship between a firm's management practices (IMO) and its entrepreneurial

activities (see e.g., Barringer, 1999). Hence, this study aims to investigate IMO as an antecedent for development of successful RR.

***Research Gap 4 – Lack of empirical evidence on RR influence towards organizational competitiveness***

The impact of RR on firm competitiveness holds strong position in the literature as stated by Eisenhardt and Martin, (2000, p. 1107), "the processes to integrate, reconfigure, gain and release resources to match and even create market change" and Isobe et al., (2008, p. 414) that "that firms that reconfigure their resources faster than their rivals to capture newly emerging market opportunities are more likely to achieve superior performance". Claims for RR being a source of creating wealth (Wiklund et al., 2002, Kogut and Zander, 1992, Grant, 1996, Galunic and Rodan, 1998, Wiklund and Shepherd, 2009) are consistently found in the literature, however few studies to date has been conducted empirically applying RR to the performance outcomes of the firm. Therefore, the impact of RR on the performance of the firm merits further investigation, especially given the arguments by different researchers that there are costs associated with the development of RR and not all form of resources and business processes recombination may lead to wealth creation (Zahra and Wiklund, 2002). In line with this, it might be suggested that different combinations of resources (existing/ new) and business processes(ongoing/new) may lead to different performance outcomes in the form of operational efficiency or strategic performance. Hence, the effect of different combinations of RRs on different aspects of firm performance is worth further investigation (Isobe et al., 2008). Finally, in addition to exploring RR, the study also aims to investigate the implications of successful RR on the firm's competitiveness (GAP 4).

Although there have been many studies on this topic, research that distinguishes the impact of RR towards organisation performance is missing. This should be considered a crucial research gap since it has been suggested that the ability to 'create something from nothing' depends

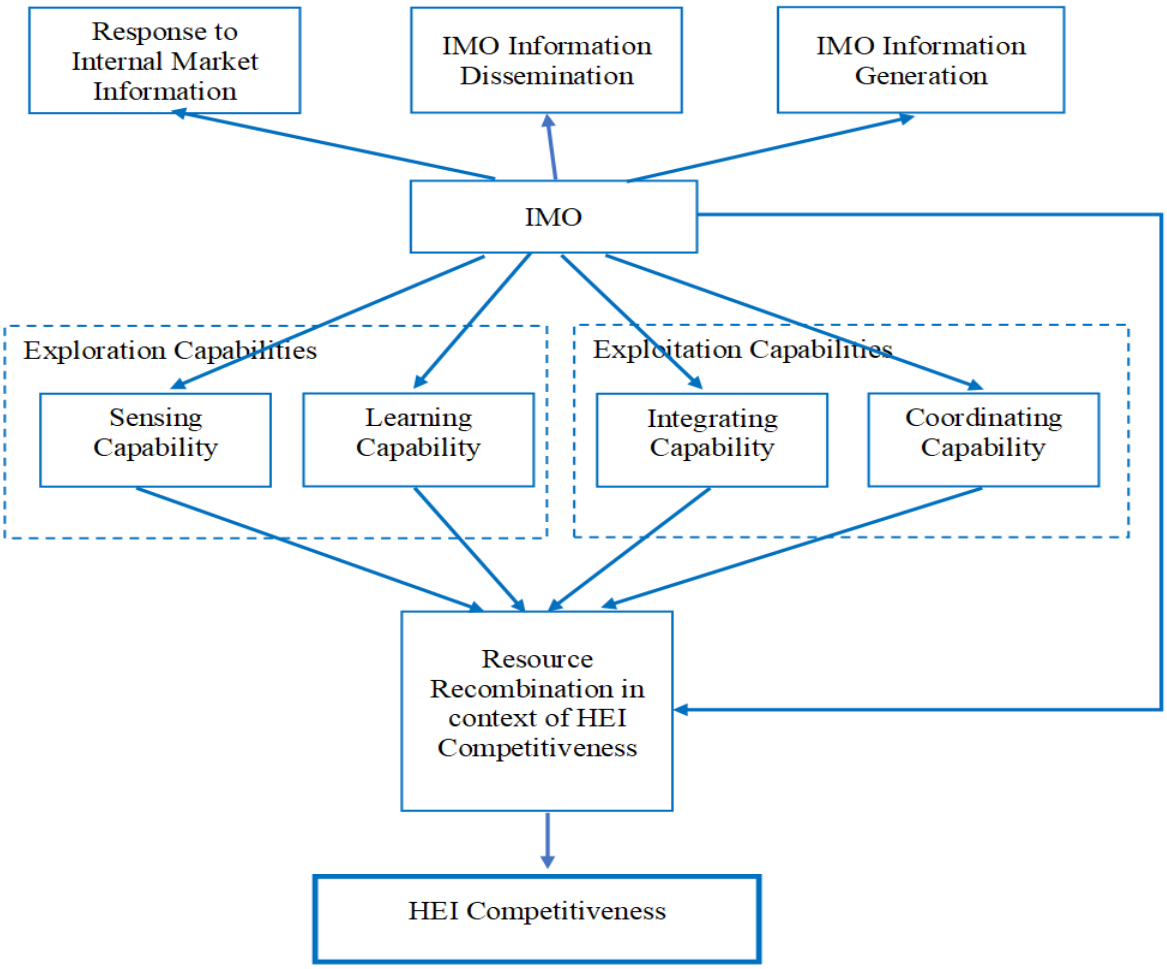
upon the magnitude a firm is seeking to overcome its constraints by using resource recombination for example (Baker & Nelson, 2005). Due to demands from stakeholders (Asif & Searcy, 2014; Cruickshank, 2003) and the general shift towards quality of services and effective business models, HEIs are pressured to increase performance outcomes (Campatelli *et al*., 2011; Koch and Fisher, 1998; Rosa *et al*., 2001). Hence, conceptualizing RR concerning HEI's quest to remain competitive is a step in the right direction to close the knowledge gap on the lack of a clear and validated measurement model for RR. Focusing on this context will not only help in the measurement effort but will help establish insight on how pertinent challenges in the sector may be overcome in its quest for performance excellence in HEIs.

### 3.7 Building Conceptual Framework

This section presents the competing models approach in the building of conceptual framework and the event of the primary analysis of the study. Firstly, this section will propose the Classic Model of HEI Competitiveness and followed with the integration of the Competitive Learning Capability model. Secondly, based on the integration of these two models, the conceptual framework also called the Model of HEI Competitiveness is discussed, followed by hypotheses of the study.

In addressing key research gaps that been recognised from the research questions of the study, the present study builds on the DCT, RBV and CBV proposition to strategic management and organisational competitiveness. Main arguments that support the interaction among IMO element, the four DC elements (sensing, learning, coordinating and integrating), and RR. Concurrently, RR can only be at the optimum level for firms with better internal market orientation and dynamic capabilities. Therefore, the degree of IMO to support another strategic element and RR, forms the basis to the proposed traditional/classical model presented in Figure 3.6.

***Figure 3.6 Classic Model of HEI Competitiveness***



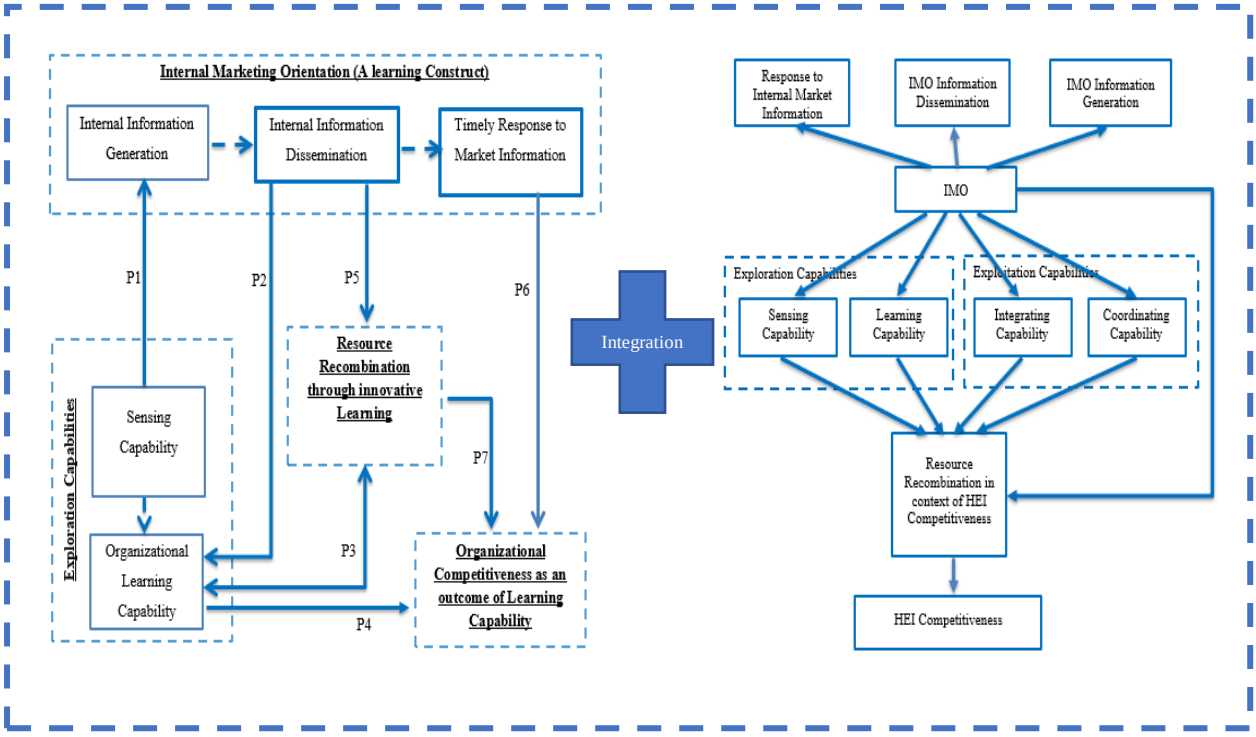

As Amit and Schoemaker (1993) mentioned, capabilities are grounded within the functional and strategic areas of firms. In regard to the above model, IMO perspective consists of respond to internal market information, IMO information dissemination and IMO information generation which relates to the conceptualized and implementation of marketing concept within an organization's, and further conceptualized IMO as a set of managerial behaviors that have the potential to influence employee behaviour which would in turn affect customer satisfaction. On the other hand, the DC consist of sensing, learning, integrating and coordinating capacity which plays an interceding role between IMO and RR, even though this is not a central theme

of the study. RR in the context of HEI competitiveness is considered as a strategic component and therefore serve as primary dependent variable of the study. In essence, RR requires close attention to observe market trends and a high ability to sense opportunities within and outside the organisation in question (Pavlou & El Sawy, 2011). Finally, HEI competitiveness is held as the ultimate dependent variable of the study and this variable does not directly exist or measured from an internal perspective but stands out as an outcome achievable through internal strategic management metrics.

On the other hand, the classic framework constructed for HEI competitiveness from an internal perspective of IMO and DC sees IMO as a formative construct as presented in Figure 3.6. In deciding the IMO as a formative construct, three broad theoretical considerations have been included which are (1) the nature of the construct, (2) the direction of causality between the indicators and the latent construct, and (3) the characteristics of the indicators used to measure the construct (Bollen & Lennox, 1991; Jarvis et al., 2003). Based on the three consideration, IMO found need not share a common theme, not interchangeable and variation in the construct does not cause variation in the item measures.

Based on the theoretical foundation, **the Competitive Learning Capability Model** (Figure 3.4) which was a result of the integration based on common theme of "Learning Orientation" was combined with **Classic Model of HEI Competitiveness** (Figure 3.6) to arrive at the Conceptual Framework- **Comprehensive Model of HEI competitiveness** (Figure 3.7). Here the competitive learning capability model serves as a foundation to the conceptual framework of the study. It is noteworthy that the resulting conceptual framework can eventually contribute more to the literature in terms of hypothesis and findings, as it takes effect from both learning and classical model and can present deeper understanding of RR phenomenon from IMO and DC perspective towards the competitiveness of an organization .

***Figure 3.7 Integrating Models- Combining the Competitive Learning Capability model and the Classic Model of HEI Competitiveness – Summation View***



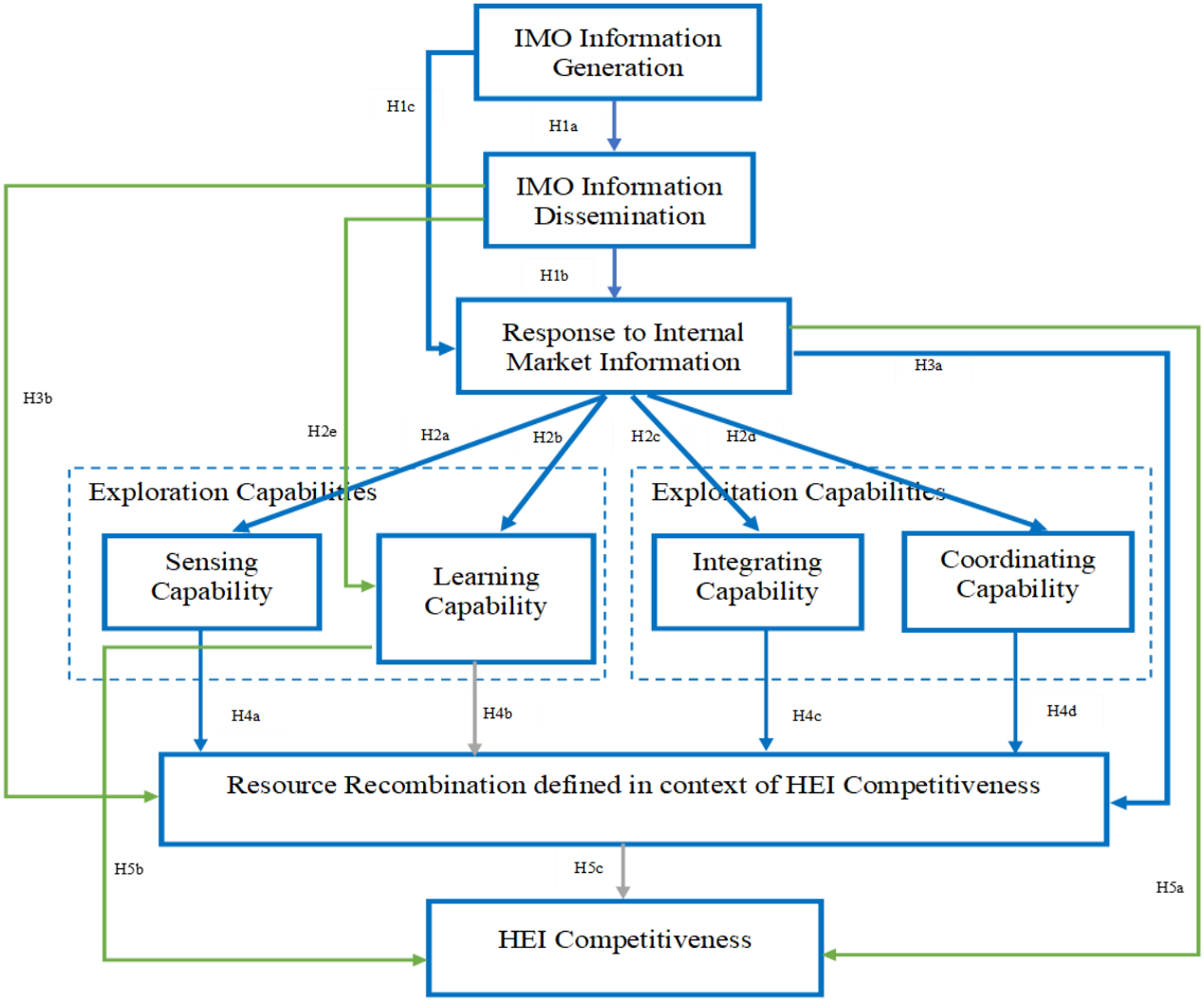

In the outcome model, the propositions of the competitive learning capabilities model are represented in the main framework of the study. Nearly all the propositions of the competitive learning capability model are captured under the hypotheses presented in the classic model of HEI competitiveness from an internal perspective of IMO and DC presented in Figure 3.6. Nonetheless, combining both models presented in Figure 3.7 leads to the need for reconsideration of more than five or additional hypotheses to the research model as presented in Figure 3.8, to match all seven propositions originally discussed in section 3.4.

Furthermore, based on the integration of the two models, IMO reverts from a formative construct to a reflective construct in the integrated model of HEI (see Figure 3.8). Perceived to the Figure 3.8, the hypothesis group 1 act as the first order antecedent variables, the hypothesis group 2, 3, and 4 represent as the second order antecedent variables, whereas the hypothesis

group 5 represent as the consequence variable of the study. The reflective construct (sensing, learning, integrating, coordinating and resource recombination) shows a common latent factor structure with reflective indicators for hypotheses testing and show that changes in the underlying latent construct (IMO) are reflected by changes in the indicators among IMO, DC and RR. The hypotheses relating to the competitive learning capability model are captured and highlighted (in green colour line) in the main integrated model, which is considered as the conceptual framework of the present investigation and this model (Figure 3.8) highlights the main hypothesis of the study.

It is essential to add that the exploration of RR in response to one of the main gaps mentioned as part of the problem statement, was essential to complete the primary model of the study after the qualitative research attempt. Exploring RR specifically in the context of HEI competitiveness helped to arrive at a pictorial representation of how RR exists in the context of HEI. This was validated with the last research question where RR was observed with regards to the extent to which it supports HEI competitiveness. Below is the conceptual framework with hypothesis presened in figure 3.8.

***Figure 3.8 Conceptual Framework- Integrated Model of the Competitive Learning Capability model and the Classic Model of HEI Competitiveness***




**Legend**

Main variables/dimensions or construct of the model

The main hypothesis informed by the Classic Model

Hypotheses informed by both the Classic and Integrated Learning models

Hypotheses informed by the Integrated Learning Model

### 3.8 Research Hypothesis

Based on the research objectives, research proposition, in-depth literature review and literature gaps, five group of hypotheses were developed to identify the relationships between IMO, DC and RR towards HEIs competitiveness. Furthermore, it is important to note that these hypotheses relate to the quantitative aspect of the study and does not apply to the exploratory phase where the RR variable is operationalized in the context of RR competitiveness.

***Hypotheses Group 1 (IMO Inter-Relationship)***

The first group of hypotheses is based on the debated inter-relationships between the elements of IMO, as originally conceptualized by Lings and Greenley (2005), Robledo and Aran (2014), and Ruizalba et al., (2014). Their study proved instrumental to validate the practice of IMO in HEI. Based on their study, the relationship between internal information generation, information dissemination and response to market information is yet to be explored in the IMO sub-studies.

A theory of market orientation backs the concept of IMO – a specific system of values required to create and offer value to customers. Grönroos (1990) proposes that IM forms the basis of the orientation of both internal and external markets. According to Mohrw-Jackson (1991), there are three important activities of IMO: 1) understanding needs, (2) spreading the information among departments and (3) raising the benefits for internal customers (Kohli et al., 1993). Kotler (1997) argues that IMO needs to be developed because customers interact with employees and employee satisfaction has a positive relationship to customer satisfaction (George, 1977; Berry, 1987; Piercy, 1995).

Lings (2004) argues that a holistic approach to marketing be developed to study the roles of IMO in building a relationship between a company and its employees. He defined IMO as behaviours that create satisfied and motivated employees. IMO is perceived as the main competency of the organisation, which creates a competitive advantage through loyal and

satisfied customers (Lings & Greenley, 2005), satisfied employees (Gounaris, 2008), resulting in a productive market share (Lings & Greenley, 2009). Furthermore, Lings (2004) listed employee satisfaction, employee retention and employee commitment as the internal aspects of performance. In other words, job satisfaction and commitment are important to the concept of IMO.

Denis (1995) suggest that internal marketing orientation practices should enable HEI institutions to absorb, develop, motivate and maintain their employees by providing high quality working conditions and meeting their needs. When internal marketing orientation is well embedded in an organizational culture, competitive advantage is assured (Menon, A., Bharadwaj, S. G. y Howell, R. (1996).

In the context of HEI that has suffered constant changes seems appropriate to assess IMO as, according to the legal system of higher education Institutions, HEI are establishments that provide services to the community, transfer knowledge, have the autonomy and must establish codes of good management practices (Shams & Huisman, 2016). In conjunction with the assessment of job satisfaction, commitment, organisational citizenship behaviours and performance, the evaluation of IMO by academic staff makes sense since, according to the Statue of the Career of the Polytechnic (2007 as cited in Aras, 2018) and Universitary Staff (2007 as cited in Aras, 2018), they must participate in the management of HEI, and, therefore, have a clear idea of how they act towards the workers.

As there is already some empirical evidence for the positive impact of IMO on industrial and service organisations (e.g. Cervera et al., 2001; Nazri, Omar, & Hashim, 2018), it seems of high value to examine the degree of IMO in HEIs in general and in different national HE systems in particular because this kind of comparison could provide some clues about the relationship between market-oriented HE policies and the incorporation of IMO in academic settings. Besides, past research on IMO found that it is positively correlated with innovation,

excellence, employees' high levels of satisfaction and commitment, customers' satisfaction, and brand loyalty (King & Grace, 2006), HEIs have long been accused of neglecting these important issues. Understanding the context of IMO within HEIs generally and HEIs in UAE specifically is, therefore, the first stage in attempting to increase this orientation in HEI systems.

With further emphasis on the need to strengthen the internal components of the organization and while discussing the resources and capabilities that a firm must possess in order to gain competitive advantage, the concept of internal marketing, has increasingly attracted attention. It is worth mentioning that service staff who make up IM of an organization is one of the important VRIN resources and need direct attention as they being the ultimate source of competitive advantage of any organization (Lings & Greenly, 2010; Ruizalba et al., 2014). This is partly attributable to a positive and strong association between employee satisfaction and customer satisfaction (Lings & Greenley, 2005; Piercy 1995; Rafiq & Ahmed, 1993; Kotler, 1997). Strong evidence exists on the contribution of internal employee satisfaction to overall customer satisfaction and business success (Hater et al., 2002; Ling & Greenley, 2010; Gounaris et al. 2010).

In light of discussion, the research on IMO have revealed the importance of gathering information about the staff needs and taking appropriate measures to disseminate information to response to their needs. This chain of gathering information, dissemination, and response signifies strong inter-relationship among the sub variables of IMO. As can be seen that IMO information generation serve as starting point to implement IMO strategies, followed by information dissemination and then respond to the staff needs. It is on this premise that this study sought to explore the inter-relationship among the three main variables of IMO. Thus, the current study will lead to the investigation of information generation, information

dissemination and response to market information towards IMO information dissemination and response to internal market information.

This leads to the construction of the first set of hypotheses:

*H1a: IMO Information Generation has a significant and positive effect on IMO Information Dissemination.*

*H1b: IMO Information Dissemination has a significant and positive effect on Response to Internal Market Information.*

*H1c: IMO Informal Information Generation has a significant and positive effect on Response to Internal Market Information.*

***Hypotheses Group 2 (IMO and DC)***

The second group of hypotheses focus on the relationship between IMO and DC as this remains as one of the main research gaps of the study. Among the study that discuss the relationship of IMO and DC is Knoblock (1995). Knoblock asserts that in the event where resources are duplicated and inefficiently managed, such as disorganized human resource management, the firm's competitiveness may be challenged as it will not be able to achieve true leaning to facilitate the optimisation of organisational processes. Other literature on IMO generally support that attention to internal human resources of the organisation improves efficiency, integration of different areas of the organisation and corporation towards organisational goals are Gounaris et al. (2010) and Bae & Ha (2014).

IMO which is defined as the integration and coordination of all efforts within the organisation towards the implementation of corporate strategies more systematically (Tsai & Wu, 2006), is regarded as the strategic orientation, which is as internal to the firm as DC. This assertion is particularly true with Teece et al., (1997) dynamic capabilities approach to strategic management; this perspective to strategic management supports the assertion that the concept

of DC flows from within the organisation and is more in line with firm-level strategies that are directed at creating a sustainable competitive advantage.

Notwithstanding, firms requires good strategies from DC point of view and a strong IMO to sustain competitive advantage (Kurzhals, 2015). Hence, both IMO and DC are strategic orientation that are internal to the firm. Strategic orientations are the guiding principles that influence and reflect the strategic directions implemented by a firm to achieve superior performance (Gatignon & Xuereb, 1997; Slater, Olson, & Hult, 2006).

In the context of the changing environmental conditions and challenges, HEI must respond to key challenges, such as changing demographics, multiculturalism, national and international competition, changing knowledge and curricula, new teaching and learning practices, changing roles and responsibilities, resource reduction, resource recombination, wide use of information technology in teaching and learning process, increasing political and social complexity and growing pluralism (Hargreaves, 1995 as citied in Vanblaere & Devos, 2016). These challenges create the necessity of restructuring and re-examining the vision, mission, practices, structures and cultures of HEIs (Kezar, 2011). In brief, understanding and adapting with rapid change in an unpredictably unstable world is a paramount challenge for educational change. It requires HEIs and their members to develop capabilities through so-called dynamic capabilities (Fennell & Arnot, 2008). Therefore, the role and competencies of the leadership through good IMO strategies have been considered to be crucial factors in supporting HEIs and their members to cope with ever-changing circumstances (Fullan, 2016). On the other hand, globalization, technological advancement as well as greater service and efficiency demand create the necessity of reviewing and renewing the education policy and curriculum of the HEI system constantly to keep pace with the changing world (Sahlberg, 2015). The changing education policy and curriculum bring the change into HEI environment and teaching and learning practices that requires continuous capability development of the HEIs and its academic staffs,

including faculty staff, to meet the changing circumstances (Fullan, 2001). This has resulted in a grown and strong interest to investigate how UAE HEIs develop their IMO and DC strategies to cope with the changing educational circumstances.

Based on the above discussion, the firm's competitiveness may be challenged as it will not be able to achieve true leaning to facilitate the optimization of organizational processes without good IMO practice in enhancing DC strategic capabilities. Therefore, the present study proposed to test the relationship of IMO on sensing, learning, integrating, and coordinating capabilities. This leads to the development of the second set of hypotheses:

*H2a: Response to Internal Market Information has a significant and positive effect on sensing capability.*

*H2b: Response to Internal Market Information has a significant and positive effect on learning capability.*

*H2c: Response to Internal Market Information has a significant and positive effect on integrating capability.*

*H2d: Response to Internal Market Information has a significant and positive effect on coordinating capability.*

*H2e: IMO Information Dissemination has a significant and positive effect on learning capability.*

***Hypotheses Group 3 (RR and IMO)***

The third group of research hypothesis was partly a central research gap of the study and partly central to the learning model which is an attempt to validate the contribution of IMO to RR. This inter-relationship has been supported by Van den Bosch et al., (1999) and general literature that support the relationship between IMO and competitiveness. Since RR is mainly considered as a learning construct, a timely and agile information dissemination system will

induce novel recombination of resources. It has been suggested that certain management practices (IMO) facilitate entrepreneurial resource recombination activities (e.g. Covin & Slevin, 1991a; Miller, 1983; Murray, 1984; Zahra, 1991; Stevenson & Jarillo, 1990) by making it possible for staff members to take innovative initiatives and by rewarding such efforts (Stevenson, 1983; Brown et al, 2001).

Over time, there has been significant interest shown in advancing research on resource recombination for wealth and novelty creation with the intention of benefiting society, firm shareholders and other stakeholders (Galunic & Rodan, 1998; Moran & Ghoshal, 1999). RR is as much important to knowledge economies in a similar dimension as it is for increased firm performance (Zahra & Wiklund, 2002; Galunic & Rodan, 1998). In affirming to some of these, elements such as IMO as an antecedent and an underlining factor to enhancing resource combination and reconfiguration, proponents including Sharmila (2013), further argues that the strength and performance of every organization is its workforce/employees, their capabilities, commitments, loyalty and resource management takes an essential support in a firm's existence. RR has become even more important now due to increased competition for survival and efficiency. Competitiveness is established through the synergy that comes out of efficient recombination. Adding resources to other resources and business processes help generate new ideas in the forms of new product development (Majumdar, 1998). A high orientation to leading and innovation permits competitiveness through wealth creation (McGrath et al., 1995).

The need to incorporate IMO at the strategic level of organisations towards productivity and better RR has become essential (Naudé et al., 2003). Tsai & Wu (2006) have referred to IMO as the integration and coordination of all efforts within the organisation towards the implementation of corporate strategies more systematically. Hence, IMO and organisational capabilities are strategic orientations and antecedents to both internal (social and structural)

and external (comprise environmental and inter-organisational factors) part of firms. IMO is seen as a way of increasing performance and improving service quality (Berry et al., 1976). George (1990), Collins & Payne (1991) argue that IMO promotes, develops and sustains the company's ethos of customer service for internal and external customers. Lewis (1989) implies that IMO fosters a marketing orientation among a firm's employees towards better RR strategies.

Based on this observation, IMO sub-constructs of information dissemination and response to market information were considered antecedents of RR as part of the research model. Considering the response to market information based on its contribution to RR supports the main research gap 3 of the study and again helped close the mediation loop between IMO and RR through DC. This leads to the development of the third set of hypotheses:

*H3a: Response to internal market information has a significant and positive effect on Resource Recombination*

*H3b: IMO Information Dissemination has a significant and positive effect on Resource Recombination*

***Hypotheses Group 4 (DC and RR)***

The fourth group of hypotheses built on the relationship between DC and RR. It must be noted that DC and organisational capabilities span from reconfiguration, leveraging, learning and integration of resources and skills (Teece et al., 1997; Bowman & Ambrosini, 2003) which can be hierarchically categorised (Collis, 1994). The sensing, learning, integrating and coordinating capabilities in firms have a strong role to play in RR (Pavlou & El Sawy, 2011). Eriksson (2014) reveals that organisational capabilities appear to be a key social antecedent of DC. Ambrosini et al., (2009) add that capabilities are concerned with continuous improvement, refreshments, adaptive and augmenting of firm's resource base.

DC is often reiterated as the capacity of organisations that helps to purposefully create and modify its resource base for competitiveness (Ambrosini et al., 2009). Teece et al., (1997, p. 515) further explain the roles DC plays in the integration and reconfiguration of internal and external organisational skills and resources for efficiency and performances (Teece et al., 1997, p. 515). Leonard-Barton, (1992) added that valuable organisational resources could become very rigid if they are not modified and improved upon with a mixture of different logistics and equipment to produce new product lines. Throughout this discussion, RR has been observed as a learning construct that spurs competitiveness through resource combination (Sears & Hoetker, 2014; Galunic & Rodan, 1998). The relationship between DC and RR is integral to the learning model and all other areas of the review that observe the definition of DC in the context of internal resource efficiency (Eisenhardt & Martin, 2000; Zollo & Winter, 2002). These arguments, therefore, remain fundamental to DC from the resource-based and competence- based perspectives. Therefore, the current study proposed to test the sensing, learning, integrating and coordinating capabilities towards resource recombination. This leads to the development of the fourth set of hypotheses:

*H4a: Sensing capability has a significant and positive effect on resource recombination*

*H4b: Learning capability has a significant and positive effect on resource recombination*

*H4c: Integrating capability has a significant and positive effect on resource recombination in the context of HEI competitiveness.*

*H4d: Coordinating capability has a significant and positive effect on resource recombination*

***Hypotheses Group 5 (IMO, DC, RR and Competitiveness)***

The final set of hypotheses consider the effect of IMO, DC and RR on Competitiveness. This remains the foundation of the present study. The contribution of DC to competitiveness has

overwhelming presence in literature ((Baker & Sinkula, 1999; Calantone et al., 2002; Hurley & Hult, 1998). In addition, RR has also been considered a key enabler of organisational competitiveness (Baker & Sinkula, 1999; Slater & Narver, 1998). Finally, IMO has remained a competitive internal capability that directs an organization towards competitiveness (Jaworski & Kohli, 1993; Ruekert, 1992; Lings & Greenley, 2010). According to Lings & Greenley (2009), IMO leads to customer satisfaction, employee motivation and overall organisational performance.

For two decades, HEI worldwide have been under increasing pressure to become more efficient in providing their services. It can be stated that internal and external pressures push HEIs to renew and reshape their organizational structures and management practices. In the extensive education market, it is necessary to discuss the relationship between RR and performance for the following reasons. Firstly, in the highly unstable and uncertain environment in which HEIs operate, they need to develop new resources and existing business processes innovatively in order to grasp new opportunities and maintain their competitive advantages (Li & Atuahene-Gima, 2001). In other words, the RR can support innovative service and education-related operations so as to enhance institutional performance. Secondly, changes in strategic behavior are the primary factors for the survival and success of HEIs within this unstable environment (Kraatz & Zajac, 2001) and it is believed that RR can support current strategic behavior to adapt to environmental change dynamically so as to further enhance performance (Battisti & Deakins, 2017). Finally, due to the lack of educational resources on the market, HEIs cannot obtain enough of these and RR may represent a valuable, unique, and specific source that could have great impact on institutional performance. This leads to the development of the fifth set of hypotheses:

*H5a: Response to Internal Market Information has a positive and significant impact on HEI competitiveness.*

*H5b: Learning Capability has a positive and significant impact on HEI competitiveness.*

*H5c: Resource recombination has a positive and significant impact on HEI competitiveness.*

### 3.9 Conclusion and Summary of the Chapter

The chapter focuses on orientation to strategic management such as the resource-based view, knowledge-based view and competence-based view. It further elaborates on the concepts of international marketing orientation (IMO) and Dynamic capability (DC) as a strategic orientation emanating from the resource-based and competence-based perspectives. Other theoretical themes surrounding these main variables of the study are also critically discussed together with attention to the concept of Resource Recombination (RR).

It was equally important to draw attention to the relationship between variables that inform the hypotheses of the study. Lastly, an empirical review of main variables of the study and a conceptual framework are presented. The next chapter will explore the methodological approaches that will be needed to address the research gaps outlined in this chapter.

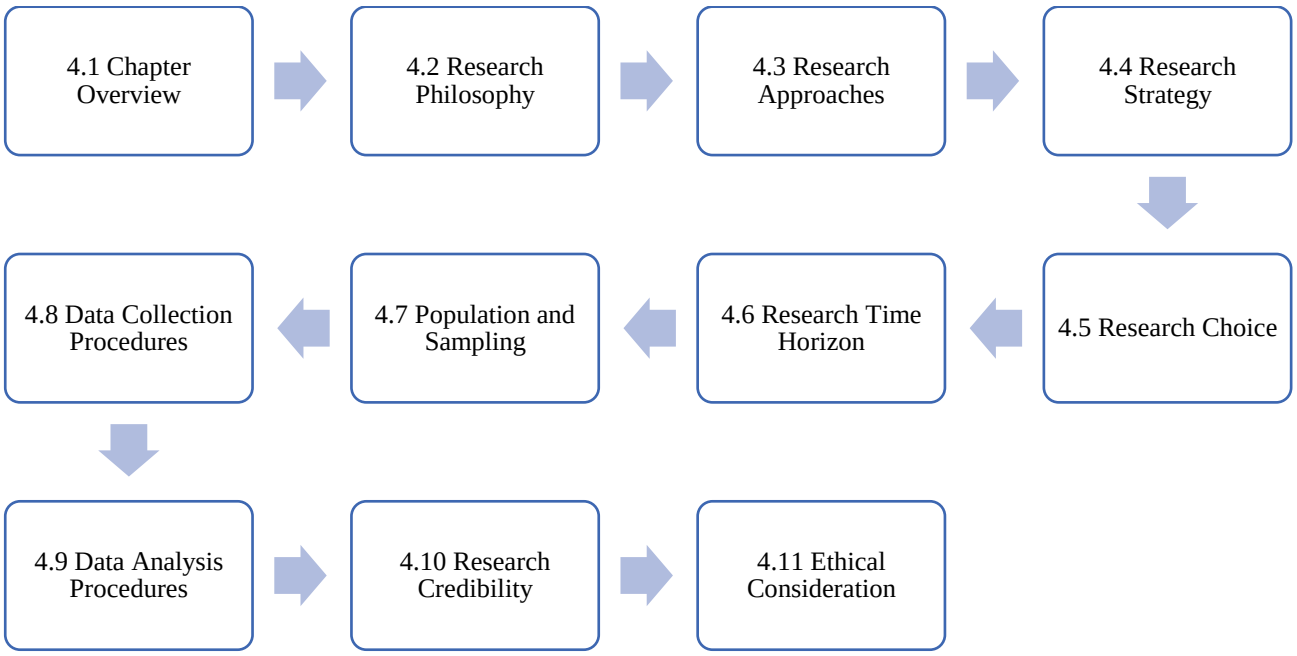
# CHAPTER FOUR: RESEARCH METHODOLOGY

## 4.1 Chapter Overview

This chapter presents the research methodology and other methods adapted for the establishment of empirical evidence. Important procedures and accompanying justifications are offered in an attempt to ensure objectiveness and replicability of findings. The chapter commences with the philosophical position of the researcher in a thorough discussion. The research design follows with an elaboration on the purpose, classification, research approach and research strategy; an overview of key sections is presented in Figure 4.1 below.

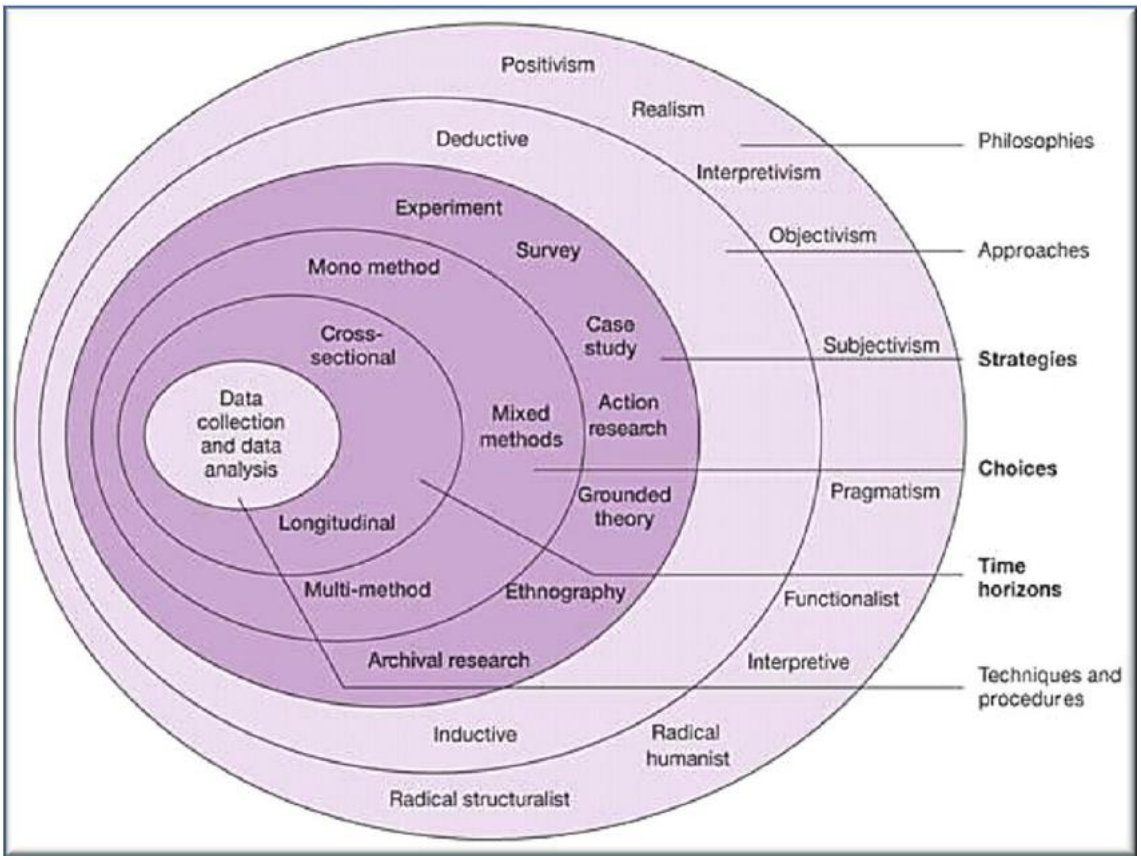
These areas present the foundational grounds based on which evidence is established. The population of the study is defined together with the sampling procedures, data collection methods, sources of data, data analysis methods and others.

***Figure 4.1 Chapter 4 Organization***



The conceptual framework presented in previous chapter seeks to conceptualize RR model in firm competitiveness. This chapter aims to justify the use of proper research methodology in order the achieve the aim and objectives of the study as presented in chapter 1. As discussed in section 1.6, research question one seeks to conceptualize the concept of Resource Recombination in view of firm's competitiveness and this is done through qualitative research methods. Research questions two till four seek to quantitatively test the inter-relationships between main variables of IMO, DC and RR and its impact on dependent variable i.e. firm competitiveness. This is done by using Saunders et al (2012) Research Onion as presented in figure 4.2 below. Accordingly, the chapter begins by discussing the research philosophies, followed by the research approaches, research strategies, research choices, time horizon and finally data collection methods.

***Figure 4.2 Saunder's Research Onion***




*Source: Saunders et al., (2012)*

## 4.2 Research Philosophy

Saunders et al., (2012), Guba & Lincoln (1994) among several other reputable sources on research philosophy have emphasised that the various philosophical continuums such as the ontology, epistemology, theoretical perspective, axiology and other research perspectives are not essentially opposing in nature but complementary. Whether ontology may constitute positivism and interpretivist perspectives as argued by Crotty (1998) and Blaikie (2000), it may constitute objectivist and interpretivist perspectives as argued by Saunders at al. (2012). Marsh & Furlong (2002) argue that consensus in this area is far from realisation. Nonetheless, similarities exist in what Saunders et al., (2012) may term objectivist and what Crotty (1998) may term positivist perspective to reality or knowledge.

The subjects of how reality is considered and how knowledge is interpreted represent ontological and epistemological positions of researchers respectively (Crotty, 1998; Blaikie, 2000). Ontology is defined as beliefs regarding reality and the existence of social artefacts; Epistemology, on the other hand, is defined as how knowledge is interpreted in any field of study. Even though Crotty, (1998) proposes concepts under each level of theoretical perspective, Marsh & Furlong (2002) proposes three main philosophical positions and argue that these elements cut across or can be related to any perspective under ontology or epistemology. A discussion of the positivist, interpretivist and realist positions to research is fundamental to support and comprehend the choice of methods and methodologies in the sections that follow.

### *4.2.1 Positivism Paradigm and associated criticisms*

The positivist research paradigm related to the objectivist epistemic understanding that human behaviour is predictable and can be conceptualised using methods and metrics popular to the natural sciences (Hussey & Hussey, 1997). Ultimately, studies in this area are built on the precise execution of research paying attention to objectivity and replicability of findings. The

positivist stance directly opposes the interpretivist position which is discussed in the next section. The main area of disagreement is that knowledge does not depend on the views and subjective thoughts of social actors but depends on the objective measurement of social behaviour.

The stance adopted by the positivist researchers leads to the fundamentalist's assertion that reality exists regardless of whether or not social actors are aware or not of its existence. People do not have to consider or acknowledge something as the existence or consider something to be non-existence; evidence is established only through research and this is independent of any persons' ideas or thoughts (Carson et al. 2004). This stance ensures that the researcher and participants do not have direct control over the results of the study and that the study should be presented in the strict sense of objective and credible procedures.

The positivist philosophical position has its own set of advantages and disadvantages. One of the main advantages of selecting this position is that the methods used are more objective and can be employed to arrive at same or similar results in any point in time (Easterby-Smith et al., 1991). For these purposes, validity and reliability are extremely important subject areas in the area of positivist research. The external nature of the researcher and the study participants in all areas of data collection, analysis and interpretation also ensure that the study is free of bias. This does not only boost research credibility but alleviate an important ethical concern.

It is important to mention that even though the methods and procedure used for the positivist research attempt to be indisputable as mentioned by Jankowicz (2005), Marsh & Furlong (2002) highlight that limitations exist. One of these limitations is that as much as positivists attempt to establish evidence independent of social actors, the use of the five senses for collection and interpretation of data make it virtually impossible for objectivity. Marsh & Furlong (2002) therefore argue that interpretivist criticise positivists as un-natural and

unwilling to leave a role for the human factor in research. Regardless of these criticisms, philosophical research positions are long-standing underlying beliefs about what should be considered real and how reality must be interpreted (Kuhn, 1970). No particular justifications exist for any research paradigm.

On this note, and as mentioned by Kuhn (1970), it would be considered irrelevant to communicate or justify one's philosophical position, or even criticise another's position considering it is only intuitively driven and cannot be supported empirically. Nonetheless, understanding in this area is critical to comprehend one's choice of methods and paradigm based on which evidence is established. Positivists, therefore, provide a controlled and regulated environment within which an investigation is conducted following specific objective guidelines. Moreover, scientific methods permit cross comparison even in longitudinal formats (Hussey & Hussey, 1997).

### *4.2.2 Interpretivist Paradigm and associated criticisms*

The interpretivist research paradigm is usually cited under discussions relating to ontology and related to the subjectivist epistemology (Blaikie, 2000). This stance has most often than not be considered as the direct opposite of the positivist philosophical position. Usually, criticisms of the positivist stance have come from researchers who are predominantly interpretivist and vice versa (Marsh & Furlong, 2002). Interpretivists believe that the natural sciences must be considered as separate and different from the social sciences. Interpretivists argue that in the social sciences, evidence can only be established based on interpretations and assumptions which are based on the thought processes of the researcher or the participants involved.

Interpretivist paradigms attempt to use intuition, personal belief, personal convictions for interpretation of knowledge (Carson et al., 2004). To the interpretivist, social science is an invalid and unacceptable term. More subjective and qualitative research methods are

considered under this research paradigm Hussey & Hussey, 1997; Easterby-Smith et al., 1991; Collis & Hussey, 2003). Such qualitative methods include in-depth interviews, focus group discussions, observation and other exploratory techniques. These methods present the flexibility required to establish more complex and flexible thought patterns.

It is important to mention that in a similar scope as the positivist research paradigm, the interpretivists have been faced with appraisals and criticisms. One central appraisal of this paradigm is that it permits the establishment of evidence pertaining to reasons behind social occurrences (Remenyi & Williams, 1998). Even though positivist paradigms are usually set to describe, interpretivists permit the possibility of explaining the reasons behind social occurrences. Research questions and studies that have predominantly sought to understand the reasons behind social occurrences or pursue an area of research with little knowledge about how variables may define have usually sought the help of interpretivist researchers.

One of the main criticisms of this paradigm in the establishment of empirical evidence is that knowledge cannot be dependent on an individual's interpretations of what reality entails. This obviously emanates from the positivists and emphasise that results cannot be compared or benchmarked for objectivity and replicability. The lack of a quantifiable benchmark that can be employed to validate the findings of the study is another major criticism of this research paradigm.

### *4.2.3 Realism Paradigm and justification for the present study*

The present study belongs to the realist position that only inferences that mirror reality can be made through the senses of the researcher and social actors. Before an elaboration of the position of realism as a philosophical position, it is important to mention that the positivist and interpretivist positions are two main ends of the research philosophical continuum and realism is not often discussed as an ontological position (Crotty, 1998). Others including Marsh &

Furlong (2002) and Saunders et al., (2012) have discussed realism as a mid-point between positivist and interpretivist positions. On this note, it is essential to mention Saunders et al., (2012) define realism as the reality of "what is interpreted by the human senses". Realism believes that reality is obtained through our senses and yet reality does not depend on subjective thoughts.

As much as realism does not represent the opposite of interpretivism, Marsh & Furlong (2002) mention that "realism share an ontological position of positivist but in epistemological terms" (p.30). This makes it more of an epistemic stance that is more associated with the positivist ontological position, even though this assertion is debatable. Most importantly, it is important to emphasise that like positivist; realists also believe that evidence can be established independently of social actors' influences even though not all human behaviour can be observed through positivism. Some latent elements in human behaviour require that a more insightful and subjective research attempt is established.

Considering realists believe that studies can be independent and yet gathered through the five senses of the researcher, they consider reality as to what is mirrored and can never be known (Hollis & Smith, 1991). Ultimately, only inferences about reality can be known; the vivid explanation of any social phenomenon is not possible to create. In the same scope as the positivist and interpretivist, the realist position has methodological implications that dictate how knowledge is interpreted and established from social evidence.

One example of how knowledge is interpreted in realism is when the subject of success comes up in an investigation. As much as success may be defined in social reality as pertaining to a variety of instances such as respect, riches, social standing, or concerning a particular event, the researcher must again assess whether or not success is referring to perceived success or real success data. Perceived success collected from participants may be associated with some

discrepancies due to forces and un-natural beliefs within the social terrain. Moreover, some responses on perceived success may merely have an unnatural and highly subjective perception about the subject.

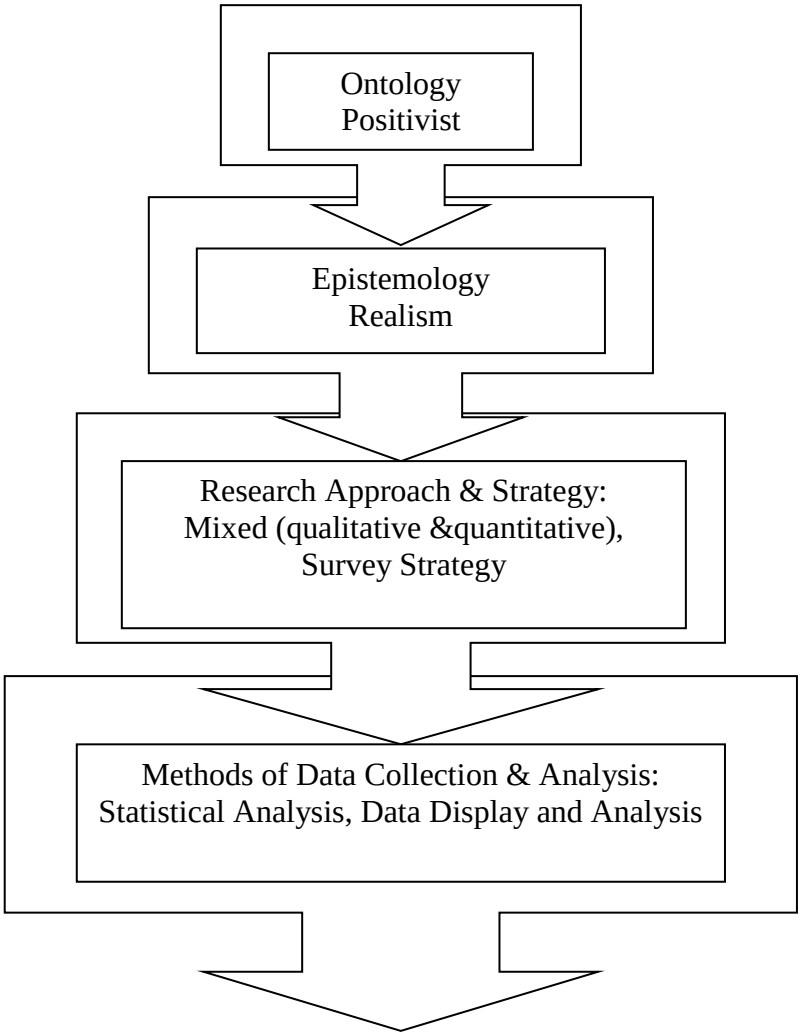
Realism has been criticised in the same manner as positivism and interpretivism. Likewise, criticisms come from both ends of positivism and interpretivist philosophical positions. Positivists argue that all social structures can be observed through objective means (Marsh & Furlong, 2002, p.31). Positivists emphasise that social associations and assumptions represent reality, as such, success in the previous example offered, must be defined based on objective grounds and not someone's ideas. People's beliefs and subjective interpretations cannot be considered objective. Interpretivists also criticise this position from the perspective that no interpretation based on social actors can be termed objective from the actors (Marsh & Furlong, 2002).

