



TRANSITIONING TO A COMPETITIVE KNOWLEDGE-BASED ECONOMY (KBE): THE CASE OF QATAR

A thesis submitted for a degree of Doctor of Philosophy

by

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DECLARATION

I hereby declare that the thesis is based on my original work, except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at Brunel University or other institutions.

Table of Contents

Table of Figures and Tables	v
Abstract	viii
Dedication	xi
Acknowledgements	xii
Chapter 1. Introduction	14
1.1. Research Background	14
1.2. Research Problem	18
1.3. Contribution to the Literature	19
1.4. Findings from this Study	25
1.5. The Aim and Objectives of This Research	34
1.6. Outline of This Thesis	35
Chapter 2. Literature Review: Towards a Knowledge-Based Economy	39
2.1. Evolution of the Concept of a Knowledge-Based Economy as a New Economic Era	41
2.1.1. Knowledge-Based Economy	43
2.2. Main Dimensions of a KBE	49
2.2.1. Information and Communication Technology	49
2.2.2. Innovation	51
2.2.3. Education	52
2.2.4. Learning	53
2.3. A Strategic Foresight Exercise and Policy Development for Transition to a KBE	55
2.4. Institutional Spheres in KBE	64
2.4.1. The Role of Government in a KBE	66
2.4.2. The Role of University in a KBE	69
2.4.3. The Role of Industry in a KBE	73
2.4.4. The Role of Civil Society and Professional Bodies in a KBE	75
2.5. Theoretical Perspectives on the Development of KBE and Collaboration between Institutional Spheres	77
2.6. The Discursive Practice Approach to a KBE	89
2.7. Organisational Practices and Institutional Collaboration for a Transition to a KBE	97
2.8. Developing a Conceptual Framework	103
2.9. Chapter Summary	114
Chapter 3. Empirical Research Context	116
3.1. Qatar's Institutional Regulation and Readiness for a KBE	123

3.2. Towards a KBE: Qatar National Vision 2030	126
3.2.1. The Main Pillars of Qatar's National Vision 2030	128
3.3. Qatar National Development Strategy (2011-2016)	136
3.3.1. Preparing the National Development Strategy 2011-2016	137
3.3.2. Strengthening Public Sector Institutions as a Strategic Target in QNDS	146
3.4. Institutional Structure and Interaction	149
3.5. Chapter Summary	152
Chapter 4. Research Methodology and Design	155
4.1. Research Paradigm	155
4.2. The Research Approach	157
4.3. The Qualitative Case Study Approach	159
4.4. Empirical Research Focus	161
4.4.1. Selection and Recruitment of Research Participants	164
4.4.2. Data Collection	172
4.4.3. Data Analysis	181
4.4.4. Trustworthiness of the Data	186
4.5. Chapter Summary	187
Chapter 5. The State of Play: The Transition of Qatar's Economy to a KBE	189
5.1. Stage 1: Qatarisation Strategy Pre-2010	189
5.2. Stage 2: QNDS 1 Development Stage (2010-2012)	194
5.3. Stage 3: QNDS 1 Implementation Stage (2013-2016)	217
5.4. Stage 4: Post-QNDS 1 (Post-2016)	226
5.5. Discussion of the Current Status in Qatar	235
Chapter 6. Organisational Practices Facilitating (or Impeding) the Transition to a KBE	254
6.1. Organisational Practice 1: Intra-Organisational Social Capital Development	255
6.2. Organisational Practice 2: Cross-Agency Collaboration	261
6.3. Organisational Practice 3: Strategy Formulation	264
6.4. Organisational Practice 4: Intra-Organisational Learning	273
6.5. Organisational Practice 5: Management of KPIs	276
6.6. Organisational Practice 6: Funding Structure	281
6.7. Discussion of the Organisational Practices that Facilitate (or Impede) the Transition to a KBE in Qatar	286
Chapter 7. Discussion	291
7.1. Introduction	291

7.2. Discussion of the Findings in the Study	292
7.3. The Revised Model of Qatar's Transition to KBE	334
Chapter 8. Conclusion	341
8.1. Thesis Overview	341
8.2. Contribution of the Study	343
8.3. Implications for Theory	350
8.4. Implications for Policy Development	351
8.5. Research Limitations and Directions for Future Research	353
8.6. References	357