Realists have sought to create a perfect research paradigm which addresses how reality represents while presenting an objective platform for knowledge acquisition and interpretation. Criticisms from the positivists and interpretivists have therefore led to alterations and other forms of realism being considered, and these include critical realism and contemporary realism (Marsh & Furlong, 2002). Without the need to continue the discussion into these other areas, it is important to conclude that the present study builds on the realist position that social actors exist independent of any social phenomena under investigation.

Ultimately, our level of understanding and insight in literature can inform our conclusions regarding social phenomena, thus influencing the outcome of any investigation. The study builds on the positivist ontological position in a realist epistemological stance. Attention is paid to the need to remain objective in all methods and even in the analysis of qualitative data

considering a mixed method is adapted. The building blocks of the study are presented in Figure 4.3

***Figure 4.3 Building Blocks of the study***




***Source: Adapted from Crotty (1998)***

The remaining areas of the chapter emanate from these fundamental beliefs about reality, its existence and how knowledge may be interpreted. The study is predominantly explanatory even though an exploratory attempt precedes it.

### 4.3 Research Approaches

The research approach has been defined as how measures are implemented in the areas of data collection and analysis with regards to any particular study (Creswell, 2009). The research approaches present the main considerations that follow from the philosophical positions presented in the previous sections. Saunders et al., (2012) commence the discussion of research approach from the orientation of research purpose or the research purpose classification. Saunders et al., (2012) propose the deductive and inductive reasoning as two main ends of the research approach, while Potter (1996) on the other hand proposes the qualitative and quantitative research approaches. Saunders et al., (2012) however observe that the quantitative and qualitative research approaches are in congruence with the quantitative and qualitative research respectively. Considering the exploratory nature of the study, inductive based approaches were deemed essential for the study. Hence, inductive based analytical procedures were used to qualitatively analyse the results and to arrive at findings which informs key inter-relationships in the conceptual framework of the study.

### 4.4 Research Strategy

Research strategy has been defined as the procedure and measures that are considered for the establishment of evidence (Yin, 2003). Saunders et al., (2012) propose seven main research strategies that can be adapted in the event of any investigation; these include experiments, surveys, action research, case studies, grounded theory, ethnography and archival research strategies. Yin (2003) on the other hand proposes five main research strategies and these include the case study, survey, experiment, archival research and history. Yin (2003) and Saunders et al., (2012) are in consensus that the various research strategies are not mutually exclusive but may be contingent with the research approach or research purpose classifications. An instance is that the experimental research strategy may be strictly quantitative and explanatory (causal) in nature.

It must be observed that the various research strategies have their strength and weaknesses even though no strategy is considered default for either qualitative or quantitative research approach. The various research strategies, the respective question typically associated with them, control requirements over behavioural events and attention to contemporary issues are presented in Table 4.1 as originally proposed by Yin (2003).

***Table 4.1 Situations for Research Strategies***

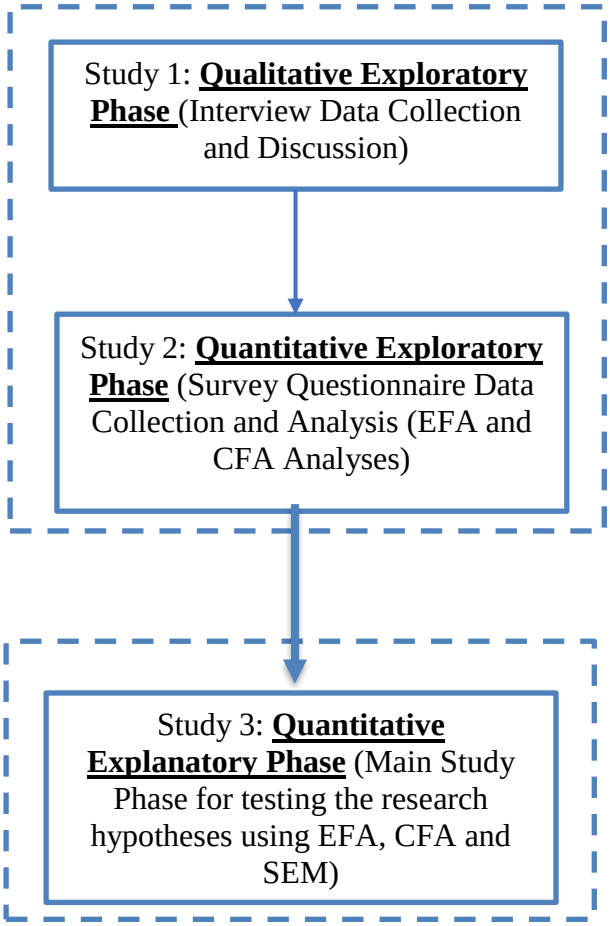
| Strategy | Form of Research Question | Control requirement over behavioural events | Attention to contemporary issues |
|---|---|---|---|
| 1. Experiments | How, Why | Yes | Yes |
| 2. Survey | Who, What, Where, How many, How much | No | Yes |
| 3. Archival Analysis | Who, What, Where, How many, How much | No | Yes/No |
| 4. History | How, Why | No | No |
| 5. Case Study | How, Why | No | Yes |

*Source: Yin (2003)*

Considering the various research strategies, the survey research strategy has been deemed one of the most popular strategies known for the establishment of more reliable results. Saunders et al., (2012) argue that the survey research strategy helps abide by the needs of study representativeness and generalizability. This is embedded in the assertion that the survey research strategy permits the use of a larger number of respondents. It also permits the observation of a probability sampling technique which offers all elements of the population an equal chance of selection in the event of sampling procedures.

The use of the survey research strategy is therefore justified by the need for objective methods to establish empirical evidence. One qualitative survey accompanied by a quantitative survey was considered in the exploratory phase of the analysis. The conclusive phase of the study entailed a single quantitative survey research strategy as presented in Figure 4.4.

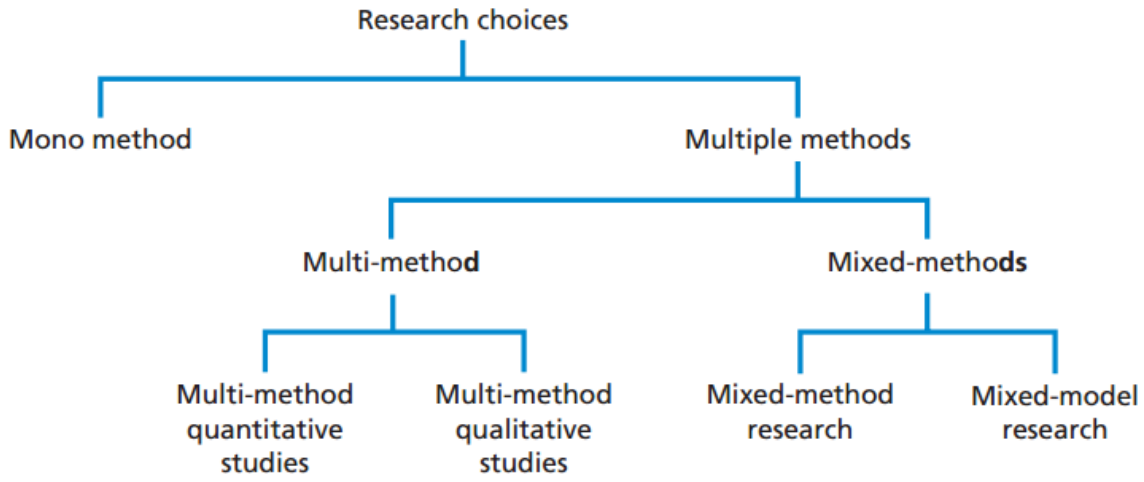
***Figure 4.4 Sequential Exploratory Mixed Research – Study One, Two and Three***




## 4.5 Research Choice

According to Saunders et al (2012), research choice comprises of mono, mixed and multi research methods. The mixed-method research is one of the common research choices as originally proposed by Saunders et al., (2012) in Figure 4.5. The qualitative and quantitative research choices can be combined in the various ways, and this is different from the combination of multi-method quantitative or multi-method qualitative research. The mixed method research is again different from the mixed model research which can collect data using either qualitative or quantitative approach and analyse it otherwise using the opposite approach.

***Figure 4.5 Research Choices***




*Source: Saunders et al., (2012)*

The mixed research approach constitutes the dedication of equal amount of attention to both the qualitative and quantitative stages; they may involve multiple sampling procedures, a mixed set of analyses or a sequential set of analyses among others (Creswell, 2003; Johnson et al., 2007). Justification of the mixed research approach is essential as it should not simply be considered based on its associated benefits (Johnson & Onwuegbuzie, 2004).

The present study adopts a mixed approach to research. The exploratory phase of the study is accompanied by a combination of qualitative and quantitative approaches while the conclusive phase consists only of a quantitative approach. Howe (1988) asserts that a combination of approaches helps to establish probable research outcomes. Others such as Curran & Blackburn (2001) observe that mixed research approach must be recommended for studies in the area of business management due to its renowned benefits over mono methods.

On justification of the mixed research approach, it has already been emphasized that the area of RR demands an exploratory attempt to clarify and gain insight on indicators that apply in the context of HEI competitiveness. Interviews are first used to explore unidentified RR items

and arrive at a “sensemaking” qualitative model. The items of RR were then considered in a quantitative survey research which helped validate the items. In the quantitative survey research, an exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were considered to define latent constructs embedded in the interview results that best define RR in context of HEI competitiveness.

After investigating RR, the indicators of the study inform the quantitative research approach to establish a parsimonious model of RR. This model is discussed and finally extracted to inform the main conclusive phase of the study where the inter-relationships as presented in the conceptual framework of the study, are tested. It must be mentioned that the findings of the Exploratory phase of the study did not just inform the quantitative approach but led to an enhancement of the framework with regards to RR inter-relationships with the other elements in the model. This justification has been termed facilitation ability of mixed methods by Greene et al., (1989) and Bryman (2007).

Aside from the above justification, it is essential to add that mixed approach permits an avenue for triangulation (Greene et al., 1989; Harwell, 2011; Bryman, 2007). Triangulation represents the case where a study combined qualitative and quantitative approaches at the same time in both areas of data collection and analysis. Triangulation aims at objective findings and remains the dominant reason for adopting a mixed method. Even though the present study is not essentially of a triangulation mixed method, but a sequential one, the benefits in this area may still be acknowledged. Exploring RR in context of HEI permits more objective conclusions.

Ultimately, Saunders et al., (2012) argue that the mixed research method permits the puzzle-solving approach to data collection and analysis. Ultimately, it ensures that required methods are dedicated to required research questions in the same study. Whereas quantitative approach entails the use of number and more objective methods to establish empirical evidence,

qualitative studies, on the other hand, adopt the use of subjective methods (Creswell & Plano Clark, 2007). It must be added that quantitative studies have a stronger tendency to abide by strict objective measures of research credibility. The quantitative approach also permits a standardised and replicable set of methods for the establishment of empirical evidence. Even though qualitative studies are easily considered as subjective, the present study abides by key measures to achieve near objective results.

Moreover, the qualitative study has its strengths of helping establish obstructed items that could otherwise never be found by the quantitative study. An instance is that, before the commencement of the interview, the exact resources and business processes that help establish competitiveness in HEIs were unknown and could not be covered in a quantitative investigation. The interviews, however, helped mine these items and constructs onto the surface for further observation.

### *4.5.1 Research Purpose Classification*

Outlining the purpose classification of the investigation is essential to comprehend and appreciate the methods used to answer the various research questions. Categorized into three main areas; the objectives of any investigation may fall within the scope of exploratory, descriptive and causal research purpose classifications (Saunders et al., 2012). These classifications dictate the choice of models, attention to literature, and the orientation of methods used to answer any specific research question. Accordingly, the purpose classification may be contingent on the research approach and strategy.

As the name implies, exploratory studies attempt to pave the way for a deeper understanding of an area that is usually not adequately researched. Causal research, on the other hand, is experimental and involves study undertaking in a controlled environment. Finally, descriptive studies are conducted to build on an area that is typically understood and well-researched

(Saunders et al., 2012). The primary purpose of the study is separated into two main areas; the first purpose of the study considers "how the concept of RR may be operationalised given HEI competitiveness", and this is exploratory. The second purpose classification considered vital inter-relationships between variables of concern in the conceptual framework, and this is predominantly explanatory based on underpinning elements of soft causality establishment.

It may be observed that the first phase of the study is exploratory. The exploratory intent was cited as the main reason for adopting the sequential exploratory research design stated as part of the introduction of the study. Ultimately, even though some amount of literature exists on the area of RR, the literature on the area is primarily implicit, and no particular scale exists for the assessment or measurement of RR (Kurzhals, 2011). Exploratory research strategies and methods are, therefore, adopted in this area. Such exploratory measures include the use of a qualitative research approach instead of a quantitative research approach. It also includes the use of inductive based analytical approaches instead of deductive based approaches.

The second aspect of the study which presents the hypotheses is explanatory. The section builds on literature surrounding IMO, DC and RR and does not necessarily attempt to observe a new area. The second research question for instance which seeks to assess how IMO may be conceptualized; key inter-relationships in this area has already been conducted by Lings & Greenley (2010). Literature and evidence surrounding such area are therefore not entirely new. Other research questions that follow (questions 3 and 4) are all explanatory.

The explanatory research or pure causality has been argued as difficult to attain in the area of social sciences. It is important to mention that the associations the study draws between the main variables of the study are only predictive associations and do not represent a strict sense of causality as exists in social sciences (Falk & Miller, 1992). Falk & Miller (1992) argue that as opposed to causality, predictiveness permits a soft modelling approach which backs

hypotheses in the area of social sciences. Ensuring that this difference is clear is essential considering causation is not easy in social sciences and predictability permits only a limited sense of control as opposed to causation. Moreover, Bullock et al., (1994) argue that statistical analysis cannot alone establish causation.

It has therefore been established that the present study considers both exploratory and explanatory intents. Whereas the first research objective or first research question fits the criteria for exploratory studies, the second category of objectives represents the explain or establish causation between the constructs under observation.

### 4.6 Time Horizon

Other areas of research design that deserves some attention include the time-dimension to research. To validate the mode of RR and to empirically explore the antecedents and consequences of resources recombination in higher education institutions, the study eemployed a cross-sectional research design. One of the justifications on opting for cross sectional design was because the current research is exploratory in nature and demands cross sectional design because of the temporal ambiguity involved in making the causal statements of the hypothesized relationship, which can be only done with longitudinal studies.

### 4.7 Population and Sampling Procedure

#### 4.7.1 Population Definition and Sampling Frame

The population of a study has been defined by Sekaran (2003) as an entire consensus of the elements eligible to participate in a study. A single population of all higher education practitioners in the UAE was drawn. These include mainstream human resources such as school principals, directors, lecturers, faculty deans and department heads. Other support human resources include school administrators, career advisors, librarians, school accountants and other people in administrative positions. Total, faculty and non-faculty workers in UAE higher

educational institutions, excluding colleges, is estimated to be about 20,500 based on fundamental data provided by CHEDS (2012) and other projections.

From this population, three main samples were drawn; one qualitative sample and two quantitative samples. Each of the samples is accompanied by a specific sampling frame. These sampling frames form the sub-population units identified as participants for the primary study. It must be mentioned that the sample elements considered in each of the sampling frames or studies are not mutually exclusive as long as participant fit the criteria to participate. All three studies focus on some aspect of the same population even though the sample frames are drawn individually.

A sampling decision is an important step during the course of any research because if the chosen sample is biased or not a true representative of the target population, then chances of getting inaccuarate results are high. In line with the research objectives, the target population of this study consisted of all employees working in UAE HEI sector. Since the research objective could be met by collecting information from different unit of analysis, therefore the unit of analysis of this study was multi-fold. For the qualitative phase, Study One, the head of department were considered at organizational level, as they are key informants of organization's resources and business processes. For the qualitative phase, Study Two, the unit of analysis were both faculty and staff at individual level. And the for the Study Three, the unit of analysis were only faculty members at an individual level to obtain better undersnading of key relationship between RR, its antecedents and outcomes. Such synthesis of information from multi sources allowed the researcher to get a comprehensive view from different perspectives (Creswell and Clark, 2007; Punch, 2005).

#### *4.7.1.1 Sampling Frame of Qualitative Exploratory Phase – Study One*

For the qualitative exploratory study i.e. Study One, the sub-population or sampling frame for Study One constitutes all principals, school directors and administrators of higher educational institutions in UAE. The reason for choosing this sampling frame was that head or leaders of the institute would have all the pertinent knowledge of the institution and would be in a better position to answer the interview questions. The number of elements in the population can be estimated based on the number of higher educational institutions in UAE (Table 2.1) as can be seen in table 4.2 below. An instance is that if each campus has a single director or principal, the total for this population will be 112 based on the 112 campuses presented in the earlier chapter.

***Table 4.2 Sampling Frame – Study One***

| S/N | Emirate | Number of Campuses | Proportion |
|---|---|---|---|
| 1 | Abu Dhabi | 29 | 25.89% |
| 2 | Dubai | 56 | 50.00% |
| 3 | Sharjah | 8 | 7.14% |
| 4 | Ajman | 5 | 4.46% |
| 5 | Ras Al Khaimah | 10 | 8.93% |
| 6 | Fujairah | 3 | 2.68% |
| 7 | Umm Al Quwain | 1 | 0.89% |
| Total | | 112 | 1 |

On this note, it was observed in the event of the scope of the study, that the entire population of 112 principals in the entire list of institutional campuses was acknowledged. It must, however, be mentioned that, upon request by the researcher, an institution may offer one or more of its leaders at the campus level, considering it to be suitable to contribute to this phase of the study. A total of 112 campuses/principals were however considered in HEI campuses across UAE, excluding colleges and technical institutions.

#### *4.7.1.2 Sampling Frame for Quantitative Exploratory Phase – Study Two*

The sub-population or sampling frame for the Study Two of the exploratory quantitative study were all faculty and non-faculty members in UAE HEIs. Since here the motive was to validate the RR items achieved from Phase one of the study, both faculty and non-faculty were deemed suitable. Non-faculty including the head of the institutions were considered to be knowledgeable on how resources and business processes recombination takes place towards the competitive advantage of the institution.

At the same time, faculty being core element of the institution were also considered to be a part of a sampling frame for the main phase of the study. Mainstream faculty members totalled 7,750 in number based on CHEDS (2012) data and non-CAA projections. No knowledge or data exists on non-faculty members or workers in UAE higher educational institutions. Projections based on lose estimates were therefore made. The total faculty members against non-faculty members projections were made on the basis of Lederman (2012) reports on American college campuses. Further based on the statistics report by the U.S. Education Department's National Center for Education Statistics, mainstream faculty form approximately 40% of the total number of workers in the educational institutions; while the remaining 60% are positions occupied by non-faculty including graduate assistants, paraprofessionals, secretarial positions and other people in administrative roles. Using this proportion and applying it to the current data, non-faculty workers in UAE HEIs is estimated to be 12,953 employees. A total of 20,503 (12,953 Non- Faculty + 7,550 Faculty) are estimated as part of this population.

#### *4.7.1.3 Sampling Frame for Quantitative Conclusive Phase – Study Three*

The final sub-population or sampling frame of the conclusive phase study was all faculty members in UAE HEIs. This population considers only faculty members without the consideration of non-faculty members, as faculty alone was considered enough to have

knowledge on the main elements of the study (IMO, DC, RR and Competitiveness). Besides, considering both faculty and non-faculty would distort the questions given the difference in knowledge on the main elements of the study. Mainstream faculty members totalled 7,550 in number based on CHEDS (2012) data and non-CAA projections. The third sample or sample participants for the third study, therefore, represents all full time and part-time HEI faculty members in the UAE, as can be seen in Table 4.3

***Table 4.3 Quantitative Sampling – Study Three***

| **HEI** | **FT** | **PT** | **EFT** |
|---|---|---|---|
| **Federal** | 2380 | 109 | 2434.5 |
| **CAA** | 3109 | 850 | 3534 |
| **Total** | 5489 | 959 | 5968 |
| **Non-CAA** | - | - | 1,582* |
| **Grand Total** | | | **7550** |

*Source*: CHEDS (2012).
*Note*: * Estimated based on the proportion of Non-CAA institutions.

### 4.7.2 Sampling Procedures

Three main samples are considered for the investigation; one sample for each study. One qualitative sample was selected from the population of all principals in UAE; the sampling frame for the Study One described in the previous section. One quantitative sample was selected from a population of all faculty and non-faculty members in the UAE HEIs; this was drawn for Study Two from the sampling frame described for Study Two. One final sample was drawn from the sampling frame of all faculty members in the UAE HEIs. Considering participation in the three studies was not mutually exclusive, participants who contributed to Study One and two could also contribute to Study Three if they were in a faculty position.

#### *4.7.2.1 Sampling Size*

##### *4.7.2.1.1 Determining Sample Size - Study One*

A fundamental element in qualitative data sampling is data saturation. A sufficient number of interviews is justified only in the event of data saturation (Saunders et al., 2012). Saunders et al., (2012) and Guest et al., (2006) argue that in a homogeneous population, a sampling size of 12 participants is justified to reach data saturation. What may be described as homogeneous may, therefore, imply the case where all participants share common knowledge about the subject of interest. In the event of a heterogeneous population, a sample of 25-30 participants in an interview is justified as representative (Creswell, 2007). The present study considers the higher educational institutions as heterogeneous but shares some similar characteristics.

Homogenous characteristics that exist across institutions exist in various forms. A typical instance is that the institutions exist within a common legal, economic, demographics and socio-political environment. Heterogeneous factors like difference in institution size, number of staff and their nationality and location. Such factors may affect the strategic abilities of the institutions, their managerial and situational flexibility among others. Moreover, all institutions are within a common sector and compete against each other in the UAE higher educational sector. Hence, considering the heterogeneous characteristics together with the homogenous environment within which HEIs operate, data saturation is expected to reach between a sample size of 20-25.

##### *4.7.2.1.2 Determining Sample Size - Study Two*

Whereas the qualitative sample size was considered paying attention to the need for data saturation, the quantitative sample size was selected paying attention to the generalizability of sample to the population. Strict adherence to objective measures was considered in the determination of sample size. First and foremost, Saunders et al., (2012) recommendation for

the determination of sample size was considered. In determining the minimum sample size, Saunders et al., (2012) recommend the following:

$$n1 = p\% * q\% * [z/e\%]2$$ - Equation (1)

Where the following definitions are established:

n1 = minimum sample size

p% = proportion of sample belonging to any specific category (faculty)

q% = proportion of sample not belonging to the specific category(non-faculty)

z = level of confidence is observed at 95% (z value of 1.96)

e% = margin of error (a 5% error margin is considered)

To determine the proportion of sample belonging to any specific category, it was observed in determining the sampling frame that 40% of workers in UAE HEIs were estimated to be faculty or mainstream instructors whilst the remaining 60% were non-faculty or support staff. Placing these figures into the main formula offered earlier, the following is observed:

$$n1 = 40\% * 60\% * \left[\frac{1.96}{5}\%\right]\text{^}2$$

$$n1 = 2400 * [0.392]\text{^}2$$

$$n1 = 2400 * 0.153664$$

$$n1 = 368.79$$ (Minimum sample size requirement)

To arrive at adjusted sample size, the second equation was considered.

$$n2 = n1/(1 + \left(\frac{n1}{population}\right))$$

- Equation (2)

Where the following definitions are established:

n1 = minimum sample size

n2 = population adjusted sampling size (20,503)

Factoring these into the equation 2, these are presented as follows:

$$n2 = \ 368.79/(1 + \left(\frac{368.79}{20{,}503}\right))$$

$$n2 = \ 368.79/(1 + 0.017987)$$

$$n2 = \ 368.79/(1.017897)$$

$$n2 = \ 362.3 \text{ (Approximately 362 participants)}$$

Finally, it is important to consider the response rate into the sampling process so as to compensate for non-response error in event of data administration. Saunders et al., (2012) proposes this equation as presented below:

$$n3 = \frac{n2*100}{re\%} \qquad \text{- Equation (3)}$$

Where the following definitions are established:

n2 = population adjusted minimum sample size (362)

re = anticipated response rate (80%)

For the anticipated response rate, Nulty (2008) establishes that an average of 33% response rate is achieved in the event of online data collection and 75% with regards to paper-based data collection administration. This was later reported to be around 66% by Raosoft (2017). Other considerations that went into the determination of the response rate are the researcher's professional network of key people within the population. A response rate of 80% was therefore considered despite the use of online sampling procedure. Factoring these indicators into the third equation, the following may be realised:

$$n3 = (362 * 100)/80$$

$$n3 = \ 36200/80$$

$$n3 = 452.5 \text{ (Approximately 453 respondents)}$$

The final sample size for the quantitative exploratory aspect of the investigation, or Study Two, after the preceding considerations, is **453** respondents.

#### *4.7.2.1.3 Determining Sample Size - Study Three*

Similar procedures observed on Study Two sample size determination were considered here even though the proportions and populations differ. The minimum sample size was once again estimated using equation one presented earlier. The focus was centred on faculty members as the items of IMO, DC, RR and competitiveness could relate to either faculty or non-faculty but not both. The focus of questions towards faculty and non-faculty members would arrive at discrepancy and distortions in question formats. Hence keeping this challenge in mind, questions at this stage were, therefore, formulated focusing on faculty members. In light of this, administering the survey to non-faculty members would lead to misunderstanding as they may not be in the best position to answer the questions asked.

To determine the proportion of sample belonging to any specific category, the population of 7,550 were separated into full time and part-time faculty members. Considering these proportions together with the confidence interval of 95% and a sampling error of 5% permissible for academic research, equation (1) is represented as follows:

$$n1 = 85\% * 15\% * \left[\frac{1.96}{5}\%\right]\text{^}2$$

$$n1 = 1275 * [0.392]\text{^}2$$

$$n1 = 1275 * 0.153664$$

$$n1 = 195.9 \quad \text{(Minimum sample size)}$$

To arrive at an adjusted sample size, the second equation was considered, where the main faculty population is 7,550. Factoring these into the equation 2, these are presented as follows:

$$n2 = 195.9/\left(1 + \left(\frac{195.9}{7550}\right)\right)$$

$$n2 = 195.9/(1 + 0.025947)$$

$$n2 = 195.9/(1.025947)$$

$$n2 = 190.94 \text{ (Approximately 191 participants)}$$

Finally, non-response error was considered using equation three. Since only faculty members were considered, a lower response rate was originally anticipated at 30%.

$$n3 = (190.94 * 100)/30$$

$$n3 = 19094/30$$

$n3 = 636.46$ (Approximately 636 respondents)

The final sample size for the quantitative aspect of the investigation after the preceding considerations is **636** respondents.

### 4.7.3 Sampling Technique

#### *4.7.3.1 Sampling Technique - Study One*

As mentioned earlier in section 4.7.2.1.1, considering the heterogeneous characteristics together with the homogenous environment within which HEIs operate, data saturation is expected to reach between a sample size of 20-25. It is worth mentioning that efforts were made to include respondents from the HEI's of all seven Emirates. Purposive sampling technique was used to achieve substantial number of interviewees to get a better understanding of organizational resources and business processes. Purposive sampling is a sampling technique that involves selecting subjects based on their qualification and suitability to contribute specific forms of data. It is the most preferred sampling technique employed in qualitative studies as it lets the researcher to select purposely particular persons, events, or settings that has important information pertaining to the subject matter under investigation (Cole and Maxwell, 2003, p.87). Thus, principals or any other person in the institution's privy to information comparable to the post of a principal or school leadership was considered suitable for the investigation. More details on the respondents for the qualitative phase can be found in chapter 5.

#### *4.7.3.2 Sampling technique – Study Two*

The quantitative sampling technique was considered paying attention to the need for representativeness. The quota sampling was combined with the purposive sampling method.

Even though these techniques do not permit equal chance of selection (Saunders et al., 2012), it was relevant to consider awarding the individual Emirates their proportion of sample based on the number of campuses present. Campuses across the Emirates were used as proportions for the quota sampling as presented in Table 4.5 below.

***Table 4.5 Proportional (Quota) Quantitative Sampling – Study Two***

| S/N | Emirate | Number of Campuses | Proportion | Sample (n) |
|---|---|---|---|---|
| 1 | Abu Dhabi | 29 | 25.89% | 117.282 |
| 2 | Dubai | 56 | 50.00% | 226.5 |
| 3 | Sharjah | 8 | 7.14% | 32.3442 |
| 4 | Ajman | 5 | 4.46% | 20.2038 |
| 5 | Ras Al Khaimah | 10 | 8.93% | 40.4529 |
| 6 | Fujairah | 3 | 2.68% | 12.1404 |
| 7 | Umm Al Quwain | 1 | 0.89% | 4.0317 |
| | **Total** | **112** | **1** | **453** |

*Note*: Proportions based on CHEDS (2012) data

Sample size determination for Study Two arrived at 453 members; spread across campuses in UAE collated by CHEDS (2012), a total of 117 were selected from Abu Dhabi Universities; 227 respondents were selected at random from campuses in Dubai higher educational institutions, 33 respondents were selected from Sharjah campuses, 20 from Ajman Campuses, 40 from Ras Al Khaimah, 12 from Fujairah and 4 respondents from the campus in Umm Al Quwain universities. The judgemental or purposive sampling technique was used to identify participants who are eligible to participate in this study, after creating the quotas. All respondents were observed to be workers in UAE HEIs, whether faculty or non-faculty.

#### *4.7.3.3 Sampling Technique- Study Three*

The second quantitative sampling also considered the need for representativeness but was again challenged on the inability to arrive at a representative sample. The quota sampling technique was also considered here to permit each proportional quota of campuses across the Emirates(Saunders et al., 2012). Original sample size determined earlier was 636; this was distributed across campuses in the Emirates (Table 4.6).

***Table 4.6 Proportional (Quota) Quantitative Sampling - Study Three***

| S/N | Emirate | Number of Campuses | Proportion | Sample (n) |
|---|---|---|---|---|
| 1 | Abu Dhabi | 29 | 25.89% | 164.6604 |
| 2 | Dubai | 56 | 50.00% | 318 |
| 3 | Sharjah | 8 | 7.14% | 45.4104 |
| 4 | Ajman | 5 | 4.46% | 28.3656 |
| 5 | Ras Al Khaimah | 10 | 8.93% | 56.7948 |
| 6 | Fujairah | 3 | 2.68% | 17.0448 |
| 7 | Umm Al Quwain | 1 | 0.89% | 5.6604 |
| | Total | 112 | 1 | **636** |

*Note*: Proportions based on CHEDS (2012) data

A total of 165 respondents were selected from Abu Dhabi higher educational institution campuses, 318 respondents were selected at random from campuses in Dubai higher educational institutions, 45 respondents were selected from Sharjah campuses, 28 from Ajman Campuses, 57 from Ras Al Khaimah, 17 from Fujairah and 6 respondents from the campus in Umm Al Quwain. Even though the quota sampling was used at this stage, specific participants within each Emirate were selected using judgemental sampling. That is, specific individuals that were considered had to be at least in the position of a full time or part-time faculty member in the Emirate.

### 4.7.4 Sources of Data

Two sources of data have been identified; these constitute primary sources and secondary sources (Sekaran, 2003). Only primary data was used to answer the research questions and in all three studies in phase one and two. The main difference between the primary and secondary sources of data is that primary data is collected for the sole purpose of the study being conducted, whereas secondary data is only borrowed from a study unrelated to the study being conducted. Even though secondary data helps save resources and time involved in data collection, the circumstances surrounding secondary data with regards to research credibility may be difficult to obtain. Moreover, secondary data may not be recent or demonstrate the latest occurrences in any social phenomenon of interest.

For these disadvantages, primary data is usually recommended as the researcher has direct control over events. Moreover, measures considered regarding research credibility can be elaborated upon (Saunders et al., 2012). The primary data collection procedures ensure that the primary objectives of the study are at the heart of data collection administration. This ensures that the primary objectives of the study are achieved without compromising on the quality of data in this area or the lack of fit between data and objectives.

It must be emphasised that primary data has not gone without the main challenge of time constraint, the issue with the responsiveness of study participants, and the high cost of data administration. These limitations are curbed to justify the use of primary data. For time constraint, a period of 3 years was offered for study completion. The study, therefore, commenced promptly to give room for ample time allocation to data collection. As mentioned, the researcher has a network of professionals among the population of interest, and a high response rate was considered. Finally, budget and materials constraint were overcome with the help of online data collection procedures.

Three main data collection instruments were used for the present study – an interview guide for the qualitative aspect and a survey questionnaire for the two quantitative aspects of the investigation. Study One and Study Two were combined in a sequential exploratory mixed research design whether the quantitative study builds on the outcome of the interview to establish more relevant findings. The findings of Study Two are later employed in Study Three to test the research framework.

### 4.7.5 Instrumentation - Interview Guide – Study One

The semi-structured interview guide was considered for the exploratory phase of the study. The interview guide was informed principally based on Pavlou & El Sawy (2011) and Kurzhals

(2015) original instruments used for data collection on RR and associated findings. The interview guide for this section is attached to Appendix C of the present report.

Kurzhals (2015) instrument was basically based on an expansion of Pavlou & El Sawy (2011). Kurzhals (2015) considered Pavlou & El Sawy (2011) RR constructs as highly inadequate in the event of fully conceptualising factors of RR. Kurzhals (2015) therefore resorted to other sources and exploratory attempts to define RR, arriving at the matrix of new and existing resources and business processes model that was discussed earlier in the literature review. Kurzhals' (2015) arrived at this model through a qualitative exploratory attempt with little on hand before exploration.

Building on Kurzhals (2015) findings, the present study also explored further the model of RR. The interview guide had two main sections; a structured section (Section A) and unstructured section (Section B). Section "A" of the instrument considered mainly new & existing resources as well as on-going & new business initiatives in the context of HEIs. These instances and examples are collected only paying attention to those that position the institution competitively. An example of a question in Section "A" of the instrument is as follows:

> *"Q2. What are some of the New Resources that contribute to institutional competitiveness? New resources entail external resources that have recently been acquired. Both tangible and intangible resources are welcomed."*

After collecting these examples, they are used in Section "B" of the interview guide in unstructured, open-ended questions. The examples are used to explore how resources recombine with business processes in the HEI. Only specific resources, business processes and capabilities obtained from section "A" are used in Section "B" as a follow up to questions received from each interview participant. This section focuses on how the institution combined

any of these resources and business processes with other resources and business processes. An example of these hypothetical questions is as follows:

> *"Q7. Please elaborate on how existing resources drive on-going business processes in your educational institution?"*
>
> *"Q8. Please explain how new resources drive new business processes/initiatives in your educational institution?"*

### 4.7.6 Instrumentation – Survey Questionnaire – Study Two

The second instrument used for Study Two mainly built on the results of the interview. A version of this instrument is attached to Appendix D. After the interview and removing duplicates from the results, a total of 21 items on combinable resources, 29 business processes and 14 complementary factors arrived. These findings are presented as part of the fifth chapter of the Study One findings. These items were used to formulate questions for Study Two quantitative exploratory attempts.

A seven-point Likert scale was used where "Strongly Disagree" = 1, "Disagree" = 2, "Moderately Disagree" = 3, "Neither Disagree nor Agree" = 4, "Moderately Agree" = 5, "Agree" = 6 and "Strongly Agree" = 7. Sample questions on resources is presented in Figure, 4.6. Sample questions for business processes and RR complementary factors are also presented in Figure 4.7 and Figure 4.8 respectively.

Questions mainly sought to observe how any of these resources and business processes recombine with other resources and business processes towards the establishment of competitive advantage in the HEIs. The section on Complementary factors similarly observed how any of these factors or elements add to institution competitiveness.

***Figure 4.6 Sample Questions on Study Two Questionnaire – Resources***

*For the remaining aspect of the study, please indicate the number that best shows your LEVEL OF AGREEMENT to the statements, where: 1=Strongly disagree, 2= Disagree, 3= Moderately Disagree, 4= Neither disagree nor agree, 5 = Moderately Agree, 6=Agree and 7 = Strongly Agree.*

**SECTION B: RESOURCES**

| S/N | Statement | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| 1 | Students complement other resources and processes in my institution | | | | | | | |
| 2 | Alumni connectedness complements institutional competitiveness | | | | | | | |
| 3 | Restricted entry for students complements competitiveness of my institution | | | | | | | |
| 4 | School brand image makes the institutional brand stand out | | | | | | | |
| 5 | Software makes tasks and processes easier in my institution | | | | | | | |
| 6 | Accreditation complements institutional competitiveness | | | | | | | |
| 7 | School equipment makes us stand out as an institution | | | | | | | |
| 8 | The nature of Human resources we have makes us unique and competitive | | | | | | | |

***Figure 4.7 Sample Questions on Study Two Questionnaire – Business Processes***

**SECTION C: BUSINESS PROCESS**

| S/N | Statement | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| 1 | Technological processes add value to other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| 2 | Teaching processes are vital to the institution in its competitive endeavours | | | | | | | |
| 3 | Collaborative processes complement other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| 4 | The student application processes we use adds value to us as an institution | | | | | | | |

***Figure 4.8 Sample Questions on Study Two Questionnaire – Complementary Elements***

**SECTION D: OTHER RR ELEMENTS**

| S/N | Statement | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| 1 | Institutional Control are vital for competitiveness in my institution | | | | | | | |
| 2 | Faculty Rewards is prioritized on the need to remain competitive. | | | | | | | |
| 3 | Faculty Retention is prioritized on the need to remain competitive | | | | | | | |
| 4 | Risk Handling Policies are important elements towards achieving competitiveness in my institution | | | | | | | |
| 5 | Initiatives building complements other resources and processes towards achieving competitiveness in my institution | | | | | | | |

### 4.7.7 Instrumentation – Survey Questionnaire – Study Three

As opposed to the interview guide, the survey questionnaire was largely informed by literature sources presented in the previous chapter of the study. The pre-pilot data collection instrument used for this study is presented in Appendix E; after a series of expert interviews and a pilot survey, a post-pilot survey questionnaire is presented in Appendix F.

The primary variables of the study include IMO, DC, RR, and HEI competitiveness. Except for RR which was defined only after the completion of Phase I, all the remaining concepts had been predefined based on existing literature sources. The survey questionnaire was separated into six (6) main sections. Demographic data was collected in Section "A" of the survey questionnaire; key demographic data collected included age, gender, institution sector, the highest level of education, level in the organisation and whether the faculty member is full time or part-time.

Aside from section "A", all remaining sections (sections "B" to "E") are measured with the help of a seven-point Likert Scale. The section on RR was completed in the period following qualitative data collection and analysis whilst all remaining constructs were defined based on reputable scales in literature evidence. The Likert scale ranged from "Strongly Disagree" (1), "Disagree" (2), "Moderately Disagree" (3), "Neither Disagree nor Agree" (4), "Moderately Agree" (5), "Agree" (6) and "Strongly Agree" (7).

### 4.7.8 Measurement of Constructs

#### *4.7.8.1 Measurement of Resource Recombination*

As mentioned earlier, the entire purpose of the exploratory phase was to define or conceptualise resource recombination. After the interview of over 700 individual code segments, this was narrowed down to about 65 individual items on the exploratory quantitative phase. Finally, 12 items were settled in the final phase of the CFA in Study Two. These 12 items were considered for the main Study Three pre-pilot studies (Table 4.7).

***Table 4.7 Pre-Pilot Resource Recombination Items – Study Three***

| S/N | Item | Factor |
|---|---|---|
| 1 | Asset and Finance Management | Asset, Research and Accreditation |
| 2 | Publication and Research Processes | |
| 3 | Accreditation Processes | |
| 4 | Process Automation | Automated Technology Management |
| 5 | Database Management | |
| 6 | Human Resources | |

| | | |
|---|---|---|
| 7 | Institutional Departments | Financial Support for Human Resource and Departmental Initiatives |
| 8 | Finance / Funds | |
| 9 | Faculty Rewards | Faculty Rewards and Retention |
| 10 | Faculty Retention | |
| 11 | Restricted Entry for Students | School Brand Image Appeal |
| 12 | School Brand Image | |

*Note*: Findings of Study One and Study Two

#### *4.7.8.2 Measurement of Internal Market Orientation*

As discussed in chapter 3, section 3.4.1, main items that were considered in defining IMO include Ruizalba et al., (2014), Gounaris (2008), Lings & Greenley (2005), Huang & Rundle-Thiele (2015), Naudé et al., (2003) and Greene et al., (1994). Measurement of the concept of IMO in these sources has their origin from the MARKOR and MKTOR indicators and measurement of market orientation (Farrell & Oczkowski, 1997; Kohli et al., 1993). The Original MARKOR scale consisted of 20 items, and the original MAKTOR scale consisted of 14 items.

The original IMO scale extracted from the MAKTOR scale consists of 19 items can be found in Robledo & Aran (2014) and Ruizalba et al., (2014), with a more expanded version where IMO is separated into five indicators instead of three indicators as in Ling & Greenly (2005). Main items for the measurement of IMO are presented in Table 4.7 below, adapted from MAKROR and a total of twenty (20) items was considered for IMO. Information generation was measured with the help of five (5) items. Information dissemination was measured with the help of four (4) item.

***Table 4.8 Pre-Pilot IMO Items – Study Three***

| S/N | Item | Source |
|---|---|---|
| Information Generation | | |
| 1 | Exchange of Value | Lings & Greenley (2005) |
| 2 | Employee attitudes and values | Lings & Greenley (2005) |
| 3 | External market conditions | Lings & Greenley (2005) |
| 4 | Personal Situations | Lings & Greenley (2005) |
| 5 | Individual Factors | Lings & Greenley (2005) |
| Information Dissemination | | |
| 6 | About the service offering | Lings & Greenley (2005); Robledo & Aran (2014) |

| | | |
|---|---|---|
| 7 | About the customer wants and needs | Robledo & Aran (2014); Ruizalba et al., (2014) |
| 8 | Product and service benefits | Robledo & Aran (2014); Ruizalba et al., (2014) |
| 9 | Corporate aims and strategy | Robledo & Aran (2014); Ruizalba et al., (2014) |
| Response to market information | | |
| Managers' concerns | | |
| 10 | Genuine interest in employees | Robledo & Aran (2014); Ruizalba et al., (2014) |
| 11 | Employee Feelings consideration | Robledo & Aran (2014); Ruizalba et al., (2014) |
| Implementation of Managers' concerns | | |
| 12 | Orientation to solving employee needs | Robledo & Aran (2014); Ruizalba et al., (2014) |
| 13 | Take employee needs seriously | Robledo & Aran (2014); Ruizalba et al., (2014) |
| 14 | Oriented to solving employee problems | Robledo & Aran (2014); Ruizalba et al., (2014) |
| 15 | Understand employee family needs | Robledo & Aran (2014); Ruizalba et al., (2014) |
| 16 | Reconciliation of work and family | Robledo & Aran (2014); Ruizalba et al., (2014) |
| 17 | Work and family life balance | Robledo & Aran (2014); Ruizalba et al., (2014) |
| Training | | |
| 18 | Employee trained to face changes | Robledo & Aran (2014); Ruizalba et al., (2014) |
| 19 | Organization of training seminars | Robledo & Aran (2014); Ruizalba et al., (2014) |
| 20 | Training on new tasks | Robledo & Aran (2014); Ruizalba et al., (2014) |

Finally, the responses to internal market information was measured with the help of 11 indicators. Response to market information can be further categorized into managers concerns (2 items), implementation of managers' concerns (6 items) and training (3 items). Even though the response to market information was considered as a single variable when treated as a dependent variable, the three main sub-indicators were considered separately in the event of responses to internal market information as an independent variable.

#### *4.7.8.3 Measurement of Dynamic Capabilities*

As discussed in chapter 3, section 3.4.3, for the measurement of DC, the constructs and indicators were adapted from Pavlou & El Sawy (2011), Teece (2007); Kurzhals (2015), Zahra & George (2002), Lichtenthaler (2009), Jarworski & Kohli (1994). Pavlou & El Sawy (2011) conceptualised the concept of DC based on varied sources; others later adapted this. Items and related sources used for the measurement of DC in the present study are presented in Table 4.8. Sensing Capability was measured using seven (7) items; learning capability was measured

using eight (8) items; integrating capability was measured using seven (7) items; finally, coordinating capability was measured using six (6) items. A total of 28 items was therefore used for the measurement of DC in the context of the present study.

***Table 4.9 Pre-Pilot Dynamic Capabilities Items – Study Three***

| S/N | Item | Source |
|---|---|---|
| Sensing Capability | | |
| 1 | Identification of new opportunities | Pavlou & El Sawy (2011) |
| 2 | Review of Change effects | Pavlou & El Sawy (2011) |
| 3 | Review of Service development efforts | Pavlou & El Sawy (2011) |
| 4 | Implementation of new ideas | Pavlou & El Sawy (2011) |
| 5 | Effective processes | Teece (2007); Kurzhals (2015) |
| 6 | Adequate processes | Teece (2007); Kurzhals (2015) |
| 7 | Effective routines | Teece (2007); Kurzhals (2015) |
| Learning Capability | | |
| 8 | Identify, value and import | Pavlou & El Sawy (2011); Zahra & George (2002); |
| 9 | Assimilate new information | Pavlou & El Sawy (2011) |
| 10 | Transform existing information | Pavlou & El Sawy (2011) |
| 11 | Utilization of knowledge | Pavlou & El Sawy (2011) |
| 12 | Development of knowledge | Pavlou & El Sawy (2011) |
| 13 | Acquiring new knowledge | Lichtenthaler (2009); Kurzhals (2015) |
| 14 | Capturing knowledge & resources | Lichtenthaler (2009); Kurzhals (2015) |
| 15 | Releasing obsolete resources | Lichtenthaler (2009); Kurzhals (2015) |
| Integrating Capability | | |
| 16 | Forthcoming in contributing | Pavlou & El Sawy (2011) |
| 17 | Global understanding of tasks | Pavlou & El Sawy (2011) |
| 18 | Fully aware of responsibilities and roles | Pavlou & El Sawy (2011) |
| 19 | Careful interrelation of actions | Pavlou & El Sawy (2011) |
| 20 | Successful interconnection | Pavlou & El Sawy (2011) |
| 21 | Intra-departmental activities | Jarworski & Kohli (1994); Kurzhals (2015) |
| 22 | Inter-departmental activities | Jarworski & Kohli (1994); Kurzhals (2015) |
| Coordinating Capability | | |
| 23 | Synchronization of work | Pavlou & El Sawy (2011) |
| 24 | Appropriate allocation of resources | Pavlou & El Sawy (2011) |
| 25 | Assignment of tasks | Pavlou & El Sawy (2011) |
| 26 | Compatibility between members | Pavlou & El Sawy (2011) |
| 27 | Resources leveraging | Teece (2007); Kurzhals (2015) |
| 28 | Overall Coordination | Pavlou & El Sawy (2011) |

#### *4.7.8.4 Measurement of HEI Competitiveness*

For the purpose of measuring competitiveness in HEI, De Haan (2015) competitive criteria established for public sector HEI was adapted for the present study. Top 10 items measure of HEI competitiveness were considered as presented in Table 4.8

***Table 4.10 Pre-Pilot HEI Competitiveness Items – Study Three***

| S/N | Item | Source |
|---|---|---|
| 1 | Quality: education and research | de Haan (2015) |
| 2 | Reputation/brand/image/attractiveness | de Haan (2015) |
| 3 | Unique selling point/being different | de Haan (2015) |
| 4 | Growth of student number | de Haan (2015) |
| 5 | Quality: building, facilities and service | de Haan (2015) |
| 6 | Ranking position | de Haan (2015) |
| 7 | International partnership/cooperation | de Haan (2015) |
| 8 | Geographic location | de Haan (2015) |
| 9 | Doing better, being the best | de Haan (2015) |
| 10 | Experiential knowledge | de Haan (2015) |

### 4.8 Data Collection procedures

Two primary data collection procedures are considered; the first is the face-to-face interview covering the Study One and the second is online data collection covering Study Two and Study Three. Common forms of analysis conducted for Study Two and Study Three include Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). Qualitative research on Study One is presented first.

#### *4.8.1 Qualitative Research Data Collection Procedures - Study One*

The interviews are collected based on face-to-face data collection. The interviewer had to first and foremost submit a formal request to the gatekeepers of all involved institutions that were randomly selected. The request included the data collection instrument attached to Appendix "C" of the present report. After the institution offered approval to conduct the interview, the principal or a representative in a position privy to the knowledge of a principal **is purposively selected** for the interview. The indication of the most suitable candidate for the interview is

presented in the request for data collection. A time convenient to the volunteering participant is then agreed to the interview.

It was critical to offer participant full information on the subject discussion. Respondents were assured of data confidentiality and informed that the study was conducted only for academic purpose. Respondents were also informed that they had the right to withdraw any contribution and data would be recorded with the help of an audio recorder. No form of original identification was presented in the interview recordings or the transcript of audio recordings. Participants who did not permit the use of audio recorders were directly transcribed. All interviews were collected between 45 minutes to 1 hour 30 minutes. Convenient place for interviews was the principal office, meeting and conference rooms of the campuses or faculty dedicated leisure rooms. The first study data collection was completed over a period of 8 weeks (2 months). All 21 interviews were conducted during this period.

### *4.8.2 Quantitative Research Data Collection Procedures – Study Two*

The survey questionnaire was placed on Qualtrics Online Data Collection Platform. The platform permits confidentiality and anonymity in line with the UK Data Protection Act, and other data protection acts in the UAE, where the study was conducted. All 453 emails collected from participants were collated and the link sent to them for completion. Data collection at this phase lasted 6 weeks.

### *4.8.3 Quantitative Research Data Collection Procedures – Study Three*

The survey questionnaire was placed on Qualtrics Online Data Collection Platform and sent to selected participants using an inbuilt mechanism that permits the email of participants to be entered for survey administration. Qualtrics is one of the few online data collection platforms recommended for academic investigations (Pe'er et al., 2012). The platform abides by the UK Data Protection Act (1998) and permits full confidentiality of responses.

As the second phase of data collection, the third study was conducted over a period of 8 weeks (2 months) where emails were sent to all 636 participants who made up the sample. Two additional weeks were added as buffer time for the second phase to increase response rate as much as possible. The researcher built on her network of professionals within the industry to facilitate responses. Also, there was the need to send reminders to faculty members to induce response rate. Reminders were sent only in the seventh ($7^{th}$) and eight ($8^{th}$) week as well as the two-week buffer period.

#### *4.8.3.1 Pilot Study – Study Three*

Before the main data collection for the second phase or Study Three, a preliminary investigation was conducted. At this stage, all items for all areas for the main conceptual framework were either defined based on secondary scales (for IMO, DC and Competitiveness) or defined based on Study One and two (for RR). The pilot investigation sought to validate the instrument and narrow down on the number of questions through expert opinions. After the expert opinions, a brief survey of 50 participants was conducted to further assess the reliability and other validity areas of the instrument.

The Paper-based data collection approach was used for the pilot assessment. First, three experts were consulted on the original instrument to offer insight on the measurement of key constructs. This permit the reduction of items into a clear and sizeable list of items. A paper-based pilot survey was run. The data was manually entered into IBM SPSS Statistics for further analysis.

#### *4.8.3.2 Expert Opinions on Survey Questionnaire – Study Three Pilot*

Three expert opinions were sought on the main instrument. Many of the questions were rephrased to permit clearer understanding by participants. Other questions that appeared or sounded redundant were removed without entirely deleting a construct or sub-construct. Before

the pilot investigation or preliminary study, IMO had 20 items; these were reduced to only 12 items as presented in Table 4.9 below.

***Table 4.11 Post-Pilot IMO Items - Study Three***

| S/N | Item | Source |
|---|---|---|
| Information Generation | | |
| 1 | Exchange of Value | Lings & Greenley (2005) |
| 2 | Personal Situations | Lings & Greenley (2005) |
| 3 | Individual Factors | Lings & Greenley (2005) |
| Information Dissemination | | |
| 4 | About the customer wants and needs | Robledo & Aran (2014); Ruizalba et al., (2014) |
| 5 | Product and service benefits | Robledo & Aran (2014); Ruizalba et al., (2014) |
| 6 | Corporate aims and strategy | Robledo & Aran (2014); Ruizalba et al., (2014) |
| Response to market information | | |
| 7 | Genuine interest in employees | Robledo & Aran (2014); Ruizalba et al., (2014) |
| 8 | Orientation to solving employee needs | Robledo & Aran (2014); Ruizalba et al., (2014) |
| 9 | Reconciliation of work and family | Robledo & Aran (2014); Ruizalba et al., (2014) |
| 10 | Work and family life balance | Robledo & Aran (2014); Ruizalba et al., (2014) |
| 11 | Organization of training seminars | Robledo & Aran (2014); Ruizalba et al., (2014) |
| 12 | Training on new tasks | Robledo & Aran (2014); Ruizalba et al., (2014) |

Items used to measure DC were reduced to four items per sub-construct. Maintaining all sub-constructs was critical as the conceptual framework or framework of reference built on the individual sub-constructs in specific sets of hypotheses.

***Table 4.12 Post-Pilot DC Items considered – Study Three***

| S/N | Item | Source |
|---|---|---|
| Sensing Capability | | |
| 1 | Identification of new opportunities | Pavlou & El Sawy (2011) |
| 2 | Review of Service development efforts | Pavlou & El Sawy (2011) |
| 3 | Implementation of new ideas | Pavlou & El Sawy (2011) |
| 4 | Adequate processes | Teece (2007); Kurzhals (2015) |
| Learning Capability | | |
| 5 | Identify, value and import | Pavlou & El Sawy (2011); Zahra & George (2002); |
| 6 | Transform existing information | Pavlou & El Sawy (2011) |
| 7 | Acquiring new knowledge | Lichtenthaler (2009); Kurzhals (2015) |
| 8 | Capturing knowledge & resources | Lichtenthaler (2009); Kurzhals (2015) |
| Integrating Capability | | |
| 9 | Forthcoming in contributing | Pavlou & El Sawy (2011) |

| | | |
|---|---|---|
| 10 | Careful interrelation of actions | Pavlou & El Sawy (2011) |
| 11 | Intra-departmental activities | Jarworski & Kohli (1994); Kurzhals (2015) |
| 12 | Inter-departmental activities | Jarworski & Kohli (1994); Kurzhals (2015) |
| Coordinating Capability | | |
| 13 | Assignment of tasks | Pavlou & El Sawy (2011) |
| 14 | Compatibility between members | Pavlou & El Sawy (2011) |
| 15 | Resources leveraging | Pavlou & El Sawy (2011) |
| 16 | Overall Coordination | Teece (2007); Kurzhals (2015) |

All 12 RR items were maintained as presented in Table 4.11. The last 6 items were largely redundant as they were not clear enough to be understood easily by participants. Others were considered redundant due to duplication or high level of similarities.

***Table 4.13 Post-Pilot RR Items considered – Study Three***

| S/N | Item | Factor |
|---|---|---|
| 1 | Asset and Finance Management | Asset, Research and Accreditation |
| 2 | Publication and Research Processes | |
| 3 | Accreditation Processes | |
| 4 | Process Automation | Automated Technology Management |
| 5 | Database Management | |
| 6 | Human Resources | Financial Support for Human Resource and Departmental Initiatives |
| 7 | Institutional Departments | |
| 8 | Finance / Funds | |
| 9 | Faculty Rewards | Faculty Rewards and Retention |
| 10 | Faculty Retention | |
| 11 | Restricted Entry for Students | School Brand Image Appeal |
| 12 | School Brand Image | |

The last two items of HEI competitiveness was removed from the Study Three survey questionnaire due to redundancy. These competitiveness measures were deemed not clear enough for comprehension. The final list of HEI competitiveness items is presented in Table 4.14.

***Table 4.14 Post-Pilot HEI Competitiveness Items considered – Study Three***

| S/N | Item | Source |
|---|---|---|
| 1 | Quality: education and research | de Haan (2015) |
| 2 | Reputation/brand/image/attractiveness | de Haan (2015) |
| 3 | Unique selling point/being different | de Haan (2015) |
| 4 | Growth of student number | de Haan (2015) |
| 5 | Quality: building, facilities and service | de Haan (2015) |
| 6 | Ranking position | de Haan (2015) |
| 7 | International partnership/cooperation | de Haan (2015) |
| 8 | Geographic location | de Haan (2015) |

#### *4.8.3.3 Pilot Survey – Study Three Survey Questionnaire*

In order to validate the items, the final list of items presented in Table 4.11 Table 4.12, Table 4.13 and Table 4.14 was run in a pilot survey of 50 participants. Sample participants mainly consisted of friends, colleagues and acquaintances of the researcher who works in various HEIs. It took only 1 week to conduct the pilot survey test. Cronbach Alpha test for internal consistency was considered to test the reliability of the various constructs. The results of the pilot survey are presented in Table 4.15

***Table 4.15 Cronbach Alpha test - Pilot Survey – Study Three***

| Construct | Cronbach's Alpha | Number of Items |
|---|---|---|
| IMO – Information Generation | 0.877 | 3 |
| IMO – Information Dissemination | 0.930 | 3 |
| IMO – Response to Market Info | 0.977 | 6 |
| DC – Sensing Capability | 0.969 | 4 |
| DC – Learning Capability | 0.970 | 4 |
| DC - Integrating Capability | 0.972 | 4 |
| DC – Coordination Capability | 0.957 | 4 |
| RR – Resource Recombination | 0.883 | 12 |
| HEI Competitiveness | 0.797 | 8 |

## 4.9 Data Analyses Techniques and Justifications

Data Analysis, as other methods discussed in the previous section, is presented in two main areas of qualitative and quantitative data analyses. Predominantly, the study adopted a sequential exploratory mixed method where the qualitative analysis precedes the quantitative

analysis to pave the way for the quantitative analysis to build on the findings of the qualitative analysis.

### 4.9.1 Qualitative Data Analyses – Study One

#### *4.9.1.1 Qualitative Interviews*

In order to conduct the exploratory phase of the study, face to face interviews were held with the head of departments (HOD) in HEI. Purposive sampling technique (Cole and Maxwell, 2003) was employed to ensure the choice of right candidate with knowledge pertaining to resources and business processes of their respective department. Purposive sampling technique seems appropriate for the qualitative phase as the information on resources that could be achieved only from HOD's. More details on qualitative data can be found in chapter 5.

#### *4.9.1.2 Conducting Interviews*

The data collected as a result of interviews is an important aspect of the study as it presents a holistic picture of the interplay of the factors involved in resources recombination process. Interviews were held with head of department (HOD) as they are the important source of information for the RR conceptualization. The emphasis of the interview was on (1) new and existing resources (2) new and existing business processes (3) the recombination of these resources and business processes impact on competitiveness and performance of the HEI.

#### *4.9.1.3 Conditions for Interviewee's selections*

The interviewees were selected based on the fact they possess the necessary knowledge and the experience related to RR (e.g. Plewa, 2010). Hence three conditions were set for the eligibility of the interviewees. First, the position of the interviewee was supposed to be head of the department i.e. principals, school directors and administrators of higher educational institutions in UAE. Second, the HOD must involve in day to day resource and business processes related activities like resource allocation processes, business development activities,

R&D projects, new project development, innovation activities, strategy management, resource planning activities, mergers and acquisitions, project management etc. Third, the interviewees selected must have a minimum of 2 years of experience in their current job to ensure that they are aware of their department resource planning and management.

#### *4.9.1.4 Validity and Reliability of the Interviews*

To ensure the validity and reliability of the interview data, the interviews were recorded for later transcription (WeIman et aI, 2005) and were analysed with thematic analysis techniques. The transcriptions were read several times to ensure the familiarity with the content and to avoid any possible errors.

#### *4.9.1.5 Interview Data Analysis*

The use of inductive based analytical procedure was deemed essential considering the exploratory orientation of this section of the study. The template analysis qualitative procedure was considered as originally proposed by Miles & Huberman (1994). The use of MaxQDA qualitative analysis software was deemed essential to reduce errors and standardise the procedure of qualitative data analyses by segregating the analysis in order of important themes for discussion. MaxQDA is a software package used for qualitative and mixed methods research. It helps to collect, organize, analyze, visualize the data. The software reduced data analysis time and made the data less challenging to handle from the 21 conducted interviews. Here, analysis of data goes through the stages of data reduction, identification of themes and finally drawing and verifying of conclusions.

First and foremost, all transcribed interviews were uploaded into MaxQDA qualitative analysis software. In the data reduction stage, data was first summarised and simplified focusing on relevant themes and comments. Similar data across the interviews were coded into same code colours to present all responses into a single pool of data with separated sections or themes. By

categorising data in this manner, the narratives of the sections which were categorised can still be generated from the individual transcripts embedded in the software. The theme categories principally included a combination of existing and new resources and existing and old business processes.

The use MaxQDA software helped structuring process of interview data to gain thorough understanding of the RR concept, thus refining conceptual model and hypothesis development for the subsequent quantitative phase. Based on the literature review and the themes captured from the interviews, the "nodes" were built for the content analysis. (Huberman and Miles, 1994, Plewa et al., 2013). The template analysis has been argued as possessing several benefits such as the transformation of somewhat vague forms of data into vivid pictorial formats (Miles & Huberman, 1994). Raw data collected and presented in extended transcription are reduced to a diagram of key-relationships. The latent patterns and relationships embedded in the interview discussions are easily observed and understood by virtually anyone.

### 4.9.2 Quantitative Data Analysis – Study Two and Three

Quantitative analysis was conducted principally with the help of IBM SPSS Statistic Software version 23. Saunders et al., (2012) recommend the SPSS program for quantitative data analysis, mainly when the analysis involves inferential analysis (Kinnear & Gray, 2007). IBM SPSS AMOS helped in conducting the structural equation modelling (SEM) analytical technique which remains at the centre of the quantitative analysis.

Whereas EFA presents an unguided approach to establishing the RR model, the CFA presents a guided approach to establishing a parsimonious model where the observed items explain and account for a significant and majority of the variance explained in the final model. Both procedures are critical to the exploratory phase.

Some of the preliminary tests like data preparation, screening, test for normality etc. are deemed necessary before actual data analysis is carried out and is discussed below.

#### *4.9.2.1 Preparation Data, Response and Data Screening*

The data were inspected for missing responses and risk of bias in the event of data collection. Responses were also screened for any missing data, and no form of missing data was identified. To check missing data, the "count blank" function of Microsoft Office Excel was used to identify if any of the columns had any missing response.

Other risks of bias in entering responses were also considered. To check for inattentive respondents, the variance for each respondent was observed. Where the variance is equal or very close to 0, a visual inspection of the responses contributed by any particular respondent was observed. In no case was it observed that the same rating was offered to all questions on the questionnaire. None of the respondents can, therefore, be considered as inattentive and the risk of respondents' error is therefore minimal. The inspected data was finally analysed in terms of key descriptive statistics, and finally, SEM conducted on this outcome.

#### *4.9.2.2 Descriptive Statistics and Test for Normality*

The last stage for data preparation towards analysis examined the normality of the data. In checking kurtosis and skewness of the data as determinants of normality at this stage, SPSS was utilised again. For this purpose, generation of descriptive statistics was done as well as kurtosis and skewness. To find out whether or not the data was normal, special attention was paid to the values of kurtosis and skewness. According to Gaskin (2012), data can be deemed normal considering it never crosses the +/-1 threshold. In such instance, the data is not considered to be skewed negatively or positively. It is same in the case of kurtosis as this indicates how flatly distributed the data is.

#### *4.9.2.3 Exploratory Factor Analysis – Study Two and Three*

Exploratory Factor Analysis is a technique applied to determine the central factor formation of some objectively observed variables rather than utilising a factor structure which is fixed or predetermined (Child, 1990). Being exploratory, the EFA mostly precedes different phases in SEM, and it is the first phase or stage of SEM. Based on connections among the observed items, the EFA identified a lesser number of items. Backhaus et al. (2010) add that the latent variables or items involve every data on the direct correlation within the elements in the dataset. Ultimately, the EFA is mainly applied with the intent to loosely identify patterns in a dataset and identify the factor structure, mostly to do away with problematic elements that do not agree with the other items.

The EFA is additionally utilised to determine individual items that are dependable to evaluate them (Gaskin, 2012a). In this study, each of the 64 indicators of the variables observed was covered in the EFA. Application of the EFA for analysis was especially crucial because whereas fixed scales were employed for evaluation, other indicators may not have assessed what they are initially meant to assess. Moreover, this allows the study to determine the factor structure depending on the participants' responses but not how the factor structure is thought to be originally. Gaskin (2012b) asserts that the EFA is employed to attain a cleaner factor structure that can be utilised in CFA, which according to Gaskin & Lyytinen (2012) is a significant feature of SEM.

#### *4.9.2.4 Factoring Method and Type of Rotation – Study Two and Three*

Along with defining the variables contained in the EFA, determining the factoring method and type of rotation is essential to EFA. In EFA, it is essential to take into consideration the extraction technique, rotation type, and the basis upon which the factors were extracted. Principal Axis Factoring (PAF), Principal Component Analysis (PCA) and Maximum Likelihood Method (MLM) are the primary approaches among others, by which extraction of

factors can be done. Whereas these approaches are applied to attain outcomes that are alike, the major dissimilarity among them is how communalities are applied in the extraction of factors. According to Backhaus et al. (2010) professionals have revealed that these approaches should be based upon the content for analysis. To obtain an intelligible data structure, it was essential to bear in mind the kind of rotation to be applied.

According to Backhaus et al. (2010), the Maximum-Likelihood (ML) technique is the most commonly used technique to assess both testing the factor structure and testing the temporal connections of the hypothesis in the measurement model. Moreover, Backhaus et al. (2010) adds that the ML-technique's potential is to increase the probability that the anticipated connection identifies the assumed correlation. This accounts for its dominance as it uses a constant approach means to curtail the contrast between the observed correlation matrix and estimated correlation matrix. However, the use of the ML-technique is not without limitations.

Again, Reinecke (1999) states that a methodology essential to the application of ML-technique is the supposition of multivariate normality. As already stated, slight to moderate univariate and multivariate non-normality might be suggested in the data gathered. However, some studies reveal that the ML-technique along with its defined estimate proves to be firm and equitable in opposition to normality errors supposing the size of the sample is sufficient ($n > 200$) (Anderson & Gerbing, 1984, Hair et al., 2010, Hoogland & Boomsma, 1998, Hoyle & Panter, 1995). Hence, application of the ML-technique was justified for the process of analysis for both measurement and structural models.

The rotation is of concern because unrotated or direct extraction obtains the factor matrix from the correlation matrix; meaning that the factor answers obtained usually are not adequate to define outcomes (Gaskin, 2012a). Selecting a rotation technique assists in minimising the ambiguity level associated with direct extraction while rotated extraction brings about clearer

comprehensive factor loadings which are appropriate for explanation (Child, 1990, Gaskin, 2012a).

Considering the importance of rotated extractions, Costello & Osborne (2005) assert that two significant kinds of rotation are described as the oblique and orthogonal rotation. Regarding the orthogonal type of rotation, the Varimax rotation is typically utilised and believes that none of the factors is correlated. Usually, the Varimax rotation technique brings about an uncertain factor structure that makes it hard to allocate indicators to the factors.

This is mostly for the reason that factors in empirical research usually tally with one another to a certain degree. This somehow refutes the essential belief fundamental to the Varimax rotation. Authors such as Hildebrandt & Temme (2006) have however proposed that the Varimax rotation is not appropriate for SEM, but Promax which is an oblique rotation is rather more suitable for this case. As explained by Costello & Osborne (2005), oblique rotations usually adjust for some degree of interdependence among the factors under consideration, making them perfect for empirical research.

The outcomes from oblique rotations are highly pragmatic as they depict more precisely how the variables of the research are inclined to connect with one another (Fabrigar et al. 1999). Furthermore, oblique rotations give more direction when compared to orthogonal rotations. This is so because orthogonal rotations demand that the factors have a 90’ orientation in the multidimensional space while oblique rotations only permit orientations below 90’. Because of this, Fabrigar et al. (1999) explain that orthogonal rotations mostly bring about factor structures which are more comfortable when the connection of the factors being considered are established on factors that are correlated. Subject to these assertions, the Paradox type of rotation is selected for this research given the conditions since it is regarded as the most suitable.

It is essential to ascertain the suitable set of factors or state a restriction for eigenvalue in the last answer to keep the factors in the analysis which describe the majority of the variance in the dataset. According to Nunnally (1978), various statistical criteria exist for factor extraction. Apart from the Kaiser criterion in which factors with eigenvalue exceeding one (1) are taken into consideration, Cartell's screen test (elbow criterion) is another technique which is commonly utilised.

It is therefore essential to be mindful of decisions based on statistical criteria only because it hardly brings about the suitable number of factors. Therefore, it is imperative to take into consideration the criteria of content and interpretability in the extraction of factors (Hildebrandt & Temme, 2006; DeCoster, 1998). As a result, eigenvalue above one (1) was placed, and factors were loaded without restriction since the primary goal of this research was to examine unknown patterns.

#### *4.9.2.5 Confirmatory Factor Analysis – Study Two and Three*

Confirmatory Factor Analysis (CFA) is a multivariant statistical method which is used to approve the factor structure of a set of observed differences. Differing from the EFA, there already exists a biased structure. Hence, the CFA is utilised to check if the differences considered among observed variables and their main inactive items remain statistically, showing its positive nature in a model that is guided. To consider suggested factor structure a priori that is then examined statistically through the use of confirmatory research techniques, authors usually rely on data acquired from theoretical or empirical findings or even both (Backhaus et al., 2010). Hence, the CFA has to do with determining if the number of items and composition is in line with expected theoretical ideas (Gaskin, 2012c).

At the same time, Backhaus et al. (2010) state that through the introduction of the assessment models for latent variables, the CFA forms the basis for the formulation of structural equations

and the evaluation of the differences among latent variables through SEM. As a result, models of SEM constitute two inter-related models, specifically, the measurement model and the structural path model (Gefen et al., 2000). Firstly, Diamantopoulos et al. (2008) explain that the measurement model dictates what latent variables are applied in the structural model, showing the relationship between variables and measures in addition to deciding what observed constructs apply to all the variables.

Gefen et al. (2000) posit that the right loading of all observed constructs on each latent variable is evaluated and the factor structure which is biased is assessed in the course of factor analysis. As a result, the CFA aims at validating the observed correlations and develop the concluding measurement model for the latent variables to be covered in the structural path model. Accordingly, the temporal correlation among the latent variables is analysed by the structural path model based on results of the CFA. Through this, the temporal correlation and observed covariance among the endogenous and exogenous latent items are anticipated. Gefen et al. (2000) further state that the structural model is also concerned with the variables shared measurement error in evaluation.

#### *4.9.2.6 Covariance-based Algorithm to SEM – Study Two and Three*

A set of multivariate expectations determine the steady use of structural path models (Hair et al., 2010). In addition to the previously reviewed **multivariate normality**, **homoscedasticity**, the **linearity of connections** and the absence of **multicollinearity** are significant expectations for the utilisation of SEM. According to Gaskin (2012a), linearity is a constant change that demonstrates the connection between the dependent (exogenous) variable and the independent (endogenous) variable. The ML-technique used in the present study assumes direct connections between variables since the SEM algorithm is covariance-based (Reinecke, 1999). Gaskin, (2012a) however adds that the use of SEM analysis would be impeded if there are profound

inconsistencies in the relationships between independent variables and dependent variables. Two main issues of multicollinearity and heteroscedasticity are discussed in this section.

Backhaus et al. (2010) however explain that **multicollinearity** is assigned when two or more independent or endogenous constructs are greatly connected to each other. Although slight to medium amounts of multicollinearity are described as typical in study analyses, an exceptional level of multicollinearity is unacceptable, as a result, the effect of independent constructs on dependent constructs is likely to be less accurate (Hair et al., 2010, O'Brien, 2007).

**Homoscedasticity** of the data is another assumption for the application of SEM. Homoscedasticity, according to Backhaus et al. (2010) is attained when the residual of the items has a constant variance within the dataset, signifying a constant display of the variance at different phases of the construct (Hair et al., 2010). Nevertheless, when the residuals do not have a fixed variance in the dataset, there is heteroscedasticity (Backhaus et al., 2010). Although the present research model anticipates the effects of mediating items, homoscedasticity of the data is not determined for this study. Adding to this, Gaskin (2012a) asserts whenever heteroscedastic information is identified, study practice surpasses this, and the data gets controlled by different groups.

#### *4.9.2.7 Model Fit Indices and Multivariate Assumptions – Study Two and Three*

To describe the measurement model given at this level of the analysis, it is essential to suggest the benchmark for assessing the model fit. The model fit is concerned with the degree to which the hypothesised model and the observed model match. However, if the hypothesised model defines every main correlation and covariance among the variables utilised for evaluation, there is a good model fit. A poor model fit occurs when the acquired correlation and covariance matrices do not correspond to the hypothesised model (Gaskin, 2012b).

Although there is various goodness of fit indices apart from Chi-Square which can be utilized to analyse goodness of fit in IBM SPSS AMOS, different perspectives exist in research with regard to how suitable unlike indices are for the assessment of goodness of fit (Kline, 2005, Hu & Bentler, 1998, Marsh et al., 2004). Additionally, whereas there is a universal concurrence that no best goodness of fit indices exists, researchers such as Fan & Sivo (2005) and Jahn (2007) contend that adequate studies have been done concerning the weaknesses and strengths of many goodnesses of fit indices. For this reason, Hair et al. (2010), Bollen & Long (1992), Marsh et al. (1996) and Jahn (2007) advise that it is imperative to take into consideration different indices for model fit assessment.

To establish comprehensiveness and thoroughness of the overall model fit, various model fit indices were applied. Bentler and Hu (1995) assert that authors frequently underline the dissimilarities among parsimony fit, incremental fit and absolute fit indices which are all applied to buttress the main Chi-Square data for model fit. Table 4.14 below presents a summary of the different model fit indices considered by the present study. Gaskin (2012a) expresses the need to bear in my that model fit relates inversely to the sample size under consideration, likewise the number of variables being assessed. The threshold shown in Table 4.16 may, therefore, be deemed as recommendations identified in the research.

***Table 4.16 Model Fit Indices and Acceptable levels***

| Name | Abbreviation | Type | Acceptable level |
|---|---|---|---|
| Chi-Square | $x^2$ | Model Fit | P > 0.05 |
| Normed Chi Square | $x^2$/df | Absolute / Model Parsimony | $1.0 < x^2 / df < 3.0$ |
| Goodness of Fit | GFI | Absolute | GFI > .90 |
| Adjusted Goodness of Fit | AGFI | Absolute | AGFI > .80 |
| Tucker-Lewis Index | TLI | Relative | TLI > .95 |
| Comparative Fit Index | CFI | Relative | CFI > .95 |
| Normed Fit Index | NFI | Relative | NFI > .95 |
| Root Mean-Square Error of Approximation | RMSEA | Absolute | RMSEA < .08, <.10 |
| Root Mean Squared Residual | RMR | Absolute | RMR < .08, < .10 |

| | | | |
|---|---|---|---|
| Consistent Akaike Information Criterion | CAIC | Model Parsimony | No defined level |

*Sources*: Hair et al., (2010) and Bentler & Bonett (1980)

According to Hair et al. (2010), one of the outright fit determinants of the measurement model is the Chi-Square; this is particularly precise when the size of the same is below 200. However, this index is exposed to sample size, and this investigation has a greater possibility of affecting the result. Hence, other backing indices may be taken into consideration, although the current research was not critical in this area.

The Normed Chi-Square Statistic (x2/df) endeavours to control the Chi-Square statistic to the degrees of freedom (df). According to Hair et al. (2010), the threshold accepted on the indicator must be lower than three (1) but higher than 1. Gaskin (2012b) states that the index might be accepted when lower than five but higher than 3. The Adjusted Goodness of Fit (AGIF) and the Goodness of Fit (GFI) are other indices shown in Table 4.14. The Adjusted Goodness of Fit adjusts the Goodness of Fit to the degree of freedom in the model. For these indices to remain acceptable, they must be closer to 1.

Root-Mean-Square Error of Approximation (RMSEA) and Root Mean Squared Residual-Index (RMR) are the indices which assess the badness of fit. Also, they assess absolute fit. Although it is normally satisfactory this area is below .08, it will be deemed reasonably satisfactory when below .10. Comparative Fit Index (CFI), Normed Fit Index (NFI) and Tucker-Lewis Index (TLI) are some other model fit indices.

#### *4.9.2.8 Common Method Bias and Statistical Power Analysis - Study Two and Three*

Chang et al. (2010) assert that Common method bias (CMB) is a possible partiality in the dataset which results from an organised evaluation mistake which affects the right assessment of the correlations between the variables. According to Podsakoff et al. (2003, p. 879), CMB comes about as an outcome of common method variance, being the result of the assessment

technique relative to the variables representing the measure. In simple terms, CMB exists when an individual factor can define most of the constructs. Many analysts acknowledge CMB might be a challenge when an individual source is employed for gathering information from similar survey participants at a similar time range (Podsakoff & Organ, 1986, Chang et al., 2010).

There is a continuous discussion on the feasibility and nature of CMB in self-reported information (Richardson et al., 2009). Whereas other researchers consider CMB as a general concern that authors are expected to regulate (Podsakoff et al., 2003), many see it as an 'urban legend' and deem all efforts formed as control for CMB as simplified and overestimation of the actual situation (Spector, 2006, p. 230).

Harman's single-factor test which is the technique used generally and extensively to measure common method variance determines whether or not most of the variance in the data is attributable to an individual factor (Podsakoff et al., 2003, Chang et al., 2010). Podsakoff et al., (2003) asserts that the fundamental belief of the technique is that when a considerable number of common method variance prevails, the extracted variance by the single individual factor is responsible for over 50% of the variance in the model, indicating that CMB is a challenge.

There are many limitations reported for this procedure regardless of its supposed demand and high usage. Firstly, as a result of the improbability of one-factor model fitting the data, it is criticised for being insensitive (Podsakoff et al., 2003, Chang et al., 2011). Moreover, Podsakoff et al. (2003) add that its descriptive ability is limited since it only presents a proof of the actuality of a CMB and does not partial out or control the effects of common variance. The procedure should, therefore, be applied preferably as a diagnostic method for evaluating the degree at which common method variance might become an issue (Podsakoff et al., 2003, p. 879).

Apart from a number of different post-hoc statistical methods including the CFA marker technique (Williams et al., 2010), the correlational marker technique (Lindell and Whitney, 2001), and the unmeasured latent method construct (ULMC) (William et al., 1989) - to measure CMB have been suggested, which permit the observation and rectification of common method variance. Nevertheless, scholars continuously discuss the effectiveness and suitability of these techniques.

Recently, extensive research on the suitability of the post hoc statistical technique conducted by Richardson et al. (2009) disclosed that none of the techniques proposed has any benefit since every method yielded very erroneous rectified correlations (Richardson et al., 2009, p. 798). In conclusion, they assert that applying either of these techniques will

> "*be no better than 'throwing darts in the dark*", whereas "*leading researchers to falsely conclude CMV [common method variance] is not present and biasing their data or vice versa*" (Richardson et al., 2009, p. 798).

The results of the method applied in the present study may, therefore, be debatable since findings disclosed the possible challenges associated with them such as the failure of the unconstrained model to achieve minimum and other associated challenges with the method employed.

G Power was used to conduct the statistical power analysis. Power analysis help observe the extent to which a test appropriately rejects the null hypothesis when a specific alternative hypothesis is correct. As power increases, the chance of committing type two error will be reduced. Power analysis, therefore, considers the adequacy of a sample size required to achieve a particular effect size (Cohen, 1988). A post hoc power analysis is considered in the present study considering Saunders (2012) nominal approach to sample size determinant had been considered in an a priori sample adequacy determination.

#### *4.9.2.9 Structural path Model and Hypotheses Testing – Study Three*

Even though Study Two and three share the earlier areas of the quantitative analysis, only Study Three proceeds to resent the main structural model and test the research hypotheses. The structural model is presented in the form of the main conceptual framework; this was necessary to test the central hypotheses of the study. The sub-models of the classical and learning models are also presented and compared. The degree to which any of these models support the given hypotheses is observed and compared.

#### *4.9.2.10 Test for Mediation – Study Three*

For the purpose of the present study, the mediating role of DC in the relationship between IMO and RR was observed for relevant associations. The mediating role of RR in the relationship between DC and Competitiveness was also observed. These observations were done as part of the combined results for the structural equation modelling. The use of IBM SPSS AMOS for analysis helped observe these inter-relationships in the combined SEM model or in a uniquely plotted model. The test for mediation was only conducted as part of the third study.

### 4.10 Research Credibility – Validity and Reliability

Research credibility is discussed in two main areas of validity and reliability of measurements. Validity refers to the extent to which the findings of the study represent the real interests of the participants under observation (Saunders et al., 2012). To ensure construct validity, all items used as items for the measurement of critical indicators were adapted from reputable journal articles where the items have been empirically assessed and evaluated. The construct which did not have a scale for measurement, which is RR, was explored systematically before consideration for the quantitative aspect. Even after exploring, the indicators are factor analysed and assessed for internal consistency before consideration in the quantitative study.

To establish reliability and validity, it is essential to evaluate the factor structure thoroughly using a variety of metrics. Hence, although the presented factor structure is clean and might be deemed a sufficient solution, validity and reliability are also measured to confirm the consistency and accuracy of the variables of the investigation and establish measurements as planned (Hair et al., 2010). Explained by Kinnear et al. (1993) and Zikimund (2003), the validity of content is subjective and requires a professional point of view on the suitability and usefulness of assessment regarding what it is supposed to assess.

Construct validity is divided in to discriminant and convergant validity. Convergent validity as explained by Kinnear et al. (1993) and Zikimund (2003) is concerned with the connection among variables in an individual construct. These connections can be seen in the loading of factors within the pattern matrix (refer to table 5.15 and 6.6). In order to attain an acceptable level of convergent validity, factor loading for each item should be higher than 50% as recommended by Hair et aI. (2010). Considering that every factor loading was at the threshold of 0.5 (see Table 5.20), the AVE for every factor proved statistically relevant, thus, indicating that all items adequately reflect and load onto their targeted constructs. The Average Variance Extracted (AVE) scores is another criterion to measure convergant validity and AVE is ought to be above 0.5 (Hair et al., 2010).

Discriminant validity analyses the dissimilarities among variables in an individual construct (Page & Meyer, 2000). Two tests were employed to assess discriminant validity. First, discriminant validity was done by ensuring that every variable in the pattern matrix loaded only on individual factors with no pertinent cross-loadings (see Table 5.15). Secondly, the communalities of the factor solution and the off-diagonal elements of the anti-image covariance matrix (table 5.16) were also observed, following the Fornell and Larcker's (1981) recommendations. According to Fornell and Larcker (1981), discriminant validity criteria is met when the instrument variables are adequately different from one another if the construct’s

AVE is greater than its shared variance with any other variable under the study. Hence, it was concluded that constructs are uncorrelated and theoretically different from each other.

Composite Reliability (CR) as suggested by Hair et al., (2010) is the measure of consistency of the responses to all the items of the study, thus ensuring minimization of random error within the measurement (Zikmund, 2003, Kinnear et al., 1993). CR can be assessed with the help of Cronbach Alpha test (see table 4.15) for internal consistency (Fornell and Larcker, 1981, Nunnally, 1978). Alpha level of .7 or above is recommended as acceptable for low stake purposes and general academic tests. CR is however considered a better estimate as it disregards or remains insensitive to the sample size. Cronbach Alpha responds to the size of the sample, and this may be arguably erroneous.

### 4.11 Ethical Considerations

Adherence to strict ethical standards was deemed critical to the establishment of credible and authentic findings. All areas of the methodology were therefore considered and justified in consideration of research ethics. Creswell (2009) and Saunders et al., (2012) argue that every investigation that involves participants or human subjects need to consider permission and ethical access to data. Other areas of ethical standards for conducting investigations may be inferred from the UK Data Protection Act (1998).

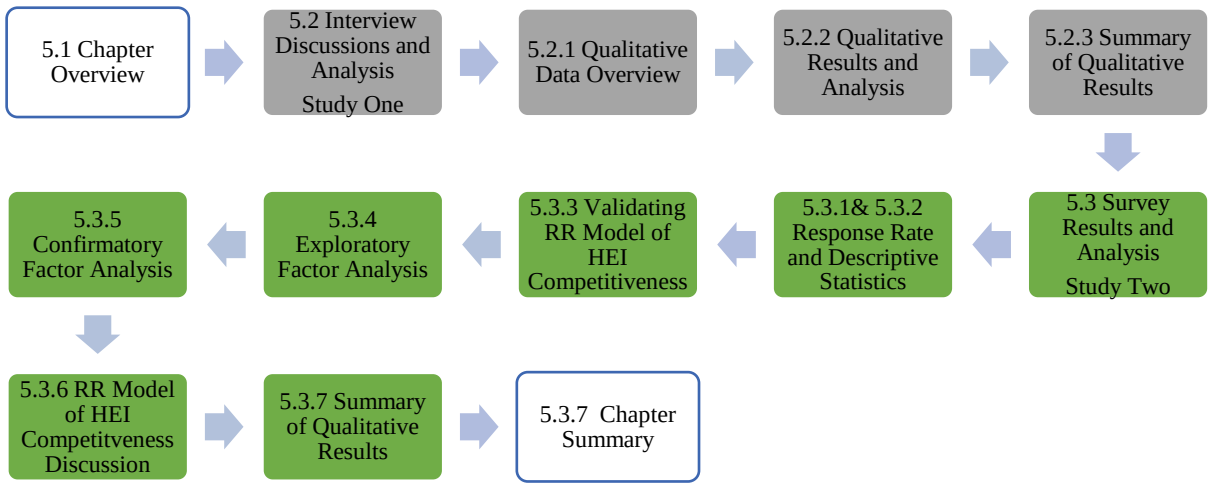
For the present study, all participants were presented with an information sheet and an informed consent form presented in Appendix A and Appendix B. The informed consent form was to obtain full permission before participation. The information sheet was also included to educate participants on subjects regarding confidentiality of information and their respective rights as participants of the study. Respondents were informed that they have the right to withdraw their decision to participate at any stage of the exercise.

# CHAPTER FIVE: RESULTS AND FINDINGS: EXPLORING THE CONSTRUCT OF RESOURCE RECOMBINATION

## 5.1 Chapter Overview

This chapter presents the research findings of the exploratory phase of the investigation. It takes a critical look at the orientation of data gathered in the initial qualitative stage to explore RR and to arrive at the model of RR. The chapter comprises of Study One and Study Two. Study One entails the qualitative data analysis and discussion which was done in an attempt to explore RR. Study Two is the quantitative analysis that follows in this order by exploring the outcomes of the Study One in a series of quantitative data reduction techniques. The two main sections are colour coded grey (Study One) and green (Study Two) in the study organisation figure presented in Figure 5.1.

***Figure 5.1 Chapter 5 Organization***



## 5.2 Interview Discussions and Analysis – Study One

### *5.2.1 Qualitative Data Overview*

A total of 21 interviews were conducted from July 2017 to November 2017. This entailed some faculty and non-faculty members. A total of seven directors were interviewed and these include Director of Library, Director of External and International Relations, Director of Centre for Research & Consultancy, Director of Information Technology Department, Director of Finance Department, Director of Procurement, Director of Institutional Strategy and Research. One chair person was interviewed including a Chair of Electrical Engineering Department who also played role Director of Entrepreneurship and Innovation Center. Four head of departments were interviewed, and these include a head of student administration, a head of communications and corporate relations, a head of family and medicine department and a head of campus. A total of six deans of various units in the institutions were also interviewed; these include a Dean of Academic Operations, two deans of separate business schools, Dean of Quality Assurance, a Dean of Office Research and Sponsored programs and Dean of Institutional Effectiveness and Accreditation. Three managers including Acting Manager of Human Resources Department, Manager of Call Centre, University Registrar. Table 5.1 below presents the details of the interview respondents.

***Table 5.1 List of Interview Respondents.***

| Nos. | Position | Institution Location by Emirates | Institution Type |
|---|---|---|---|
| 1 | Dean of office of Research& Sponsored Programs and Associate Professor of Computer Science | Abu Dhabi | Private-CAA |
| 2 | Director of Institutional Research and Strategy | Abu Dhabi | Private-CAA |
| 3 | Dean of College of Business | Abu Dhabi | Private-CAA |
| 4 | Manager of Call Centre | Abu Dhabi | Private-CAA |
| 5 | University Registrar | Abu Dhabi | Private-CAA |
| 6 | Procurement Manager | Abu Dhabi | Private-CAA |
| 7 | Acting Manager of HR | Abu Dhabi | Private-CAA |
| 8 | Director of Finance Dep. | Abu Dhabi | Private-CAA |
| 9 | Director of IT dept. | Abu Dhabi | Private-CAA |
| 10 | Director of Library | Abu Dhabi | Private-CAA |
| 11 | Dean of Academic Operations, expert in Curriculum Design and Institutional Effectiveness | Abu Dhabi | Federal-CAA |
| 12 | Dean, School of Business Administration and Professor of Economics. | Dubai | Private-CAA |
| 13 | Assistant Dean - School of Business Administration and Assistant Professor of Business Administration. | Dubai | Private-CAA |
| 14 | Head of Communications & Corporate Relations Department. | Dubai | Semi-Government-CAA |
| 15 | Head of Student Administration | Dubai | Semi-Government-CAA |
| 16 | Director of External and International Relations | Dubai | Private-CAA |
| 17 | Director of Center for Research & Consultancy | Dubai | Private-CAA |
| 18 | Chair of Electrical Engineering Department and Director of Entrepreneurship and Innovation Center | Dubai | Private-CAA |
| 19 | Head of Campus | Dubai | Private-Non-CAA |
| 20 | Head, Department of Family and Community Medicine & Behavioural Sciences College of Medicine. | Sharjah | Private-CAA |
| 21 | Dean of Deanship of Quality Assurance, Institutional Effectiveness and Accreditation | Sharjah | Private-CAA |

As can be observed from table, the respondents belonged to 17 private CAA (80.9523%), 1 Non-CAA (4.7619%), 1 Federal (4.7619%), 2 Semi-Government (9.5238%) universities.

The affiliation of the respondents to the institutions covered was removed from the present data analysis to install confidentiality and anonymity. Offering the affiliation of participants and identifying them to the various institutions would give up the identity of respondents and does not meet the ethical standard of the present study.

Discussion with participants surrounded main areas of activities or roles of participants in the institutions of work. Respondents were therefore offered an avenue to discuss their related area of interest and the resources and business processes best known to the respondent as helping establish the institution as a competitive edge. Particular attention was paid to the number of years spent in the institution; various positions occupied, and characteristics of the work team within which one plays his or her unique roles. This observation helped adapt questions to one's area of expertise by following up on resources, business processes and how these are recombined in the area of work.

Prior to discussion of key analysis, it is important to emphasise that originally, the interview guide was principally exploratory as it sought to first identify new and existing resources and business processes in one's area of expertise. Follow up questions sought to assess the recombination relationships between these resources and processes. The discussion that follows, therefore, elaborate on the individual areas of resources and process and further discusses the associations between these elements.

### *5.2.2 Qualitative Results and Analysis*

The main emphasis in the event of the interview were new and existing resources as well as new and existing business processes and how these individually and in combination as well contributed to competitive advantage. A total of 705 individual segments were coded; out of these, 19% or 134 segments were with specific reference to themes under existing resources and 7.7% or 54 code segments related to themes under new resources category. Existing

business processes recorded most segments with about 46.1% or 325 code segments of the total code segments in MAX QDA. New business processes recorded about 58 code segments or 8.23% of the total segments coded.

It is important to mention at this point as will be further observed in the subsequent discussions that recombination does occur within existing resources and existing processes even though new business processes and resources do not register internal recombination. Also, no form of existing resource recombined with the new business process in all of the discussions. With this emphasised, recombination themes on the area of existing resource and existing business process recorded 2.3% of the code segments. A pool of all other forms of recombination attempts occurring within the institutions accounted for 3.5% or 35 code segments.

Other areas that did not fall within the main criteria of resources and business processes or a combination between one or more of these areas were as well recorded if they relate to some extent to resources and processes used to establish a competitive edge in HEIs. These other themes included risk handling, initiatives building, curriculum, alliances with external institutions among others. These accounted for about 6% or 42 code segments. The other remaining segments of the 705; that is 51 code segments, or 7.2% of the total areas were coded onto interview related characteristics such as faculty and non-faculty participants, the unique role of respondents to institutions and other institutional qualities gathered to aid analysis but not reported as part of these findings.

*Existing Resources Category of Themes*

Competitiveness established through resources is summarized in Table 5.2. Code segment represented by "n" shows the number of times the word appeared within the interview transcripts.

***Table 5.2 Existing Resources used to establish a competitive edge in UAE HEIs***

| Existing Resources and Sub Component | Code Segments (n) |
|---|---|
| Students and Alumni | 8 |
| Restricted Entry | 1 |
| Brand – Intangible | 4 |
| Software | 2 |
| Accreditation | 1 |
| Equipment | 1 |
| Human Resource | 20 |
| Department | 3 |
| Financial | 26 |
| Faculty | 34 |
| Faculty Recruitment | 2 |
| Faculty Promotions | 1 |
| Infrastructure | 15 |
| Technology | 11 |
| Student Learning Technology | 1 |
| Student account technology | 2 |
| Teaching technology | 2 |
| Total | 134 |

Main resources here include quality of teaching faculty in the institutions, financial capabilities, overall human resource ingenuity, infrastructure and technology.

Respondents touched on the number of students in the institution as well as the amount of student graduated on the job market. According to one respondent:

> *"Active students right now, we may have around six hundred active students. Two thousand graduates that we have so far…student administration does put us in touch with certain students or alumni that we need to work with from the industry basically…we are designing strategy to get them [alumni] more engaged [to celebrate their achievements]"*

One other way to uphold competitiveness of HEI is to restrict student intake or entry to maximise competitiveness:

*"It's very hard to get into this university. There's a lot of interest, every other day I get CVs from, you know, I've seen the forms from Canada, from America, from colleagues in Europe. I think they want to come…"*

In establishing students, alumni and student entry requirement as a key factor in institutional competitiveness, maintaining high standards with similar entry requirements, is essential to success; one respondent compared segmented entry into HCT and Zayed University in this case, where Zayed University attracts better students than HCT.

The University as a brand was also highlighted as an essential intangible resource that may be used to establish institutional competitiveness:

*"But for brand building and brand, you could say, equity it would be more PR and Corporate Relation work both ways. "*

In another interview with a respondent from the Abu Dhabi University(ADU) , the participant highlighted the role of ADU as an umbrella brand for the entire groups and business entities in the (ADU) institution:

*"And they are probably more to that ADU brand, or the ADU name just sits well within the Abu Dhabi University, and that's the acronym of ADU. The other groups are business entities."*

Other respondents highlighted the role of software, accreditation and equipment as crucial resources for a competitive edge. The transformation and update of a software named Quercus were highlighted and the presence of other "SET" machinery systems. Other infrastructure and technology systems that aid institutional competitiveness lies in areas of student learning technology, student account management and student teaching technology.

Regarding infrastructure, one respondent from HCT mentioned that:

> *"HCT is a government institution that has 17 campuses all over UAE usually the campuses are generally large enough to allow certain rules… we built 4 states of art clinical skill laboratories… equipped with all sort of things. So now the structure, the resources are available."*

Regarding IT, it was also emphasized that:

> *"IT is managing the system, technical part, and even they have to make sure about the database. Like, there is time, they must make sure the MITN infrastructure established to support subsystem and to support even the expansion of its report."*

The role of technology in the classroom and classroom related activities was also mentioned.

> *"Here we have technology in the classroom; smartboards, solution projector for people who do not want to use smart technology in the classrooms, sound system in the classrooms they share the same wireless connections, they share the same facilities, the residential internet is the same as the student accommodation for example."*

Others focused on the functional aspects of the technology systems such permits faculty members and students on the same platform such that this enhances or provides an effective learning management platform. Even though these resources were mainly existing, participants commented on the need for improvements in systems to standardise and adapt to latest technology.

One final and most dominant area of the resource category of themes is faculty and internal human resource management. Fundamental areas include faculty recruitment, faculty promotion and training also received close attention. This area received the most attention among all the existing resources under consideration as the most obvious resource in HEIs:

*"So obviously faculty is a major part of any institution, I think if we want to do a survey of students that have left universities, they probably won't remember courses, some other people, but they will certainly remember their Faculty. Really, it's up to a university to maximize resources as far as faculty are concerned"*

This same respondent added that:

*"Certainly, AUD is not one of the schools where we have limitless funds [in terms of faculty provision]"*

This represents one of the many elements of resource recombination among existing resources. Finance or funds as a resource was particularly not left out of the discussion and was a key recombining element in HEI competitiveness. Whereas the government funded some institutions:

*"We have seed funding from government…"*

Fee payments fully funded others:

*"Resources are basically tuition fees based. 100% fees based"*

Regardless, faculty operations remain inseparable from funds and institutional budgetary conditions:

*"So, we called for proposal at the beginning of the academic year. And we give faculty six weeks to send in the proposals according to the templates. There are different types of proposals and the grants that they can apply for. And maximum fund for each, we have a different cut-off for each. So, faculty can apply for whatever categories that suit them the most."*

Other institutions appeal for funds through grants and sponsorships, which are part of existing resources.

*New Resources Category of Themes*

New resources were minimal aspects of the main resources recorded. This focused on recently acquired resources that add to competitiveness. Many areas in this section had already established presence in the earlier section on existing resources. These include software, accreditation, equipment, technology, human resource, financial, department and infrastructure. Most of the new resources were those that were acquired in the area of non-technology infrastructure. Nonetheless, technology infrastructure was also recorded with overall technology recording most code segments in this area.

Ultimately, even though some of these areas have been established as existing by other institutions or even same institutions, these areas also have upcoming status in HEIs and hold the potential to revolutionise the market competition. Intelligence was virtually the only variable that was new here and did not register any presence under existing resources.

***Table 5.3 New Resources used to establish a competitive edge in UAE HEIs***

| New Resources and Sub Component | Code Segments (n) |
|---|---|
| Software | 4 |
| Accreditation | 3 |
| Equipment | 2 |
| Technology | 7 |
| Sustainability and Security | 1 |
| Infrastructure | 3 |
| Service Delivery | 1 |
| User Interface | 1 |
| Teaching technology | 2 |
| Human Resource | 3 |
| Infrastructure | 11 |
| Financial | 9 |
| Department | 3 |
| Intelligence | 4 |
| Total | 54 |

Despite some of these areas establishing existence in some of the institutions; a respondent added that:

> *"I think the most recent would be the CRM system for student, student management system.*

Moreover, another respondent added:

> *"This is student management system. It's a kind of CRM. It's a Quercous. I think basically the idea was to go paperless.*

Several others followed in this manner:

> *"That's one of the major investments that we have done because the library is continuously acquiring new resources databases for research and quite a lot of investment has been on that front"*

Regarding new faculty:

> *"If you talk about resources in terms of faculty, we've just acquired just few weeks ago, a new faculty here"*

Campus and infrastructure also received some newness acknowledgement:

> *"I have already seen the new (built) campus which is big than these current campus"*

Another respondent on infrastructure projects:

> *"Now, recently started this, I mean the energy, wind energy, that one with the help with the Chinese project."*

Others commented on a new user-friendly user interface. Even though all of the above have been touched on already in the earlier section on existing resources, one area that was absolutely new was the role of intelligence as a new resource. Competitiveness does not only

exist in faculty research but non-faculty intelligence. In a brief attempt, one respondent explained:

> *"We make sure that our website is always updated on research. Therefore, in the competition, we always do lessons learned after each cycle, and then we try to improve. And then, in the next cycle of it, the brainstorming of before and after. So, we try to document all the lessons learned through that competition, future undertakings and all that are important for me."*

Another respondent added:

> *"If they (students) have to submit an idea to be evaluated, they can get in the grants and if it's a good idea, then they present it and take it to the competition that we have at the end of the year. So, we train them to conduct research. We believe that…research skills are very important for the students, and in addition to their course subject matters."*

*Existing Business Processes*

Existing business processes recorded nearly half of the total code segments; this re-enforces the assertion that HEIs are predominantly service institutions (Table 5.4).

***Table 5.4 Existing Business Processes used to establish a competitive edge in UAE HEIs***

| Existing Business Processes and Sub Component | Code Segments (n) |
|---|---|
| Technology and teaching alignment | 1 |
| Collaboration across business units | 2 |
| Department and Budget | 1 |
| Student application and registry processes | 1 |
| Faculty Meetings | 1 |
| Process Automation | 1 |
| Database management and usage processes | 2 |
| Procurement | 5 |
| Teaching | 2 |
| Communication | 2 |
| Collaboration | 3 |
| Functions | 5 |

| | |
|---|---|
| Customer Relationship Management and Customer Service | 6 |
| Exams | 3 |
| Risk Management | 3 |
| Admissions | 3 |
| Training | 4 |
| Work teams | 3 |
| Documentation | 2 |
| Committee | 3 |
| Administration | 33 |
| Structures | 7 |
| Quality assurance | 3 |
| Research | 13 |
| Strategies | 49 |
| Risk Management | 3 |
| Strategic Alignment | 1 |
| Financial allocation (Asset-Finance Management) | 4 |
| Policies | 78 |
| Colleges | 1 |
| Human resource management | 1 |
| Programs | 35 |
| Asset management | 1 |
| Publications | 3 |
| Accreditation | 17 |
| Intelligence gathering | 23 |
| Total | 325 |

With a dominant array of business processes at its core front of service delivery, the number of themes drawn into this category is comprehensible. Some key themes that established relevance in this area include policies, strategies, programs and administrative processes. Starting from the top of the list, it may be observed that a number of existing process recombination may be spotted. The first four elements listed under the table are some elements of internal reconfiguration of pertinent business processes. In one typical combination of technology and teaching processes alignment, the participant stated that:

> *"The technical part but not leading the business need. Similarly, with LMS, Learning Management Platform, picture this, you let IT put a technology there but the faculty do not want to use it because it is not aligned with the way they teach. So the champion*

*here, the key people here are the faculty or the Deans or the learning management coordinator, whoever is delegated to assess the learning management effectiveness of the university then IT comes to enable the kind of technology that is needed."*

On the combination between department and budget, several connections could be inferred; however, one vivid case that was captured include the following statement that:

*"So let's say we have engineering, we have seven departments. Each department has a chair. So we are involving the chairs in the budget preparation to make sure they are meeting the needs and goals and it's moving up to meet the strategic goals for the college and then, which is meeting the strategic goals for the university."*

Combining student application processes and registry processes efficiently was also observed as one of the main areas of process competencies in HEIs; notably, how multiple processes are combined to address the corporate needs seamlessly:

*"Okay, so when the students are enrolled or submitting applications, to show interest to join ADU, and admitting and then registering, and then, paying the fees. So this is all the register for the cash. We have another cycle for the fixed assets, which is the main, let say for computers, furniture, and lab equipment, machinery equipment, cards, food, like buses for transportations for the students. All of that is rate to fix us, okay. So despite the need to pay, the fixed asset have special treatment of differentiating the assets over a number of years."*

Process collaboration across business units or faculties was also observed:

*"We encourage faculty for collaboration, so it's very rare that one person is good at everything. So, collaboration could be good. Let's say one could be good in conducting surveys and other could be good at analysis, so we encourage collaboration. Not all faculty like to do that"*

Aside from this combination among business processes cited, several business processes were also highlighted as critical to HEI competitive edge. These processes were observed as many and varied. Some of these include processes surrounding faculty and non-faculty meetings:

> *"We have meetings, a monthly meeting for our reports in order just to discuss the progress of the different projects. What do we have, like pre-planned, what progress do we have? Report about the department itself, what we are doing. This is one type. The other type, they are involved in the purchasing itself. We have like, hire committee, ok, it's important committee. So all tenders we mentioned here…"*

Others commented on process automation:

> "*the automated process, it covers some of our phases of the project, and while the non-cover is done through the manual process…"*

Similar comments were made on database management and usage processes, procurement and teaching processes:

> *"That means whatever the students learn, they always have case studies and they also have research projects. they have to link it to theory too."*

Some core processes that helped attain competitive advantage include communication processes, internal collaboration processes, processes surrounding core functions, customer relationship management and general customer service, exams processes, risk management processes, admissions, documentation and work teams. An instance is that on documentation of processes, it was mentioned that:

> *"For some processes, like, the process to hire an assistant, there is a file, need to fill the form. So, some are not. But I'm not talking about the system, more on talking about*

*the process of doing things. We document these processes. And other persons can use it, anyone who comes after that will find itself..."*

One area however that is worth the attention is administrative procedures and structures. Structures particularly focused on the nature of the institution and its existence even though some associated structure with the approach to teaching and the manner in which the institution is organized regarding hierarchy. Some of these comments include those referring to the structural entity:

*"It is a government entity, being supported by the government..."* and *"As you can see it is semi-government and it is a unique setup…"*

Relating these to institutional competitiveness was not uncommon. Others, however, emphasised on the structure of the campus and organisational hierarchy:

*"So, it's a lovely integrated campus…" and "And luckily, there is one vice-chancellor. They have appointed a vice chancellor for the medical health science campus."*

Others that mentioned the structure of teaching commented that:

*"The structure of teaching is pretty complicated. Starting with instructors, lectures, senior lecturer, assistant professor, associate professor and professor."*

Administrative procedures received heavy comments from respondents focusing on different procedures and processes within the organisation, from resource administration:

*"we have to be quite efficient with our resources. Definitely, if you look at our mission, program goals and programs outcomes, we essentially wanna (want to) make sure an up to date and current education that is basically meeting needs of stakeholders."*

Administrative procedures surrounding research policies

> *"Research policy where faculties are required to do research and publish. We support that in various ways. So, for e.g. if a faculty member has a paper accepted and is invited to present in the conference, AUD will pay a 100% for that faculty attendance including tickets, hotel stays and a stipend for 2-3 days conference."*

Many other procedures with a wide range of implementation and administrative procedures surrounding faculty and non-faculty processes in the institution such as stationery management, finance and budgetary management, administrative support for human resources, training and coaching were recorded:

> *"And we tried to identify those gaps and help them whether by having more training or having coaching from the line manager, having planned out a plan to improved….so in education within ADU I'm leading everything under technology and information system within ADU."*

Other observed areas include strategies, policies and programs. These areas capture many of the business processes within the institutions that have similarities with other themes discussed earlier, but with high orientation as an institutional strategy, policy or program. An instance is that even though risk management was coded alone under a sperate theme, it could also be classified under the theme of strategies as a sub-segment. An instance of comment on policy as a business process was captured in the areas of maintaining quality benchmarks in all areas of teaching, academic conduct, grading, and many others:

> *"We have our own quality by no means it will be less than the ministry (standards), either equal or higher."*

About exam policies and processes, another respondent mentioned:

> *"It is not only in our university we have the first marker and then a second moderator then an external examiner. So, the one who will move these is not the same person. We need an unbiased person who is a third party to work with all the relevant people."*

Other emphasised on policies regarding enrolment and student intake, diverting attention at the need to provide valuable education for students. These factors view critical mandates of the institution and, ironically, not essentially processes to establish a competitive advantage.