Table of Figures and Tables

Table 1-1. Outline of the thesis (based on Harvey, 2005).	38
Table 2-1. Summary of the main literature underpinning the thesis.....	41
Table 2-2. A review of the definitions of KBE in the extant literature.	45
Figure 2-1. The main themes arising from the definition of KBE.....	48
Figure 2-2. Phases and steps in foresight (based on Anderson and Rasmussen, 2017).....	57
Table 2-3: Patterns of competitiveness strategy: commodity-based economy towards the knowledge-based economy (based on Venkatraman et al., 2002).....	60
Table 2-4. Traditional vs. new policy roles in a KBE (based on World Bank, 2002).	63
Figure 2-3: Scale of knowledge proposition in the theories of KBE dynamics (suggested by Dang and Umemoto, 2009).....	80
Figure 2-4. The quadruple-helix model of institutional collaboration in a KBE (based on Etzkowitz et al., 2007).	85
Table 2-5. Analysis of knowledge conceptualisation in theories (developed by the researcher).	88
Figure 2-5. The relationship between action and discourse (based on Phillips et al., 2004)...93	
Figure 2-6. A discursive model of institutionalisation (based on Phillips et al., 2004).....	94
Figure 2-1. A discursive approach of organisational practices for a transition to a competitive KBE	95
Table 2-6. The dimensions of the organised actions of a practice (* Schatzki, 2005, pp. 471-472).....	101
Table 2-7. Examples and meanings of practices and material arrangements bundles in representation of human coexistence (based on Schatzki, 2005).	103
Table 2-8. Alignment of strategy and policy for facilitating (or impeding) a transition to a KBE (developed by the researcher, based on Venkatraman et al., 2002; World Bank, 2002; 2007a).	105
Figure 2-9. Organisational practices in national strategic foresight implementation that facilitate the establishment of a common vision of collaboration across the four institutional spheres for a transition from a commodity-based economy to a KBE (developed by the researcher).	112
Figure 2-10. Organisational practices that impede the establishment of a common vision of collaboration across the four institutional spheres in national strategic foresight implementation for a transition from a commodity-based economy to a KBE (developed by the researcher).	113
Figure 3-1. The composition of the Qatari labour market: Qatari workers according to sector.	118
Figure 3-2. The composition of the Qatar labour market: expatriate workers according to sector	119
Figure 3-3. The composition of the Qatari labour market according to sector.....	120

Figure 3-4. The composition of the Qatari labour market and representation of Qatari workers according to sector.	121
Figure 3-5. Qatar National Development Strategy 2011-2016: an integrated national planning framework	137
Figure 3-6. The Approaches Used in Developing the Qatar National Development Strategy	138
Figure 3-7. The organisational structure of Qatar National Development Strategy 2011-2016.	140
Table 3-1. Labour market outcomes of Qataris in Qatar National Development Strategy 2011-2016.	145
Figure 3-8 . Mapping Qatar’s public sector institutional modernisation journey (Qatari Government, 2011).	148
Figure 3-9. The phases of institutional development and modernisation: a long-term journey (Qatari Government, 2011).	149
Figure 4-1. Timeline of Qatar’s national strategic planning exercise.	163
Table 4-1. Profile of the research participants.	166
Table 4-2. Proportion of study participants per institutional affiliation.	169
Figure 4-2. Study participants in this study per affiliated institution (percentage of the total number of interviews).	171
Table 4-3. QNDS 1 targets for fostering a capable and motivated labour force (Qatari Government, 2011).	175
Table 4-5. Themes of the interview questions.	176
Table 4-6. Quantitative details of archival data sources.	179
Table 4-7. Deductive data analysis theoretical framework.	184
Figure 4-8. Data structure.	185
Figure 5-1. Absence of interaction across the four institutional spheres for developing a shared vision of collaboration for a transition to a KBE by developing the national workforce pre-2010 (produced by the researcher).	194
Figure 5-2: QNDS 1 Organisational structure at the commencement of QNDS 1 (Qatari Government 2011).	196
Table 5-1. Supreme oversight committee for implementing QNV 2030 (Qatari Government, 2011).	197
Table 5-2. Qatar National Development Strategy (QNDS 1) steering committee team.	198
Table 5-3. Team members of executive group (1) to achieve human development in effective Qatari participation a productive labour force (Qatari Government, 2011).	200
Table 5-4. Team members of executive group (2) to achieve human development – an educated and capable population (Qatari Government, 2011).	201
Table 5-5. Random team selection criteria for QNDS 1 interaction: comparative list of the participants in two teams within the human development strategic objective in QNDS 1 (developed by the researcher based on Qatari Government [2011]).	203