> *"Basically, we have a mandate from the government let's say enrolling 25,000 students every year. To be competitive in the market for us, doesn't mean we are fighting for the students or that we wish to increase the number of our students to certain level or to compete with another university to grab students from them"*

> *"We have internal processes to provide best possible education for the students, but it's not the competition factor…"*

> *"for us its an internal mandate to provide the best possible education."*

*New Business Processes*

As observed in the case of existing and new resources, existing and new business processes established some common themes. A summary of coded segments for this main segment is presented in Table 5.5.

***Table 5.5 New Business Processes used to establish a competitive edge in UAE HEIs***

| New Processes and Sub Component | Code Segments (n) |
|---|---|
| Functions | 1 |
| Accreditation | 6 |
| Marketing technique | 11 |
| Policies | 5 |
| Technology | 3 |
| Strategies | 14 |
| Programs | 7 |
| Training | 1 |
| Intelligence gathering | 10 |
| Total | 58 |

Some of these cross-themes include accreditation, strategies, policies, programs, training and functions. For the case of accreditation, a respondent made mention of some new programs that had been submitted to the ministry for accreditation:

*"We have three programs that we have submitted for…. accreditation, actually"*

This definitely pertains to additional accreditation even though the institution already has its existing batch of courses or accreditations. Similar comments were made regarding new technology. Functions and the other themes identified. In the area of marketing techniques, the advent of social media and online marketing was clearly acknowledged:

*"We do Google Ads, we do online social media ads. Because you know the print is really gone now, print media. So we work a lot on making sure…"*

One new area as observed in the discussion of existing and new resources was intelligence; this area was again observed as a unique element among new business process as opposed to existing processes. On intelligence gathering as a business process, one respondent commented as follows:

*"Before initially, from the year 2005 until 2013-2014, we do population-based research, and I'll show you how our students have done great things. But now, it is not*

*only population. Population plus scientific laboratory-based research, in terms of genetic, in terms of molecular, things and so forth"*

As observed, most of these business processes such as the marketing techniques and the intelligence gathering approaches had only evolved into new forms and may not entirely be considered as new to the institution. The transformation or transfiguration of resources and processes, therefore, serve as an exit cycle in the RR model of competitiveness. The next sections that follow elaborates on discussions and comments surrounding the RR among new and existing resources and business processes.

*RR among Existing Resources and Existing Business Processes*

Among the themes of recombination, existing resources and existing business processes remain one of the main recombination areas in HEIs. The main themes recorded in this area are presented in Table 5.6 below.

***Table 5.6 Combining Existing Resources and Existing Processes in UAE HEIs***

| **Resources and Processes Combinations** | **Code Segments (n)** |
|---|---|
| Strategy making and budget | 1 |
| Technology and Funds | 2 |
| Technology and Teaching | 2 |
| Campus Infrastructure and Programs | 3 |
| Course, Faculty and Funds | 2 |
| Exam and External Examiners | 1 |
| Process Documentation and Departments | 1 |
| Performance Management Processes | 3 |
| Research software | 1 |
| Total | 16 |

Some of the main recombinations include the consideration of funds in strategy making and funds or finance as well as technology and finance. On strategy financing, one respondent mentioned:

*"So, from the strategic goals, you have many projects coming by to achieve the goals. So, from this project, the budget, it's on a one year cycle, for the budget. But we have, it as the continuous cycle to make sure the budget needs and budget request on the daily basis fit the needs to meet the strategic objectives."*

A similar statement accompanied the adequacy of funds for technological processes. Technology was also considered as a significant element to aid teaching, in the form of learning management platforms:

*"You mean the learning management platform? The learning management platforms are primarily driven by the faculty needs, not driven by the IT because IT is an enabler to this process. So the technology that is stored in here is like an ERP system. It's not driven by IT, it's driven by business need."*

Other elements such as the combination between campus infrastructure and programs, a combination between courses provided by the university, faculty and funds:

*"Well, every year of course, when the budget is tied, you'll look at this department load Then with this department load… so, you have to justify why you need faculty. And of course, the faculty needs this money... the university has actually invested a lot in this in order to make people, high calibre people, to teach and motivate people to do research and do research, and to supervise PhD and things like that."*

Other recombination elements observed in this area include RR between examination procedures and the use of internal and external examiners. Process documentation and departments also came up as significant recombination elements. Finally, the use of research software to aid research processes in the institutions.

*RR among New Resources and Business Processes with other Elements*

As observed earlier, new resources and processes do not combine much with other resources and processes. The overall combination of new elements with other elements in the institution is presented in Table 5.7. No combination exists between new and existing resources; this reinforces the assertion that new elements do not exactly recombine with other elements in the organisation but only transform from being new to being existing (old). Nonetheless, the new recombination elements with new elements are presented to take a closer look at these.

***Table 5.7 Combining New Resources and Processes with other elements in UAE HEIs***

| New Resources or Process Combinations | Code Segments | Totals |
|---|---|---|
| existing business process and new resources | 0 | |
| programs and finance | 1 | 1 |
| new business process and new resources | 1 | |
| New Campus and New Technology | 1 | |
| Intelligence gathering and social media | 1 | |
| infrastructure and programs | 3 | 6 |
| new business process and existing business process | 0 | |
| Strategies | 4 | |
| Structures | 1 | |
| Intelligence gathering and programs | 2 | |
| Program Combination | 1 | |
| Other Weak Combination | 10 | 18 |

Aside from evidence that new and existing resources are barely mixable but represent a mere transition, existing business processes do not combine well with new resources either. For this whole branch of RR that was sought, only one code segment was recorded. This was the case where a participant commented on the need to allocate a new source of finance of funds to programs or a specific category of students in an oncoming future.

> *"No, actually the ICT fund funded the local student, my students will have full scholarship from ICT fund because they are local. And for the expert and student who has like high school grade more than 90, they get 50%."*

The newness of finance as a resource is therefore embedded in the timeframe of implementation as at the time of data collection. In other events of new business processes and new resources, evidence of new campus and new technology, new intelligence gathering techniques and new upcoming social media platforms, and new infrastructure to accommodate new programs.

Similarly, new business processes combine with some existing business processes. These include recombination of strategies, structures and intelligence gathering. One way intelligence gathering combine with new business processes is by conducting feasibility studies for new program introductions.

> *"Actually before we introduce a program, we do a Feasibility Study, for the program whether is it really needed in the country/region, which is must and be approved by the Board of Trustees first. (28:41). Then a second feasibility is done after initial one. This is for the new programs. For the existing units, this is effectiveness thing, business-wise means achieving their goals or not"*

Finally, the area of existing business process and new business were rather weak recombination elements or lacked clear connections.

*RR among Other Factors and Code Relations*

At the final stage of the coding attempt, other factors were identified in many ways supporting the identified resources and business processes. These elements are presented in Table 5.8 and included control events, initiatives building, acknowledgement of faculty retention, measurement of rewards and assessment of the effectiveness of institutional strategies. Others include an emphasis on synergy transparency and competitive fee pricing in congruence with institutional quality offerings. Risk handling at the departmental level and other strategic alliances essential for competitiveness were identified.

***Table 5.8 Other elements contributing to HEI Competitiveness***

| Auxiliary Elements | Code Segments |
|---|---|
| Faculty Training | 2 |
| Control | 2 |
| Department and Risk Handling | 1 |
| Faculty retention and reward | 2 |
| Initiatives | 1 |
| Curriculum | 6 |
| Results / effectiveness of strategies | 1 |
| Synergy | 2 |
| Leadership | 1 |
| Strategic Alliances and Partnerships for competitiveness | 9 |
| Quality | 11 |
| Price/Fee | 2 |
| Transparency | 2 |
| Total | 42 |

Most of the comments and elements in the "others section/auxiliary elements" were coded in the exercise and did not encompass any tangible properties that would classify them as a resource or as a business process. An instance is that on price and quality relationship, one respondent mentioned:

> *"The quality processes are very stringent at the university. And the whole concept of the British accredited university, I think we are the only one in the market so that gives us competitive advantage along with the prices, fee structure that we have."*

In another instance on strategic alliances and institutional partnerships, one mentioned on competitiveness as embedded in the environment within which the institution is established:

> *"Especially there are so many universities, so I think being a UAE university we are very strong with the government links and on many programs. Our professors and academics are actively advising on the policies and procedures for the government itself. So, I think we are playing a very active role in building the nation, that kind of thing."*

Another respondent in this area focused on specific institutional connections and associations:

> *"It was initially initiated by five of our founders such as Al Maktoum Foundation, Rolls-Royce, National Bank of Dubai and Dubai Development Authority and British Development Business Group. So these are the five entities that came together and said we need to bring some good UK universities to UAE and we started when a decree from His Highness Sheikh Mohammed bin Rashid Al Maktoum was declared. So it was all initiated by the government."*

Finally, on transparency, one respondent commented on the use of committees to instil transparency:

> *"For this thing, it's transparent, criteria that we want the best in the discipline. You want scholars, as well as scientist. And the college has the selection committee, there's always selection committee. All applications go electronically through the web-based so that there is no relationship factor. All of it. And all of the applicants that come to us through the HR department, there's a selection committee that interview every possible person, they're shortlisted."*

Another respondent commented o transparency as a quality assurance metric:

> *"So, the quality assurance thing is to make sure that based on what you claim, you did it or not, but it must be as these are conditions (right thing at right time). It applies to both faculty and administrative units.*
>
> *So, we are doing this transparency, and this is what is my outcome, how I plan to deliver them and then my finding, whether they match what I expect or not. So, the quality*

*assurance is to make everyone publish(abide) to things that driven by University vision. And it becomes."*

These other elements play an important role in the RR model of HEI competitiveness and need to be considered in any further evaluation of the RR construct.

### *5.2.3 Summary of Qualitative Results*

Based on the interview discussions, it is observed that resources and business processes, whether new or existing, largely depends on various institutions and what makes a difference is reconfiguration and recombination of resources and business processes whilst channelling into the organisation a constant flow of new elements and channelling out archaic elements. Ultimately, what may be new to one organisation may only remain an old resource to another organisation. The attainment of a new source of finance or a new batch of expert faculty members, for instance, may be observed as new resources and capacitate an institution to achieve a competitive edge in the higher education sector; however, these resources may be categorised as existing in other institution.

The acknowledgement of discrepancy with regards to what is new and existing resource and business process as unique to any institution, serve as grounds to assert that the RR model is a process or flow construct where the constant movement of resources and the business process remains ongoing towards the establishment of competitive advantage. This flow has an inlet of resources and business processes channelled into the already ongoing recombinations. These are channelled out and influenced by trends and other developments such that they do not exit but metaloph into more advanced resources and business processes. This represents a vital aspect of the sense-making framework presented in Figure 5.2.

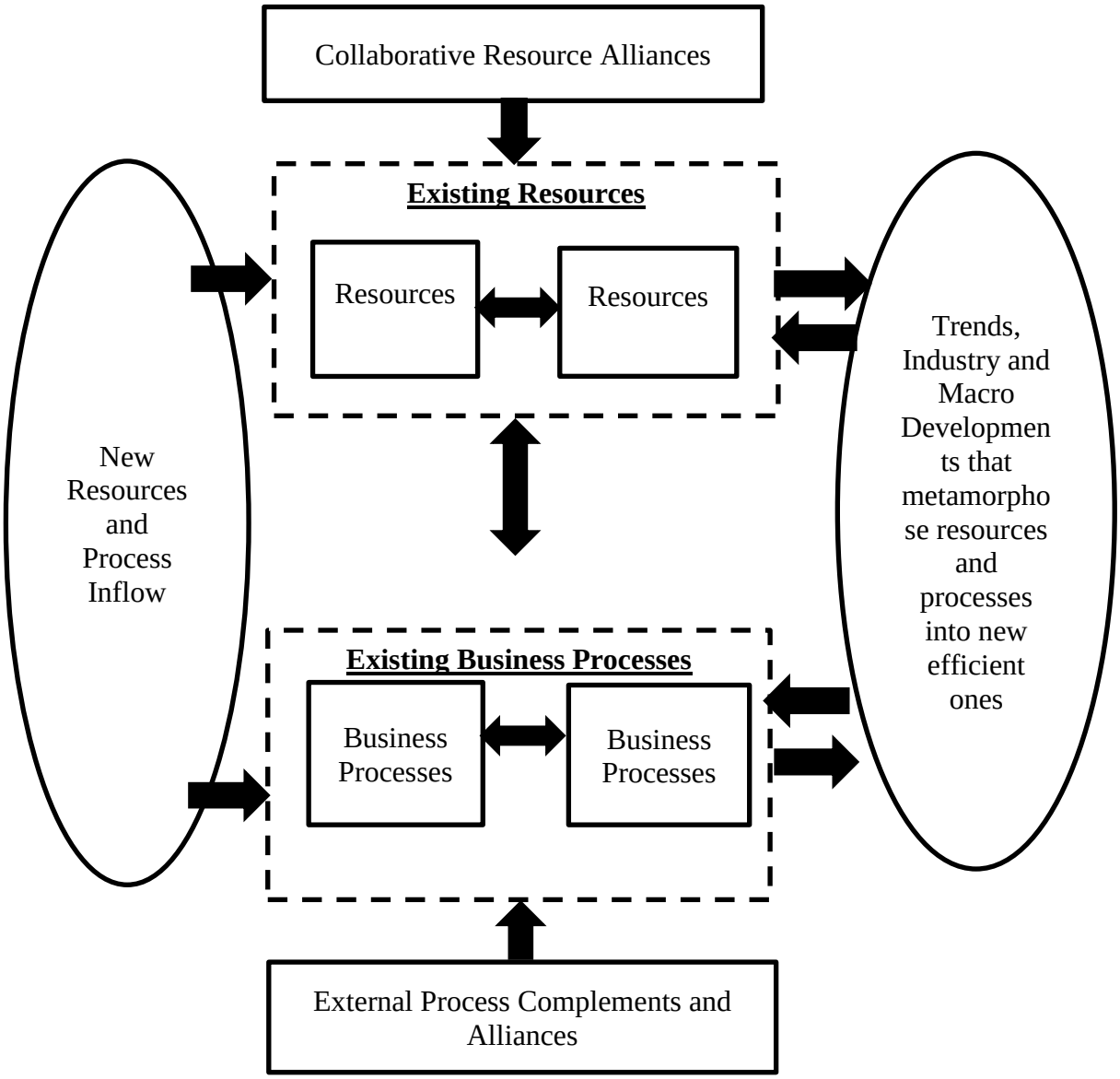
The above assertion is also supported by findings that both new resources and business processes do not combine well with any other existing element for that matter. New resources

and business process only flow into the pool of resources and processes within the organisation and novel recombination is only achieved after the resource is implanted within the organisation and becomes a part of it. It is at this point that resources and processes can be better combined.

One other area worth mentioning is that the interviews uncovered recombination among existing resources and existing business processes in a similar manner as they recombine with new resources and processes. Kurzhals (2015) model presented earlier in a matrix format may therefore not adequately capture these aspects of resource recombination. The recombination among existing resources and business processes was therefore acknowledged in a sense-making model presented in Figure 5.2 below.

Another unique aspect of the RR model of HEI competitiveness is the role of external alliances and capabilities. As a learning construct, RR is no doubt an internal strategic management construct. Nonetheless, the achievement of competitive edge cannot be achieved in isolation of internal processes and resources. The role of the external environment must, therefore, be acknowledged. These external collaborative alliances affect both resources and business processes both individually and as they recombine. An instance is that external cost of servers and shared fixed costs in UAE educational zones by established institutions.

*Figure 5.2 Model of RR in HEI Competitiveness (A Sensemaking Framework)*




*Source-Own Illustration*

**KEY**

Observable Factors in the RR model of HEI competitiveness: Included resources or business processes must combine with at least one other resource or business process

Observable Aggregate factors; Recombinations occurring within these boxes and at the same time these boxes recombine with others

Unobservable Factors that complement the RR model of HEI competitiveness

Based on this outcome, resources (whether new or existing) were pooled together into a single set of resource elements. Common elements in both areas of new and existing removed to arrive at critical indicators for the quantitative assessment. Other similar themes in same categories were combined where required. A summary of central themes after these observations are presented in Table 5.9.

***Table 5.9 Main themes for RR model in HEI competitiveness for Quantitative Validation***

| **B** | **Resources** | **C** | **Business Processes** |
|---|---|---|---|
| B1 | Students | C1 | Technological processes |
| B2 | Alumni Connectedness | C2 | Teaching Processes |
| B3 | Restricted Entry for Student | C3 | Collaborative Processes |
| B4 | School brand Image | C4 | Student Application Processes |
| B5 | Software | C5 | Registry processes |
| B6 | Accreditation | C6 | Faculty Meetings |
| B7 | Equipment | C7 | Process Automation |
| B8 | Human Resources | C8 | Database Management |
| B9 | Institutional Departments | C9 | Procurement Processes |
| B10 | Finance / funds | C10 | Communication Processes |
| B11 | Infrastructure | C11 | Internal Collaboration |
| B12 | Faculty HR Recruitment | C12 | Administrative functions |
| B13 | Non-Faculty HR | C13 | Customer Service Management |
| B14 | HR Promotions | C14 | Exams processes |
| B15 | School technology | C15 | Risk Management |
| B16 | Student learning Technology | C16 | Admission Processes |
| B17 | Student Account Technology | C17 | Faculty Training |
| B18 | Teaching Technology | C18 | Work Team processes |
| B19 | Usage of Technology | C19 | Documentations |
| B20 | Service Delivery | C20 | Committee Processes |
| B21 | Intelligence as a Resource | C21 | Quality Assurance processes |
| | | C22 | Asset and Finance Management (allocation) |
| | | C23 | Publication/Research Processes |
| | | C24 | Accreditation Processes |
| | | C25 | Programs Formation |
| | | C26 | General HRM |
| | | C27 | Institutional Strategy Alignment |
| | | C28 | Institutional Policies implementation |
| | | C29 | Intelligence gathering processes |

***Table 5.10 Other Complimentary Factors of RR in HEI competitiveness***

| D | Other Elements |
|---|---|
| D1 | Control |
| D2 | Faculty Rewards |
| D3 | Faculty Retention |
| D4 | Risk Handling Policies |
| D5 | Initiatives building |
| D6 | Curriculum |
| D7 | Measurement of Results |
| D8 | Synergy Building |
| D9 | Leadership |
| D10 | Ext. Resource Alliances |
| D11 | Ext. Processes Alliances |
| D12 | Institutional Quality |
| D13 | Fees and Quality Relation |
| D14 | Transparency |

To transform this sensemaking framework into a modular construct, the quantitative approach was implemented. The primary endpoint of the quantitative model or the RR construct of HEI competitiveness is to arrive at resources and processes with the ability to recombine with other resources and processes within the institution.

## 5.3 Quantitative Survey Results and Analysis – Study Two

### *5.3.1 Response rate*

The survey conducted at the stage of the analysis was in an attempt to validate the main constructs of RR observed in Study One. All 21 items of resources, 29 items of business process and 14 items of complementary factors were pulled together in a survey conducted in Study Two. Study Two or the quantitative exploratory study, had a response rate of 73.7% even though a response rate of about 80% was originally anticipated. Considering collected responses did not meet the set minimum sample requirement, some amount of response error of about 6.3% may be conceded. This response error may not be considered threatening to the study as the collected sample is well above 300 participants and this may be considered an acceptable level for establishing evidence (Saunders et al., 2012).

Essential data on demographics are first presented and arguments in support of the validated model of RR in HEI Competitiveness follow. An Exploratory Factor Analysis (EFA) and a Confirmatory Factor Analysis (CFA) are conducted to reduce and validate the final model of RR in HEI Competitiveness. The arrived variables are discussed and labelled accordingly based on pertinent literature surrounding the area; this is presented in the final section of the chapter.

### *5.3.2 Demographic Statistics*

The demographics of respondents are presented in Table 5.11. Main areas of data gathered include gender, age, sector, education, level or role in an institution, hours worked (full time or part time) and tenure of work. Approximately equal proportions of male and female respondents participated; nearly 50% of females was interviewed as male respondents. Age ranges recorded indicate that 145 respondents were aged between 41 to 50 years; this constituted 43.4% of the total participants. Institutions were mainly public-sector institutions (64.4%), and most of the respondents were of a masters' degree (61f.7%).

Many of the respondents were in the combined roles of academia and administration (40.4%). Majority of participants operate in full-time positions (64.7%) whilst the remaining respondents operate on a part-time basis. This proportion of full-time faculty may be considered higher than that recorded by CHEDS (2012) at about 17% of full-time students; however, it may be noted that this number includes non-faculty participants as opposed to CHEDS report which only constituted faculty or mainstream teaching participants.

The last demographic element recorded was tenure; about 42.5% of the respondents had worked for their respective institutions for less than five (5) years. About 124 (37.1%) of the remaining had worked with their institutions for 5 to 10 years. The remaining 20% was shared in nearly same proportion between those who had spent 11 to 20 years and those with more

than 20 years of experience. The sparsity of demographics presented in Table 5.11 helps to appreciate the randomness and the lack of bias of data gathered.

***Table 5.11 Demographic Statistics – Study Two***

| | | Frequency | Percent |
|---|---|---|---|
| Gender | Male | 168 | 50.3 |
| | Female | 166 | 49.7 |
| Age | 31-40 | 50 | 15.0 |
| | 41-50 | 145 | 43.4 |
| | above 50 | 139 | 41.6 |
| Sector | Public | 215 | 64.4 |
| | Private | 119 | 35.6 |
| Education | Bachelor's Degree | 25 | 7.5 |
| | Master's Degree | 206 | 61.7 |
| | Other professional degree | 24 | 7.2 |
| | PhD | 79 | 23.7 |
| Level | Academic Role | 81 | 24.3 |
| | Administrative role | 95 | 28.4 |
| | Academic and Administrative role | 135 | 40.4 |
| | Department head | 23 | 6.9 |
| Hours | Full time | 216 | 64.7 |
| | Part-time | 118 | 35.3 |
| Tenure | Below five years | 142 | 42.5 |
| | 5-10 years | 124 | 37.1 |
| | 11-20 years | 33 | 9.9 |
| | 21 years or above | 35 | 10.5 |
| Total | | 334 | 100 |

### *5.3.3 Validating RR Model of HEI Competitiveness*

To validate the main items resulting from the interview discussions, further quantitative analyses were conducted in Study Two. These analyses helped to reduce the total of 64 items by identifying significant patterns within the dataset; this was in an attempt to arrive at a construct that neatly converges, where the available data explains a significant portion of the variance in the model. Identifying patterns is essential to arrive at a suitable set of items that accurately defines the construct of RR in HEI competitiveness. A summary of the three main categories of items on the survey questionnaire is presented in Table 5.12.

***Table 5.12 Summary of Descriptive Statistics – Study Two***

| | N Valid | Mean | Std. Error of Mean | Std. Deviation | Skewness | Kurtosis |
|---|---|---|---|---|---|---|
| Resources | 334 | 4.7149 | .03863 | .70598 | -.813 | .684 |
| Processes | 334 | 4.9672 | .03518 | .64289 | -.733 | .185 |
| Complements | 334 | 4.8278 | .03862 | .70575 | -.478 | .573 |

*Note*: N = 334, Standard Error of Skewness = .133, Standard Error of Kurtosis = .266

A detailed list the main 64 items on the questionnaire and the descriptive statistics for each of these items are presented in Appendix G. Data was collected on a seven-point Likert scale in the same or similar manner as Study Three. Results indicate a generally above average response for all items on the questionnaire. Items were also generally negatively skewed; this implies they are shifted onto the positive ends of the histogram in normal distributions are presented in Figure 5.3, Figure 5.4 and Figure 5.5.

***Figure 5.3 Distribution of Responses – Resources – Study Two***

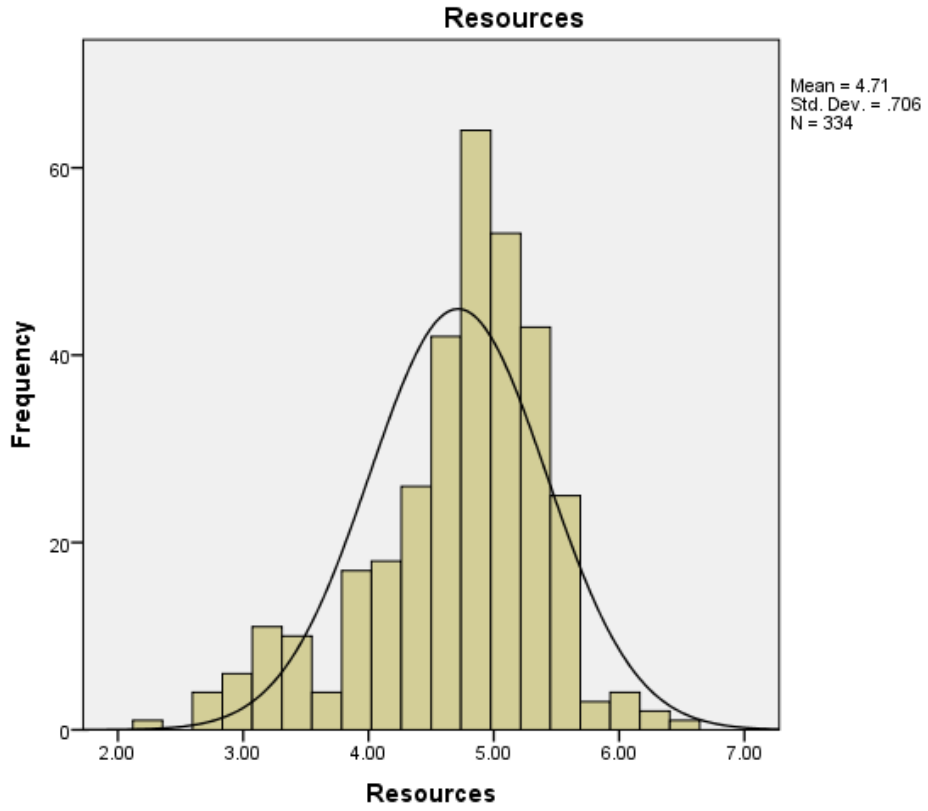


*Figure 5.4 Distribution of Responses – Processes – Study Two*

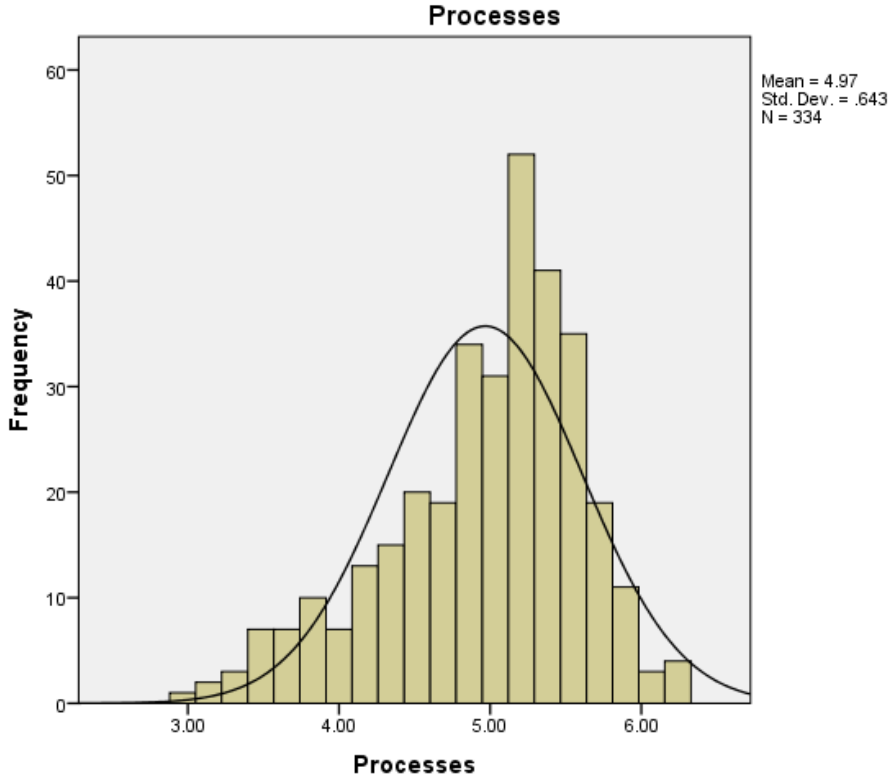
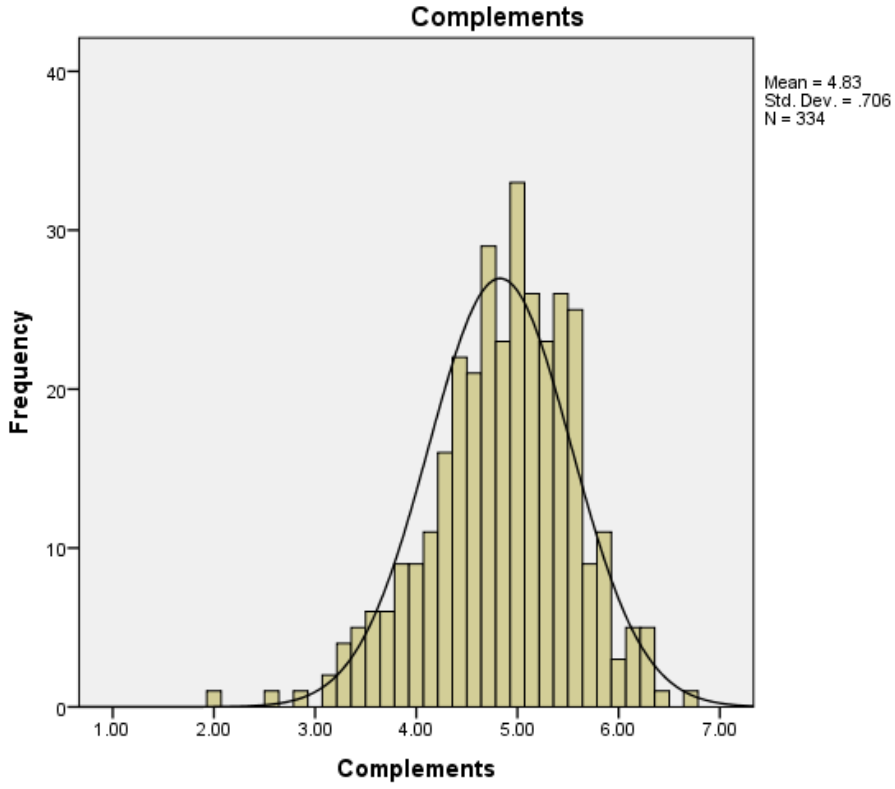



*Figure 5.5 Distribution of Responses – Complements – Study Two*



### *5.3.4 Exploratory Factor Analysis*

A number of 17-factor loadings were originally extracted with squared loadings of 55% communalities extracted sums. KMO test was .808 (P<0.001) whereas a small number of communalities extracted were less than 3.0. To observe essential patterns in the data, every factor less than .4 in the pattern matrix was suppressed. Also, in a bid to get rid of cross-load loadings and low loadings, several forms of adjustments were made. Gaskin (2012b) suggested that two variables for each factor was deemed enough and high loadings on the specific factor ( > 0.40) were needed for every variable in the dataset.

A parsimonious table of the unguided measurement model, after various adjustments, were observed with a number of nine factors. Applicable standard measures are regulated for Bartlett's test of sphericity and Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy.

To begin with, Kaiser (1974) asserted that the Kaiser-Meyer-Olkin measure of sampling adequacy which is used to determine the suitability of a dataset for EFA was examined. Values above 0.80 were deemed very appropriate whereas a minimum for the KMO value was noted at 0.50 (Frohlich & Westbrook, 2001). As presented in Table 5.13, a value of .804 was attained for KMO. Also, Bartlett's Test of Sphericity was realized as being statistically significant. This signifies that substantial findings or outcomes can be attained by the EFA analysis (Gaskin, 2012b). Other factor structure tables and communalities are shown in Appendix I.

A scree plot of data presented in Table 5.14 is presented in Figure 5.6. The nine factors may be observed as presented in the pattern matrix in Table 5.14. Even though 21 items originally represented resources, this was reduced to 9 items loading onto three main factors; business processes also loaded onto four main factors with 22 out of the 29 factors. The last group of items labelled complements of RR in HEI loaded onto two main factors; only 6 out of 14 items remained for this factor.

All loadings onto the factors shown in Table 5.15 were above .5 as each of the loadings lower than this standard was suppressed and removed the analysis later. Out of 64 main items, only 37 was left at this stage of the examination. Additionally, Gaskin (2012a) asserts that although Barlett's Test and KMO were statistically important and communalities were normally higher than 0.2, the total squared loadings cumulative value of 56.082 extracted was below what will be expected for a better parsimonious model.

Gaskin (2012a) further adds that the cumulative extracted loadings will need to be higher than 60% for an unguided model that defines a substantial fraction of the variance. However, the value attained from the current study is acceptable.

***Table 5.13 KMO and Bartlett's Test - EFA – Study Two***

| | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .804 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 6005.658 |
| | Df | 666 |
| | Sig. | .000 |

***Table 5.14 Total Variance Explained – EFA – Study Two***

| | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rot. Sums of Squared[a] |
|---|---|---|---|---|---|---|---|
| Factor | Total | % of Var | Cum. % | Total | % of Var. | Cum. % | Total |
| 1 | 7.530 | 20.352 | 20.352 | 2.252 | 6.087 | 6.087 | 6.891 |
| 2 | 3.487 | 9.424 | 29.776 | 6.935 | 18.744 | 24.831 | 2.914 |
| 3 | 3.135 | 8.472 | 38.248 | 2.169 | 5.862 | 30.693 | 2.393 |
| 4 | 2.200 | 5.947 | 44.195 | 2.928 | 7.913 | 38.606 | 3.366 |
| 5 | 1.912 | 5.167 | 49.362 | 1.578 | 4.266 | 42.872 | 2.698 |
| 6 | 1.798 | 4.858 | 54.220 | 1.487 | 4.019 | 46.891 | 1.949 |
| 7 | 1.730 | 4.675 | 58.895 | 1.381 | 3.732 | 50.623 | 1.989 |
| 8 | 1.456 | 3.935 | 62.830 | 1.014 | 2.742 | 53.364 | 1.670 |
| 9 | 1.339 | 3.618 | 66.448 | 1.005 | 2.717 | 56.082 | 1.712 |
| 10 | .930 | 2.514 | 68.962 | | | | |
| 11 | .847 | 2.288 | 71.250 | | | | |
| 12 | .791 | 2.137 | 73.387 | | | | |
| 13 | .744 | 2.011 | 75.398 | | | | |
| 14 | .692 | 1.871 | 77.269 | | | | |
| 15 | .656 | 1.772 | 79.041 | | | | |

| | | | | |
|---|---|---|---|---|
| 16 | .581 | 1.572 | 80.613 | |
| 17 | .553 | 1.495 | 82.107 | |
| 18 | .543 | 1.468 | 83.575 | |
| 19 | .534 | 1.444 | 85.019 | |
| 20 | .505 | 1.364 | 86.383 | |
| 21 | .462 | 1.249 | 87.632 | |
| 22 | .434 | 1.174 | 88.806 | |
| 23 | .430 | 1.161 | 89.967 | |
| 24 | .408 | 1.104 | 91.071 | |
| 25 | .368 | .994 | 92.065 | |
| 26 | .352 | .950 | 93.015 | |
| 27 | .333 | .901 | 93.915 | |
| 28 | .313 | .845 | 94.760 | |
| 29 | .311 | .840 | 95.600 | |

*Note*: a. Extraction Method: Maximum Likelihood. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance. Only 29 factors reported.

***Figure 5.6 Scree Plot – EFA – Study Two***

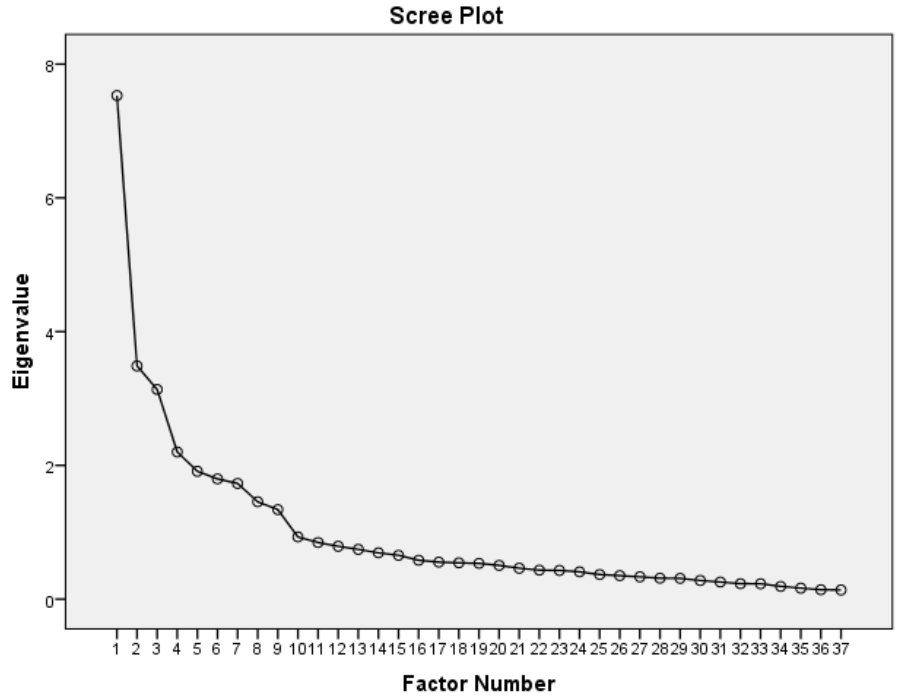



***Table 5.15 Pattern Matrix – EFA – Study Two***

| | | Factor | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| B3 | Restricted Entry for Student | | | | | .743 | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| B4 | School brand Image | | | | | .681 | | | | |
| B5 | Software | | | | | .628 | | | | |
| B6 | Accreditation | | | | | | .991 | | | |
| B7 | Equipment | | | | | | .828 | | | |
| B2 | Alumni Connectedness | | | .640 | | | | | | |
| B8 | Human Resources | | | .914 | | | | | | |
| B9 | Institutional Departments | | | .700 | | | | | | |
| B10 | Finance / funds | | | .614 | | | | | | |
| C1 | Technological processes | | | | | | | .802 | | |
| C2 | Teaching Processes | | | | | | | .514 | | |
| C3 | Collaborative Processes | | | | | | | .567 | | |
| C4 | Student Application Processes | | | | | | | .637 | | |
| C7 | Process Automation | | .624 | | | | | | | |
| C8 | Database Management | | .572 | | | | | | | |
| C9 | Procurement Processes | | .803 | | | | | | | |
| C10 | Communication Processes | | .786 | | | | | | | |
| C11 | Internal Collaboration | | .541 | | | | | | | |
| C18 | Work Team processes | | | | | | | | | .727 |
| C19 | Documentations | | | | | | | | | .701 |
| C15 | Risk Management | .819 | | | | | | | | |
| C20 | Committee Processes | .704 | | | | | | | | |
| C21 | Quality Assurance processes | .746 | | | | | | | | |
| C22 | Asset and Finance Management | .765 | | | | | | | | |
| C23 | Publication/Research Processes | .789 | | | | | | | | |
| C24 | Accreditation Processes | .743 | | | | | | | | |
| C25 | Programs Formation | .705 | | | | | | | | |
| C26 | General HRM | .668 | | | | | | | | |
| C27 | Institutional Strategy Alignment | .707 | | | | | | | | |
| C28 | Institutional Policies implementation | .620 | | | | | | | | |
| C29 | Intelligence gathering processes | .638 | | | | | | | | |
| D1 | Control | | | | .726 | | | | | |
| D2 | Faculty Rewards | | | | .761 | | | | | |
| D3 | Faculty Retention | | | | .719 | | | | | |
| D5 | Initiatives building | | | | | | | | .550 | |
| D6 | Curriculum | | | | | | | | .882 | |
| D7 | Measurement of Results | | | | | | | | .560 | |

*Note*: Extraction Method: Maximum Likelihood. Rotation Method: Promax with Kaiser Normalization. a. Rotation converged in 6 iterations

To test reliability and validity, every factor loading was ensured to be higher than 0.5, as shown in Table 5.15. Gaskin (2012) suggested this for samples which are above 200. Also, discriminant validity analyses the dissimilarities among variables in an individual construct was done by ensuring that every variable in the pattern matrix loanto their own individual factors with no cross-loadings as presented in Table 5.15.

Also, it is worth noting that differences among the factors are not above 0.7 each. Gaskin (2012) gives the reason as that, differences more than 0.7 signify that variables usually shared variance. However, every difference was below 0.7, proving that every factor shared variance at acceptable levels, as presented in Table 5.16.

To obtain the primary factor structure of the variables being assessed, the use of the EFA was imperative. The loading pattern was deemed suitable as the outcomes of the EFA appeared, and the constructs proved valid after discriminant, and convergent validity checks were performed visually and methodologically. Visual check entails observation of factor loadings and mean value loadings onto each factor; methodological and more objective checks were performed with the help of AVE, CR and the correlation matrix as presented in Table 5.16 and Table 5.17. In the visual observations, it was checked that the EFA and loading patterns had no relevant cross-loadings. Moreover, it was observed that the differences among factors were not so significant; Gaskin (2012a) places this benchmark at .2 difference. In sum, the EFA showed a clear factor structure and prepared the way for the CFA.

***Table 5.16 Factor Correlation Matrix – EFA – Study Two***

| Factor | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.000 | .177 | -.052 | .459 | .298 | -.073 | -.001 | .105 | .169 |
| 2 | .177 | 1.000 | .007 | -.053 | -.054 | -.030 | .307 | -.026 | .158 |
| 3 | -.052 | .007 | 1.000 | -.083 | .232 | .170 | -.089 | -.076 | -.077 |
| 4 | .459 | -.053 | -.083 | 1.000 | .102 | -.095 | -.070 | .115 | .227 |
| 5 | .298 | -.054 | .232 | .102 | 1.000 | .199 | -.042 | -.119 | -.091 |
| 6 | -.073 | -.030 | .170 | -.095 | .199 | 1.000 | -.100 | -.174 | -.090 |
| 7 | -.001 | .307 | -.089 | -.070 | -.042 | -.100 | 1.000 | .014 | .166 |
| 8 | .105 | -.026 | -.076 | .115 | -.119 | -.174 | .014 | 1.000 | .164 |
| 9 | .169 | .158 | -.077 | .227 | -.091 | -.090 | .166 | .164 | 1.000 |

*Note*: Extraction Method: Maximum Likelihood. Rotation Method: Promax with Kaiser Normalization.

Table 5.17 presents that the information on these areas. All factors passed the test for reliability except Factor 9 which had validity below .7 level. Moreover, this factor had only 2 items loading onto it. This factor was therefore closely monitored to take necessary action in case it threatens the model parsimony.

In the area of convergant validity using AVE, some of the validity measures were below significant levels but acceptable; that is, higher than. 0.4 but lower than 0.5 (Hair et al., 2010). These include Factor 5, Factor 7, Factor 2 and Factor 8. These factors were closely monitored at the CFA stage to deal with them accordingly if any other issues arise. They were however maintained at this point because they cleanly loaded their respective items without any issues based on a visual observation in Table 5.15. Initially, the total variance explained in Table 5.14 was acceptable even though a cumulative value above 60% of variance extraction would be considered highly valid. The validity of the EFA is therefore satisfactory despite high levels of reliability of data.

***Table 5.17 AVE and CR – EFA – Study Two***

| Factors | | Codes | Loadings | **AVE** | **CR** |
|---|---|---|---|---|---|
| Factor 5 | Restricted Student Entry | B3 | .743 | **0.470** | **0.726** |
| | School brand Image | B4 | .681 | | |
| | Software | B5 | .628 | | |
| Factor 6 | Accreditation | B6 | .991 | **0.834** | **0.909** |
| | Equipment | B7 | .828 | | |
| Factor 3 | Alumni Connectedness | B2 | .640 | **0.528** | **0.813** |
| | Human Resources | B8 | .914 | | |
| | Institutional Departments | B9 | .700 | | |
| | Finance / funds | B10 | .614 | | |
| Factor 7 | Technological processes | C1 | .802 | **0.409** | **0.729** |
| | Teaching Processes | C2 | .514 | | |
| | Collaborative Processes | C3 | .567 | | |
| | Student Application Processes | C4 | .637 | | |
| Factor 2 | Process Automation | C7 | .624 | **0.454** | **0.802** |
| | Database Management | C8 | .572 | | |
| | Procurement Processes | C9 | .803 | | |
| | Communication Processes | C10 | .786 | | |
| | Internal Collaboration | C11 | .541 | | |
| Factor 9 | Work Team processes | C18 | .727 | **0.520** | **0.675** |
| | Documentations | C19 | .701 | | |
| Factor 1 | Risk Management | C15 | .8190 | **0.520** | **.922** |
| | Committee Processes | C20 | .704 | | |
| | Quality Assurance processes | C21 | .746 | | |
| | Asset and Finance Management (allocation) | C22 | .765 | | |
| | Publication/Research Processes | C23 | .789 | | |
| | Accreditation Processes | C24 | .743 | | |
| | Programs Formation | C25 | .705 | | |
| | General HRM | C26 | .668 | | |
| | Institutional Strategy Alignment | C27 | .707 | | |
| | Institutional Policies | C28 | .620 | | |
| | Intelligence gathering processes | C29 | .638 | | |
| Factor 4 | Control | D1 | .726 | **0.541** | **0.779** |
| | Faculty Rewards | D2 | .761 | | |
| | Faculty Retention | D3 | .719 | | |
| Factor 8 | Initiatives building | D5 | .550 | **0.465** | **0.712** |
| | Curriculum | D6 | .882 | | |
| | Measurement of Results | D7 | .560 | | |

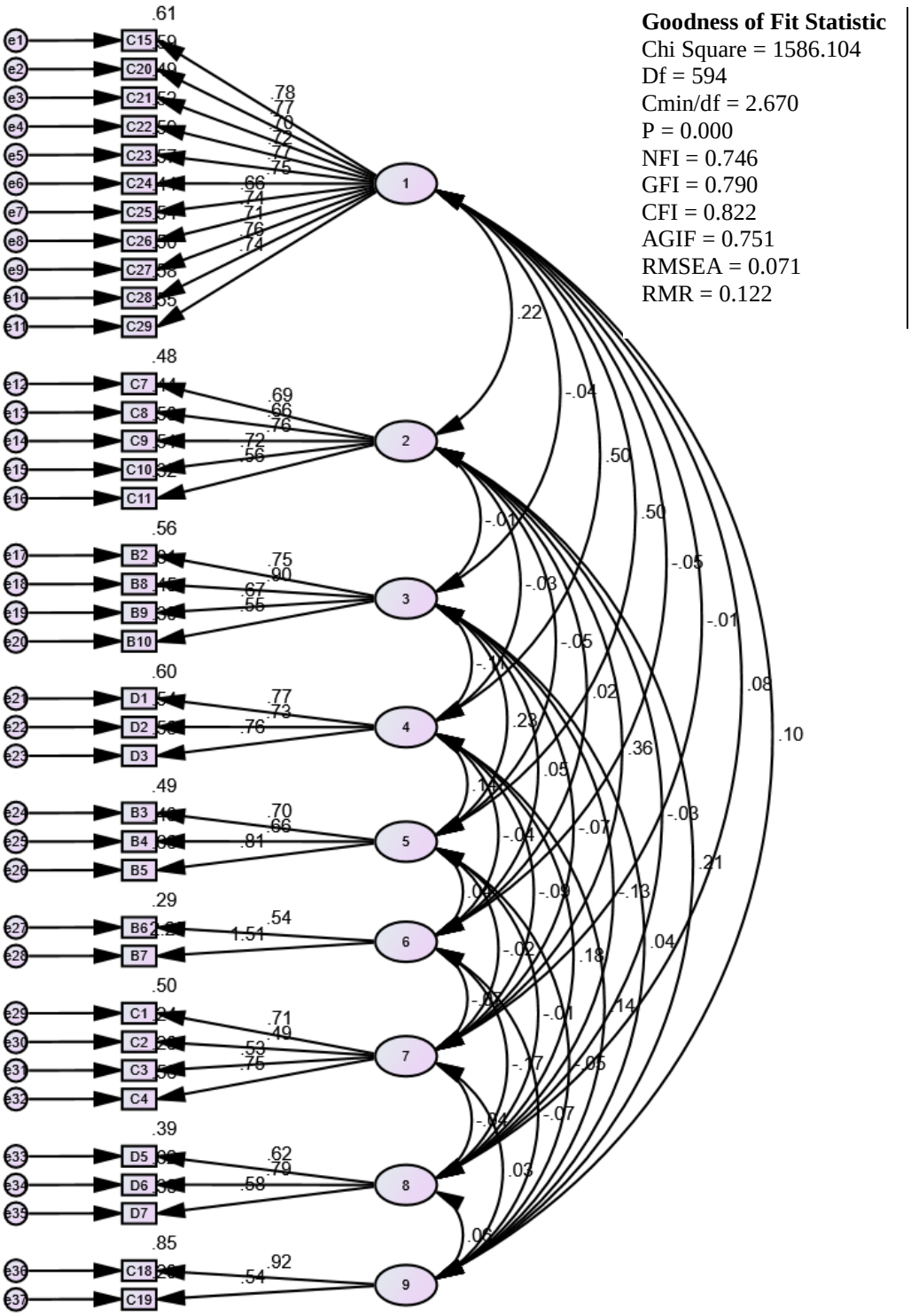
### *5.3.5 Confirmatory Factor Analysis*

The original measurement model based on the main EFA model is presented in Figure 5.7. Based on details presented in the figure, business processes loaded onto four main factors namely Factor 1, 2, 7 and 9. Resources items were loaded onto three factors; Factors, 3, 5 and 6. Complementary factors load onto two main factors; Factors 4 and 8. This model was however not parsimonious as the model fit indices were highly unsatisfactory, some standardised loadings were above the value of 1, resulting in negative error variance.

Moreover, modification indices reported by AMOS indicated the presence of a large number of areas that require revision. The factors that had low reliability and poor validity in the event of the EFA demonstrated some amount of inconsistencies at this stage of the analysis. These include Factor 2, Factor 7, Factor 8 and Factor 9. Some of these factors had variable loadings below .5 and others below .6 while other variables had relatively high loadings onto their respective factors.

On commencement of modifications, a Heywood Case was encountered for Factor 6 with an indicator loading greater than 1. This also caused a negative variance for error term e28. According to Kolenikov & Bollen (2012), to address Heywood Cases, the loading with regression weight of more than 1 may be restricted to any number between 0 and +∞. Another recommendation is to restrict all parameters on the factor as commonly or equally distributed. To address this issue, the factor constraint was changed from B6 to B7 to ease the effect on the model. In another alteration, a common or identical constraint label was used to compel them to be equal. Model converged at 11 iterations (x2 = 1586, df = 594).

***Figure 5.7 Initial Guided Measurement Model -CFA – Study Two***



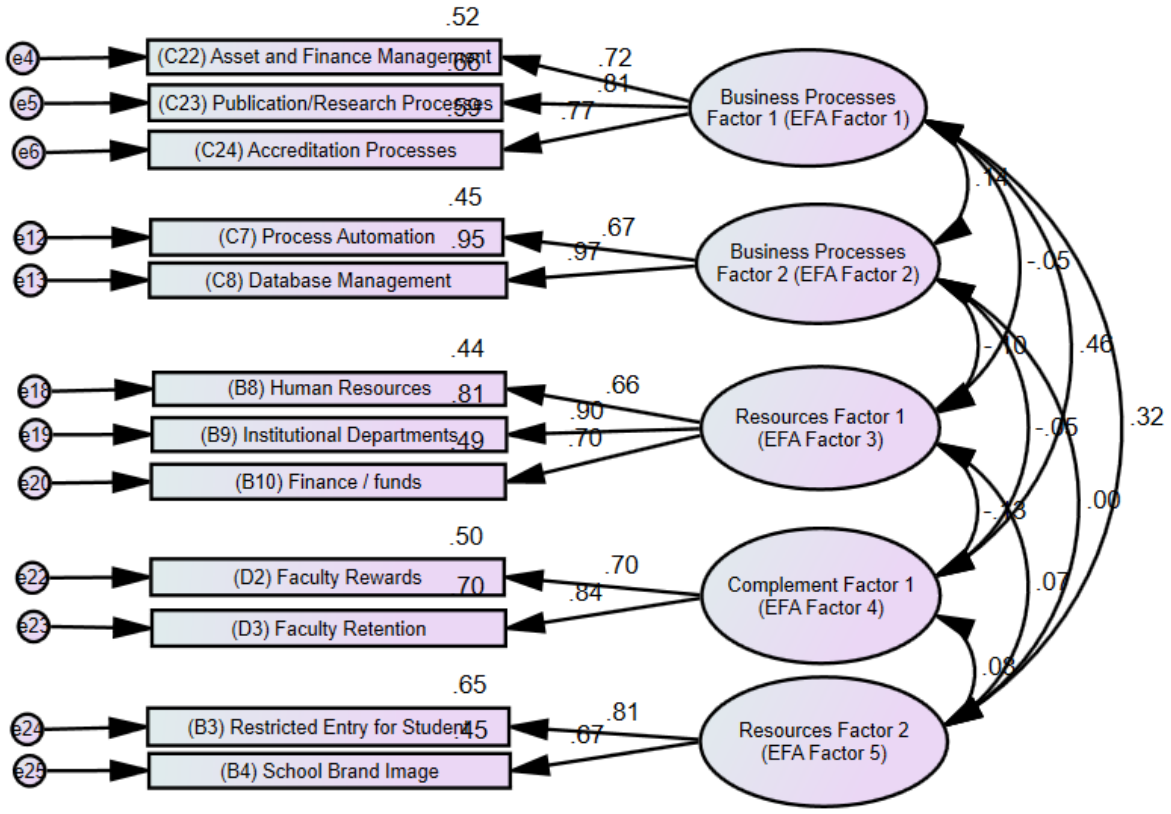
It was confirmed that all factor loadings in the CFA were originally above .5 prior to resorting to modification indices to further observe and improve model parsimony. Covariances were drawn between error terms that belong to any specific factor that could help improve model parameters. On these modifications, factors that fell below .6 loadings were removed from the model. Some of these loadings were suspected at the EFA stage of the analysis; the variable C2 for instance already had lowest extracted communality extracted at the EFA stage but was only maintained because of Child (2006) assertion that any commonality above .2 may be acceptable. Anything below this level would imply that the variable has over 80% of unique variance as opposed to shared variance.

The primary intent of the EFA and CFA is to explain variance through common factors and arrive at a more parsimonious model; this served as main grounds for removal of below standard loadings. Generally, loadings were above .6 and mostly above .7. The model was further cleared to limit loadings to those above .6; other Heywood Cases that evolved were addressed in the same manner as explained earlier. Variables that load onto factors with high modification index (M.I) values were dealt with by either removing the inter-factor loading from the model or observing this relationship after addressing other modification indices.

All M.I was reduced to values below 10; the entire factors of 6, 7, 8 and 9 were therefore removed in favour of model parsimony; however, all elements of resources, business processes and Complementary factors had representation in the final model. Factor five on resources was addressed as a Heywood case by assigning equal parameter values to the items that loaded onto this factor. The final measurement model that converged neatly with favourable model fit indices is presented in Figure 5.8. Only five out of nine items remained, and a greater number of the indices were acceptable in model fit indices. Two factors represented resources, two factors on business processes and one factor on RR complements. A total of 12 items remained in the measurement model with high model parsimony.

***Figure 5.8 Modified Measurement Model – CFA – Study Two***

| | |
|---|---|
| **Goodness of Fit Statistic** | TLI = .984 |
| Chi Square = 56.376 | GFI = 0.972 |
| df = 44 | CFI = 0.989 |
| Cmin/df = 1.281 | AGIF = 0.951 |
| P = 0.100 | RMSEA = 0.029 |
| NFI = 0.955 | RMR = 0.068 |




Important model fit indices are discussed based on the final CFA model presented in Figure 5.8.

*Absolute Fit Indices*

The CFA model passed every absolute fit index utilised to check the model. To pass the badness of Fit test, this was very necessary. All vital threshold was met as shown in Table 5.18.

***Table 5.18 Absolute Fit Indices for CFA – Study Two***

| Measurement | Recommended | Source | Score | Conclusion |
|---|---|---|---|---|
| Chi Square ($X^2$) value | - | Hu & Bentler (1998); Hair et al., (2010) | 56.376 | Acceptable |
| Sig. Threshold for ($X^2$) | > .05 | Hu & Bentler (1998); Hair et al., (2010) | 0.100 | Acceptable |
| CMIN ($X^2$ /df) | $1.0 < X^2 / df < 3.0$ | Hu & Bentler (1998); Hair et al., (2010) | 1.281 | Acceptable |
| Goodness of Fit (GDI) | > .90 | Hu & Bentler (1998); Hair et al., (2010) | 0.972 | Acceptable |
| Average GFI | > .80 | Hu & Bentler (1998); Hair et al., (2010) | 0.951 | Acceptable |
| Root Mean Squared (RMR) | < .08 | Hu & Bentler (1998); Hair et al., (2010) | 0.068 | Acceptable |
| Root Mean-Square Error of App. (RMSEA) | < .08 | Hu & Bentler (1998); Hair et al., (2010) | 0.029 | Acceptable |

*Relative Fit Indices*

The model presented in Figure 5.8 were also largely accepted as presented in Table 5.19. In distant literature such as Bentler & Bonnet (1980), NFI of .90 has been considered acceptable even though recent arguments have supported NFI of .95 and above as more acceptable levels of NFI (Hair et al., 2010). All significant thresholds were met as presented in the table.

***Table 5.19 Relative Fit Indices for CFA – Study Two***

| Measurement | Recommended | Source | Score | Conclusion |
|---|---|---|---|---|
| Tucker-Lewis Index (TLI) | > .95 | Bentler & Bonett (1980) | .984 | Acceptable |
| Comparative Fit Index (CFI) | > .95 | Bentler & Bonett (1980) | .989 | Acceptable |
| Normed Fit Index (NFI) | > .95 | Bentler & Bonett (1980) | .955 | Acceptable |
| Consistent Akaike Information Criterion (CAIC) | - | Bentler & Bonett (1980) | 287.955 | Acceptable |

*Reliability and Validity*

The analysis checks the validity and reliability of the factors within the CFA similarly to that of the EFA. To attain the appropriate outcomes, Gaskin (2012) opines that it is necessary to establish reliability as well as discriminant and convergent validity. As previously explained, to determine the suitability of the items employed for assessment, it is essential to measure validity and reliability (Lukas et al., 2004; Page & Meyer, 2000; Kline, 2005). Composite Reliability (CR) and AVE were both utilised to assess the reliability and convergent validity of the CFA model, as shown in Table 5.19. Convergent validity is associated with the correlations among the variables employed for assessment. Considering that every factor loading was at the threshold of 0.5, the AVE for every factor proved statistically relevant at above .5. as shown in Table 5.20, every aspect of reliability was also statistically relevant at above .7. Covariance between the main factors of the model is presented in Table 5.21. All covariances were below absolute values of .5.

***Table 5.20 Standardized Estimates, AVE and CR – CFA – Study Two***

| | | | Estimate | S.E. | C.R. | P | AVE | Com R. |
|---|---|---|---|---|---|---|---|---|
| C22 | <--- | Business Processes 1 (Factor 1) | 0.723 | | | | **.59** | **.81** |
| C23 | <--- | | 0.81 | 0.08 | 12.422 | *** | | |
| C24 | <--- | | 0.767 | 0.078 | 11.671 | *** | | |
| C7 | <--- | Business Processes 2 (Factor 2) | 0.672 | | | | **.70** | **.82** |
| C8 | <--- | | 0.973 | 0.621 | 2.393 | .017 | | |
| B8 | <--- | Resources 1 (Factor 3) | 0.664 | | | | **.58** | **.80** |
| B9 | <--- | | 0.901 | 0.117 | 10.374 | *** | | |
| B10 | <--- | | 0.7 | 0.092 | 10.844 | *** | | |
| D2 | <--- | Complements 1 (Factor 4) | 0.704 | | | | **.60** | **.75** |
| D3 | <--- | | 0.839 | 0.191 | 6.695 | *** | | |
| B3 | <--- | Resources 2 (Factor 5) | 0.809 | | | | **.55** | **.71** |
| B4 | <--- | | 0.671 | 0.195 | 3.711 | *** | | |

***Table 5.21 Covariance Table – CFA – Study Two***

| | | | Estimate | S.E. | C.R. | P |
|---|---|---|---|---|---|---|
| Business Processes 1 (Factor 1) | <--> | Business Processes 2 (Factor 2) | .155 | .113 | 1.379 | .168 |
| Business Processes 1 (Factor 1) | <--> | Resources 1 (Factor 3) | -.059 | .073 | -.811 | .417 |
| Business Processes 1 (Factor 1) | <--> | Complements 1 (Factor 4) | .476 | .094 | 5.088 | *** |
| Business Processes 1 (Factor 1) | <--> | Resources 2 (Factor 5) | .472 | .120 | 3.921 | *** |
| Business Processes 2 (Factor 2) | <--> | Resources 1 (Factor 3) | -.109 | .069 | -1.577 | .115 |
| Business Processes 2 (Factor 2) | <--> | Complements 1 (Factor 4) | -.050 | .064 | -.776 | .438 |
| Business Processes 2 (Factor 2) | <--> | Resources 2 (Factor 5) | .003 | .109 | .029 | .977 |
| Resources 1 (Factor 3) | <--> | Complements 1 (Factor 4) | -.132 | .070 | -1.888 | .059 |
| Resources 1 (Factor 3) | <--> | Resources 2 (Factor 5) | .100 | .100 | 1.002 | .316 |
| Complements 1 (Factor 4) | <--> | Resources 2 (Factor 5) | .108 | .100 | 1.085 | .278 |

*Common Method Bias and Power Analysis*

To test bias, the Harman single factor technique was considered. To employ this technique, all 12 variables from every factor in the final CFA model was regressed onto a common factor as recommended by Gaskin (2012c). To determine if CMB is a challenge or not, the outcomes of the unrotated one-factor solution were tested.

In Figure 5.9 below, a common bias test was run in AMOS. The unconstraint model was compared with the constrained model where the common latent factor regressed onto the indicators were constrained to 0. Results are presented in Table 5.22. Results indicate that the difference between the models is substantially different from 0; this indicates that a significant volume of shared variance exists in the model. This implies the need to consider the common latent factor in the subsequent use of the factors in the model. It is, however, important to

mention that minimisation was unsuccessful even at over 10,000 iterations particularly for the unconstrained model.

***Figure 5.9 Common Method Bias – CFA – Study Two***

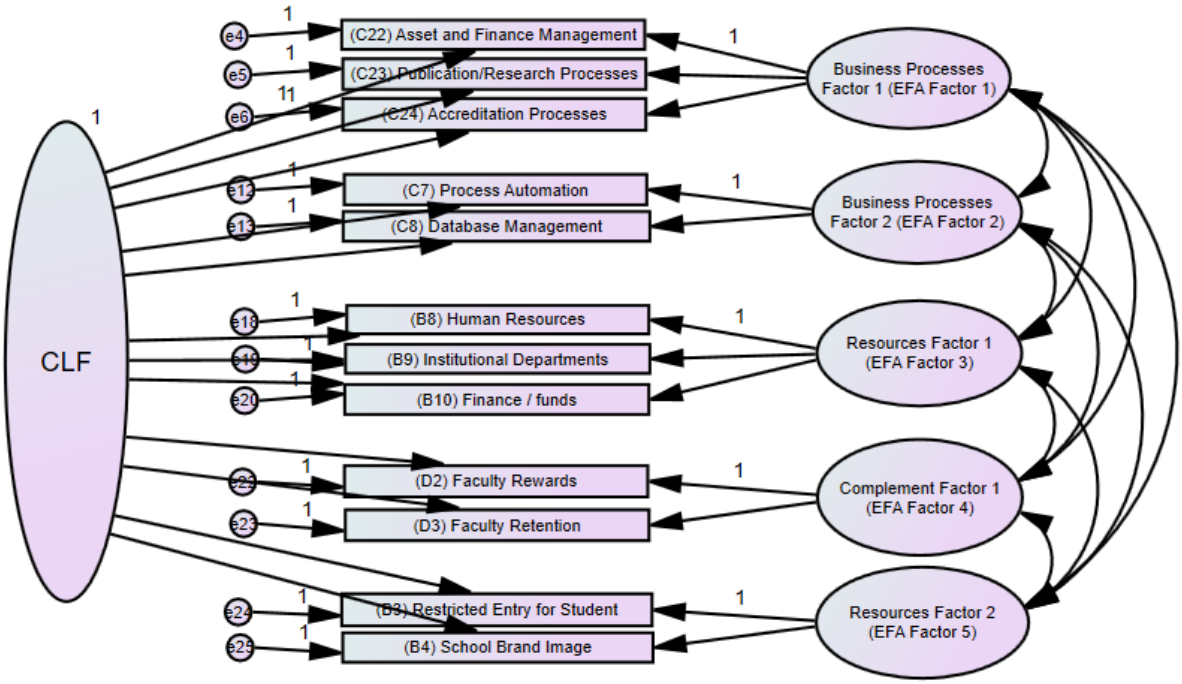



***Table 5.22 Specific Bias test – CFA – Study Two***

| | **Chi-square** | **df** | **p-value** |
|---|---|---|---|
| **Overall Model** | | | |
| Unconstrained | 28.927 | 33 | 0.67 |
| Fully constrained | 56.373 | 44 | 0.100 |
| Number of groups | | 2 | |
| Difference | 27.446 | 11 | **0.004** |

To conduct a power analysis, G-Power was used. The unconstrained model was matched against the zero-constrained model to estimate the effect size required to arrive at the statistical power. Considering the Chi-square ($x^2$) represents an ultimate model fit statistic for SEM, and this test was considered for the post hoc power analysis. A variance test of difference from constant was considered. The variance of the Chi-Square statistics was arrived by doubling the

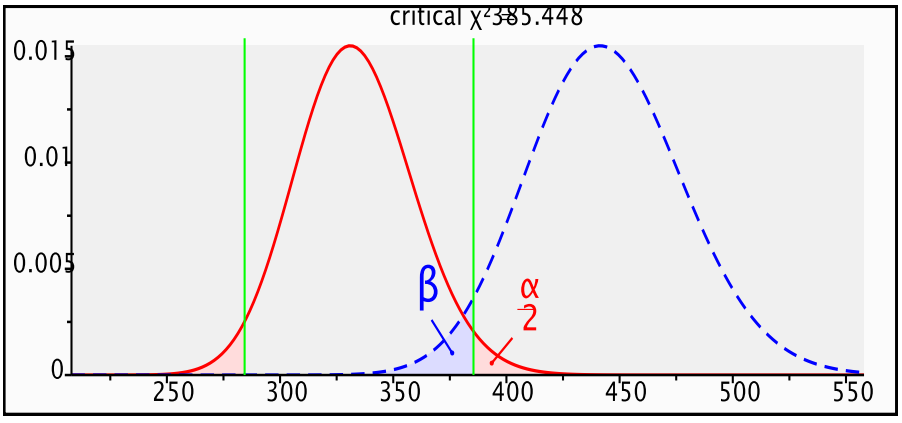
degree or freedom or multiplying the degree of freedom by 2 (StatTrek.com, 2018). Using these estimates on a two-tailed test, where the probability of error of 0.05 is considered and an original sample of 334 employed, the following results were obtained as presented in Table 5.23 below and Figure 5.10. Results indicate that the observed data explains the reality on the ground and the chance of making a type II error is significantly low.

***Table 5.23 Statistical Power Test Details – Study Two***

| **$X^2$ tests –** Variance: Difference from constant (one sample case) | | |
|---|---|---|
| **Analysis:** | **Post Hoc: Compute Achieved Power** | |
| **Input:** | Tail(s) | Two |
| | Ratio Var1/ Var0 | 1.333 |
| | α err prob | 0.05 |
| | Total Sample Size | 334 |
| **Output:** | Lower Critical $X^2$ | 284.3394 |
| | Upper Critical $X^2$ | 385.4476 |
| | Df | 333 |
| | Power (1 - β err prob) | 0.9605116 |

*Note*: The partly constrained model $X^2$ = 28.927, df =33 and the fully constrained model $X^2$ = 56.373 4, df = 44; variance of chi-square statistics = 2*df.

***Figure 5.10 Central and non-central distributions for Statistical Power Tests – Study Two***



### *5.3.6 Discussion of RR Model of HEI Competitiveness*

The central themes or constructs of RR Model of HEI competitiveness are discussed at this stage of the chapter to help support the latent factors with literature and label them accordingly. As observed, two sub-constructs of resources were finalised with three and two items in each factor. Two sub-constructs of business processes were also observed with three items in one sub-construct and two items in the other factor. Complementary factors grouped into on factor with two items only. The various factors are discussed accordingly.

*Asset, Research and Accreditation*

Three main indicators fell into this category; asset and finance management (C22), publication and research process (C23) and accreditation process (C24) with factor loadings of .72, .81 and .77 respectively. Discussions surrounding asset and finance management mainly pertained to the allocation and distribution of finance to other areas of the institution. Respondents talked about budget preparation on a yearly basis where attention is paid to varying levels of business operationalisation where the most critical category is compensation and remuneration. Also, support for research and institutional marketing communications played other important roles. This theme is heavily supported in literature; Keeling et al., (2007), Asif & Searcy (2014), and Agarwal (2006).

Assets and finance management loaded together with the research (C22) and publication process (C23). Participants commented that they are compelled by management to produce papers in Scopus Indexed Journals which are vital to add to overall institutional competitiveness. Others considered research as integral and strategic existing not only in the form of faculty publications but institutional research and development. Research capabilities have been identified as one of the main higher education performance excellence dimensions embedded in research infrastructure, teamwork and finance alongside other capabilities types (Asif & Searcy, 2014).

The final element of this section is the accreditation processes institutions have to go through for all their programs and courses. This was sometimes considered as ambiguous, tedious and inconsistent within and across institutions; weakening institution and overall industry competition. Accreditation in this area may also be considered as an intangible resource with immense contribution to competitiveness. Some investigations have supported and provided evidence that accreditation contributes to the selection of HEIs; these include Ahmad & Hussain (2017) in an investigation of factors that determine student destination of choice in the UAE. Others including Agarwal (2006), Asif & Searcy (2014), Keeling et al., (2007), Scott (2013) among several others in surrounding literature. As Ahmad & Hussain (2017, p. 377) put it:

> *"institutions in UAE seek accreditation from international accreditation bodies including the Accreditation Board of Engineering and Technology (ABET), the Association of Advance Collegiate Schools of Business (AACSB)…"*

Accreditation helps label and is used as a fundamental and unique selling proposition in HEI promotions and marketing (Ahmad & Hussain, 2017).

*Automated Technology Management*

Two indicators loaded onto this factor; this constituted Factor 2 in the original EFA and was the second factor with mainly business process indicators. This factor includes the indicators of process automation (C7) and database management (C8). Both of these indicators were in the area of technology management towards competitiveness. Building on international databases, subscription, the use of barcode and system automation are some of the main keywords that appeared across these two indicators in their descriptions in Study One data collection.

Systems automation has been registered in a limited amount of literature on higher educational institutions; these include Mbengo & Chinakidzwa (2014) assertion that replacing labour with

automation enhances overall productivity and this could be applied to educational institutions. Other arguments that support automation exist in the general strategic management literature such as Teece & Pisano (1994), Schilke (2014) and Teece et al., (1997). As observed, technology remains familiar to the indicators that pooled together under this factor; the discussion of automation has usually been considered in the context of information technology management; these include Venkatraman (1994) and McLaughlin, S.A. (2017).

Database management remains another component of technology management. Asif & Searcy (2014) assert that database management remains integral components of research performance and program design and delivery. Saelee, Jhundrain & Muenthaisong (2015) add that customer database value in institutions add to service creativity, excellence and competitiveness. Database management, therefore, remains an essential customer relationship management capability element (Saelee et al., 2015). Helgesen (2008, p.55) add that databases help

> "*to personalised service, loyalty programs, brand loyalty, internal marketing, personal/social relationships and strategic alliances*."

Mainly databases are instrumental for both management of internal customers and well as external strategic alliances (Helgesen, 2008).

*Financial Support for Human Resource and Departmental Initiatives*

The third factor was Factor 3 at the EFA stage; it had three main indicators or items; these include human resource (B8), institutional or departmental faculties (B9) and funds or finance as a physical resource (B10). These areas were at the core of existing resources that recorded a high number of scores or code segments in the event of Study One or the qualitative discussion. This is the first factor of main indicators pertaining to resources in Study One. The human resources in HEIs remain central to the ability to deliver services appropriately in HEIs; this entails both faculty members or lecturers and non-faculty members as observed by Mbengo &

Chinakidwa (2014). Mbengo & Chinakidwa (2014) argue that the lecturers and human resources in the educational institution may be considered as the main success of institutional success. Paying attention to their needs and satisfaction remain therefore critical and cannot be compromised (Mbengo & Chinakidwa 2014; Helgesen, 2008).

Ahmed & Rafiq, (2003, p. 57) argue that it is imperative that departments in any institution for that matter, work together to improve institutional performance. The higher education institution may be observed through a similar lens where faculty and teaching departments are encouraged to co-operate and work together as a team towards common goals, in support of institutional competitiveness. The final indicator of funds and finance share common literature with asset-finance as a business process in UAE institutions; literature support in this area include Keeling et al., (2007), Asif & Searcy (2014) and Agarwal (2006).

*Faculty Rewards and Retention*

As the fourth factor of the EFA model, two indicators remained and loaded onto this factor from the complementary list of elements that support resource recombination in HEI competitiveness. This includes faculty rewards (D2) and faculty retention (D3). These complementary indicators may have elements of resources or processes but remained mostly out of context of any of these two areas; they were nonetheless critical for overall institutional competitiveness by complementing in one way or the other either some form of resources or business process.

Rewards and retention are two leading indicators that have often been considered together as contributors to organisational excellence and performance, regardless of the sector (Sharmila, 2013; Mbengo & Chinakidzwa, 2014; Sharmila, 2013). Rewards have often been considered as a key influencer of talent retention in organisations and institutions. Retention rates on the other hand and effective talent management contribute significantly to performance and numerous institutional benefits (Sharmila, 2013). Talent retention, in addition, remains an

essential aspect of internal marketing orientation that drives competitiveness (Mandey, Armanu & Sunaryo, 2016).

*School Brand Image Appeal*

The last factor in the CFA was Factor 5 as originally loaded and labelled in the event of the EFA Analysis. Two main indicators were concluded for this final factor; these include a restricted entry for students (B3) and school brand image (B4). These mainly represented intangible resources. On restricted entry, participants made mention of the perceived competitiveness and attractiveness of the institution to the global network of students. Successful creation of this image, reputation or goodwill on the global platform significantly adds to institutional competitive. Moreover, this indicator loaded together with the institutional brand image as the last factor of resources in the CFA model.

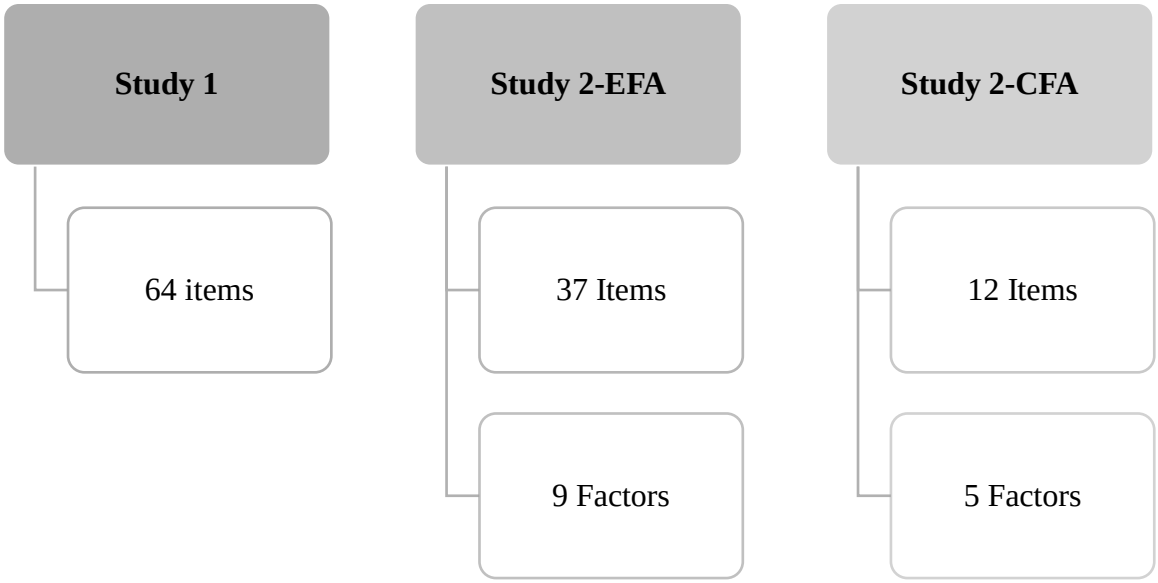
Brand and institutional reputation management help create favourable perceptions about an institution in the eyes of its stakeholders (Aspara et al., 2014; Lowrie, 2007). University branding may have contributed to the insecurity of academic identities (Kallio et al., 2016); nonetheless, branding as embedded in the marketing of universities and HEIs remain essential to competitive positioning and advantage (Vásquez et al., 2013).

### *5.3.7 Summary of Quantitative Results*

The primary constructs of the RR model of HEI competitiveness have critical theoretical implications and observations. The Study Two commenced with an overview of the main descriptive statistics, assessment of normality and other test of assumptions underlining parametric and inferential analysis. The EFA was performed and critically evaluated for validity and reliability. After a near satisfactory model was obtained, the EFA was uploaded onto IBM AMOS, and a CFA run to test the measurement model that the data explains. The final CFA model is narrowed up to highly satisfactory model fit indices. It is also ensured that

the model is validated and reliable for any future studies and considerations. In total, five main factors with twelve indicators were considered. Below flow chart represents the transformation of items from Study One and Study Two.

***Figure 5.11- Summary of Items drawn from Study One and Study Two***




## 5.4 Chapter Summary and Conclusion

Based on the combined insight from the qualitative findings and subsequently from the quantitative findings, key themes are identified in RR model of HEI competitiveness. The final model of RR in HEI competitiveness 12 indicators or items loading in two or three groups into five main factors. This model passed all assessments of validity and reliability. The literature support for these also proved appropriate and justifiable. This model may be considered together with other constructs as considered in Study Three. They may also be considered individually to measure institutional RR capabilities. For the next chapter, the results and findings of the third and final observation activity named Study Three is presented. This constitutes the main stage of the study where the main research hypotheses are tested, and the research questions are answered.

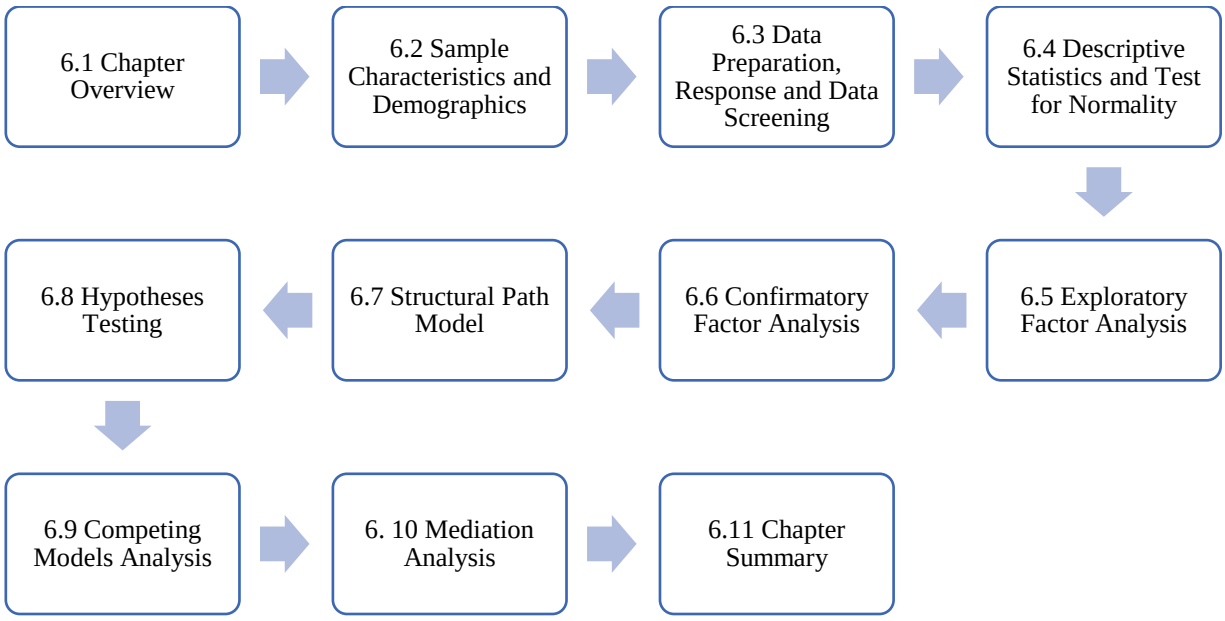
# CHAPTER SIX: RESULTS AND ANALYSIS: HYPOTHESES TESTING

## 6.1 Chapter Overview

This chapter presents the third and final phase of the study. The chapter mainly covers and presents the findings for Study Three. The findings of RR in the previous chapter that covered Study One and Study Two are integrated with other literature elements to arrive at a full model of resource recombination in higher education competitiveness from an internal perspective of market orientation and dynamic capabilities.

An overview of key stages in the present chapter is presented in Figure 6.1 below. Building on the use of SEM for analysis, the chapter commences by first preparing data for analysis followed by EFA, CFA and structural modelling evaluation. Towards the final section of the chapter, the results are discussed and summarised.

***Figure 6.1 Chapter 6 Organization***



## 6.2 Sample Characteristics and Demographics

An overview of the demographics is presented in Table 6.1. Data was gathered on areas such as gender, age, sector, level of education, level (role in an institution), hours worked (whether full-time or part-time), and tenure (number of years worked). With the total number of participants being 349, male respondents totalling 199 marginally outnumbered female respondents who totalled 150. These figures represented 57.0% and 43.0% respectively. Regarding their ages, only one respondent was below the age of 30, constituting 0.3%. 64 respondents (18.3%) fell within the age range of 31 to 40 whilst 145 respondents (41.5%), and 135 respondents (39.8%) fell within the age range of 41 to 50 and above 50 respectively.

Majority of the respondents numbering 209 (59.9%) were in the public sector while the remaining 140 (40.1%) were found to be in the private sector. Respondents with PhD numbered the highest with 144 (41%) while those with bachelor's degree numbered the lowest with 10 (2.9%). Master's degree holders, on the other hand, numbered 135, representing 38.7% whereas other profession degree holders numbered. With regards to the level or role in the institution, the majority of the respondents were in the connected roles of academia and administration, totalling 145 (41.5%). Respondents in the academic and administrative roles were 97 (27.8%) and 62 (17.8%) respectively. Respondents who identified as department heads were recorded as 45, representing 12.9% of the overall count.

For operational hours, recorded data indicated that the number of respondents who operate full time was 233 (66.8), signifying more than twice the number of respondents who operate part-time, that is, 116 (33.2). Tenure is the final recorded demographic item. This indicated that 144 respondents (41.3%) had worked with their institution between 5 to 10 years while 143 (41.0%) respondents had also been with their institution between 11 to 20 years. Only 62 respondents who represented 17.8% had worked with their institutions for 21 years or more. A summary of the demographics is shown in Table 6.1 below.

***Table 6.1 Demographics Statistics – Study Three***

| | | Frequency | Percent |
|---|---|---|---|
| Gender | Male | 199 | 57.0 |
| | Female | 150 | 43.0 |
| Age | below 30 | 1 | .3 |
| | 31-40 | 64 | 18.3 |
| | 41-50 | 145 | 41.5 |
| | above 50 | 139 | 39.8 |
| Sector | Public | 209 | 59.9 |
| | Private | 140 | 40.1 |
| Education | Bachelor's Degree | 10 | 2.9 |
| | Masters' Degree | 135 | 38.7 |
| | Other professional degree | 60 | 17.2 |
| | PhD | 144 | 41.3 |
| Level | Academic Role | 97 | 27.8 |
| | Administrative role | 62 | 17.8 |
| | Academic and Administrative role | 145 | 41.5 |
| | Department head | 45 | 12.9 |
| Hours | Full time | 233 | 66.8 |
| | Part-time | 116 | 33.2 |
| Tenure | 5-10 years | 144 | 41.3 |
| | 11-20 years | 143 | 41.0 |
| | 21 years or above | 62 | 17.8 |

### 6.3 Data Preparation and Normality Tests

As mentioned earlier in chapter four, data preparation and normality tests were conducted. A response rate of 54.7% than the originally 30% anticipated rate; this was however considered advantageous as the risk of non-response is removed from the study.

### 6.4 Descriptive Statistics and Normality Test

From observing the descriptive statistics presented in Table 6.2, it may be noticed that all skewness values under information generation, sensing capability, learning capability are above the +/-1 threshold, whereas skewness values under integrating capability, coordinating capability and competitiveness fall within the +/-1 threshold. However, dimensions such as response to market information and resource recombination have combined indicators with skewed values above and within the +/-1 threshold. Regarding kurtosis, all values fall within the +/-1 threshold except the indicators of information generation, first to fifth indicators of

response marker information, first, third and fourth indicators of sensing capability, and finally, the second indicator of learning capability.

On the subject of mean values, every item had minimum and maximum values of 1 and 7 respectively as data was gathered with a seven-point Likert scale; this scale has a mid-point value of 2.5. All indicators under all 9 variables were stated in the descriptive statistics in Table 6.2. The highest mean values recorded are 5.43 for information generation, 5.14 for information dissemination, 5.28 for response to marker information, 5.13 for sensing capability, 5.09 for learning capability, 5.21 for integrating capability, 5.00 for coordinating capability, 4.91 for resources recombination, and 5.21 for competitiveness. It may, however, be observed that apart from the other dimensions, information dissemination, response to market information and resource recombination had two (2) items each with the same mean values.

Again, except information generation, information dissemination, response to market information, and sensing capability, all the other dimensions had items with mean values below 5. However, all the means recorded in the descriptive statistics were above the midpoint of 3.5. Presented in Table 6.2 below is a full summary of the descriptive statistics.

***Table 6.2 Descriptive Statistics – Study Three***

| | Mean | Std. Error | Std. Dev. | Var. | Skew. | Kurt. |
|---|---|---|---|---|---|---|
| Information Generation | | | | | | |
| Exchange of Value | 5.18 | .069 | 1.298 | 1.685 | -1.272 | 2.336 |
| Personal Situations | 5.25 | .070 | 1.316 | 1.732 | -1.299 | 1.788 |
| Individual Factors | 5.43 | .075 | 1.404 | 1.970 | -1.259 | 1.693 |
| Information Dissemination | | | | | | |
| Customer wants and needs | 5.11 | .079 | 1.478 | 2.186 | -.693 | -.332 |
| Product service and benefits | 5.14 | .076 | 1.425 | 2.031 | -.746 | -.085 |
| Corporate aims & objectives. | 5.11 | .077 | 1.438 | 2.067 | -.751 | -.078 |
| Response to marker information | | | | | | |
| Genuine interest in employees | 5.28 | .064 | 1.205 | 1.451 | -1.294 | 1.772 |
| Solving employees needs | 5.25 | .071 | 1.323 | 1.749 | -1.106 | 1.406 |
| Reconciliation of work and family | 5.22 | .071 | 1.328 | 1.764 | -1.040 | 1.037 |
| Work and family life balance | 5.11 | .068 | 1.277 | 1.631 | -.982 | 1.421 |
| Training Seminars | 5.22 | .068 | 1.268 | 1.608 | -1.096 | 1.274 |
| Training on new tasks | 5.24 | .075 | 1.393 | 1.940 | -.964 | .768 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Sensing Capability | | | | | | |
| Identification of new opportunities | 5.09 | .073 | 1.373 | 1.885 | -1.465 | 2.291 |
| Review of Service development efforts | 5.13 | .068 | 1.276 | 1.628 | -1.056 | .589 |
| Implementation of new ideas | 5.03 | .073 | 1.373 | 1.884 | -1.299 | 1.594 |
| Adequate processes | 5.03 | .068 | 1.270 | 1.614 | -1.401 | 2.038 |
| Learning Capability | | | | | | |
| Identify, value and import | 4.98 | .079 | 1.482 | 2.195 | -1.128 | .650 |
| Transform existing information | 5.08 | .078 | 1.461 | 2.134 | -1.313 | 1.140 |
| Acquiring new knowledge | 5.01 | .080 | 1.504 | 2.261 | -1.167 | .899 |
| Capturing knowledge & resources | 5.09 | .077 | 1.447 | 2.095 | -1.287 | .940 |
| Integrating Capability | | | | | | |
| Forthcoming in contributing | 5.15 | .080 | 1.501 | 2.252 | -.861 | .202 |
| Careful interrelation of actions | 5.21 | .079 | 1.482 | 2.196 | -.859 | .030 |
| Intra-departmental activities | 4.60 | .104 | 1.947 | 3.793 | -.528 | -.935 |
| Inter-departmental activities | 4.91 | .086 | 1.605 | 2.575 | -.488 | -.848 |
| Coordinating Capability | | | | | | |
| Assignment of tasks | 4.59 | .097 | 1.817 | 3.300 | -.780 | -.476 |
| Compatibility between members | 5.00 | .077 | 1.446 | 2.092 | -.877 | -.079 |
| Resources leveraging | 4.75 | .086 | 1.613 | 2.601 | -.772 | -.300 |
| Overall Coordination | 4.74 | .099 | 1.846 | 3.407 | -.822 | -.595 |
| Resource Recombination | | | | | | |
| Asset and Finance Management | 4.83 | .086 | 1.606 | 2.580 | -.944 | -.053 |
| Publication and Research Processes | 4.87 | .080 | 1.486 | 2.207 | -1.253 | .716 |
| Accreditation Processes | 4.87 | .086 | 1.614 | 2.605 | -1.027 | .102 |
| Process Automation | 4.85 | .083 | 1.557 | 2.424 | -1.160 | .459 |
| Database Management | 4.72 | .094 | 1.765 | 3.116 | -.917 | -.286 |
| Human Resources | 4.77 | .086 | 1.608 | 2.587 | -.985 | .123 |
| Institutional Departments | 4.73 | .092 | 1.717 | 2.949 | -1.033 | -.064 |
| Finance / Funds | 4.83 | .089 | 1.664 | 2.769 | -1.102 | .186 |
| Faculty Rewards | 4.91 | .087 | 1.622 | 2.632 | -.935 | -.084 |
| Faculty Retention | 4.69 | .094 | 1.752 | 3.070 | -1.023 | -.227 |
| Restricted Entry for Students | 4.76 | .091 | 1.695 | 2.871 | -.938 | -.182 |
| School Brand Image | 4.70 | .095 | 1.770 | 3.132 | -1.022 | -.369 |
| Competitiveness | | | | | | |
| Quality: education and research | 5.11 | .077 | 1.438 | 2.067 | -.721 | .003 |
| Reputation/brand/image/attractiveness | 5.21 | .076 | 1.423 | 2.026 | -.829 | .078 |
| Unique selling point/being different | 5.12 | .070 | 1.316 | 1.733 | -.794 | .134 |
| Growth of student number | 5.15 | .079 | 1.470 | 2.160 | -.794 | -.083 |
| Quality: building, facilities and service | 5.03 | .079 | 1.484 | 2.203 | -.749 | .165 |
| Ranking position | 4.99 | .077 | 1.447 | 2.095 | -.616 | -.151 |
| International partnership/cooperation | 5.10 | .078 | 1.464 | 2.145 | -.693 | -.101 |
| Geographic location | 5.00 | .077 | 1.440 | 2.075 | -.650 | -.188 |

*Note*: N = 349; Standard Error of Skewness = .131; Standard Error of Kurtosis = .260.

### 6.5 Exploratory Factor Analysis

As presented in table 6.3 below, the value attained for KMO was .911. At $p < .000$, Bartlett's Test of Sphericity also proved to be significant statistically. Likewise, the Goodness-of-fit Test was realised to be statistically important. These tests indicate that the SEM is permissible and that the sample for the model is adequate. The unguided model also displayed a favourable goodness of fit index that is statistically significant at $p < 0.01$ (Table 6.4).

***Table 6.3 KMO and Bartlett's Test – Study Three***

| | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .911 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 22219.466 |
| | Df | 1128 |
| | Sig. | .000 |

***Table 6.4 Goodness-of-fit Test – Study Three***

| Chi-Square | Df | Sig. |
|---|---|---|
| 2439.374 | 732 | .000 |

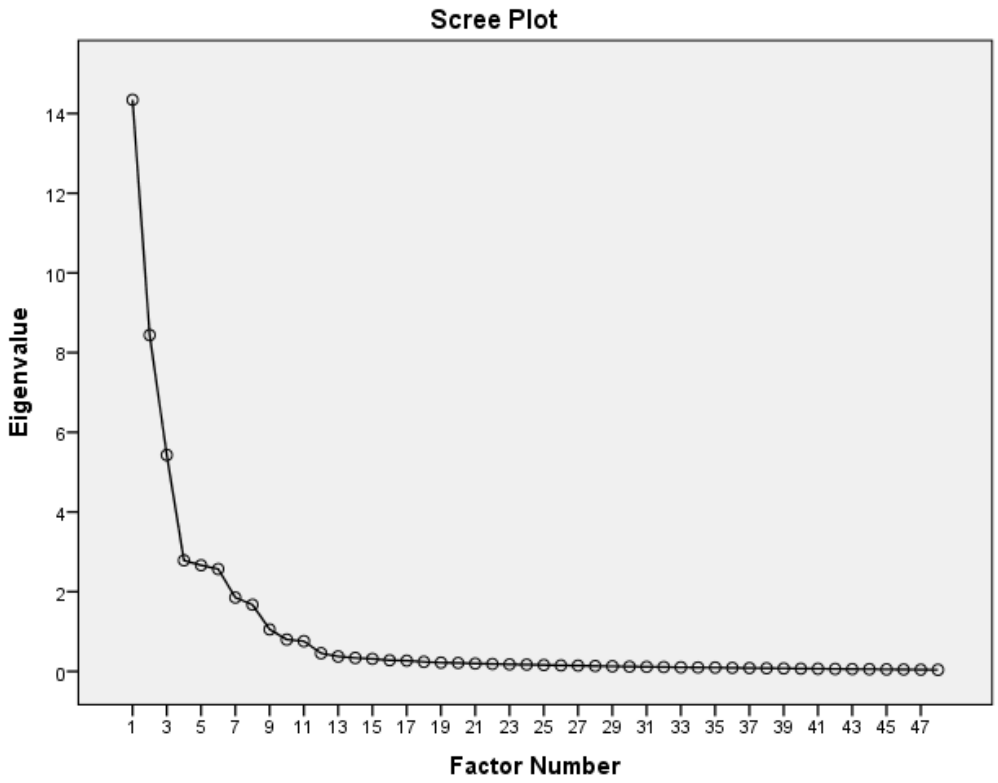
As part of the factor analysis, the total variance explained is presented in Table 6.5. A total of 9 main factors were originally generated out of the pool of data collected from participants or respondents. All factors with Eigenvalues greater than one were extracted. It may be highlighted that an initial list of 9 factors were expected and that these factors loaded without any form of restriction. This significantly affirms the theoretical support surrounding each of these elements in the original conceptual framework. The scree plot for the analysis is also Figure 6.2. It is observable that the first and fourth factors are quite distant from each other, but the next 3 factors had little difference regarding Eigenvalues. Cumulative percent of Extraction Sums of Squared Loadings was above 80% which is an impressive score for factor analysis.

***Table 6.5 Total Variance Explained – Study Three***

| | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rot Sums of Squared Loadings[a] |
|---|---|---|---|---|---|---|---|
| Factor | Total | % of Var | Cum. % | Total | % of Var. | Cum. % | Total |
| 1 | 14.344 | 29.883 | 29.883 | 14.028 | 29.224 | 29.224 | 12.639 |
| 2 | 8.439 | 17.582 | 47.465 | 8.152 | 16.984 | 46.208 | 7.347 |
| 3 | 5.430 | 11.312 | 58.777 | 5.340 | 11.125 | 57.333 | 7.602 |
| 4 | 2.785 | 5.803 | 64.580 | 2.585 | 5.386 | 62.720 | 5.020 |
| 5 | 2.664 | 5.549 | 70.130 | 2.286 | 4.762 | 67.482 | 7.813 |
| 6 | 2.569 | 5.353 | 75.482 | 2.027 | 4.222 | 71.704 | 7.361 |
| 7 | 1.853 | 3.860 | 79.343 | 2.330 | 4.854 | 76.557 | 5.456 |
| 8 | 1.674 | 3.487 | 82.830 | 1.514 | 3.154 | 79.711 | 3.843 |
| 9 | 1.054 | 2.196 | 85.025 | .929 | 1.936 | 81.648 | 5.964 |
| 10 | .799 | 1.666 | 86.691 | | | | |
| 11 | .759 | 1.582 | 88.273 | | | | |
| 12 | .456 | .950 | 89.223 | | | | |
| 13 | .375 | .781 | 90.004 | | | | |
| 14 | .338 | .704 | 90.708 | | | | |
| 15 | .317 | .660 | 91.368 | | | | |
| 16 | .279 | .582 | 91.950 | | | | |
| 17 | .270 | .563 | 92.513 | | | | |
| 18 | .241 | .502 | 93.014 | | | | |
| 19 | .221 | .459 | 93.474 | | | | |
| 20 | .212 | .442 | 93.916 | | | | |
| 21 | .198 | .413 | 94.329 | | | | |
| 22 | .187 | .389 | 94.718 | | | | |
| 23 | .176 | .367 | 95.085 | | | | |
| 24 | .170 | .354 | 95.440 | | | | |
| 25 | .161 | .335 | 95.775 | | | | |
| 26 | .151 | .314 | 96.089 | | | | |
| 27 | .146 | .304 | 96.393 | | | | |
| 28 | .135 | .281 | 96.674 | | | | |
| 29 | .128 | .267 | 96.941 | | | | |
| 30 | .120 | .251 | 97.192 | | | | |

*Note*: Extraction Method: Maximum Likelihood. a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance. Only 30 out of 48 factors reported in the table

***Figure 6.2 Scree Plot – EFA – Study Three***




A look at the pattern of the factors is presented in Table 6.6. The construct of Internal Market Orientation Information Generation Loaded neatly onto Factor 9, and all loadings were above .8. Internal market Orientation Information Dissemination loaded onto Factor 8; two of these loadings were above .9 while the other one was .697. Response to market information under Internal Market Orientation loaded onto Factor 3 with the average loading of about .9. The four elements of dynamic capabilities; sensing capability, learning capability, integrating capability and coordinating capability loaded onto factors 4, 6,7 and 5 respectively. These factor loadings averaged roughly .8 with all loadings above .7. All 12 items of RR grouped neatly with an average loading of .87 and none of them below .6 on Factor 1. The final construct, HEI Competitiveness, also loaded onto Factor 2 with some below .6 but generally above .5 indicator loadings. Extracted Communalities for Study Three were all above .4 but mostly above .5 as presented in Appendix I. None of the factors were modified at this stage of the analysis.