Figure 5-3. Absence of interaction across the four institutional spheres for developing a shared vision of collaboration in developing the national workforce for KBE in the QNDS 1 development stage (2010-2012) (developed by the researcher).	208
Figure 5-4. The new organisational structure of QNDS 1 in 2013 (developed by the researcher).	211
Figure 5-5. Interaction across institutional spheres in the QNDS 1 development stage prior restructuring and post-restructuring (2011 - 2013) (developed by the researcher based on Qatari Government [2011]).	216
Figure 5-6. QNDS 1 organisational structure at the implementation stage (developed by the researcher).	220
Figure 5-7. Absence of interaction across the four institutional spheres for establishing a shared vision of collaboration in the national workforce development for a KBE in the QNDS 1 implementation stage (developed by the researcher).	226
Table 5-6. Members of the supervisory group for QNDS 2 (Qatari Government, 2018).	229
Table 5-7. Members of the consultative group in QNDS 2 (Qatari Government, 2018).	230
Table 5-8. Members of the task team in QNDS 2 (Qatari Government, 2018).	231
Figure 5-8. Organisational structure of the QNDS 2 development stage (Qatari Government, 2018).	232
Figure 5-9. The absence of interaction and collaboration across institutional spheres in developing national workforce post-QNDS 1 (post-2016) (developed by the researcher).	234
Figure 5-10. The state of organised interaction across institutional spheres in the four stages of QNDS 1 (developed by the researcher).	239
Table 5-9. Organisational practices that facilitate (or impede) transition to KBE from emerged themes.	251
Table 7-1. Recognition of collaboration across institutional spheres in QNDS 1 interaction organised over stages (developed by the researcher).	304
Figure 7-1. Relevance of interaction to collective learning across the institutional spheres in a transition to a KBE (developed by the researcher based on Schatzki [2005, pp. 471-472]).	308
Figure 7-2. Intra-organisational development for transition to KBE: a shared vision of collaboration over national strategy cycles for developing social and learning systems across institutional spheres (developed by the researcher).	337

Abstract

The desire of many countries to shift from a commodity-based economy to one that is driven by ideas, new technologies, and innovation has resulted in the concept of a Knowledge-Based Economy (KBE) occupying the centre of contemporary discourse on national economic development. In this regard, many countries have set ambitious targets to diversify their economies so as to enable them to transition from a natural resource-dependent economy to a KBE. However, the dynamics of a KBE as a co-evolutionary innovation system have led to disparate and often competing ideas on how countries could make this transition. In particular, there is a lack of clear interpretation of the collective learning dynamics among national institutions, which is necessary for driving the transitioning process. The case of Qatar is instructive, as the country has attempted in recent years to implement the outcomes of a national foresight exercise aimed broadly at helping the country transition from a commodity-based economy to a KBE. A focus on developing the capacity of the Qatari national workforce was at the heart of the process.

This thesis explores Qatar's vision to transition its economy from a natural resource-dependent economy to a KBE. It specifically examines the extent to which the country has been successful in developing a shared vision of collaboration for a transition to KBE across the various institutional spheres tasked with spearheading this national transition. Furthermore, it examines the organisational practices of these institutions to elucidate the extent to which they constitutively help to facilitate (or impede) the country's quest to transition to a KBE. Adopting an exploratory qualitative research approach, the main data for the empirical inquiry comes from 53 semi-structured interviews with executives in the four institutional spheres of (1) government, (2) education, (3) industry, and (4) civil society and professional bodies. The interview data was supplemented with publicly available archival documents, such as Qatar's

national vision blueprint, the Qatar National Development Strategy (QNDS) 2011-2016, and other relevant national economic policy documents.

The findings from the study suggest that the transition of Qatar's economy to a KBE has been very slow in pace and remains far from achieving its objectives in the near future. The interactions between the four institutional spheres do not reflect collective learning. Rather, the government has dominated the formulation of the national strategy, controls the QNDS, and has subjugated the other institutions to the role of basic implementers of government policy. The current state of play of the transition of Qatar's economy to a KBE is characterised by (1) an emerging workforce development strategy that is developed in silos at institutional levels and is devoid of a shared vision; (2) a weak understanding among the various institutions on the relevance of collaboration and collective learning for transition to a KBE; (3) the absence of a coherent networking strategy pursued by government to encourage inter- and intra-organisational learning; and (4) frequent changes in institutional structures and priorities. The study also identifies the broad range of organisational practices of the various institutional spheres that cumulatively facilitate (or impede) the transition of Qatar's economy to a KBE as enshrined in the QNDS. The practices include (1) intra-organisational social capital development, (2) cross-agency collaboration, (3) strategy formulation, (4) intra-organisational learning, (5) management of KPIs, and (6) government funding practices.