***Table 6.6 Pattern Matrix – EFA - Study Three***

| | Factors | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| IMO_IG_1 | | | | | | | | | .839 |
| IMO_IG_2 | | | | | | | | | .890 |
| IMO_IG_3 | | | | | | | | | .831 |
| IMO_ID_4 | | | | | | | | .697 | |
| IMO_ID_5 | | | | | | | | .928 | |
| IMO_ID_6 | | | | | | | | .931 | |
| IMO_Res_7 | | | .795 | | | | | | |
| IMO_Res_8 | | | .977 | | | | | | |
| IMO_Res_9 | | | .922 | | | | | | |
| IMO_Res_10 | | | .918 | | | | | | |
| IMO_Res_11 | | | .933 | | | | | | |
| IMO_Res_12 | | | .909 | | | | | | |
| SC1 | | | | .880 | | | | | |
| SC2 | | | | .850 | | | | | |
| SC3 | | | | .928 | | | | | |
| SC4 | | | | .866 | | | | | |
| LC5 | | | | | | .785 | | | |
| LC6 | | | | | | .967 | | | |
| LC7 | | | | | | .834 | | | |
| LC8 | | | | | | .902 | | | |
| IC9 | | | | | | | .957 | | |
| IC10 | | | | | | | .957 | | |
| IC11 | | | | | | | .730 | | |
| IC12 | | | | | | | .853 | | |
| CC13 | | | | | .992 | | | | |
| CC14 | | | | | .767 | | | | |
| CC15 | | | | | .925 | | | | |
| CC16 | | | | | .945 | | | | |
| RR1 | .675 | | | | | | | | |
| RR2 | .695 | | | | | | | | |
| RR3 | .830 | | | | | | | | |
| RR4 | .884 | | | | | | | | |
| RR5 | .942 | | | | | | | | |
| RR6 | .962 | | | | | | | | |
| RR7 | .907 | | | | | | | | |
| RR8 | .932 | | | | | | | | |
| RR9 | .975 | | | | | | | | |
| RR10 | .945 | | | | | | | | |
| RR11 | .891 | | | | | | | | |
| RR12 | .894 | | | | | | | | |
| CMP1 | | .538 | | | | | | | |
| CMP2 | | .561 | | | | | | | |
| CMP3 | | .900 | | | | | | | |
| CMP4 | | .947 | | | | | | | |
| CMP5 | | .948 | | | | | | | |
| CMP6 | | .976 | | | | | | | |
| CMP7 | | .960 | | | | | | | |
| CMP8 | | .955 | | | | | | | |

*Note*: Extraction Method: Maximum Likelihood. Rotation Method: Promax with Kaiser Normalization.a a. Rotation converged in 7 iterations; IMO_IG = Internal Market Orientation Information Generation; IMO_ID = Internal Market Orientation Information Dissemination; IMO_Res = Internal Market Orientation Response to market Information; SC = Sensing Capabilities; LC = Learning Capabilities; IC = Integrating Capabilities; CC = Coordinating Capabilities; RR = Resource Recombination; CMP = Competitiveness.

*Reliability and Validity based on EFA*

As mentioned earlier in chapter four, section 4.9.2.3, research validity and reliability tests were done. Factor correlation matrix derived from the EFA is presented in Table 6.7. None of the correlations between factors reached .7; this is noteworthy to reinforce the discriminant validity of the study data. Some correlations were however on the high side, and these include that between factor 3 and factor 9 which was about .616. This, however, could not be considered as threatening to the validity of the data. AVE and CR statistics are also presented in Table 6.8. Results indicate that even though all indices are satisfactory at this point. All factors passed the test for validity and reliability as presented in Table 6.8. All AVE were above .5, and all CR were above .7. This data was therefore used for the CFA analysis.

***Table 6.7 Factor Correlation Matrix – Study Three***

| Factor | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.000 | .317 | .064 | .005 | .522 | .498 | .402 | -.040 | .036 |
| 2 | .317 | 1.000 | .141 | .022 | .146 | .125 | .134 | .062 | .149 |
| 3 | .064 | .141 | 1.000 | .417 | .143 | .107 | .080 | .414 | .616 |
| 4 | .005 | .022 | .417 | 1.000 | .090 | .086 | .022 | .145 | .474 |
| 5 | .522 | .146 | .143 | .090 | 1.000 | .499 | .289 | .131 | .064 |
| 6 | .498 | .125 | .107 | .086 | .499 | 1.000 | .297 | .048 | .125 |
| 7 | .402 | .134 | .080 | .022 | .289 | .297 | 1.000 | .008 | .044 |
| 8 | -.040 | .062 | .414 | .145 | .131 | .048 | .008 | 1.000 | .410 |
| 9 | .036 | .149 | .616 | .474 | .064 | .125 | .044 | .410 | 1.000 |

*Note*: Extraction Method: Maximum Likelihood. Rotation Method: Promax with Kaiser Normalization.

***Table 6.8 AVE and CR – EFA – Study Three***

| Indicator | Code | Construct | Loading | AVE | CR |
|---|---|---|---|---|---|
| Exchange of Value | IMO_IG_1 | Information | 0.839 | **.73** | **.89** |
| Personal Situations | IMO_IG_2 | Generation | 0.89 | | |
| Individual Factors | IMO_IG_3 | | 0.831 | | |
| Customer wants and needs | IMO_ID_4 | Information | 0.697 | **.74** | **.89** |
| Product service and benefits | IMO_ID_5 | Dissemination | 0.928 | | |
| Corporate aims & objectives. | IMO_ID_6 | | 0.931 | | |
| Genuine interest in employees | IMO_Res_7 | Response | 0.795 | | |
| Solving employees needs | IMO_Res_8 | To market | 0.977 | | |
| Reconciliation of work and family | IMO_Res_9 | Information | 0.922 | | |
| Work and family life balance | IMO_Res_10 | | 0.918 | | |
| Training Seminars | IMO_Res_11 | | 0.933 | | |
| Training on new tasks | IMO_Res_12 | | 0.909 | **.83** | **0.97** |
| Identification of new opportunities | SC1 | Sensing | 0.88 | | |
| Review of Service development efforts | SC2 | Capability | 0.85 | | |
| Implementation of new ideas | SC3 | | 0.928 | | |
| Adequate processes | SC4 | | 0.866 | **.78** | **.93** |
| Identify, value and import | LC5 | Learning | 0.785 | | |
| Transform existing information | LC6 | Capability | 0.967 | | |
| Acquiring new knowledge | LC7 | | 0.834 | | |
| Capturing knowledge & resources | LC8 | | 0.902 | **.77** | **.93** |
| Forthcoming in contributing | IC9 | Integrating | 0.957 | | |
| Careful interrelation of actions | IC10 | Capability | 0.957 | | |
| Intra-departmental activities | IC11 | | 0.73 | | |
| Inter-departmental activities | IC12 | | 0.853 | **.77** | **.93** |
| Assignment of tasks | CC13 | Coordinating | 0.992 | | |
| Compatibility between members | CC14 | Capability | 0.767 | | |
| Resources leveraging | CC15 | | 0.925 | | |
| Overall Coordination | CC16 | | 0.945 | **.83** | **.95** |
| Asset and Finance Management | RR1 | Resource Recombination | 0.675 | | |
| Publication and Research Processes | RR2 | | 0.695 | | |
| Accreditation Processes | RR3 | | 0.83 | | |
| Process Automation | RR4 | | 0.884 | | |
| Database Management | RR5 | | 0.942 | | |
| Human Resources | RR6 | | 0.962 | | |
| Institutional Departments | RR7 | | 0.907 | | |
| Finance / Funds | RR8 | | 0.932 | | |
| Faculty Rewards | RR9 | | 0.975 | | |
| Faculty Retention | RR10 | | 0.945 | | |

| | | | | | |
|---|---|---|---|---|---|
| Restricted Entry for Students | RR11 | | 0.891 | | |
| School Brand Image | RR12 | | 0.894 | **.78** | **.98** |
| Quality: education and research | CMP1 | Competitive- | 0.538 | | |
| Reputation/brand/image/attractiveness | CMP2 | Ness | 0.561 | | |
| Unique selling point/being different | CMP3 | | 0.9 | | |
| The growth of student number | CMP4 | | 0.947 | | |
| Quality: building, facilities and service | CMP5 | | 0.948 | | |
| Ranking position | CMP6 | | 0.976 | | |
| International partnership/cooperation | CMP7 | | 0.96 | | |
| Geographic location | CMP8 | | 0.955 | .75 | .96 |

*Note*: IMO_IG = Internal Market Orientation Information Generation; IMO_ID = Internal Market Orientation Information Dissemination; IMO_Res = Internal Market Orientation Response to market Information; SC = Sensing Capabilities; LC = Learning Capabilities; IC = Integrating Capabilities; CC = Coordinating Capabilities; RR = Resource Recombination; CMP = Competitiveness.

### 6.6 Confirmatory Factor Analysis

The original guided measurement model is presented in Figure 6.3. Even though the data passed for the unguided model, the indices for the guided model were not so impressive. There was therefore the need for modifications. Attempt here was to modify the indices by removing redundant indicators and establishing covariances where required. Figure 6.3 was therefore modified into Figure 6.4; here, the indices significantly improved. Some remaining modifications were that DC- integrating capability had a Heywood case and the statistics significantly improved when this factor is removed. Nonetheless, the Heywood case was addressed by allocating equal variances to the 2 indicators that loaded onto DC-integrating capability. Aside from this modification, a covariance was drawn between SC2 and SC4. Of the modification indices that remained and were reported by AMOS, none of them was above 15. The model was therefore considered to be parsimonious; the model fit indices were however carefully evaluated.

*Figure 6.3 Initial Guided Measurement Model-CFA-Study Three*

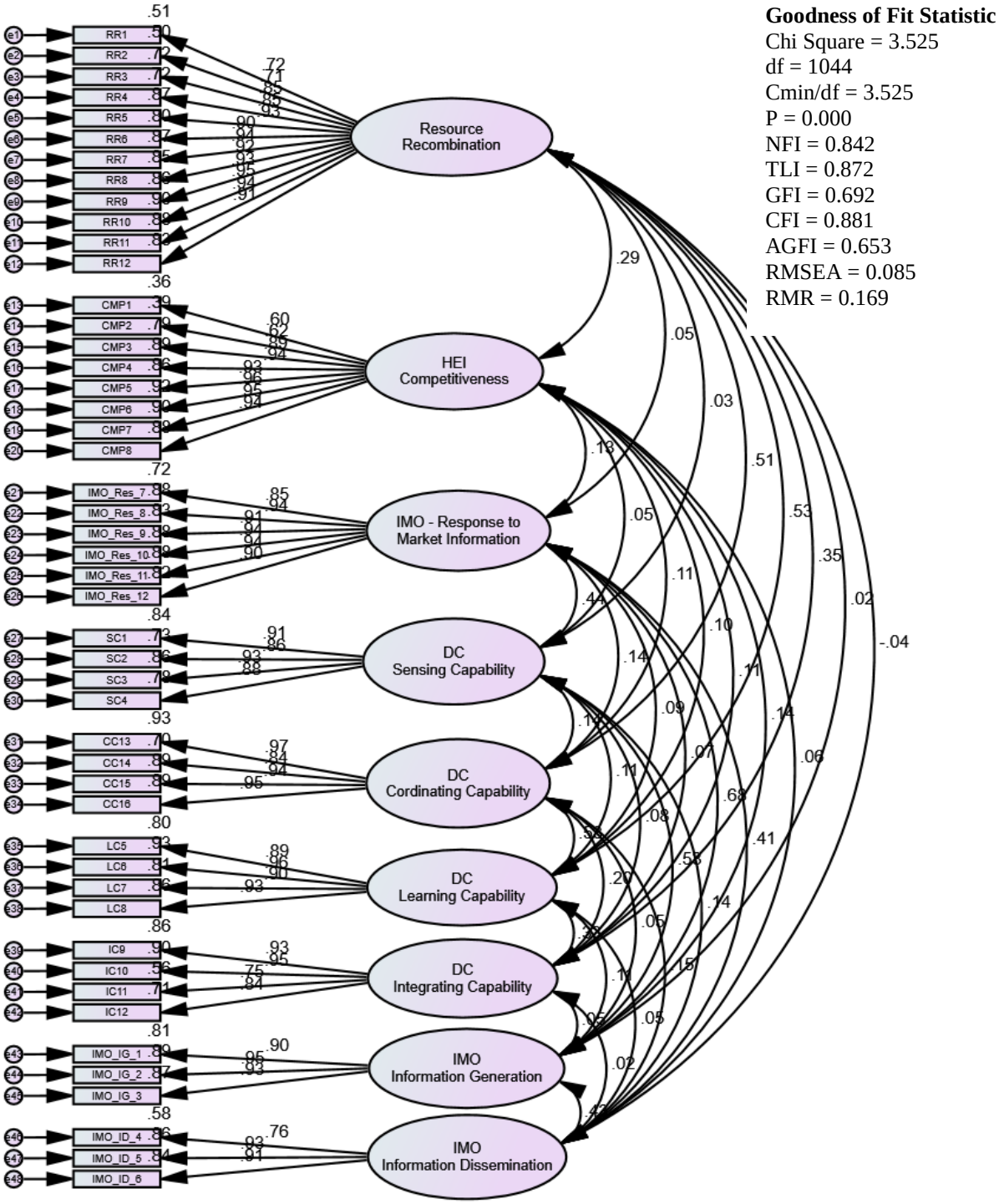
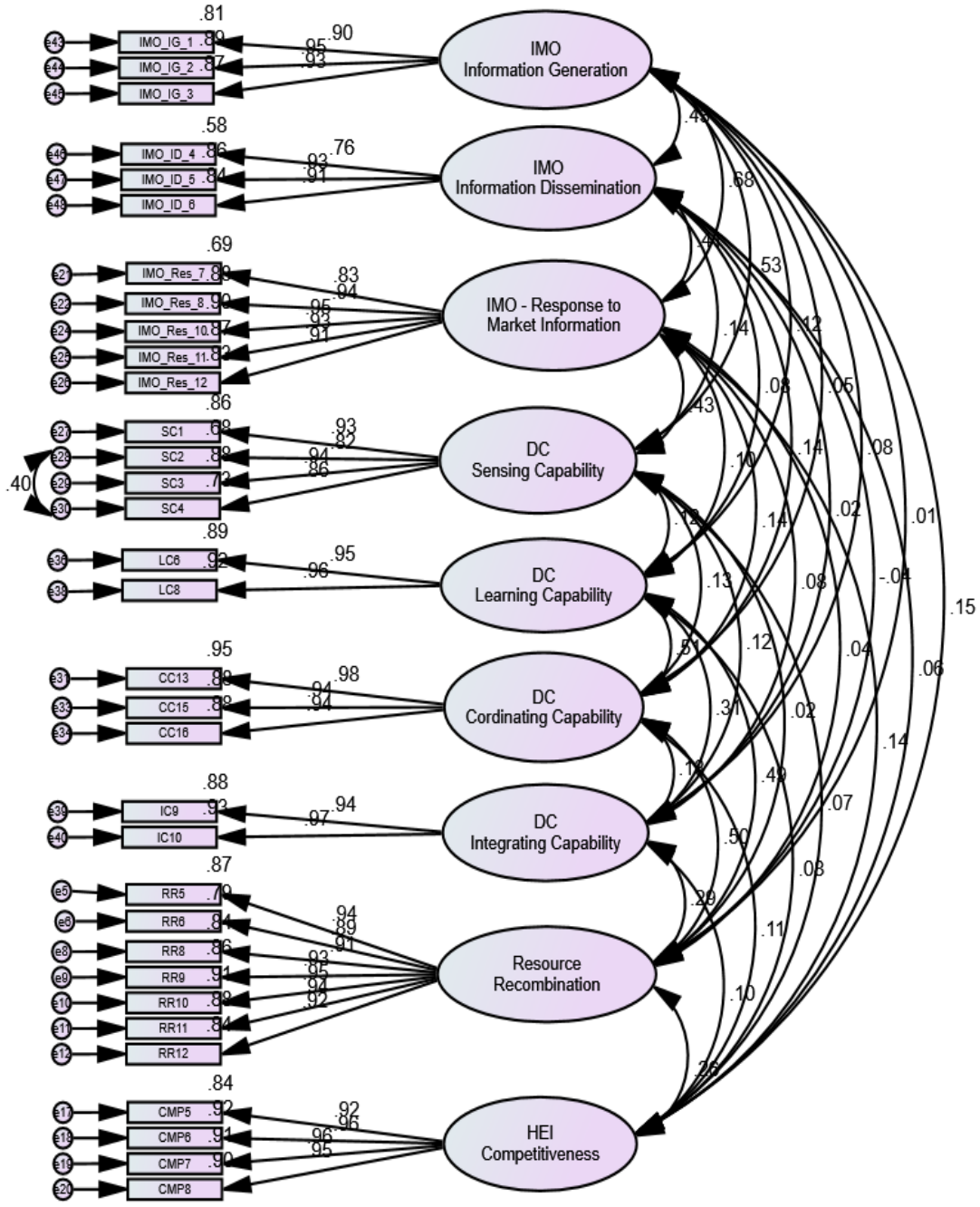


***Figure 6.4 Final Guided Measurement Model – CFA – Study Three***

| **Goodness of Fit Statistic** | |
|---|---|
| Chi Square = 835.890 | TLI = .969 |
| df = 459 | GFI = 0.876 |
| Cmin/df = 1.821 | CFI = 0.973 |
| P = 0.000 | AGIF = 0.848 |
| NFI = 0.943 | RMSEA = 0.049 |
| | RMR = 0.063 |



*Absolute Fit Indices*

The absolute fit indices are presented in Table 6.9. All indices proved statistically significant. The Chi-Square significant threshold was not met, but this may be considered as subject to the large sample size used for Study Three.

***Table 6.9 Absolute Fit Indices for CFA – Study Three***

| Measurement | Recommended | Source | Score | Conclusion |
|---|---|---|---|---|
| Chi Square ($X^2$) value | - | Hu & Bentler (1998); Hair et al., (2010) | 835.890 | Acceptable |
| Sig. Threshold for ($X^2$) | > .05 | Hu & Bentler (1998); Hair et al., (2010) | 0.000 | Acceptable |
| CMIN ($X^2$ /df) | $1.0 < X^2 / df < 3.0$ | Hu & Bentler (1998); Hair et al., (2010) | 1.821 | Acceptable |
| Goodness of Fit (GDI) | > .90 | Hu & Bentler (1998); Hair et al., (2010) | 0.876 | Acceptable |
| Average GFI | > .80 | Hu & Bentler (1998); Hair et al., (2010) | 0.848 | Acceptable |
| Root Mean Squared (RMR) | < .08 | Hu & Bentler (1998); Hair et al., (2010) | 0.063 | Acceptable |
| Root Mean-Square Error of App. (RMSEA) | < .08 | Hu & Bentler (1998); Hair et al., (2010) | 0.049 | Acceptable |

*Relative Fit Indices*

A critical look at the relative fit indices reveals that all thresholds were met. NFI was supposed to reach .95 but reached .943; this was however still considered acceptable as it was within very close range.

***Table 6.10 Relative Fit Indices for CFA – Study Three***

| Measurement | Recommended | Source | Score | Conclusion |
|---|---|---|---|---|
| Tucker-Lewis Index (TLI) | > .95 | Bentler & Bonett (1980) | .969 | Acceptable |
| Comparative Fit Index (CFI) | > .95 | Bentler & Bonett (1980) | .973 | Acceptable |
| Normed Fit Index (NFI) | > .95 | Bentler & Bonett (1980) | .943 | Acceptable |
| Consistent Akaike Information Criterion (CAIC) | - | Bentler & Bonett (1980) | 1535.108 | Acceptable |

*Reliability and Validity*

Composite reliability and AVE were once again estimated for the CFA model. All AVE were above .5, and all CR were above .7. This indicates acceptable levels of construct validity and reliability for all factors.

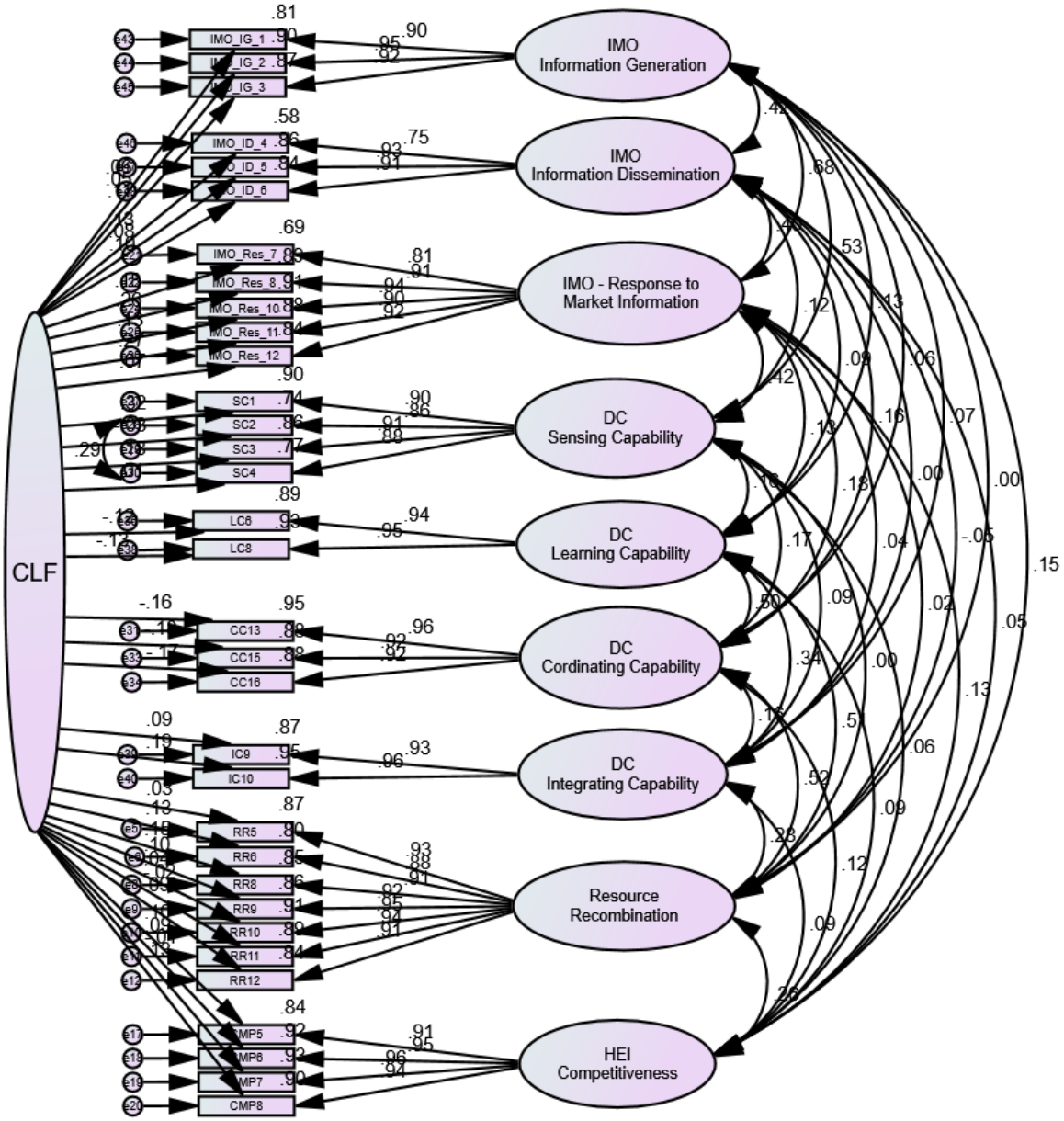
***Table 6.11 Standardized Estimates, AVE and CR – Study Three***

| | | | Estimate | S.E. | C.R. | P | AVE | CR |
|---|---|---|---|---|---|---|---|---|
| RR5 | <--- | Resource | 0.935 | | | | **.86** | **.98** |
| RR6 | <--- | Recombination | 0.89 | 0.03 | 28.838 | *** | | |
| RR8 | <--- | (Factor 1) | 0.915 | 0.029 | 31.436 | *** | | |
| RR9 | <--- | | 0.925 | 0.028 | 32.848 | *** | | |
| RR10 | <--- | | 0.953 | 0.027 | 37.164 | *** | | |
| RR11 | <--- | | 0.938 | 0.028 | 34.693 | *** | | |
| RR12 | <--- | | 0.919 | 0.031 | 32.067 | *** | | |
| CMP5 | <--- | Competitiveness | 0.917 | | | | **.89** | **.97** |
| CMP6 | <--- | (Factor 2) | 0.961 | 0.029 | 34.692 | *** | | |
| CMP7 | <--- | | 0.956 | 0.03 | 34.389 | *** | | |
| CMP8 | <--- | | 0.948 | 0.03 | 33.163 | *** | | |
| IMO_Res_7 | <--- | IMO – | 0.831 | | | | **.83** | **.96** |
| IMO_Res_8 | <--- | Response to | 0.937 | 0.052 | 23.865 | *** | | |
| IMO_Res_10 | <--- | Market | 0.951 | 0.05 | 24.42 | *** | | |
| IMO_Res_11 | <--- | Information | 0.931 | 0.05 | 23.548 | *** | | |
| IMO_Res_12 | <--- | (Factor 3) | 0.91 | 0.056 | 22.562 | *** | | |
| SC1 | <--- | Sensing | 0.927 | | | | **.78** | **.94** |
| SC2 | <--- | Capability | 0.823 | 0.037 | 22.059 | *** | | |
| SC3 | <--- | (Factor 4) | 0.939 | 0.033 | 30.439 | *** | | |
| SC4 | <--- | | 0.856 | 0.036 | 23.943 | *** | | |
| CC13 | <--- | Coordinating | 0.975 | | | | **.90** | **.97** |
| CC15 | <--- | Capability | 0.938 | 0.021 | 40.869 | *** | | |
| CC16 | <--- | (Factor 5) | 0.938 | 0.024 | 40.723 | *** | | |
| LC6 | <--- | Learning | 0.945 | | | | **.91** | **.95** |
| LC8 | <--- | Capability | 0.961 | 0.041 | 24.841 | *** | | |
| | | (Factor 6) | | | | | | |
| IC9 | <--- | Integrating | 0.938 | 0.057 | 24.905 | *** | **.91** | **.95** |
| IC10 | <--- | Capability | 0.966 | 0.057 | 24.905 | *** | | |
| | | (Factor 7) | | | | | | |
| IMO_IG_1 | <--- | IMO | 0.9 | | | | **.86** | **.94** |
| IMO_IG_2 | <--- | Information | 0.945 | 0.036 | 29.753 | *** | | |
| IMO_IG_3 | <--- | Generation | 0.931 | 0.039 | 28.466 | *** | | |
| | | (Factor 8) | | | | | | |
| IMO_ID_4 | <--- | IMO | 0.763 | | | | **.76** | **.90** |
| IMO_ID_5 | <--- | Information | 0.928 | 0.064 | 18.279 | *** | | |
| IMO_ID_6 | <--- | Dissemination | 0.915 | 0.064 | 18.275 | *** | | |
| | | (Factor 9) | | | | | | |

*Common Method Bias*

Before the final model, the test for bias was conducted as presented in Figure 6.5.

***Figure 6.5 Common Method Bias – CFA – Study Three***




The results for the constrained and unconstrained models are presented in Table 6.12. No significant difference exists between the constrained and the unconstrained model; this indicates that the common latent factor has an indifferent effect in the constrained and unconstrained models. The existence of a common latent factor in both the unconstrained and

constrained model may give rise to a more cautious approach in the structural modelling attempt. The variance of the fully constrained and the unconstrained model were evaluated to help observe the statistical power adequacy of the model.

***Table 6.12 Specific bias Test – Study Three***

| | Chi-square | Df | p-value | Invariant? |
|---|---|---|---|---|
| **Overall Model** | | | | |
| Unconstrained | 721.675 | 426 | 0 | |
| Fully constrained | 835.89 | 459 | 0.000 | |
| Number of groups | | 2 | | |
| Difference | 114.215 | 33 | 0.000 | NO |

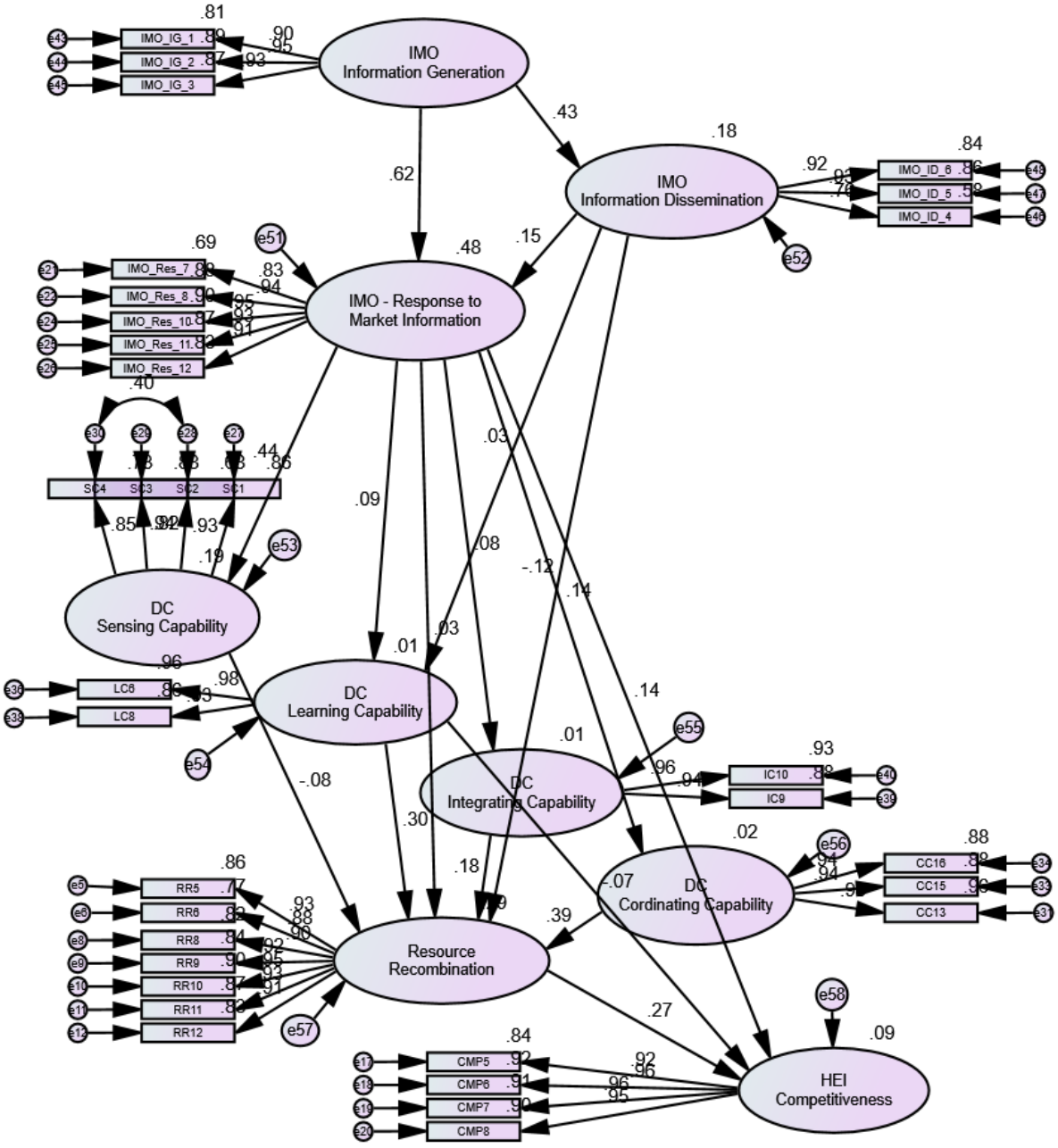
## 6.7 Structural Path Model

The main structural model is presented in Figure 6.7 together with important model fit indices. Some further modifications were conducted by applying covariance observed in the CFA; no indicators or factors were removed at this stage of the analysis. The error variance of DC learning capability (e54) however loaded high covariance with the error variance of integrating capability and coordinating capability. The researcher was, however, unwilling to let go of any of these factors and indicators; the results were therefore interpreted regardless of these modification areas.

In the main combined model of the study, all factors were retailed with a minimum of two indicators per factor. The model was also recursive such that no single variable may be traced to affect itself. RR played a central role in the model, attracting effects from all elements of DC as well as response to market information and information dissemination. Model fit indices for the model were once again observed for the structural model.

***Figure 6.7 Conceptual Framework - Structural Path Model***

| **Goodness of Fit Statistic** | |
|---|---|
| Chi Square = 2.135 | TLI = .957 |
| df = 478 | GFI = .855 |
| Cmin/df = 2.135 | CFI = .961 |
| P = 0.000 | AGFI = .830 |
| NFI = .930 | RMSEA = 0.057 |
| | RMR = .208 |



*Model Fit and R-Statistics for Structural Path Model*

Absolute model fit indices are presented in Table 13. Absolute Fit indices were all within an acceptable range except RMR. The root mean square residual (RMR) was not within the acceptable range, but the model was considered permissible considering RMSEA was within very good range.

***Table 6.13 Absolute Fit Indices for Main Structural Model – Study Three***

| Measurement | Recommended | Source | Score | Conclusion |
|---|---|---|---|---|
| Chi Square ($X^2$) value | - | Hu & Bentler (1998); Hair et al., (2010) | 1020.57 | Acceptable |
| Sig. Threshold for ($X^2$) | > .05 | Hu & Bentler (1998); Hair et al., (2010) | .000 | Acceptable |
| CMIN ($X^2$ /df) | $1.0 < X^2 / df < 3.0$ | Hu & Bentler (1998); Hair et al., (2010) | 2.135 | Acceptable |
| Goodness of Fit (GFI) | > .90 | Hu & Bentler (1998); Hair et al., (2010) | .855 | Satisfactory |
| Average GFI | > .80 | Hu & Bentler (1998); Hair et al., (2010) | .830 | Acceptable |
| Root Mean Squared (RMR) | < .08 | Hu & Bentler (1998); Hair et al., (2010) | .208 | Bad Fit |
| Root Mean-Square Error of App. (RMSEA) | < .08 | Hu & Bentler (1998); Hair et al., (2010) | .057 | Acceptable |

The relative fit indices for the structural model are also presented in Table 6.14 also indicate that relative fit indices were generally within an acceptable range.

***Table 6.14 Relative Fit Indices for Structural Model - Study Three***

| Measurement | Recommended | Source | Score | Conclusion |
|---|---|---|---|---|
| Tucker-Lewis Index (TLI) | > .95 | Bentler & Bonett (1980) | .957 | Acceptable |
| Comparative Fit Index (CFI) | > .95 | Bentler & Bonett (1980) | .961 | Acceptable |
| Normed Fit Index (NFI) | > .95 | Bentler & Bonett (1980) | .930 | Satisfactory |
| Consistent Akaike Information Criterion (CAIC) | - | Bentler & Bonett (1980) | 1589.54 | Acceptable |

The multiple R squared statistics are presented for the 8 main dependent variables in the model. Only IMO Information generation appeared as a completely exogenous variable in the model. The weakest factor being predicted was integrating capability. This factor had a multiple R squared statistic of 0.006. The primary predictor of this model was IMO Response to market information, and it also predicted Resource Recombination. The highest predicted factor was IMO Response to Market Information with an R squared statistic of .484 as presented in Table 6.15.

***Table 6.15 Multiple R squared statistics***

| | R | $R^2$ | Remarks |
|---|---|---|---|
| IMO Information Dissemination | 0.427 | 0.182 | Moderately Strong |
| IMO Response to Market Information | 0.696 | 0.484 | Strong |
| Integrating Capability | 0.077 | 0.006 | Very Weak |
| Learning Capability | 0.100 | 0.01 | Weak |
| Coordinating Capability | 0.145 | 0.021 | Moderately Weak |
| Sensing Capability | 0.442 | 0.195 | Moderately strong |
| Resource Recombination | 0.539 | 0.29 | Strong |
| Competitiveness | 0.295 | 0.087 | Moderately Weak |

The AVE and CR indices of the model remained mostly unchanged from that estimated for the CFA model in Table 6.11. The study progressed to test the central hypothesis of the study using this data derived.

## 6.8 Hypotheses Testing and Discussions

The hypotheses were in five main groups. Group one centred on IMO and its inter-relationships, Group two focused on hypotheses that explain the relationship between IMO and DC. Group three focused on IMO and RR hypotheses. Group four focused on the four components of DC and RR. The final set of hypotheses covered all interactions with competitiveness; these include IMO, DC and RR.

### *6.8.1 Hypotheses Group 1 (IMO Inter-relationships)*

On the relationship between IMO components, three main hypotheses were observed; mainly between IMO components of Information Dissemination, Information generation and Response to Market Information. A summary of these results is presented in Table 6.16. The null hypotheses are tested in the section that follows.

***Table 6.16 Hypotheses Group One***

| | | | Estimate | S.E. | C.R. | P | H | Remarks |
|---|---|---|---|---|---|---|---|---|
| IMO_ID_F9 | <--- | IMO_IG_F8 | 0.427** | 0.055 | 7.483 | *** | H1a | Significant |
| IMO_Res_F3 | <--- | IMO_ID_F9 | 0.151** | 0.043 | 3.151 | 0.002 | H1b | Significant |
| IMO_Res_F3 | <--- | IMO_IG_F8 | 0.618** | 0.046 | 11.518 | *** | H1c | Significant |

*Note*: **Significant at $p < 0.01$ significant level

The first hypothesis under this section sought to observe the contribution of the IMO element of information generation to IMO element of information dissemination. Information generation and information dissemination do not only form a part of the IMO construct as argued by Gounaris (2008) but have a definite relationship between its elements as observed by Lings & Greenley (2010). Lings & Greenley (2010) built on Jaworski & Kohli's (1993) assertion that the IMO dimensions of sensing and reporting are inexplicably linked. Simply put, generation information precedes and incites information dissemination, which in turn incites a response to market information. The efficient undertaking of any preceding activity of IMO will, therefore, make efficient the functions that follow.

Based on these arguments, the following hypothesis on the relationship between information generation and information dissemination was established. The null hypotheses that was tested read as follows:

$H1a_0$: IMO Information Generation has no significant effect on IMO Information Dissemination.

Results presented in Table 6.16 indicated that this effect was statistically significant ($\beta = .427$, $p < 0.001$). This effect was positive, direct and moderately strong. All three elements of IMO information generation remained in the model, and these include the statements; top management does a lot of internal market research (exchange of value), top management try to find out staff's feelings about their jobs (personal situations) and top management regularly talks to staff about their work (individual factors). For this hypothesis, the alternative (H1a) is accepted, and the null is rejected.

The second hypothesis under this group sought to observe the effect of information generation on response to internal market information. The null hypothesis tested was given as:

$H1b_0$: IMO Information Dissemination has no significant effect on Response to Internal Market Information.

Results proved that there exists a positive and statistically significant relationship between these two factors even though the regression weight or effect was not too high compared with the other relationships in Table 6.16 ($\beta = .151$, $p < 0.01$). The null hypothesis presented above is therefore rejected, and the alternative hypothesis that information dissemination has a significant effect on the response to market information is accepted. It may, however, be observed that the effect of information generation on dissemination was greater than the effect on the response to market information. This may be explained by the original process flow of resources in the traditional IMO construct where information generation leads directly to dissemination but relates indirectly with response to market information (Gounaris, 2006).

The third and last hypothesis in this group sought to establish that information generation led to response to response to market information. The null hypothesis was established as:

$H1c_0$: IMO Informal Information Generation has no significant effect on Response to Internal Market Information.

Given this hypothesis, results indicate that this relationship is the strongest of the three and statistically significant ($\beta = .618$, $p < 0.001$). The relationship was observed as very strong, and the head of the department encourage staff to discuss their problems (customer needs and want), supervisors are always available to staff when needed (service benefits) and supervisors attempt to explain the principal objectives of the institution to staff (corporate aim and strategy), do have a strong inclination to support or impact on response to market information.

### *6.8.2 Hypotheses Group 2 (IMO and DC)*

The second group hypotheses entailed five main hypotheses that focused on the two main components of the response to market information and information dissemination and DC elements of learning, sensing, integrating and coordinating capabilities. A summary of Group two hypotheses are presented in Table 6.17. The relationships were supported by various literature underpinnings. According to Jacobs et al., (2013), efficient collation and gathering of data from the firm's internal and external environments. The IMO components and DC factors share common factors such as information generation which as key similarities with sensing and learning capabilities of DC.

***Table 6.17 Hypotheses Group Two***

| | | | Estimate | S.E. | C.R. | P | H | Remarks |
|---|---|---|---|---|---|---|---|---|
| DC_SC_F4 | <--- | IMO_Res_F3 | 0.441** | 0.069 | 8.113 | *** | H2a | Significant |
| DC_LC_F6 | <--- | IMO_Res_F3 | 0.087 | 0.083 | 1.402 | 0.161 | H2b | Not Significant |
| DC_IC_F7 | <--- | IMO_Res_F3 | 0.079 | 0.158 | 1.42 | 0.156 | H2c | Not Significant |
| DC_CC_F5 | <--- | IMO_Res_F3 | 0.144** | 0.097 | 2.618 | 0.009 | H2d | Significant |
| DC_LC_F6 | <--- | IMO_ID_F9 | 0.029 | 0.077 | 0.455 | 0.649 | H2e | Not Significant |

*Note*: **Significant at 0.01 $p < 0.01$ significance level

Internal information generation and dissemination again have strong attachments with activities surrounding innovation development (Danneels, 2011), internal process reconfiguration (Rindova & Kotha, 2001), and building of internal knowledge assets within the organisation (Cepeda & Vera, 2007; Marsh & Stock, 2006). These processes surround principally surround sensing and learning capability development in organisations. The other

elements of integrating and coordination capability have key associations with entrepreneurial orientation as observed by Kurzhals (2015). These capabilities have key considerations in response to market information elements such as training or new tasks and organisation of knowledge building activities, integral components of the response to market information as defined by Gounaris (2006).

The first of these relationships under this group was to observe the effect of response to market information on sensing capability (H2a). The null hypothesis to be tested is presented as:

> $H2a_0$: Response to Internal Market Information has a no significant effect on sensing capability.

Results indicate that this relationship is statistically significant and that response to market information has a statistically significant effect on sensing capability ($\beta = .441$, $p < 0.001$). This effect was positive and moderately strong. The null hypothesis is rejected, and the alternative hypothesis is accepted.

For the second hypothesis under this group (H2b), the study sought to observe the effect of response to market information on learning capability. The null hypothesis was established as follows:

> $H2b_0$: Response to Internal Market Information has a no significant effect on learning capability.

This relationship was not statistically significant ($\beta = .087$, $p > 0.05$). Based on findings, response to market information does not inspire learning; this proposition may be originally in line with the competitive learning model, but not in support of the main classic model under observation. The null ($H2b_0$) is accepted and the alternative is rejected.

The third hypothesis under this group ($H2c_0$) sought the relationship between response to market information and integrating capability. The null hypothesis stated as follows:

> $H2c_0$: Response to Internal Market Information has a no significant effect on integrating capability.

Results showed that this relationship is not statistically significant ($\beta = .079$, $p > 0.05$). Response to market information, even though a statistically significant predictor of sensing capability, was not a good predictor of integrating capability. The null ($H2c_0$) is therefore accepted.

The fourth hypothesis under group two sought to observe the effect of response to market information on coordinating capability. The null hypothesis to be tested was stated as follows:

> $H2d_0$: Response to Internal Market Information has a no significant effect on coordinating capability.

This hypothesis was statistically significant ($\beta = .144$, $p > 0.01$). This effect was however only moderate and not statistically strong. This implies that response to market information drives sensing and coordination in DC but no learning and integration capability development. As a process-based construct with interlinked sub-constructs (Gounaris, 2006), the elements of response to market information may explain other DC elements of coordination which include assignment of tasks, resource leveraging and human resource compatibility. The null hypothesis is rejected, and the alternative is accepted for H2d as presented in Table 6.17.

The last hypothesis under this group sought to observe the following:

> $H2e_0$: IMO Information Dissemination has a no significant and positive effect on learning capability.

This hypothesis sought to observe the contribution of information dissemination to learning capability development. Disseminating data efficiently and effectively was observed to remain a good facilitator of learning capability by helping provide in time required data. However, in this study, the alternative hypothesis was rejected ($\beta = .029$, $p > 0.05$). The null hypothesis that no significant effect exists is accepted that showns information dissemeination does not have significant relation on learning capabilitiy.

### *6.8.3 Hypotheses Group 3 (IMO and RR)*

The third group of hypotheses focused on the relationship between IMO and RR. Disseminating response to facilitate recombination was predominantly adapted from. Timely and agile information dissemination increases the firm's ability to recombine and reconfigure resources more efficiently. The dissemination and integration of resources and information are one of the main aspects of regenerative learning capabilities of the firm as argued by Jerez-Gomez et al. (2005). Van der Bij, Song & Weggeman (2003) add that continuous generation and dissemination of information is fundamental to the synergy gained through recombination. The results of this inter-relationship between IMO and RR are presented in Table 6.18.

***Table 6.18 Hypotheses Group Three***

| | | | Estimate | S.E. | C.R. | P | H | Remarks |
|---|---|---|---|---|---|---|---|---|
| RR_F1 | <--- | IMO_Res_F3 | 0.029 | 0.09 | 0.497 | 0.619 | H3a | Not Significant |
| RR_F1 | <--- | IMO_ID_F9 | 0.124* | 0.075 | -2.296 | 0.022 | H3b | Significant |

Note: *Significant at $p < 0.05$ significant level

For the first of these hypotheses, the contribution of IMO response to market information to resource recombination was observed (H3a). The null hypothesis was given as follows:

> $H3a_0$: Response to internal market information has a no significant and positive effect on Resource Recombination.

Results in this area indicate that a statistically no significant effect exists ($\beta = .144$, $p > 0.05$) of IMO_Res on RR. This effect was moderately weak, implying nill effect of response to market information on resource recombination. The second hypothesis under this group also observed the effect of information dissemination on resource recombination. The null hypothesis was established as:

> $H3b_0$: IMO Information Dissemination has a no significant and positive effect on Resource Recombination

This null hypothesis ($H3b_0$) was rejected as the relationship was observed to lack statistical significance ($\beta = .124$, $p < 0.05$). Of the two hypotheses under this group, IMO information dissemination proved more significant predictor of resource recombination than the response to market information. The findings of the study agree with Van der Bij, Song & Weggeman (2003), argument that continuous generation and dissemination of information are fundamental to offer new ideas fundamental to a firm's recombination capabilities.

### *6.8.4 Hypotheses Group 4 (DC and RR)*

The fourth group of hypotheses observed the effect of the four elements of DC on resource recombination. The contribution of sensing and learning capability to resource recombination has been established as part of the integrated competitive learning capability model. Both DC and RR have been established as learning concept (Cecere & Ozman, 2014). Resource recombination has been considered as competitive concept that relies on learning and innovative capacity development. Building on these common grounds, this group of hypotheses are established as presented in Table 6.19.

***Table 6.19 Hypotheses Group Four***

| | | | Estimate | S.E. | C.R. | P | H | Remarks |
|---|---|---|---|---|---|---|---|---|
| RR_F1 | <--- | DC_SC_F4 | -0.078 | 0.066 | -1.44 | 0.15 | H4a | Not Significant |
| RR_F1 | <--- | DC_LC_F6 | 0.297** | 0.065 | 5.244 | *** | H4b | Significant |
| RR_F1 | <--- | DC_IC_F7 | 0.181** | 0.027 | 3.592 | *** | H4c | Significant |
| RR_F1 | <--- | DC_CC_F5 | 0.394** | 0.048 | 7.167 | *** | H4d | Significant |

*Note:* **significant at 0.01 significance level

The first hypothesis under the group observed the effect of sensing capability to resource recombination (H4a). The null hypothesis was established as:

$H4a_0$: Sensing capability has no significant and positive effect on resource recombination

This effect was not statistically significant ($\beta = -.078$, $p > 0.05$). This implies that learning capability does not have a significant effect on resource recombination despite being a key component of the firm exploratory capability and closely related to learning. The null hypothesis was therefore accepted that sensing does not have a significant influence on RR. The effect of learning capability on RR was hypothesized as the second relationship in this area. The null hypothesis stated the following:

$H4b_0$: Learning capability has no significant and positive effect on resource recombination

Results indicate that learning capability has a positive and significant effect on RR ($\beta = 0.297$, $p < 0.01$). The effect was moderately strong. Learning capability has remained integral to RR in organizations. This finding may not only be in empirical support of HEIs but may as well support the theory that surround this area. The second alternative hypothesis in the fourth category is therefore accepted, and the null ($H4b_0$) is rejected.

The third hypothesis in this area considered the effect of integrating capability on RR. The null hypothesis to be tested was given as:

$H4c_0$: Integrating capability has no significant and positive effect on resource recombination

Findings indicate that integrating capability is a positive and statistically significant effect on RR ($\beta = 0.181$, $p < 0.01$); integrating capability is a significant but moderately weak predictor of RR capabilities. Even though integrating capability or exploitation capability, in general, was not considered in the competitive learning capability model, the term exploratory capabilities was originally considered by Kurzhals (2015) in a sub-construct that covers both integrating and coordinating capabilities in what she termed firm's exploitation capabilities. Based on the results, the alternative hypothesis is accepted, and the null rejected.

For the fourth and final hypothesis under the fourth group of hypotheses, the effect of coordinating capability on RR was hypothesized. The null hypothesis read as follows:

$H4d_0$: Coordinating capability has no significant and positive effect on resource recombination

This hypothesis was statistically significant and positive ($\beta = 0.181$, $p < 0.01$) and moderately strong. The alternative hypothesis is therefore accepted for both aspects of exploitation capabilities of integrating and coordinating capabilities and the null hypotheses rejected.

### *6.8.5 Hypotheses Group 5 (IMO, DC, RR and Competitiveness)*

The last group of hypotheses sought to observe a combination of IMO, DC and RR and their unique contribution to institutional competitiveness. As part of the competitive learning capability model, it was established that all three constructs of IMO, DC and RR have the common element of competitive learning capability. The core element of these constructs is,

therefore, their ability to direct the organisation towards competitive performance. Three main hypotheses were established here as presented in Table 6.20.

***Table 6.20 Hypotheses Group Five***

| | | | Estimate | S.E. | C.R. | P | H | Remarks |
|---|---|---|---|---|---|---|---|---|
| Comp_F2 | <--- | IMO_Res_F3 | 0.139** | 0.073 | 2.603 | 0.009 | H5a | Significant |
| Comp_F2 | <--- | DC_LC_F6 | -0.07 | 0.063 | -1.124 | 0.261 | H5b | Not Significant |
| Comp_F2 | <--- | RR_F1 | 0.269** | 0.051 | 4.655 | *** | H5c | Significant |

*Note*: ** significant at P < 0.01 significance level.

The first of these last group of hypotheses sought to observe the contribution of IMO response to market information on competitive performance. The null hypothesis ($H5a_0$) was established as follows:

$H5a_0$: Response to Internal Market Information has no positive and significant impact on HEI competitiveness.

Findings indicated that this relationship is statistically significant ($\beta = .139$, $p < 0.05$). This effect was moderately weak but statistically significant. The null is rejected, and the alternative hypothesis that response to market information affects institutional competitiveness is accepted.

The second hypothesis under this final group sought to observe the effect of learning capability as that aspect of DC that helped establish competitiveness in HEI. The null hypothesis to be tested was established as follows:

$H5b_0$: Learning Capability has no positive and significant impact on HEI competitiveness.

Findings indicate that this relationship was statistically insignificant ($\beta = -0.07$, $p > 0.05$). The effect was negative, weak and lacked statistical significance. The null hypothesis is therefore accepted, and this is contrary to popularly established theoretical assertions on the area.

The last hypothesis also sought to observe the effect of RR on competitiveness. The null hypothesis was established as follows:

> $H5c_0$: Resource recombination has no positive and significant impact on HEI competitiveness.

Results indicate that this very final hypothesis that represents the effect of RR on HEI competitiveness is statistically significant ($\beta = .269$, $p < 0.05$). RR has a statistically significant effect on HEI competitiveness; the null is rejected, and the alternative hypothesis is accepted.

**6.9 Competing Models Analysis**

Competing models entail a comparison of the various models in the study to observe the changes in dynamics and the effect of key inter-relationships. This is essential to understand which hypothesis are supported, the overall parsimony of the model and other relative model fit indices. As mentioned by Jahn (2007), the comparison is recommendable when multiple models are considered, and alternative models exist.

In comparing these three models, a number of criteria have been recommended; Hunt and Morgan (1997) however recommend four main areas or criteria based on which competing models may be compared; these include the model fit indices, the number or percentage of hypothesis supported, the explanatory power of the model and the model parsimony. These our main areas are considered in the comparison of the three main models. For this analysis, the classic model is presented in Figure 6.8 and the competitive learning capability model is presented in Figure 6.9.

***Figure 6.8 Classic Model***

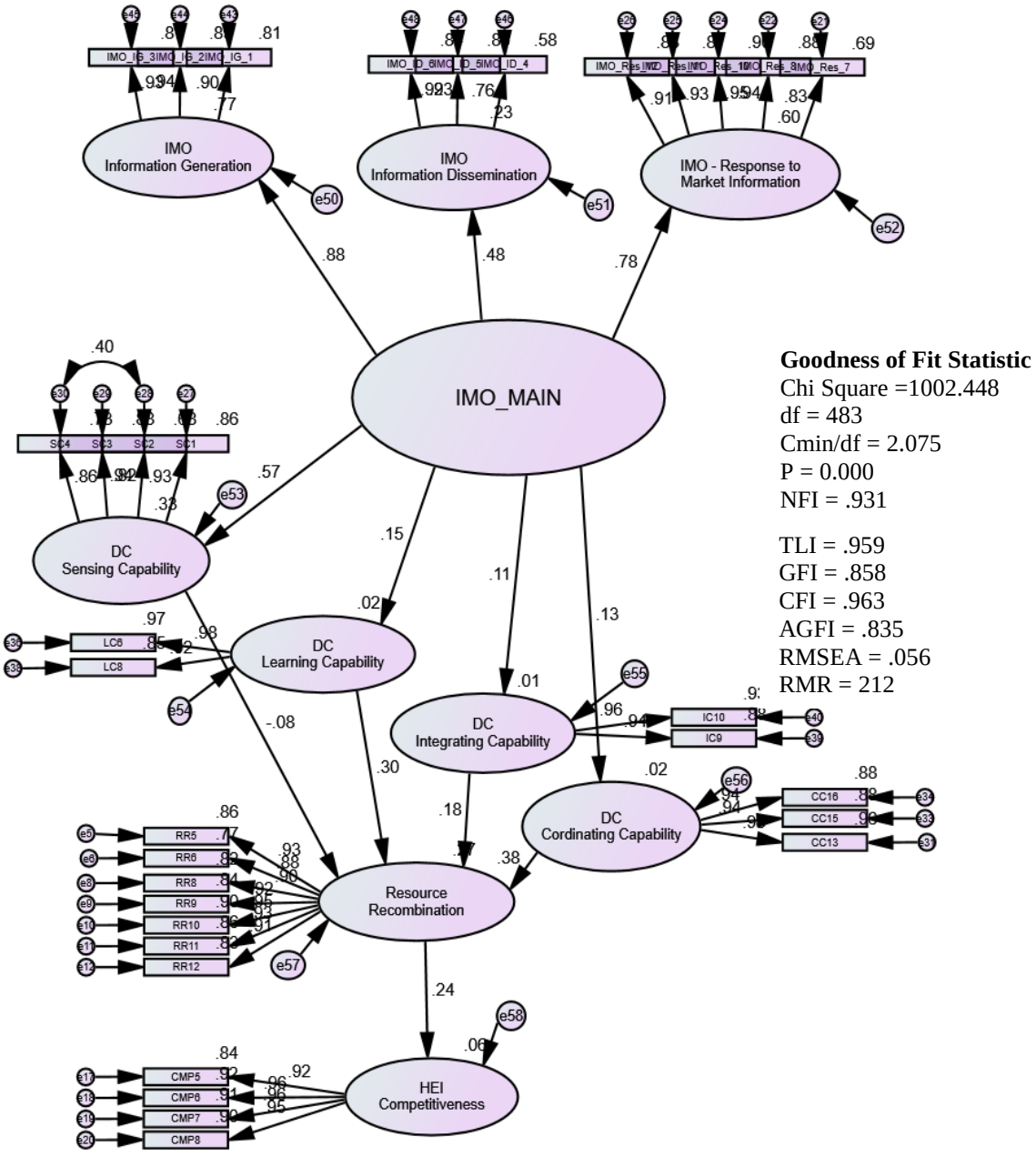
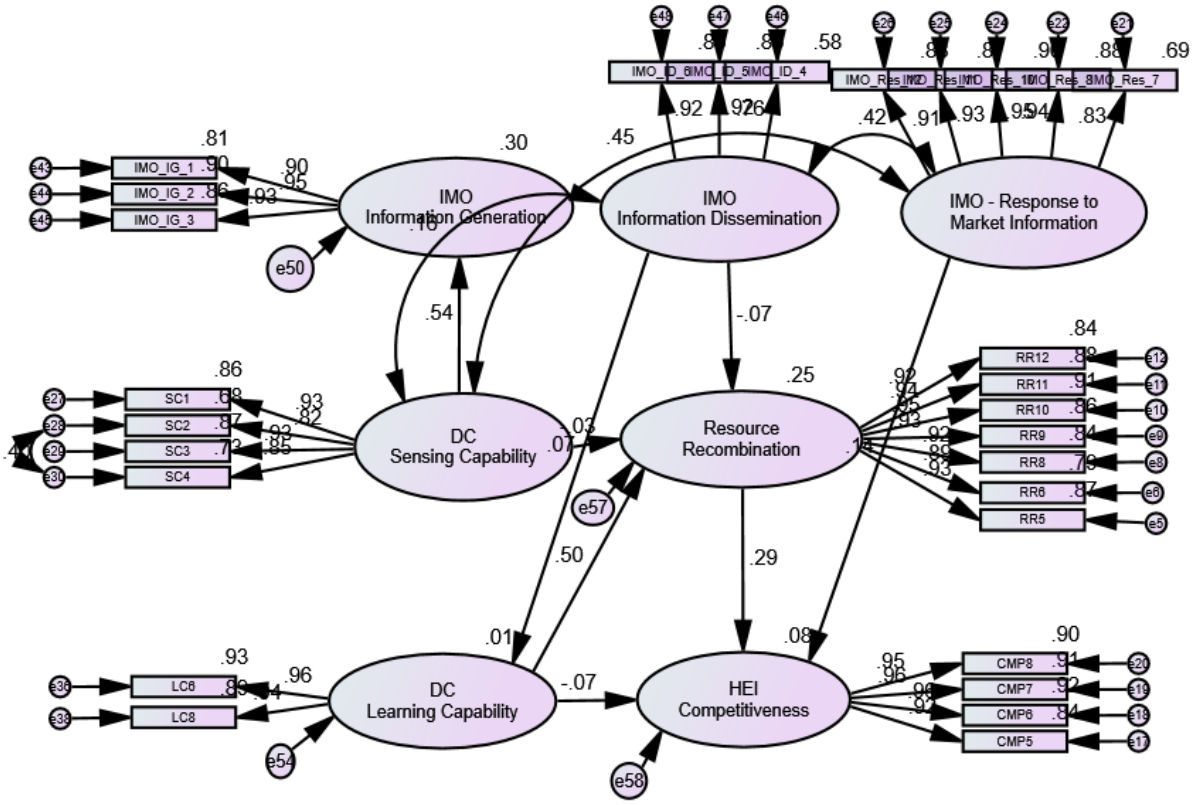



***Figure 6.9 Competitive Learning Capability Model***

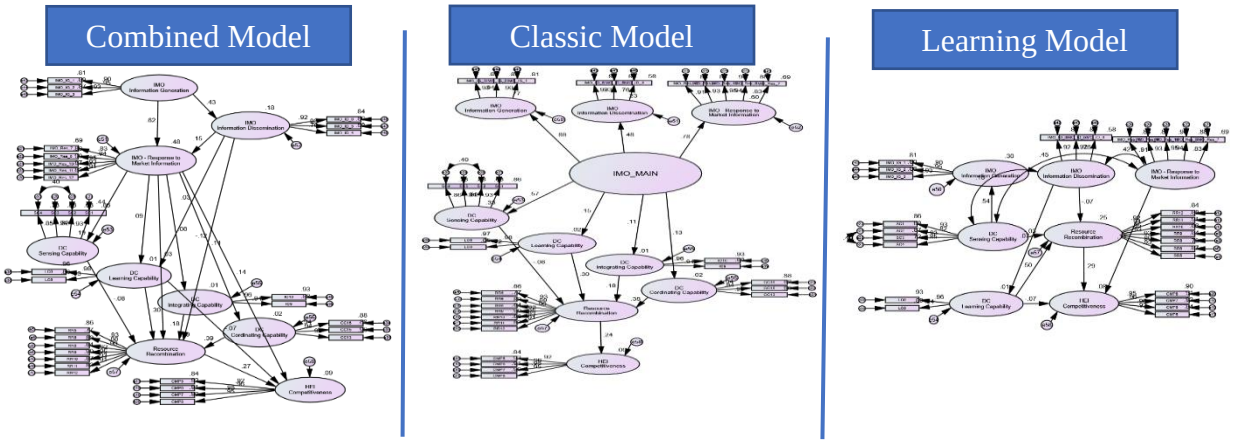
**Goodness of Fit Statistic**
Chi Square = 766.251
df = 338
Cmin/df = 2.267
P = 0.000
NFI = .937

TLI = .960
GFI = .871
CFI = .964
AGFI = .845
RMSEA = .060
RMR = .174




The four main areas under observation are compared in Figure 6.10. Overall model fit indicates that chi-square improved as the number of variables reduced. All Chi-Square results were however statistically significant even though an insignificant result would be preferred for SEM Chi Square statistic. CMIN reduced at the classic model stage by increased with the competitive learning capability model. GFI, TLI, CFI, and NFI indices increased as the number of factors reduced, moving from the combined to the classic and the competitive learning capability model. Explanatory power was highest in the combined model and lowest in the classic model even though the classic model supported most hypotheses.

***Figure 6.10 Comparison of Models***




| Measurement | Combined | Classic | Learning | Remarks |
|---|---|---|---|---|
| **Overall Model Fit** | | | | |
| Chi Square ($X^2$) value | 1020.57 | 1002.448 | 766.251 | Learning highest fit |
| Sig. Threshold for ($X^2$) | .000 | .000 | .000 | Same Results |
| CMIN ($X^2$ /df) | 2.135 | 2.075 | 2.267 | All Acceptable |
| Goodness of Fit (GFI) | .855 | .858 | .871 | Learning better fit |
| Average GFI | .830 | .835 | .845 | Learning better fit |
| Root Mean Squared (RMR) | .208 | .212 | .174 | All Failed |
| Root Mean-Square Error of App. (RMSEA) | .057 | .056 | .060 | All Acceptable |
| Tucker-Lewis Index (TLI) | .957 | .959 | .960 | All Acceptable |
| Comparative Fit Index (CFI) | .961 | .963 | .964 | All Acceptable |
| Normed Fit Index (NFI) | .930 | .931 | .937 | All sufficient |
| **Comparative Model Parsimony** | | | | |
| Consistent Akaike Information Criterion (CAIC) | 1589.54 | 1537.143 | 1232.396 | The Combined model best minimize information lost |
| **Percentage of Hypotheses supported** | | | | |
| % of Hypotheses Supported | 11/17 (64.7%) | 9/9* (100%) | 4/8 (50%) | Classic model most accurate |
| **Explanatory Power** | | | | |
| Squared Multiple Correlation for HEI Competitiveness | .087 | .059 | .085 | Combined model best predicts HEI competitiveness |

*Note*: * Two hypotheses significant at 0.1 significance level.

For the present study, three main models were central to the analysis; these include the learning capability model, a classic model of the study that builds on the traditional models of IMO, DC, RR and competitiveness, and the combined model that was presented in the earlier sections of the analysis to answer the primary research hypotheses. However, for the final analysis, the combined model was chosen due to two important reason; firstly, integrated model contributes more in terms of hypothesis and relationship between constructs, as it takes effects from learning model and classical model, secondly, it was found from above competing analysis that among three models, combined model best minimize information lost and best predicts HEI competitiveness.

## 6.10 Mediation Analysis

In order to test the mediated relationship between the dependent and independent variables, several authors have recommended to use bootstrapping technique (Zhao et al, 2010; Matthieu and Taylor 2003; Preacher and Hayes, 2004; Gaskin 2011d). Considering the standardised direct and indirect effects at the two-tailed significance levels, three mediation tests were conducted. First, to test mediating the effect of information dissemination between RR and learning capability, second, to test the mediating effect of response to market information between the four DC elements and RR and third, constitutes the mediation of RR on the relationship between DC learning capability and competitiveness. Below are the details of mediation tests along with the interpretation of results.

### *6.10.1 Mediation: IMO Information Dissemination to RR through Learning Capabilities*

To test the mediation, effect are presented in table 6.21 below using the Matthieu and Taylor (2003) boostrapping approach. In the case of multiple relationship as that presented in Figure 6.7, the effect of the other relationships on the mediation test being examined cannot be exempted. An instance is that IMO Dissemination does not only affect learning, but variance explained in DC-learning as a dependent variable is explained by independent variables. The

same may be observed with regards to RR. For these reasons, the exact mediation tests were plotted and interpreted accordingly.

***Table 6.21 Mediation: IMO Dissemination to RR through Learning***

| Relationship | Direct Effect | Indirect Effect | Indirect Effect Conclusion |
|---|---|---|---|
| ID→RR→LC | -0.080(N.S) | -0.084 (N.S) | No Mediation |

N.S= Non Significant

The p-values for direct and indirect effect were 0.112 and 0.269 respectively, indicating non-significant relationship and hence no mediation effect.

### *6.10.2 Mediation: IMO response to market information to RR through DC*

To test the mediation, effect are presented in Table 6.22 below. Here the effect of IMO IR on RR through the mediating role of four main DC mediators (SC,LC,IC,CC) were tested as outlined in Table 6.22. Using the Matthieu and Taylor (2003) boostrapping approach, none of the relationships had a favourable mediation effect.

***Table 6.22 Mediation: IMO Response to Market Information to RR through DC***

| Relationship | Direct without Mediator | Direct with Mediator | Indirect Effect Conclusion |
|---|---|---|---|
| IR→DC's→RR | -0.024 (N.S) | 0.067 (N.S) | No Mediation |

The p-values for direct and indirect effect were 0.697 and 0.186 respectively, indicating non-significant relationship and hence no mediation effect.

### *6.10.3 Mediation: DC Learning Capability to Competitiveness through RR*

To test the mediation effect of DC Learning Capability to Competitiveness through RR, below mediation test was conducted and are presented in table 6.23. Full mediation effect of RR between LC and Competitiveness was observed.

***Table 6.23 Mediation: DC Learning Capability to Competitiveness through RR***

| Relationship | Direct without Mediator | Direct with Mediator | Indirect Effect Conclusion |
|---|---|---|---|
| LC→ RR→Competitiveness | -0.058 (N.S) | 0.142 (S) | Full Mediation |

The p-values for direct was 0.389 and for indirect effect was 0.001 and significant. Hence, according to Matthieu and Taylor (2003), having significant indirect relationship proves that there is full mediation from learning DC Learning Capability to Competitiveness through RR, implying RR mediates relation between learning capability and competitiveness.

## 6.11 Chapter Summary

The present chapter presented results and findings pertaining to Study Three. The chapter builds on the findings of the Study One and Study Two to define RR, in addition to key literature support to define the remaining constructs in the model. EFA of the main conceptual framework of the study was predominantly valid and reliable. The factor loadings neatly converged with good loadings onto their respective factors. After EFA, CFA also met all areas of convergant validity, discriminant validity, and composite reliability.

The main structural model was therefore presented; a total of 64.7% of the hypotheses were supported in the combined model. All the hypotheses were supported in the classic model even though it did not have the best of indices and explanatory power. The learning model also supported 50% of the hypothesis presented in that model. The results or hypotheses were tested with concurrent reference to specific literature backing.

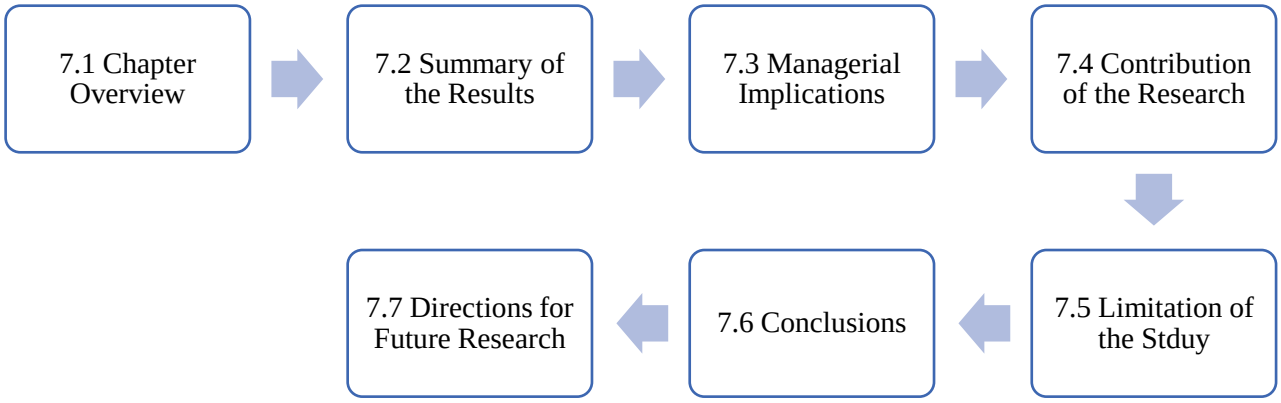
In the chapter that follows, managerial implications are discussed, next key theoretical and practical implications of findings are presented after a summary of the results of the study. Following it, limitation of research, conclusion and directions for future research is offered.

# CHAPTER SEVEN: DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

## 7.1 Chapter Overview

This chapter presents the discussions, conclusions and recommendations of the study. The results of the three studies are discussed briefly followed by theoretical, empirical and practical contributions of the study. Next, the limitation of the study is discussed together with measures that were considered to curb or restrict the impact of these limitations on the research credibility. Towards the end of the chapter, conclusions and directions for future research in this area are offered. An overview of the sections is presented in figure below.

***Figure 7.1 Chapter 7 Organization***




## 7.2 Summary of Results

The study was separated into three main phases; these phases are briefly summarized in the sub-sections that follow.

### *7.2.1 Study One – Exploring RR*

A total of 21 interviews were conducted with industry practitioners to arrive at 64 main themes that were separated into the areas of resources, business processes and complementary factors.

Total findings entailed 21 themes on resources, 29 themes on business processes and 14 themes on complementary factors. Based on a critical analysis of findings, the sensemaking framework of RR in business organizations was proposed. The RR sensemaking model was refined to cover the fundamental perspectives based on literature. Finally, the list of 64 items were presented after combining similar keywords and cleaning up the redundant themes that were observed in the course of the investigation.

### *7.2.2 Study Two – Validating RR Quantitatively*

The Study Two built on the 64 main themes arrived by Study One. A survey was run to help gather responses to validate the model. Thorough Structural Equation Modelling methodologies were implemented to ensure a highly parsimonious fit model was arrived. An EFA was first conducted to explore the pattern of factors. The final pattern of the EFA revealed 37 items and 9 factors with cross loadings above 0.5. All other loadings below this threshold were suppressed. Construct and discriminant validity also proved very promising together with reliability statistic.

A CFA was then conducted in a measurement model to re-affirm the patterns, their validity and reliability. In the end, a total of 12 items under 5 factors remained. Two of these factors were predominantly business processes elements, two others were resources factors and the last factor was 2 item factors with mainly complementary items. These factors were thoroughly discussed to arrive at key themes with representations in pertinent literature.

### *7.2.3 Study Three – Testing the Main Research Model*

The third study adapted the RR construct as defined by the Study One and Study Two. It also combined literature and existing measurement on IMO, DC and competitiveness to arrive at and enable the testing of the research hypothesis. Similarly, an EFA was conducted followed by a CFA and subsequently the main structural model. Based on the hypothesis results from

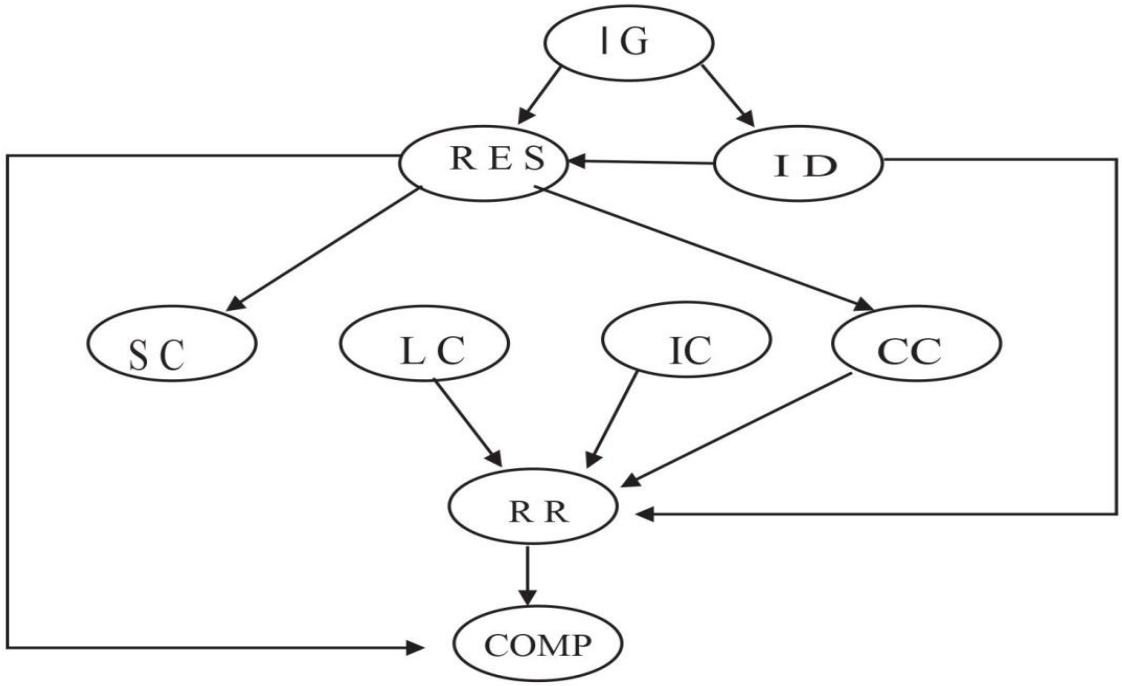
section 6.8, it was observed that a total of 64.7% of the hypotheses were supported as presented in Table 7.1. These were discussed together with supporting literature in the previous section; the next section presents key theoretical implications of findings.

***Table 7.1 Hypotheses – Results Summary***

| | | | Estimate | P | H | Remarks |
|---|---|---|---|---|---|---|
| ***Group One*** | | | | | | |
| IMO_ID_F9 | <--- | IMO_IG_F8 | 0.427** | *** | H1a | Significant |
| IMO_Res_F3 | <--- | IMO_ID_F9 | 0.151** | 0.002 | H1b | Significant |
| IMO_Res_F3 | <--- | IMO_IG_F8 | 0.618** | *** | H1c | Significant |
| ***Group Two*** | | | | | | |
| DC_SC_F4 | <--- | IMO_Res_F3 | 0.441** | *** | H2a | Significant |
| DC_LC_F6 | <--- | IMO_Res_F3 | 0.087 | 0.161 | H2b | Not Significant |
| DC_IC_F7 | <--- | IMO_Res_F3 | 0.079 | 0.156 | H2c | Not Significant |
| DC_CC_F5 | <--- | IMO_Res_F3 | 0.144** | 0.009 | H2d | Significant |
| DC_LC_F6 | <--- | IMO_ID_F9 | 0.029 | 0.649 | H2e | Not Significant |
| ***Group Three*** | | | | | | |
| RR_F1 | <--- | IMO_Res_F3 | 0.029 | 0.619 | H3a | Not Significant |
| RR_F1 | <--- | IMO_ID_F9 | 0.124* | 0.022 | H3b | Significant |
| ***Group Four*** | | | Estimate | P | H | Remarks |
| RR_F1 | <--- | DC_SC_F4 | -0.078 | 0.15 | H4a | Not Significant |
| RR_F1 | <--- | DC_LC_F6 | 0.297** | *** | H4b | Significant |
| RR_F1 | <--- | DC_IC_F7 | 0.181** | *** | H4c | Significant |
| RR_F1 | <--- | DC_CC_F5 | 0.394** | *** | H4d | Significant |
| ***Group Five*** | | | | | | |
| Comp_F2 | <--- | IMO_Res_F3 | 0.139** | 0.009 | H5a | Significant |
| Comp_F2 | <--- | RR_F1 | 0.269** | *** | H5c | Significant |
| Comp_F2 | <--- | DC_LC_F6 | -0.07 | 0.261 | H5b | Not Significant |

The above significant relationships between IMO, DC, RR and Competitiveness has been captured in below figure.

***Figure 7.2 Final Framework with Significant Relationships***




The main findings of the study in relation to hypothesis testing is in line with research objectives and research gaps, is discussed below in three main areas of research gaps, strategic management and institutional competitiveness.

## 7.3 Discussion of Main Findings of the Study

The main findings of the study are discussed in three main areas of closing the research gaps, contribution to strategic management and contribution to operational management.

### *7.3.1 Main Findings related to Research Gaps*

Four main research gaps were originally identified. Pertaining to the first research gap, it was argued that little understanding surrounds the construct of RR and how it may be conceptualised. Findings reveal that RR may be conceptualised based on five main sub-constructs. The underlying motives of these constructs are their efficiency in recombining with other aspects of the firm. The *first* of these is a set of business process items including asset and finance management, publication and research process, and accreditation/ affiliation

processes. The *second* sub-construct is also a business process dominant factor that mainly consists of business process automation and database management.

The *third* factor mainly cover vital resources items such as human resources, funds or finance and institutional departments. The fourth resources factor consists of restriction of intake or scarcity of institution, and school brand image. *Finally*, the complementary factor of rewards and retention were added to the overall model. Recombining these areas at the core of the business organization defines the construct of RR.

The second research gap looked at the model from the DC perspective mainly with IMO as an antecedent. Surrounding literature including Parida et al., (2016) and Zhang & Bruning (2011) support the gap between IMO and DC based on the assertion that DC is influenced by many aspects of the organization including its internal capabilities of employees and entrepreneurs (Schulz, Martin, & Meyer, 2017). The present study contributes empirical insight into this area with the findings relating to the impact of IMO on DC. It was observed from earlier literature sources that respond to market information remains one of the principal antecedents of other constructs that build on IMO as an independent variable (Lings & Greenley, 2009).

Findings reveal that response to IMO does influence DC in two main ways. Response to market information significantly and positively boosts the firm's sensing capability. Response to internal market information also influences coordinating capability of the firm. The strongest effect, however, lies in the contribution of factors such as having a genuine interest in employees, orientation to solving employee problems, reconciliation of work and family, training seminars and training on new tasks, to the main sensing capability component of DC. Sensing capability in this sense entails the identification of new opportunities within an outside the firm, review of service development efforts, implementation of new ideas and the need to ensure adequate processes as originally conceptualised by Pavlou & El Sawy (2011). In

contrast, the response to internal market information did not show significant impact on learning and integrating capabilities of the HEI. This implies that response to internal information by management of HEI to the exploitation (LC and IC) capabilities of DC needs urgent attention as the exploitation capabilities are the most important capabilities in terms of resource effectiveness. The exploitation capabilities in the context of HEI pertains to locating budgets and executing projects etc. towards accomplishing sensed opportunities. It is noteworthy, that response to internal market has indirect effect on competitiveness through RR, which signifies the mediating link between IMO and RR through DC. It is also observed that information dissemination has insignificant effect on learning capabilities, indicating that disseminating agile and timely information may not necessarily drive direct active learning in the HEI, however response to internal information may results in learning and hence seizing on the opportunities in the environment.

The third research gap sought to observe the influence of IMO on RR. In the combined research model, two main aspects of IMO were tested for the influence on RR. These include information dissemination and response to the market information. Even though the response to internal market information may not drive resource recombination, internal information dissemination was observed to be a rather significant predictor of resource recombination in UAE HEIs. This means that resources recombine well by building on how well internal information is better disseminated to employees, paying attention to product and service benefits and the careful establishment of corporate aims and strategy.

The last research gap constitutes the contribution of RR to organizational competitiveness. Building on key aspects of the RR construct discussed, findings indicate that RR is the strongest of the effects after a close observation of IMO, RR and DC constructs. Proper resource recombination significantly contributes to institutional competitiveness, where institutional

competitiveness is defined based on De Haan (2015) definition of what constitutes competitiveness in the HEI context.

### *7.3.2 Findings related to Strategic Management of HEIs*

The study principally focuses on the strategic management domain, building on an overarching set of strategic management theories including RBV, CBV and KBV. The constructs of IMO, DC and RR are used to define the research model of HEI competitiveness. As established, this model draws on the internal strength of the business to inspire dynamic institutional capabilities, resources recombination and overall competitiveness.

It is noteworthy that even though IMO sub-construct of response to market information was originally not considered as part of the competitive learning capability model in terms of its contribution to exploration capabilities of the firm, response to market information proved to be a significant predictor not only of sensing capabilities but of coordinating capabilities as well. Response to market information that significantly affects sensing and coordinating include the expression of genuine interest in workers, attending and solving employee's needs, the organization of training seminars, training of new tasks and general work-life balancing measures (Robledo & Aran, 2014; Ruizalba et al., 2014).

Generally, findings theoretically imply that a firm's relationship exists between IMO, DC and RR towards institutional competitiveness. IMO does influence DC mainly through response to market information even though information dissemination does not affect any aspect of DC. Information dissemination, however, has an effect on RR. Finally, response to market information remains the primary aspect of IMO that leads to institutional competitiveness. The effect of IMO on DC, RR and Competitiveness was therefore established.

Findings also indicate that DC has a strong impact on RR. The three sub-constructs of DC including learning, integrating and coordinating capabilities have a significant effect on RR.

DC and RR have strong bonds in literature. These formed the centre of the competitive learning capability model where DC and RR are strongly defined on the philosophy of learning. According to Cecere & Ozman, (2014) and Van den Bosch et al., (1999), learning is a fundamental aspect of novel resource reconfiguration at the strategic level of the organization. Repetitive learning gives rise to recombination through which the firm gains knowledge on how to overcome hurdles ahead.

One important aspect of the study that was however not in congruence with surrounding literature is the contribution of DC to institutional competitiveness. Even though overwhelming evidence exists that DC contributes to organisational competitiveness, learning was not observed as a significant antecedent of competitiveness and this opposes dominant findings such as Baker & Sinkula (1999), Calantone et al., (2002) and Hurley & Hult (1998). An independent test for dependence reveals that learning capability has a significant effect on institutional competitiveness even though through RR. This observation implies that the association between learning and competitiveness is affirmed by the present investigation even though the interference of the other elements in the model removes this effect.

The lack of direct association between DC and competitiveness but the independent effect of learning on competitiveness reveals the interference of other constructs in this inter-relationship. Mainly, the role of RR in the model may serve as an ultimate mediator without a direct association between DC and competitiveness. RR has the strongest effect on competitiveness and three out of four sub-constructs of DC including learning capability affects RR. The effect of DC through RR to institutional competitiveness is therefore strong even though no direct association exists between DC and competitiveness in the face of other constructs. The next section elaborates on the general contributions of the findings.

### *7.3.3 Findings related to Institutional Competitiveness*

To establish a higher level of competitiveness in the HEI industry, educational institutions must explore the learning capabilities embedded in IMO, DC and RR towards competitiveness. It is recommended that HEIs in UAE and surrounding regions consider building competitiveness from the internal perspective by employing the above-mentioned constructs. To serve the identified student markets, institutions must first pay attention to internal faculty workers and employees. Paying attention to workers would entail prioritising their satisfaction, addressing their needs and ensuring that they are satisfied at all times.

It is recommended that efforts to remain dynamic and competitive should be built by expressing concern for workers, making sure that these concerns are implemented and adopting a continuous development approach to employee management through training. Notably, building internal resources will improve the employee's agility to identify or explore insight on how to achieve competitiveness. Internal response to employee needs also improves coordination among the workers towards identified competitive outcomes. Ultimately, internal strength can direct the organisation towards improved competitiveness and HEIs must explore this association to gain a competitive edge in the sector.

As academic institutions, it is recommended that learning does not only occur in the classroom or as part of its core service delivery but as an organization as a whole. A learning organisation better achieve novel recombinations by recombining and reconfiguring resources in the organisation. Learning outside of mainstream activity will help provide an avenue to contribute knowledge to the development of educational institutions itself rather than excessive focus on the functional transfer of knowledge to students.

Finally, even though dynamic capabilities have an essential contribution to institutional competitiveness, industry players must understand that this association may be channelled

through resource recombination, as suggested by the findings from mediation analysis in Table 6.23. Channelling dynamic capabilities of the firm through resource recombination has the potential to boost competitiveness than DC on its own accord. This is due to the complementary role of RR in refining the dynamic capabilities of the firm, and the more definite association between resource recombination and institutional competitiveness.

## 7.4 Contributions of the Research

### *7.4.1 Theoretical Contribution*

The study sought to develop holistic and an in-depth comprehension of RR in firms based on the internal outlook of IMO and DC. This aim was achieved by scrutinising the relationships between the precursor and outcomes of RR. An empirical investigation of the factors that influence RR was done and the construct of RR was developed. The conceptual model was quantitively tested. An understanding of the firm's RR is presented based on the conceptual framework, by providing information on their resources, business process and complementary items.

This research is perceived to contribute to the field of resource and competence-based research stream by studying the concept of RR from the perspective of HEI competitiveness. This study is aimed to contribute to the five characteristics of the study conducted namely, (1) the conceptual explanation of the RR framework, their micro foundations and fundamental practices, (2) the empirical investigation of sense-making framework , presenting the inflow and outflow of resources and business process as presented in Figure 5.2 (3) the empirical analysis of IMO and DC as antecedents for the expansion of firm's RR (4) the qualitative and quantitative research situation, and (5) the incorporation of the Competitive Learning Capability model and the Classic Model of HEI Competitiveness from an internal perspective of IMO and DC i.e. Conceptual Framework.

The findings of the study increase the understanding of the organisational factors that influence the occurrence of RR. Thus, this study contributes to RR as a well-established and essential construct in strategic management theory.

As discussed earlier, in addition to the contribution to research gaps and institutional strategy, other contributions of findings may be highlighted. First, this study postulates that by incorporating the resources and business processes exposition jointly to create values, this study posits the role of a combined set of RR in achieving new RR by incorporating individual resources and business process of the firm towards performance outcomes. This study also encompasses the resource and competence- based theory by elucidating the influence of RR in firms and also incorporates IMO and DC perspective and consequently interchanges the comparatively stagnant methods used in previous studies on the resources-based approaches.

Sirmon et al. (2007) indicate the various benefits gained by organisations is valuable to effectively structure and manage the resources and incorporate into vital new RRs to safeguard resources to control the process of value creation. Therefore, the incorporation of RR perspective in the resource-based clarifications for value creation, this study aimed to attain dynamisation of the roots of RBV and overcoming the limitations of past research in this field by assisting the firm to reconstruct and reconfigure the available resources.

Second, the RR framework established in this study comprises a detailed set of resources/processes required for the process of RR and improves the understanding of the micro-foundations of each capacity. The study presents an in-depth understanding of the RR literature on the differences in capabilities that contribute towards the heterogeneity in innovation performance among firms. Thus, this study provides a better understanding of the context of RR, DCs and IMO and proposes essential insights into the source of variance in organisational performance outcomes.

Third, this study provides further literature on RR by differentiating specific resources and processes, as well as the different effect based on different levels in the process of RR. Most of the studies conducted previously focus on the RR components collectively and provides a rather general outcome. The underlying strategic orientations – IMO and DC – and its influence on the development of firm's performance outcome were also studied by moving away from the traditional research of only focusing on the RR constructs. Therefore, by integrating the firm's internal contingency factors (IMO and DC) simultaneously, this study augments knowledge on the integration of theories based on the common theme of learning orientation.

Fourth, based on Helfat and Peteraf, (2003, p.997), "it is difficult for researchers to fully explain how firms use resources and capabilities to create competitive advantage", the conceptual model proposed in the study moves beyond black box of RR in firms. This study is among the few studies in the resource and competence- based research that implements SEM methods for integrating the multifaceted effects of resource, business processes, and their antecedents, into the model of RR in firms. Hence, this study allows to quantitatively test the systematic linkages among these variables unlike traditional regression analytical approaches (Isobe et al., 2008).

Moreover, from the theoretical perspective and originally proposed research gaps, findings support the long existing inter-relationships between the sub-constructs of IMO. Prior to the present investigation, this inter-relationship between the various aspects of IMO including information generation, dissemination and response, had been observed by Lings & Greenley (2005). These results are not new as others including George (1990), Gronroos (1985) and Ballantyne (2000) have consistently viewed IMO as an interconnected set of processes rather than separate aspects of the same construct.

Thus, this study proposes a theoretical and empirical base for new research incorporating the RR, DC and IMO perspective based on the learning orientation context and assists to further

develop a significant area of research, where strategic management and entrepreneurship research streams traverse. The progression of current knowledge on managing the process of RR in dynamic environments allows this study to create a learning opportunity for theorists and practitioners and offer a significant contribution to the innovation theory and practice. The outcome of the study enhances the understanding of strategizing resource and its management by providing empirical evidence towards creating competitive advantage.

It may be added that the study findings contribute to the research on RR by examining its antecedents and consequences in the context of the UAE - an under-researched area. Study on RR in the Middle Eastern context relies mostly on the theories derived or based on the Western, European and American research. This phenomenon of theoretical drought, combined with a paucity of research documenting the Strategic Management issues in HEIs, indicates that the management of resources and business processes is one of the most crucial problems faced by higher education as indicated by research. Therefore, the intervention of this thesis on a Middle Eastern country such as the UAE gives resource integration a global theoretical outlook and of particular relevance to researchers in the Gulf region in drawing out some new theoretical insights.

Finally, the study also contributes to the theoretical research from a methodological perspective in the field of resources recombination. Whereas past research has mainly adopted conceptual approaches, or few quantitative approaches (Pavlou & El Sawy, 2011; Kurzhals, 2015). Kurzhals (2015) proposed a comprehensive model that balances both resource recombination input and outcomes, which has called for increased rigour in both quantitative and qualitative methods.

The present study, therefore, sought to improve this unidirectional approach to understanding the RR phenomena by bringing together and interpreting both quantitative and qualitative

information collected from both the faculty and head of departments/managers of HEIs, thus providing a bigger picture revealing the antecedents and consequences RR. Hence, this thesis has engendered a much richer and deeper understanding of the RR phenomena.

### *7.4.2 Empirical Contribution*

This study's empirical contributions lie in its methodological approach which includes a collection of different types and sets of data, sample sizes and unit of analysis, the development of different research instruments and construction of a resources recombination framework based on the resource-based and competence-based stream of strategic management research.

First and foremost, the last few decades have seen a great deal of interest in the concept of resources recombination. The growing body of researchers in academia and practitioner circuits is "consistently ranking the development and strategizing of resources and capabilities into heterogenous mix for sustained competitive advantage" (Wiklund et al., 2002, Kogut and Zander, 1992, Grant, 1996, Galunic and Rodan, 1998, Wiklund and Shepherd, 2009). However, both schools of thought differ in the way they define and operationalise resource integration and reconfiguration process.

As a result, a limitation faced at the beginning of the research was the relative gap in how to examine resources recombination given the scarcity of academic literature on the subject. To address this gap, two phases of primary data collections were utilized sequentially. A mixed research method was considered in a sequential exploratory research design, building on the need to explore the area of RR in HEI competitiveness prior to overall quantitative empirical assessment of HEI competitiveness model. The findings were analysed thoroughly through SPSS software and SEM methodologies.

Secondly, a significant empirical contribution of this thesis is the relevance of the subject matter – resources recombination from the internal perspective of internal marketing and

dynamic capabilities. The focus is on the resources and capabilities of the organisations and its use at the optimum level with the help of motivated employees. In other words, the study is about resources utilisation by internal market/human resources at its optimum level. This thesis represents the first work to investigate RR within the confines of HEIs in the UAE. As a result, this work departs from most previous resources and capabilities studies and provides a key contribution to the rare extant literature.

To add to this, current literature generally presents resources recombination concept as a monologue that has little or no empirical support. Indeed, claims on RR being a source of creating wealth (Wiklund et al., 2002, Kogut and Zander, 1992, Grant, 1996, Galunic and Rodan, 1998, Wiklund and Shepherd, 2009) is consistently found in the literature, however few studies to date have been conducted empirically applying RR to the performance outcomes of the firm.

Therefore, the methodological contribution is in the exploration of lived experiences and the perceptions of the head of departments and faculty members as they understand well the resources recombination concept and its strategies. The practical focus could be explained by the fact that the head of HEI are seen as the primary consumers of strategic management research. However, taking a highly revealing and psychological approach to the non-faculty/faculty, and underpinned by the resources-based and competence-based research, has shown that there are many ways of strategizing organisational resources and capabilities.

Given the lack of previous research, an empirical strength of this thesis lies in its adoption of a mixed methodology compromising both qualitative and quantitative data gathering from faculty and non-faculty members of HEI. In this context, bringing and integrating these two strands allowed for a much deeper understanding of the resources recombination phenomena.

A mixed methods approach demonstrates the methodological rigour in research, and hence makes a case for a robust and trustworthy empirical contribution.

Finally, the use of various statistical instruments in the analysis of the qualitative and quantitative findings also demonstrated a strong empirical evidence of the thesis. The use of structural equation modelling analytical techniques allowed for an estimation of the structure within a series of dependent relationships between latent variables with multiple indicators while correcting for measurement errors (Hair et a1.2011). This approach was reckoned most appropriate for testing the hypothesised model, which was found to be empirically valid. The empirical evidence of the strength of this thesis also lies in the fact that the study results were derived from large sample sizes in both methods of data collection and led to a clear empirical understanding of RR phenomenon from DC and IMO perspective in the context of HEI competitiveness as performance outcome and specially UAE HEI settings. This is a significant achievement given the fact that there is inadequate attention in the form of studies on HEI performance outcome regarding resources and business process, and especially in a Middle Eastern context. All in all, this provides sufficient confidence that the present study's findings offer a holistic representation of the resources recombination phenomena within the HEIs in the UAE.

### *7.4.3 Practical Contribution*

In contrast to the theoretical or pure approach to research, applied research is primarily intended to lead to the solution of specific problems as noted by Easterby- Smith et a1. (1991). The practical implications of findings relate to the meaning of findings to the field of practice. At its simplest, the problem facing the higher education at the outset of this research study was the absence or lack of empirical understanding of the strategizing resources and business processes towards institutional competitiveness. This study also proposes various practical contributions.

Previous studies have stated that well-known companies often undertake a 'resource-based strategy'. However, this strategy is often insufficient to endure a competitive advantage in dynamic environments (Teece et al., 1997, Teece, 2007). Nonetheless, Teece et al. (1997, p. 515) mentioned that "winners in the global marketplace have been firms that can demonstrate timely responsiveness and rapid and flexible product innovation, coupled with the management capability to coordinate and redeploy internal and external competences effectively".

This study aims to contribute to the practice by investigating a set of specific, measurable RR, focusing on (i) the underlying processes and routines (ii) methods on combining certain types of new /existing resources and business processes strategically, (iii) the specific role and effects in establishing RR in firms. This study provides an in-depth explanation of the concept of RR and associates the concept with wealth creation in firms. The RR framework provides a simple method for managers to conceptualise, operationalise, and measure RR in firms and to establish RR as a theoretically well-founded construct for managerial job scope.

The outcome of this study is presumed to assist managers, (1) to understand the influence of resource endowments and resources reconfiguration on everyday resource management practice, (2) to improve organisational efforts for developing RR, and (3) to create new internal opportunities for IMO and DC in firms. Therefore, the industry will be able to have a better understanding of resource value creation in firms to construct a systematic framework in order to develop RR.

The UAE education sector remains one of the most resilient within the region. As mentioned by Bradshaw et al., (2004), this sector remains one of the essential areas that drive knowledge and economic development across countries. The UAE HEI sector had particularly come a long way since the 1970s (Chapman & Austin, 2002) when its contribution to economic development was negligible to presently where it plays a fundamental role in the overall

national economic development of the UAE. Like any other sector, an increase in the number of active players continues to drive competition through differentiation (Epple & Romano, 1998).

A glance at the human resource adequacy of the UAE reveals an interplay of full time and part time faculty members numbering about 8,000 in total. Even though not much is presently known about general industry trends and developments, the present study reveals that institutions can promote themselves by building on the unique qualities embedded in the faculty human resources. Findings reveal that institutions may encourage the exchange of value and other individual factors which may, in turn, lead to the institution of employee-focused policies as part of the corporate aims and objectives. Finally, genuine expression of concern for employee welfare and the actual institution of plans in the form of work and family balances, are other ways of establishing competitiveness through internal human resources.

Findings also imply that institutions can improve their dynamic capabilities through care for human resources such as faculty. Training faculty on new subjects and tasks as well as other work-life balance can inspire the willingness of faculty members to search for avenues to improve their work performance. This may also improve coordination or cooperation between faculty members or faculty and management. Overall, an excellent attempt to improve working conditions and ensure an enhanced work-life balance may improve the institution's competitive position within the industry.

Findings again imply that even though competitiveness may be achieved through dynamic capabilities by improving functions such as sensing, learning, integrating and coordination, one area worth noting is resource recombination. Based on results pertaining to this area, it must be emphasised that competitiveness may be readily achieved through resource recombination than as a direct result of dynamic capabilities

In summary, this study aims to assist business entities by providing usable practical results. The anticipated function of this methodology would be that the process of RR in firms would not be a matter of chance, as it happens in today's organization, rather by abiding by the framework in utilising the systemic initialisation and exploitation of the value creation potential in RR. The intended results are found by developing IMO and DC strategically; utilising them to RR management practice, defining new markets or exploiting existing market potentials to be more sustainable with minimum effort in terms of time and financial resources.

### 7.5 Limitation of the Study

Attempts were made to increase trustworthiness and robustness of the study, such as establishing the reliability and validity of the data. Although the findings of the study provide some interesting insights into relationship between the main constructs of the study, it also has some limitations that constraints the interpretations of the study. Below is the discussion of the main limitations of the study.

Firstly, for conceptualizing RR in the qualitative phase of the study, where the focus was on the resources and business processes, the data was collected from head of departments working in UAE HEI. As such, head of department's views were taken into consideration on how they perceived new/existing resources and new/existing business processes recombine towards new products, services or new market entry. Hence it might be argued that faculty members and staff views, who work closely in increasing the likelihood of RR wasn't taken into account. Therefore, the qualitative results might be limited in implications to practitioners. However, such limitations were complemented by collecting data from faculty and staff members to validate RR items in Study Two and tested RR relationship with IMO, DC and Competitiveness in Study Three.

Secondly, the overall research design carried few inherent issues, despite adopting mixed methodology in collection, intrepretation and analysis of data. As only longitutational studies

can assess the causal relationship over a period of time, the cross-sectional study design employed in this study made it difficult to make casual inferences of the hypothesized relationship due to temporal uncertainty. However, efforts were made to take care of common method factor to achive parsimonious model and that findings of the research are in line with research objectives.

Thirdly, as mentioned earlier at the discussion of the research paradigm, is the difficulty in establishing causality in social research despite the strict adherence to objectivity and structural set of methods (Falk & Miller, 1992). For this reason, a soft modelling approach was therefore adapted where predictability is established instead of causality.

Fourthly, the RR model proposed in this study is confined to HEI in UAE. Therefore, it might be argued that the findings can only be applied to UAE context and may not applicable to other countries and cultures, given the differences in organizational resources and business processes management practices in the respective country. Hence generalizability of the findings is considered to be the limitation of the study. However, since the study is new and unique in the context of Middle East, the findings can be generalized to other GCC countries given the similarity in economical, social, cultural and political aspects to that of UAE.

In summary, efforts were made to achieve representation and robustness of the study by employing rigorous methodological approaches in both the data collection and analysis.

Having discussed the limitations of the study, next section offers conclusions and recommendations for future research.

### 7.6 Conclusion

Conclusions are established in the main areas of the research objectives originally presented in the literature review. The main aim of the study was to examine the impact of internal marketing orientation and dynamic capabilities on the resources recombination perspective of

the higher education institution competitiveness. To achieve this broad objective, four main objectives were established. The first of these objectives sought to examine the concept of RR and how it can be operationalised and measured in the view of the competitiveness of the firm. It is concluded that the construct of RR may consist of 5 main factors that easily combine with other resources, business processes and corresponding elements in the organisation.

The first main factors that define resource recombination include the factor of asset, research and affiliation business processes. The second factor named automated technology management include business processes related to processes automation and database management. The third factor mainly constitutes resource elements of financial, human and departmental areas. The fourth factor entails complementary items of rewards and retention whilst the fifth factor entails scarcity of service and institutional image. It is concluded that these factors define resource recombination in the context of HEI competitiveness.

The second research objective sought to investigate the effect of IMO on DC and RR towards organisational competitiveness. It is concluded that employing a good understanding regarding an exchange of value will lead to a proper understanding of employee needs and wants. Such exchange of value will also lead to the expression of genuine interest in employee concerns. The understanding of employees and their needs has a strong association with the understanding of employee needs and how to address them most appropriately. Expressing and undertaking genuine interest in employee concerns will help improve sensing and coordinating capabilities of the institution. A good understanding of employee needs and wants and incorporating it into the company's aim, and objectives are what drives actual competitiveness from internal human resources management.

The third research sought to assess the extent to which dynamic capabilities facilitate resource recombination and HEI Competitiveness. Dynamic capabilities do facilitate resource

recombination. Resource recombination is promoted through DC elements of learning, integrating and coordinating. Sensing capabilities may not necessarily promote resource recombination in the organisation.

The fourth and final research objective, which was also the final objective, sought to investigate the extent to which IMO, DC and RR facilitate HEI competitiveness. All the constructs of IMO, DC and RR, are good predictors of HEI competitiveness, but RR has the most influential contribution to institutional competitiveness.

During the estimation of the measurement model, key areas of nomological validity, construct validity, and external validity was observed. As observed in earlier discussions, a number of efforts on RR have remained only descriptive with little observable implications. The establishment of the current model in the literature surrounding RR and HEI competitiveness development makes the outcome of the present study supportable by several theoretically derived hypotheses in the RBV approach to strategic management. This observation is essential in nomological validity as observed by Carmines and Zeller (1979).

Convergent validity and discriminant validity of the model were established as presented in AVE assessment and inter-factor correlations or covariance, as recommend by Hair et al. (2010). Reliability of data with the help of composite reliability was also observed as recommend by Hair et al. (2010). The data was also observed for potential multicollinearity and heteroscedasticity by observing the standardized other root-mean-square residuals of the final CFA are within acceptable range (Backhaus et al, 2010).

The focus on HEIs raises methodological and application issues that cannot be ignored. The findings of the model may be challenged with regards to the generalisability of the study to the population of organizations in diverse sectors. Noting that sectors may be highly diverse with regards to resources and processes considerations, it is in the right direction that the study

narrowed down onto a single sector. A manufacturing entity or a trading organization, for instance, may have more resources than processes. Likewise, the focus of resources and processes may not exactly align as observed in the present study. It was however justified that HEI remains at the core of knowledge creation and assimilation; focusing on this sector to conceptualize RR was therefore considered most suitable.

Given the nature and scope of all management and organizational studies, some questions have been raised which could serve as a springboard for further research. It is hoped that the questions raised are further explored and that the novel findings from this thesis will contribute to the understanding and advancement of knowledge in Strategic Management, Entrepreneurship, Human Resource Management and HEI Competitiveness.

### 7.7 Directions for Future Research

Recommendations are offered on the overall outcome of the three studies under observation. Recommendations are offered to two main stakeholders in the academic field and in the professional field also known as the field of knowledge applications.

The study conducted is aimed to provide several directions for future research. This study significantly contributes to a better understanding of RR in firms from an internal perspective of IMO and DC. More studies on the topic are needed to include the relationship between antecedents, outcomes and mediating factors effect on RR value creation. Several important issues that emerged during the course of study should be investigated in future research, as discussed below.

First, the empirical investigation should be conducted in future studies on the relationship between RRs and different levels or kinds of firm`s performance outcomes (e.g. growth and profitability). Studies indicating RRs as a means for generating wealth (Wiklund et al., 2002, Kogut and Zander, 1992, Grant, 1996, Galunic and Rodan, 1998, Wiklund and Shepherd, 2009)

has been numerous in number, but applying RR to firm performance outcomes have been few or none conducted up to date (Kurzhals,2015). This study focused on competitiveness as an outcome of RR, further performance outcomes in terms of financial outcomes/ operational or strategic results could be further investigated. Investigation on the relationship of special interest, particularly as researchers have claimed, that perhaps not all types of RR's may consequently lead to wealth creation in the long run, as there are costs associated due to development (Zahra and Wiklund, 2002).

Second, different types of RRs may lead to different types of performance outcomes, e.g. new/existing resources and new/existing business processes recombination. For example, as mentioned that recombination does occur within existing resources and existing processes even though new business processes and resources do not register internal recombination. This reinforces the assertion that new elements do not precisely recombine with other elements in the organisation but only transform from being new to being existing (old). Furthermore, the auxiliary elements play an essential role in the RR model of HEI competitiveness also need to be considered in any further evaluation of the RR construct.

Thirdly, the effect of environmental dynamics (external factors) should be studied in the proposed model. As this study controls the influence of a variety of internal variables (company size, company age, public and private etc.) on the development of RR in firms, the environmental dynamics on the development of RR into account, should be taken into account as suggested by literature (e.g. Teece et al., 1997, Kurzhals 2015).

In addition to internal resources, the firm's different strategic orientations (e.g IMO and DC) influence the development of RR, as indicated in this study. Nonetheless, other various situational firm factors and strategic orientation (Networking, Entrepreneur etc.) may have an influence on the development and progression of RR. Future studies can be conducted by

referring to this study as the basis to evaluate the different environmental contexts that affect RR. Furthermore¸ the use and development of RR in young established firms and across different sectors must be encouraged (Ambrosini at al., 2009) can also be studied.

Fourth, this study focuses on the influence of organisational framework conditions on the development of RRs. However, it is only concentrated on DC and IMO at firm level as antecedents grounded in the firm`s underlying strategic orientation. Meanwhile, a comprehensive range of various antecedents residing at individual, firm, and network-levels have been anticipated in the literature (Rothaermel and Hess, 2007, Teece, 2007, Zollo and Winter, 2002, Eisenhardt and Martin, 2000). With some notable exception (e.g. Kurzhals 2015, Hawass, 2010, Rothaermel and Hess, 2007), studies can be conducted to investigate the antecedent of the development of RR at the group, or individual levels.

Based on the perspective of organisational behaviour, Hawass (2010) proposes that future research should explore patterns of managerial leadership styles supportive for resources reconfiguration. Hence, future research may conduct case studies on successful leaders, that have been considered to reconfigure their firm`s assets.

Fifth, although the thesis provided a large-scale exploratory study on RR within HEIs in the context of UAE, it would be beneficial for future studies to extend the topic or subject to focus on other countries especially within the Middle Eastern context such as Oman, Kuwait and Saudi Arabia, where there is a dearth of knowledge on resource and business processes reconfiguration.

Moreover, it is recommended that future researchers build on the conceptualised model of RR in different contexts aside from HEI industry. This will help establish the versatility of the conceptualised model regarding its application to other settings aside from HEI. Like IMO and DC, the application of the construct of RR will help support its resilience as a research theory

in the midst of strategic management literature. The capabilities of RR in the strategic management domain will also only become known to scholars upon consistent exploration of the construct to identify its potential in the management literature.

Other industries and contexts may not essentially produce the same results, and this insight will be very instrumental in understanding the various aspects of the research model. Hence, it is recommended that future researchers consider replicating or building on the model in other contexts. The various relationships and models that did not establish relevance may be contrary in other contexts. An instance is that sensing capabilities do not contribute to RR and learning capability does not contribute to competitiveness due to indirect effects of other relationships in the research model.

Finally, it is important to highlight that the present study adopts a rather thorough approach to research, exhausting major approaches to validate findings and establish reliable results. Nonetheless, future researchers may still adapt varied methodological approaches to help gain a deeper understanding of the subject. Comparative research methodologies may be considered to help identify the results of the model based on two businesses with different levels of institutional competitiveness. The multigroup, longitudinal approach to research may as well be observed to understand the evolutionary nature of competitiveness over time and how this relates to changes in IMO and DC. Hence future research conducted on RR would be a stepping stone in transforming the RR framework for a wealth creation.

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**APPENDIX A: INFORMATION SHEET**

---

Dear Respondent,

You are being asked to take part in a research study on *"Antecedents and Outcomes of Resources Recombination in the Context of Higher Education Industry at United Arab Emirates."* Before you decide, it is important for you to understand why this study is being done and what it will involve. Please take time to read the following information carefully and decide whether or not you wish to take part. Kindly reply email and ask me if there is anything that is not clear or if you would like more information.

*What is the study about?*

This study is looking at how internal marketing orientation and dynamic capabilities influence resource recombination in Higher Educational Institutions.

*Who is doing this study and why?*

I am a student at Nottingham University and am doing this study for my thesis as part of the requirement for the Doctoral Degree.

*Why have I been chosen?*

I am inviting you to take part in this study as someone whom I think would be able to provide some valuable opinions about the area of investigation.

*Do I have to take part?*

It is up to you to decide whether or not you want to take part. You do not have to give a reason for participation or in the event of unwillingness to participate.

**PARTICIPANTS' RIGHTS**

If you do decide to take part, please keep this email (or information sheet in the event of interviews) safely. You may decide to stop being a part of the research study at any time without explanation. You have the right to ask that any data you have supplied to that point be destroyed. You have the right to omit or refuse to answer any question that is asked of you. You have the right to have your questions about the procedures answered. If you have any questions as a result of reading this information sheet, you should ask the researcher before the study begins.

***What happens next if I agree to take part in this study?***

You will need to complete the questionnaire online. This will not take any longer than 20 minutes to complete.

***Confidentiality/anonymity***

Any information you supply to me will be treated confidentially in accordance with the regulations of United Arab Emirates data protection act which is also consistent with the UK Data Protection Act 1998: your name and identifying affiliations will be anonymized in the analysis and any resulting publications, unless you give your explicit consent to identify you as a subject. Any information you provide will not be given to anyone else.

***What are the benefits of taking part in this study?***

There is no payment for taking part in this study. The results preceding data collection can be shared with you upon request.

***Are there any risks in taking part in this study?***

Measures have been taken to ensure that there are no risks in taking part in this study.

***What happens when the study finishes?***

The results of the study will be presented in my Doctoral Thesis.

**FOR FURTHER INFORMATION**

If you have further questions about the study, you are welcome to contact me at the following e-mail address: ksax5dbb@nottingham.edu.my

**APPENDIX B: CONSENT FORM**

---

Dear Respondent,

Thank you for agreeing to participate in this study. Before I carry out the research, I would like you to read the following statements and confirm your agreement to take part in this study.

- I confirm that I have read and understood the Participant Information Sheet dated .....
- All the questions that I have about the research have been satisfactorily answered
- I understand that my participation is voluntary and that I am free to withdraw from the study at any time, without giving a reason
- I understand that in case I do not reply consent and proceed to data collection, then I have fully agreed to participate in the study through implied consent

☐ I agree to participate

☐ I do not wish to participate

**Participant's Initials/ Signature (paper-based survey): _____**

**Date: _____**

## APPENDIX C: INTERVIEW GUIDE – STUDY ONE

Dear Participant,

This study is about *"Antecedents and Outcomes of Resources Recombination in the Context of Higher Education Industry at United Arab Emirates"*. Please note that this interview is being conducted exclusively for an academic purpose. Data collected from you will assist in the accomplishment of key study objectives. You have the right to withhold or withdraw your contribution at any time during or after the interview. On your permission, the conversation will be recorded with the help of an audio recorder. Some important steps have been installed to minimise all forms of risks that may be associated with the interview, and these include the following.

- Tape recordings will be destroyed after the interviews are transcribed.
- Any written materials will be destroyed after the interviews are transcribed.
- No names of forms of identification will be present on the result of transcription.
- Any information that can be used to identify participants will be removed from the data.
- Code numbers in the transcription will represent all names.

Date: _____

Time: _____

Name of Respondent/Interviewee: _____

Department: _____

Institution: _____

### Section A - Resources, Business Processes And Exploitation Capacity

#### A1: Resources

**Question 1.** Please offer examples of Existing Resources that add to institutional competitiveness.

> *"resources are internal resources that have been within the institution for a long time. Both tangible and intangible resources are welcomed"*

**Question 2**. What are some of the New Resources that contribute to institutional competitiveness?

> *"New resources entail external assets and connection that have recently been acquired. Both tangible and intangible resources are welcomed."*
>
> **Examples**: "*Resources, whether existing or newly acquired can be in the forms of strong financial backing as an institution, assets in the form of land, building and space, strong faculty reputation, Strong Alumni association, new departments, new courses, Associations with international accreditation bodies or agencies etc. These resources must be highly relevant such that it makes the institution competitive."*

**A2 - Business Processes**

**Question 3**. What are some of the Ongoing Business processes that drive competitive advantage of your educational institution?

**Question 4**. What are some of the New Business processes/initiatives that drive competitive advantage of your educational institution?

> **Examples**: Business processes, whether ongoing or new can be in the forms of teaching style, treatment of faculty members, student selection process, educational initiatives, new department grooming process, new course offering processes, course development process etc.

**Section B - Exploring Inter-Relationships**

This section follows up on some of the examples mentioned in the previous section.

> Example: *"Considering "financial capital" was mentioned as a key competitive resource and "teacher training" was mentioned as an existing business process… the question becomes "how do financial capital enhance teacher training programs?" Other questions follow in this manner…"*

**Combining Resources with Business Processes**

**Question 5**. Please elaborate on how existing resources drive ongoing business processes in your educational institution?

**Question 6**. Please explain how new resources drive ongoing business processes in your educational institution?

**Question 7.** Please elaborate on how existing resources drive new business processes/initiatives in your educational institution?

**Question 8.** Please explain how new resources drive new business processes/initiatives in your educational institution?

**-End of Survey-**

**Thank you for your time and cooperation.**

Yours sincerely,

Dilnaz Muneeb
University of Nottingham, Business School, Malaysia
Email: ksax5dbb@nottingham.edu.my
Mobile: 050-9289846

**APPENDIX D: EXPLORATORY PHASE - SURVEY QUESTIONNAIRE – STUDY TWO**

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**Respected Prof./Dr./Mr./Mrs/Miss,**

**Salam and Greetings!**

I am a PhD student from The University of Nottingham. I am conducting a PhD research on *"Antecedents and Outcomes of Resources Recombination in the Context of Higher Education Industry at United Arab Emirates*". Essentially, it is designed to gather information on resources and business processes in context of Higher Educational Institutions. Please note that this questionnaire is not for promotional or appraisal purpose. Any information provided is strictly confidential and will not be traced or used against you in any way. Data gathered is for the academic purposes only. The whole process will take around 15 to 20 minutes to complete. You can also withdraw from participating in this survey at any time you wish.

If you have any enquiries regarding this survey, please do not hesitate to contact me or email me as stated below or alternatively you may contact my supervisor Professor Kok Wei Khong at KokWei.Khong@nottingham.edu.my , Associate Professor Dr. Mohan V Avvari at Mohan.Avvari@nottingham.edu.my and Professor Christine Ennew at C.Ennew@warwick.ac.uk . Your cooperation and agreement to participate in this survey is highly appreciated. Thank you very much.

Yours sincerely,

Dilnaz Muneeb
University of Nottingham, Business School, Malaysia
Email: ksax5dbb@nottingham.edu.my
Mobile: 050-9289846

## SECTION A - DEMOGRAPHICS

Please tick **(√)** in the space given. Choose ONLY one option.

1. Gender

| | |
|---|---|
| | Male |
| | Female |

2. Age

| | |
|---|---|
| | Below 30 |
| | 31-40 |
| | 41-50 |
| | Above 50 |

3. Designation at Current Organization

| | |
|---|---|
| | Academic Role |
| | Administrative Role |
| | Academic and Administrative Role |
| | Department Head |
| Others (please state): | |

4. Highest Education Achieved

| | |
|---|---|
| | Senior High School |
| | Bachelor Degree |
| | Masters Degree |
| | Other Professional Degree |
| | Doctor of Philosophy (PhD) |

5. Employment Contract

| | |
|---|---|
| | Full Time |
| | Part Time |
| Others (please state) : | |

6. Type of Organization

| | |
|---|---|
| | Public |
| | Private |
| | Semi government |

7. Tenure of Service at Current Organization

| | |
|---|---|
| | Below 5 |
| | 5-10 |
| | 11-20 |
| | Above 21 |

*For the remaining aspect of the study, please indicate the number that best shows your LEVEL OF AGREEMENT to the statements, where: 1=Strongly disagree, 2= Disagree, 3= Moderately Disagree, 4= Neither disagree nor agree, 5 = Moderately Agree, 6=Agree and 7 = Strongly Agree.*

**SECTION B: RESOURCES**

| S/N | Statement | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| B1 | Students complement other resources and processes in my institution | | | | | | | |
| B2 | Alumni connectedness complements institutional competitiveness | | | | | | | |
| B3 | Restricted entry for students complements competitiveness of my institution | | | | | | | |
| B4 | School brand image makes the institutional brand stand out | | | | | | | |
| B5 | Software makes tasks and processes easier in my institution | | | | | | | |
| B6 | Accreditation complements institutional competitiveness | | | | | | | |
| B7 | School equipment makes us stand out as an institution | | | | | | | |
| B8 | The nature of Human resources we have makes us unique and competitive | | | | | | | |
| B9 | Institutional departments make the performance of other special processes easy to execute | | | | | | | |
| B10 | Finance/funds provide an avenue to stand out among other institutions | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| B11 | The infrastructure of the school provides room for other resources and processes towards competitiveness | | | | | | | |
| B12 | Faculty HR recruitment procedures contributes to institutional competitiveness | | | | | | | |
| B13 | Non-Faculty HR such as finance and facility management directors add to the institutional competitiveness | | | | | | | |
| B14 | HR promotions generally complement other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| B15 | School technology makes us stand out as a higher educational institution | | | | | | | |
| B16 | Student learning Technology facilitate performance of lecturers' duties and other processes towards competitiveness | | | | | | | |
| B17 | Student account Technology complements transactions and process efficiency | | | | | | | |
| B18 | Teaching technology facilitates learning and makes my institution stand out from the competition | | | | | | | |
| B19 | Usage and application of technology complements other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| B20 | Service delivery complements other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| B21 | Intelligence as a resource complements other resources and processes towards achieving competitiveness in my institution | | | | | | | |

**SECTION C: BUSINESS PROCESS**

| S/N | Statement | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| C1 | Technological processes add value to other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| C2 | Teaching processes are vital to the institution in its competitive endeavours | | | | | | | |
| C3 | Collaborative processes complement other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| C4 | The student application processes we use adds value to us as an institution | | | | | | | |
| C5 | Registry processes complement other resources and processes in my institution | | | | | | | |
| C6 | Faculty meetings complement other resources and processes in my institution | | | | | | | |
| C7 | Process automation complements other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| C8 | Database management complements other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| C9 | Procurement processes complement other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| C10 | Communication processes complement other resources and processes in my institution | | | | | | | |
| C11 | Internal collaboration complements other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| C12 | Administrative functions complement other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| C13 | Customer service management complements other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| C14 | Exams processes complement other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| C15 | Risk Management complements other resources and processes towards achieving competitiveness in my institution | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| C16 | Admission Processes complement other resources and processes in my institution | | | | | | | |
| C17 | Faculty Training complements other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| C18 | Work team processes complement other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| C19 | Documentations complement other resources and processes in my institution | | | | | | | |
| C20 | Committee Processes complement other resources and processes in my institution | | | | | | | |
| C21 | Quality Assurance processes complement other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| C22 | Asset and Finance Management complements other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| C23 | Publication/Research Processes complement other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| C24 | Accreditation Processes complement other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| C25 | Programs Formation complements other resources and processes in my institution | | | | | | | |
| C26 | General HRM complements other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| C27 | Institutional Strategy Alignment complement other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| C28 | Institutional policies implementation complements other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| C29 | Intelligence gathering processes complement other resources and processes towards achieving competitiveness in my institution | | | | | | | |

**SECTION D: OTHER RR ELEMENTS**

| S/N | Statement | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| D1 | Institutional Control are vital for competitiveness in my institution | | | | | | | |
| D2 | Faculty Rewards is prioritized on the need to remain competitive. | | | | | | | |
| D3 | Faculty Retention is prioritized on the need to remain competitive | | | | | | | |
| D4 | Risk Handling Policies are important elements towards achieving competitiveness in my institution | | | | | | | |
| D5 | Initiatives building complements other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| D6 | Curriculum complements other resources and processes in my institution | | | | | | | |
| D7 | Measurement of Results complement other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| D8 | Synergy Building complements other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| D9 | Leadership complements other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| D10 | External resource alliances complement other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| D11 | External process alliances complement other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| D12 | Institutional Quality complements other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| D13 | Fees and Quality Relation complement other resources and processes towards achieving competitiveness in my institution | | | | | | | |
| D14 | Transparency complements other resources and processes towards achieving competitiveness in my institution | | | | | | | |

**-End of Questionnaire-**

## APPENDIX E: MAIN PHASE - PRE-PILOT SURVEY QUESTIONNAIRE

**Respected Prof./Dr./Mr./Mrs./Miss,**

**Salam and Greetings!**

I am a PhD student from The University of Nottingham. I am conducting a PhD research on *"Antecedents and Outcomes of Resources Recombination in the Context of Higher Education Industry at United Arab Emirates*". Essentially, it is designed to gather information on key areas such of internal marketing orientation, dynamic capabilities and resource recombination in context of Higher Educational Institutions. Please note that this questionnaire is not for promotional or appraisal purpose. Any information provided is strictly confidential and will not be traced or used against you in any way. Data gathered is for the academic purposes only. The whole process will take around 15 to 20 minutes to complete. You can also withdraw from participating in this survey at any time you wish.

If you have any enquiries regarding this survey, please do not hesitate to contact me or email me as stated below or alternatively you may contact my supervisor Professor Kok Wei Khong at KokWei.Khong@nottingham.edu.my , Associate Professor Dr. Mohan V Avvari at Mohan.Avvari@nottingham.edu.my and Professor Christine Ennew at C.Ennew@warwick.ac.uk . Your cooperation and agreement to participate in this survey is highly appreciated. Thank you very much.

Yours sincerely,

Dilnaz Muneeb
University of Nottingham, Business School, Malaysia
Email: ksax5dbb@nottingham.edu.my
Mobile: 050-9289846

**SECTION A - DEMOGRAPHICS**

1. Gender
   [ ] Male
   [ ] Female

2. Age
   [ ] 18-24
   [ ] 25-34
   [ ] 35-44
   [ ] 45-54
   [ ] 55 and above

3. Institution Sector
   [ ] Public
   [ ] Private

4. The highest level of Education
   [ ] Senior High School
   [ ] First Degree (Bachelor Degree, Diploma or other)
   [ ] Second Degree (MBA, MSc, or other)
   [ ] Other Professional Degree (ACCA, CIM, CIMA or other)
   [ ] Postgraduate, PhD

5. Level in organisation
   [ ] Institutional Administration Executive
   [ ] Departmental Heads
   [ ] Faculty Head
   [ ] Subject Head
   [ ] Teaching Only

6. Full time or Part time?
   [ ] Full Time
   [ ] Part Time

For the remaining aspect of the study, please indicate the number that best shows your LEVEL OF AGREEMENT to the statements, where: 1=Strongly disagree, 2= Disagree, 3= Moderately Disagree, 4= Neither disagree nor agree, 5 = Moderately Agree, 6=Agree and 7 = Strongly Agree

**SECTION B – INTERNAL MARKETING ORIENTATION**

| S/N | Statement | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| B1 | In this institution, we do a lot of internal market research. | | | | | | | |
| B2 | In this institution, we survey our faculty members at least once a year to assess the quality of employment | | | | | | | |
| B3 | In this institution, we often talk with or survey people to identify influences on our faculty member's behaviour. | | | | | | | |
| B4 | When at work management try to find out Faculty members' real feelings about their jobs. | | | | | | | |
| B5 | When at work I regularly talk to my staff to find out about their work. | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| B6 | In this institution, Department heads listen to all faculty members' concerns | | | | | | | |
| B7 | Department heads encourage faculty members to discuss problems in this university/college | | | | | | | |
| B8 | Supervisors are always available to faculty members in this institution | | | | | | | |
| B9 | Supervisors attempt to explain the principal objectives of the institution to faculty members | | | | | | | |
| B10 | Management show genuine interest in faculty matters | | | | | | | |
| B11 | Management is interested in knowing Faculty members' feelings | | | | | | | |
| B12 | Management invest in resources to meet the specific faculty member needs | | | | | | | |
| B13 | Management take faculty members' needs seriously | | | | | | | |
| B14 | Management is oriented at solving faculty members' problems | | | | | | | |
| B15 | Management understands Faculty members' family needs | | | | | | | |
| B16 | Management support the reconciliation of work and family responsibilities | | | | | | | |
| B17 | In the institution, workers can find a balance between work and family lives | | | | | | | |
| B18 | Faculty members are trained to face changes | | | | | | | |
| B19 | The institution organises training seminars for faculty members | | | | | | | |
| B20 | Faculty members are trained to perform new tasks at all times. | | | | | | | |

**SECTION C – DYNAMIC CAPABILITIES**

| S/N | Statement | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| C1 | We frequently scan the environment to identify new business opportunities for the institution | | | | | | | |
| C2 | We periodically review the likely effect of changes in our business environment on students | | | | | | | |
| C3 | We often review our service development efforts to ensure they are in line with what the students deserve. | | | | | | | |
| C4 | We devote much time implementing ideas for new products and improving our existing products. | | | | | | | |
| C5 | We have effective processes to tap developments in external science and technology. | | | | | | | |
| C6 | We have adequate processes to identify and respond to industry trends. | | | | | | | |
| C7 | We have effective routines to monitor competitor activity. | | | | | | | |
| C8 | We have effective routines to identify, value, and import new information and knowledge | | | | | | | |
| C9 | We have adequate routines to assimilate new information and knowledge. | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| C10 | We are competent in transforming existing information into new knowledge | | | | | | | |
| C11 | We are effective in utilising knowledge into new products. | | | | | | | |
| C12 | We are effective in developing new knowledge that has the potential to influence product development. | | | | | | | |
| C13 | We ensure a constant renewal of our resource base by acquiring new external knowledge and resources | | | | | | | |
| C14 | We have adequate knowledge management processes to capture existing resources and knowledge available in the firm | | | | | | | |
| C15 | We are efficient in making the new academic and administrative knowledge to use in teaching and administrative practices | | | | | | | |
| C16 | We are forthcoming in contributing our input to the group. | | | | | | | |
| C17 | We have a global understanding of each other's tasks and responsibilities. | | | | | | | |
| C18 | We are fully aware who in the group has specialised skills and knowledge relevant to our work. | | | | | | | |
| C19 | We carefully interrelate our actions to each other to meet changing conditions. | | | | | | | |
| C20 | Group members manage to interconnect their activities successfully. | | | | | | | |
| C21 | We frequently execute collective, intradepartmental activities (e.g. regular team meeting for decision making within the department) | | | | | | | |
| C22 | We frequently execute collective, interdepartmental activities (e.g. cross-functional teams for decision making across departments) | | | | | | | |
| C23 | We ensure that the output of our work is synchronised with the work of others. | | | | | | | |
| C24 | We ensure an appropriate allocation of resources (e.g., information, time, reports) within our group | | | | | | | |
| C25 | Group members are assigned to tasks commensurate with their task-relevant knowledge and skills. | | | | | | | |
| C26 | We ensure that there is compatibility between group members expertise and work processes. | | | | | | | |
| C27 | Overall, our group is well coordinated. | | | | | | | |
| C28 | We are efficient in leveraging our resources and knowledge to implement and exploit new product ideas. | | | | | | | |

**SECTION D– RESOURCE RECOMBINATION (DEFINED AFTER PHASE I)**

| S/N | Statement | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| D1 | Asset and finance management complements other resources and processes towards achieving competitiveness in my institution. | | | | | | | |
| D2 | Publication/Research Processes of my institution helps in building our brand image. | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| D3 | Accreditation improves our ranking nationally and internationally. | | | | | | | |
| D4 | Process automation complements other resources and processes towards achieving competitiveness in my institution. | | | | | | | |
| D5 | Database management complements other resources and processes towards achieving competitiveness in my institution. | | | | | | | |
| D6 | The nature of human resources we have, makes us unique and competitive. | | | | | | | |
| D7 | We have special Institutional departments that add to competitiveness. | | | | | | | |
| D8 | Finance / funds provide an avenue to stand out among other institutions. | | | | | | | |
| D9 | Faculty Rewards is prioritized on the need to remain competitive | | | | | | | |
| D10 | Faculty Retention is prioritized on the need to remain competitive | | | | | | | |
| D11 | Restricted entry for high number of student applicants adds to my institutional competitiveness | | | | | | | |
| D12 | School brand image makes the institutional brand stand out | | | | | | | |

## SECTION E– HIGHER EDUCATION INSTITUTIONS COMPETITIVENESS

| S/N | Statement | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| E1 | My institution has a high quality of education and research | | | | | | | |
| E2 | We have a comparably high reputation in term of brand image and attractiveness | | | | | | | |
| E3 | My institution has unique selling points that make us different; from other institutions. | | | | | | | |
| E4 | The number of students enrolled in the institution continues to grow exponentially over the years | | | | | | | |
| E5 | Building, facilities and services in my institution are of very high quality | | | | | | | |
| E6 | My institution has a relatively high-ranking position in UAE and on the international platform | | | | | | | |
| E7 | We have a high number of international partnership and cooperation | | | | | | | |
| E8 | The location of our institution makes it strategic and competitive. | | | | | | | |
| E9 | My institution is always doing better and among the best in UAE. | | | | | | | |
| E10 | My institution builds on experiential knowledge conceptualizing and testing theories. | | | | | | | |

**-End of Questionnaire-**

**Thank you for your time and cooperation.**

## APPENDIX F: MAIN PHASE - POST-PILOT SURVEY QUESTIONNAIRE

**Dear Respected Prof./Dr./Mr./Mrs./Miss,**

**Salam and Greetings!**

I am a PhD student from The University of Nottingham. I am conducting a PhD research on *"Antecedents and Outcomes of Resources Recombination in the Context of Higher Education Industry at United Arab Emirates*". Essentially, it is designed to gather information on key areas such of internal marketing orientation, dynamic capabilities and resource recombination in context of Higher Educational Institutions. Please note that this questionnaire is not for promotional or appraisal purpose. Any information provided is strictly confidential and will not be traced or used against you in any way. Data gathered is for the academic purposes only. The whole process will take around 15 to 20 minutes to complete. You can also withdraw from participating in this survey at any time you wish.

If you have any enquiries regarding this survey, please do not hesitate to contact me or email me as stated below or alternatively you may contact my supervisor Professor Kok Wei Khong at KokWei.Khong@nottingham.edu.my , Associate Professor Dr. Mohan V Avvari at Mohan.Avvari@nottingham.edu.my and Professor Christine Ennew at C.Ennew@warwick.ac.uk . Your cooperation and agreement to participate in this survey is highly appreciated. Thank you very much.

Yours sincerely,

Dilnaz Muneeb
University of Nottingham, Business School, Malaysia
Email: ksax5dbb@nottingham.edu.my
Mobile: 050-9289846

## Section 1: Respondents Demographics

Please tick **(√)** in the space given. Choose ONLY one option.

1. Gender

| | |
|---|---|
| | Male |
| | Female |

2. Age

| | |
|---|---|
| | Below 30 |
| | 31-40 |
| | 41-50 |
| | Above 50 |

3. Designation at Current Organization

| | |
|---|---|
| | Academic Role |
| | Administrative Role |
| | Academic and Administrative Role |
| | Department Head |
| Others (please state): | |

4. Highest Education Achieved

| | |
|---|---|
| | Senior High School |
| | Bachelor Degree |
| | Masters Degree |
| | Other Professional Degree |
| | Doctor of Philosophy (PhD) |

5. Employment Contract

| | |
|---|---|
| | Full Time |
| | Part Time |
| Others (please state) : | |

6. Type of Organization

| | |
|---|---|
| | Public |
| | Private |
| | Semi government |

7. Tenure of Service at Current Organization

| | |
|---|---|
| | Below 5 |
| | 5-10 |
| | 11-20 |
| | Above 21 |

## Section 2-Main Survey Questions

**Section 2A**: **Internal Marketing Orientation** is defined as "*The commitment of management to employees and their welfare."* The following section measures the respondent's perception and evaluation of their institution's internal marketing orientation towards employees which is intended to increase the employee's performance and motivation. Please circle the most appropriate answer according to your assessment based on the scale given below.

| **Strongly Disagree 1** | **Disagree 2** | **Moderately Disagree 3** | **Neutral 4** | **Moderately Agree 5** | **Agree 6** | **Strongly Agree 7** |
|---|---|---|---|---|---|---|

| **No.** | **Description** | **Scale** |
|---|---|---|
| | **In my institution…..** | |
| IMO1 | Top management does a lot of internal market research. | 1 2 3 4 5 6 7 |
| IMO2 | Top management tries to find out staff's feelings about their jobs. | 1 2 3 4 5 6 7 |
| IMO3 | Top management regularly talks to staff about their work. | 1 2 3 4 5 6 7 |
| IMO4 | Head of the department encourages staff to discuss their problems. | 1 2 3 4 5 6 7 |
| IMO5 | Supervisors are always available to staff when needed. | 1 2 3 4 5 6 7 |
| IMO6 | Supervisors attempt to explain the principal objectives of the institution to staff. | 1 2 3 4 5 6 7 |
| IMO7 | Top Management show genuine interest in staff | 1 2 3 4 5 6 7 |

| | | |
|---|---|---|
| | matters. | |
| IMO8 | Top Management invests in resources to meet the staff specific needs. | 1 2 3 4 5 6 7 |
| IMO9 | Top Management understands staff's family needs. | 1 2 3 4 5 6 7 |
| IMO10 | Staff can find a balance between work and family lives. | 1 2 3 4 5 6 7 |
| IMO11 | Training or seminars are organized for staff. | 1 2 3 4 5 6 7 |
| IMO12 | Staff are trained to perform new tasks at all times. | 1 2 3 4 5 6 7 |

**Section 2B**: Dynamic Capabilities is defined as "*the organizational and strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve, and die". It has sub sections consisting of Sensing, Learning, Integrating, and Coordinating capabilities that together in a sequential manner compose dynamic capabilities.*

This section measures how dynamic capabilities facilitate the process of resources recombination of an organization towards its competitiveness. Please circle the most appropriate answer according to your own assessment based on the scale given below.

| **Strongly Disagree 1** | **Disagree 2** | **Moderately Disagree 3** | **Neutral 4** | **Moderately Agree 5** | **Agree 6** | **Strongly Agree 7** |
|---|---|---|---|---|---|---|

| | | |
|---|---|---|
| ***Sensing Capabilities(SC)*** | | |
| **In my institution…..** | | |
| SC1 | We frequently scan the environment to identify new business opportunities for the institution. | 1 2 3 4 5 6 7 |
| SC2 | We often review our service development efforts to ensure they are in line with what the students deserve. | 1 2 3 4 5 6 7 |
| SC3 | We devote a lot of time implementing ideas for new products and improving our existing products. | 1 2 3 4 5 6 7 |
| SC4 | We have adequate processes to identify and respond to industry trends. | 1 2 3 4 5 6 7 |
| ***Learning Capabilities (LC)*** | | |
| LC1 | We have effective routines to identify, value, and import new information and knowledge. | 1 2 3 4 5 6 7 |
| LC2 | We are effective in utilising knowledge into a new product. | 1 2 3 4 5 6 7 |
| LC3 | We ensure a constant renewal of our resource base by acquiring new external knowledge and resources. | 1 2 3 4 5 6 7 |
| LC4 | We have adequate knowledge management processes to capture existing resources and knowledge available in the firm. | 1 2 3 4 5 6 7 |
| ***Integrating Capabilities(IC)*** | | |
| IC1 | We are forthcoming in contributing our input to the group. | 1 2 3 4 5 6 7 |
| IC2 | We carefully integrate our actions to meet changing conditions. | 1 2 3 4 5 6 7 |
| IC3 | We frequently execute collective, intradepartmental activities (e.g. regular team | 1 2 3 4 5 6 7 |

| | | |
|---|---|---|
| | meeting for decision making within the department). | |
| IC4 | We frequently execute collective, inter departmental activities (e.g. cross functional teams for decision making across departments) | 1 2 3 4 5 6 7 |
| ***Coordinating Capabilities (CC)*** | | |
| CC1 | Group members are assigned to tasks commensurate with their task-relevant knowledge and skills. | 1 2 3 4 5 6 7 |
| CC2 | We ensure that there is compatibility between group members expertise and work processes. | 1 2 3 4 5 6 7 |
| CC3 | We are efficient in leveraging our resources and knowledge to implement and exploit new product ideas. | 1 2 3 4 5 6 7 |
| CC4 | Overall, our group is well coordinated. | 1 2 3 4 5 6 7 |

**Section 2C**: RR helps achieve an institutional competitive edge in HEIs by generating synergy through combination with other resources or processes. Please circle the most appropriate answer according to your assessment based on the scale given below.

| **Strongly Disagree 1** | **Disagree 2** | **Moderately Disagree 3** | **Neutral 4** | **Moderately Agree 5** | **Agree 6** | **Strongly Agree 7** |
|---|---|---|---|---|---|---|

| My institution Recombines Resources in the following ways: | | |
|---|---|---|
| RR1 | Asset and finance management complements other resources and processes towards achieving competitiveness in my institution. | 1 2 3 4 5 6 7 |
| RR2 | Publication/Research Processes of my institution helps in building our brand image. | 1 2 3 4 5 6 7 |
| RR3 | Accreditation improves our ranking nationally and internationally. | 1 2 3 4 5 6 7 |
| RR4 | Process automation complements other resources and processes towards achieving competitiveness in my institution. | 1 2 3 4 5 6 7 |
| RR5 | Database management complements other resources and processes towards achieving competitiveness in my institution. | 1 2 3 4 5 6 7 |
| RR6 | The nature of human resources we have makes us unique and competitive. | 1 2 3 4 5 6 7 |
| RR7 | We have special Institutional departments that add to competitiveness. | 1 2 3 4 5 6 7 |
| RR8 | Finance/funds provide an avenue to stand out among other institutions. | 1 2 3 4 5 6 7 |
| RR9 | Faculty Rewards is prioritized on the need to remain competitive | 1 2 3 4 5 6 7 |
| RR10 | Faculty Retention is prioritized on the need to remain competitive | 1 2 3 4 5 6 7 |

| | | |
|---|---|---|
| RR11 | Restricted entry for high number of student applicants adds to my institutional competitiveness | 1 2 3 4 5 6 7 |
| RR12 | School brand image makes the institutional brand stand out | 1 2 3 4 5 6 7 |

**Section 2D**: Institutional Competitiveness is established through the synergy that comes out of efficient resources recombination. This section measures institutional competitiveness achieved as a result of effective internal market orientation and dynamic capabilities in the process of resources recombination. Please circle the most appropriate answer according to your assessment based on the scale given below.

| **Strongly Disagree 1** | **Disagree 2** | **Moderately Disagree 3** | **Neutral 4** | **Moderately Agree 5** | **Agree 6** | **Strongly Agree 7** |
|---|---|---|---|---|---|---|

| My institution…… | | |
|---|---|---|
| CMP1 | Has a high quality of education and research . | 1 2 3 4 5 6 7 |
| CMP2 | Has high reputation in term of brand image and attractiveness. | 1 2 3 4 5 6 7 |
| CMP3 | Has unique selling points that make us different from other institutions. | 1 2 3 4 5 6 7 |
| CPM4 | Has the number of students enrolled that continues to grow exponentially over the years | 1 2 3 4 5 6 7 |
| CMP5 | Has high quality of building, facilities and services. | 1 2 3 4 5 6 7 |
| CMP6 | Has a relatively high-ranking position in UAE as well as in the international platform. | 1 2 3 4 5 6 7 |
| CMP7 | Has a high number of international partnership and cooperation received from these partners. | 1 2 3 4 5 6 7 |
| CMP8 | Has a strategic and competitive location. | 1 2 3 4 5 6 7 |

**-End of Questionnaire-**

**Thank you for your time and cooperation.**

## APPENDIX G: DESCRIPTIVE STATISTICS FOR STUDY TWO ITEMS

| | | Mean | Std. Error of Mean | Std. Deviation | Skewness | Kurtosis |
|---|---|---|---|---|---|---|
| B1 | Students | 4.47 | .086 | 1.574 | -.459 | -.371 |
| B2 | Alumni Connectedness | 4.79 | .087 | 1.598 | -.769 | -.125 |
| B3 | Restricted Entry for Student | 4.38 | .094 | 1.723 | -.442 | -.903 |
| B4 | School brand Image | 4.75 | .082 | 1.501 | -.636 | -.231 |
| B5 | Software | 4.85 | .076 | 1.389 | -.778 | .457 |
| B6 | Accreditation | 4.78 | .086 | 1.570 | -.842 | .011 |
| B7 | Equipment | 5.02 | .089 | 1.620 | -.866 | -.137 |
| B8 | Human Resources | 4.76 | .085 | 1.550 | -.646 | -.283 |
| B9 | Institutional Departments | 5.07 | .076 | 1.388 | -1.060 | .924 |
| B10 | Finance / funds | 5.41 | .080 | 1.469 | -1.289 | 1.162 |
| B11 | Infrastructure | 4.26 | .093 | 1.691 | -.349 | -.829 |
| B12 | Faculty HR Recruitment | 4.57 | .091 | 1.655 | -.892 | .032 |
| B13 | Non-Faculty HR | 5.01 | .085 | 1.562 | -.981 | .244 |
| B14 | HR Promotions | 4.90 | .083 | 1.515 | -.712 | -.116 |
| B15 | School technology | 4.26 | .078 | 1.431 | -.238 | -.457 |
| B16 | Student learning Technology | 4.59 | .089 | 1.619 | -.608 | -.380 |
| B17 | Student Account Technology | 4.58 | .091 | 1.671 | -.752 | -.518 |
| B18 | Teaching Technology | 4.31 | .096 | 1.752 | -.475 | -.987 |
| B19 | Usage of Technology | 4.63 | .091 | 1.658 | -.733 | -.514 |
| B20 | Service Delivery | 4.88 | .080 | 1.457 | -1.028 | .523 |
| B21 | Intelligence as a Resource | 4.73 | .084 | 1.544 | -.793 | .075 |
| C1 | Technological processes | 4.49 | .088 | 1.605 | -.512 | -.687 |
| C2 | Teaching Processes | 4.32 | .086 | 1.579 | -.327 | -.688 |
| C3 | Collaborative Processes | 4.61 | .082 | 1.506 | -.565 | -.460 |
| C4 | Student Application Processes | 4.64 | .086 | 1.579 | -.416 | -.596 |
| C5 | Registry processes | 5.07 | .080 | 1.461 | -1.057 | .758 |
| C6 | Faculty Meetings | 5.34 | .085 | 1.553 | -1.211 | .765 |
| C7 | Process Automation | 4.85 | .084 | 1.540 | -.849 | -.022 |
| C8 | Database Management | 4.47 | .086 | 1.580 | -.542 | -.482 |
| C9 | Procurement Processes | 5.00 | .074 | 1.348 | -1.027 | .966 |
| C10 | Communication Processes | 5.25 | .069 | 1.261 | -.941 | .783 |
| C11 | Internal Collaboration | 5.21 | .065 | 1.186 | -1.133 | 1.719 |
| C12 | Administrative functions | 5.40 | .067 | 1.233 | -1.049 | 1.119 |
| C13 | Customer Service Management | 4.96 | .079 | 1.440 | -.881 | .438 |
| C14 | Exams processes | 4.72 | .076 | 1.384 | -.621 | .099 |
| C15 | Risk Management | 5.26 | .071 | 1.301 | -1.450 | 1.628 |
| C16 | Admission Processes | 5.14 | .068 | 1.238 | -.862 | .743 |
| C17 | Faculty Training | 5.02 | .071 | 1.306 | -.981 | .808 |
| C18 | Work Team processes | 4.82 | .071 | 1.299 | -.955 | .803 |
| C19 | Documentations | 5.06 | .070 | 1.277 | -1.071 | .965 |
| C20 | Committee Processes | 5.15 | .073 | 1.332 | -1.052 | 1.188 |
| C21 | Quality Assurance processes | 4.89 | .074 | 1.343 | -1.045 | .474 |

| | | | | | | |
|---|---|---|---|---|---|---|
| C22 | Asset and Finance Management | 5.05 | .081 | 1.485 | -1.057 | .617 |
| C23 | Publication/Research Processes | 5.13 | .072 | 1.321 | -.899 | .289 |
| C24 | Accreditation Processes | 5.14 | .070 | 1.275 | -1.182 | 1.710 |
| C25 | Programs Formation | 5.04 | .074 | 1.352 | -.988 | .750 |
| C26 | General HRM | 4.93 | .074 | 1.358 | -1.037 | .648 |
| C27 | Institutional Strategy Alignment | 5.12 | .063 | 1.152 | -1.249 | 1.280 |
| C28 | Institutional Policies implementation | 5.05 | .078 | 1.432 | -.860 | .418 |
| C29 | Intelligence gathering processes | 4.90 | .076 | 1.385 | -.939 | .692 |
| D1 | Control | 4.68 | .080 | 1.469 | -.794 | .081 |
| D2 | Faculty Rewards | 4.92 | .075 | 1.363 | -.933 | .454 |
| D3 | Faculty Retention | 4.88 | .080 | 1.466 | -.792 | -.012 |
| D4 | Risk Handling Policies | 4.78 | .085 | 1.553 | -.667 | -.360 |
| D5 | Initiatives building | 5.03 | .074 | 1.345 | -.980 | 1.006 |
| D6 | Curriculum | 5.32 | .086 | 1.564 | -1.139 | .520 |
| D7 | Measurement of Results | 4.92 | .079 | 1.443 | -.896 | .437 |
| D8 | Synergy Building | 4.43 | .082 | 1.497 | -.477 | -.160 |
| D9 | Leadership | 4.45 | .094 | 1.727 | -.412 | -.739 |
| D10 | Ext. Resource Alliances | 4.60 | .089 | 1.622 | -.521 | -.670 |
| D11 | Ext. Processes Alliances | 4.89 | .077 | 1.414 | -.868 | .386 |
| D12 | Institutional Quality | 4.95 | .083 | 1.508 | -.965 | .143 |
| D13 | Fees and Quality Relation | 4.77 | .081 | 1.473 | -.793 | -.010 |
| D14 | Transparency | 4.98 | .075 | 1.378 | -.876 | .570 |

*Note*: N = 334, Missing = 0, Standard Error of Skewness .133. Standard Error of Kurtosis .266

## APPENDIX H: EFA MATRIXES AND TABLES – STUDY TWO

### Communalities Table – EFA Study Two

| Codes | Items | Initial | Extraction |
|---|---|---|---|
| B3 | Restricted Entry for Student | .479 | .559 |
| B4 | School brand Image | .450 | .473 |
| B5 | Software | .591 | .604 |
| B6 | Accreditation | .713 | .950 |
| B7 | Equipment | .732 | .755 |
| B2 | Alumni Connectedness | .691 | .727 |
| B8 | Human Resources | .715 | .856 |
| B9 | Institutional Departments | .543 | .476 |
| B10 | Finance / funds | .482 | .380 |
| C1 | Technological processes | .464 | .628 |
| C2 | Teaching Processes | .290 | .284 |
| C3 | Collaborative Processes | .348 | .336 |
| C4 | Student Application Processes | .485 | .547 |
| C7 | Process Automation | .563 | .534 |
| C8 | Database Management | .539 | .487 |
| C9 | Procurement Processes | .557 | .631 |
| C10 | Communication Processes | .554 | .588 |
| C11 | Internal Collaboration | .354 | .361 |
| C18 | Work Team processes | .399 | .530 |
| C19 | Documentations | .381 | .474 |
| C15 | Risk Management | .679 | .665 |
| C20 | Committee Processes | .659 | .608 |
| C21 | Quality Assurance processes | .615 | .542 |
| C22 | Asset and Finance Management | .588 | .555 |
| C23 | Publication/Research Processes | .667 | .600 |
| C24 | Accreditation Processes | .652 | .574 |
| C25 | Programs Formation | .537 | .496 |
| C26 | General HRM | .584 | .557 |
| C27 | Institutional Strategy Alignment | .614 | .537 |
| C28 | Institutional Policies implementation | .723 | .646 |
| C29 | Intelligence gathering processes | .666 | .599 |
| D1 | Control | .613 | .687 |
| D2 | Faculty Rewards | .513 | .557 |
| D3 | Faculty Retention | .547 | .532 |
| D5 | Initiatives building | .377 | .315 |
| D6 | Curriculum | .507 | .786 |
| D7 | Measurement of Results | .336 | .318 |

*Note*: Extraction Method: Maximum Likelihood. a. One or more communalitiy estimates greater than 1 were encountered during iterations. The resulting solution should be interpreted with caution.

**Structure Matrix – EFA Study Two**

| | | Factor | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| B3 | Restricted Entry for Student | | | | | .738 | | | | |
| B4 | School brand Image | | | | | .678 | | | | |
| B5 | Software | | | | | .726 | | | | |
| B6 | Accreditation | | | | | | .967 | | | |
| B7 | Equipment | | | | | | .856 | | | |
| B2 | Alumni Connectedness | | | .748 | | .512 | | | | |
| B8 | Human Resources | | | .911 | | | | | | |
| B9 | Institutional Departments | | | .678 | | | | | | |
| B10 | Finance / funds | | | .570 | | | | | | |
| C1 | Technological processes | | | | | | | .778 | | |
| C2 | Teaching Processes | | | | | | | | | |
| C3 | Collaborative Processes | | | | | | | .552 | | |
| C4 | Student Application Processes | | | | | | | .703 | | |
| C7 | Process Automation | | .668 | | | | | | | |
| C8 | Database Management | | .634 | | | | | | | |
| C9 | Procurement Processes | | .786 | | | | | | | |
| C10 | Communication Processes | | .751 | | | | | | | |
| C11 | Internal Collaboration | | .570 | | | | | | | |
| C18 | Work Team processes | | | | | | | | | .707 |
| C19 | Documentations | | | | | | | | | .671 |
| C15 | Risk Management | .792 | | | | | | | | |
| C20 | Committee Processes | .757 | | | | | | | | |
| C21 | Quality Assurance processes | .716 | | | | | | | | |
| C22 | Asset and Finance Management | .727 | | | | | | | | |
| C23 | Publication/Research Processes | .768 | | | | | | | | |
| C24 | Accreditation Processes | .751 | | | | | | | | |
| C25 | Programs Formation | .670 | | | | | | | | |
| C26 | General HRM | .730 | | | | | | | | |
| C27 | Institutional Strategy Alignment | .708 | | | | | | | | |
| C28 | Institutional Policies implementation | .752 | | | .573 | | | | | |
| C29 | Intelligence gathering processes | .732 | | | .528 | | | | | |

| | | | |
|---|---|---|---|
| D1 | Control | .792 | |
| D2 | Faculty Rewards | .740 | |
| D3 | Faculty Retention | .722 | |
| D5 | Initiatives building | | .531 |
| D6 | Curriculum | | .884 |
| D7 | Measurement of Results | | .532 |

*Note*: Extraction Method: Maximum Likelihood. Rotation Method: Promax with Kaiser Normalization.

## APPENDIX I: EFA MATRIXES AND TABLES – STUDY THREE

### Communalities Table – EFA Study Three

| | Initial | Extraction |
|---|---|---|
| IMO_IG_1 | .817 | .819 |
| IMO_IG_2 | .853 | .900 |
| IMO_IG_3 | .851 | .871 |
| IMO_ID_4 | .595 | .591 |
| IMO_ID_5 | .792 | .865 |
| IMO_ID_6 | .783 | .842 |
| IMO_Res_7 | .805 | .734 |
| IMO_Res_8 | .879 | .892 |
| IMO_Res_9 | .886 | .837 |
| IMO_Res_10 | .894 | .879 |
| IMO_Res_11 | .886 | .883 |
| IMO_Res_12 | .846 | .824 |
| SC1 | .844 | .852 |
| SC2 | .779 | .743 |
| SC3 | .837 | .856 |
| SC4 | .795 | .796 |
| LC5 | .836 | .803 |
| LC6 | .899 | .939 |
| LC7 | .836 | .801 |
| LC8 | .868 | .867 |
| IC9 | .867 | .861 |
| IC10 | .887 | .889 |
| IC11 | .894 | .772 |
| IC12 | .898 | .830 |
| CC13 | .919 | .944 |
| CC14 | .792 | .705 |
| CC15 | .887 | .883 |
| CC16 | .903 | .903 |
| RR1 | .818 | .572 |
| RR2 | .826 | .569 |
| RR3 | .815 | .729 |
| RR4 | .824 | .735 |
| RR5 | .897 | .875 |
| RR6 | .834 | .815 |
| RR7 | .913 | .880 |
| RR8 | .874 | .856 |
| RR9 | .879 | .866 |
| RR10 | .910 | .899 |

| | | |
|---|---|---|
| RR11 | .891 | .880 |
| RR12 | .882 | .845 |
| CMP1 | .787 | .450 |
| CMP2 | .808 | .522 |
| CMP3 | .860 | .816 |
| CMP4 | .904 | .905 |
| CMP5 | .897 | .866 |
| CMP6 | .928 | .929 |
| CMP7 | .914 | .912 |
| CMP8 | .899 | .889 |

Extraction Method: Maximum Likelihood.

**Structure Matrix – EFA Study Two**

| | Factor | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| IMO_IG_1 | | | .602 | | | | | | .899 |
| IMO_IG_2 | | | .623 | | | | | | .947 |
| IMO_IG_3 | | | .654 | | | | | | .923 |
| IMO_ID_4 | | | | | | | | .758 | |
| IMO_ID_5 | | | | | | | | .928 | |
| IMO_ID_6 | | | | | | | | .916 | |
| IMO_Res_7 | | | .850 | | | | | | .569 |
| IMO_Res_8 | | | .942 | | | | | | .535 |
| IMO_Res_9 | | | .912 | | | | | | .545 |
| IMO_Res_10 | | | .936 | | | | | | .601 |
| IMO_Res_11 | | | .938 | | | | | | .577 |
| IMO_Res_12 | | | .904 | | | | | | .572 |
| SC1 | | | | .916 | | | | | |
| SC2 | | | | .856 | | | | | |
| SC3 | | | | .920 | | | | | |
| SC4 | | | | .886 | | | | | |
| LC5 | .557 | | | | .526 | .880 | | | |
| LC6 | | | | | | .969 | | | |
| LC7 | .512 | | | | | .890 | | | |
| LC8 | | | | | .501 | .929 | | | |
| IC9 | | | | | | | .908 | | |
| IC10 | | | | | | | .923 | | |
| IC11 | | | | | | | .820 | | |
| IC12 | | | | | | | .892 | | |
| CC13 | | | | | .970 | | | | |

| | | | | |
|---|---|---|---|---|
| CC14 | | | .823 | .523 |
| CC15 | | | .935 | |
| CC16 | .515 | | .949 | |
| RR1 | .721 | | | |
| RR2 | .717 | | | |
| RR3 | .846 | | | |
| RR4 | .848 | | | |
| RR5 | .934 | | | |
| RR6 | .899 | | | |
| RR7 | .934 | | .512 | |
| RR8 | .923 | | | |
| RR9 | .926 | | | |
| RR10 | .945 | | .501 | |
| RR11 | .934 | | .517 | .503 |
| RR12 | .914 | | .519 | |
| CMP1 | | .613 | | |
| CMP2 | | .638 | | |
| CMP3 | | .891 | | |
| CMP4 | | .946 | | |
| CMP5 | | .927 | | |
| CMP6 | | .960 | | |
| CMP7 | | .950 | | |
| CMP8 | | .937 | | |

*Note*: Extraction Method: Maximum Likelihood. Rotation Method: Promax with Kaiser Normalization.