The thesis contributes to knowledge in three main areas. Firstly, it develops a comprehensive framework that highlights the relationships among the identified salient organisational practices and their collective implication for a national transition from a commodity-based to a KBE. Secondly, by emphasising the relevance of organisational practices for a transition to a KBE, the thesis contributes to the new turn to practices in theorising social life and the making of national innovation systems. Thirdly, the study identifies the dimensions of a shared vision (which is necessary for supporting collaboration across the four institutional spheres for a

transition to KBE) and proposes an analytical scheme to ‘unpack’ intra-organisational learning to support KBE.

Keywords: Civil society and professional bodies; collaboration; education; government; industry; institutional spheres; intra-organisational learning; knowledge-based economy; national development; national strategic foresight; organisational practices; strategy; transition; Qatar; vision.

Dedication

I would like to dedicate this thesis to my beloved parents who supported me during my PhD studies, to my aunt Shikha who encouraged me during my doctoral journey, and to my beloved husband and son who gave me the necessary courage and enthusiasm for this great achievement.

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Introduction

This chapter provides an introduction to this thesis. It consists of five sections. In section 1.1, an overview of the research background is provided with an emphasis on the offered definitions of the Knowledge-Based Economy (KBE) in the literature and on the literature gap that justifies this thesis. In section 1.2 of this chapter, the study problem is highlighted by providing an overview of Qatar as a demonstrative case for exploring organisational practices across institutional spheres for a transition from a commodity-based economy to a KBE. Section 1.3 highlights this study's contribution to knowledge and how the findings from this thesis are different from those of other studies. In section 1.4, the aim and objectives of the research are highlighted. In section 1.5, an outline of the thesis is given.

1.1 Research Background

This research aims to explore the transition of Qatar's economy from a commodity-based economy to a KBE. A qualitative case study approach is employed in this study to examine the organisational practices that could facilitate (or impede) the transition to a KBE using semi-structured interviews with 53 participants, executives in the four institutional spheres of (1) government, (2) industry, (3) education, and (4) professional body in civil society. This method has been chosen to expose the experience and knowledge necessary in implementing national strategic foresight and national strategy as well as to explore the collective learning across institutions from interactions with the aim of achieving national targets, like the development of a national workforce.

'KBE' is a dynamic concept. It involves the capacity to learn and to expand one's knowledge base. Its domain 'exceeds science and technology systems to include the learning implications of the economic and institutional regimes, the institutional arrangement, and organisational practices' (Lundvall and Johnson, 1994, p. 26). Capturing the dynamics of KBE in a single definition, though, remains a challenge (Brinkley, 2006a). This problem has encouraged

scholars to offer a theoretical understanding of KBE dynamics as explained by an emphasis on interaction across institutions e.g. the triple-helix model (Leydesdorff, 2006). KBE is defined in this study as ‘an economy that is based on dynamic collective learning cycles in a national vision of collaboration, which is fed in (and by) the institutional capability to communicate, learn, and situate learning in organising interactions at an intra-organisational level in order to respond to future demands in national strategic foresight’. Building a strong institutional regime is fundamental for a transition to KBE; therefore, there is a great emphasis in the relevant literature on intra-institutional collaboration and clustering during the transition to a KBE (Venkatraman et al., 2002). However, less attention has been devoted to inter-institutional relations for a transition to KBE (Venkatraman et al., 2002). Moreover, national strategic foresight was broadly implemented as a tool for achieving relevant national targets for a transition to KBE; however, it mostly focuses on scientific and technological advancement outcomes and attends less to the transition to a KBE as a learning approach in implementing strategic foresight (Lam, 2000; Andersen and Andersen, 2014). Thus, it was found that transitioning to a KBE was neglected by scholars; specifically, there is no clear interpretation that reflects the KBE as a shared vision of collaboration for collective learning among institutional spheres at a national level. Moreover, national strategic foresight for a transition to a KBE – in developing countries – is mostly descriptive and based on ex-post concepts that are based on empirical outputs (Aguirre-Bastos and Weber, 2018).

This study aims to explore the transition from a commodity-based economy to a KBE in a developing country by examining the organisational practices that facilitate (or impede) the establishment of a shared vision of collaboration across the four institutional spheres of (1) government, (2) education, (3) industry, (4) civil society and professional bodies for achieving a national strategy, e.g. workforce development. This study argues that a shared vision of collaboration across the four institutional spheres reflects the defined and distinguished

learning system for a specific country's context. This includes identifying national strategic foresight – an aim, criteria, and relevant participants – based on the requirements for a developing country's context (Andersen and Andersen, 2014; 2017). Thus, applying inclusive networking across institutional spheres would reflect inclusive development on economic and social bases and would thereafter strengthen the collective learning system (Anderson and Anderson, 2014; 2017; Lundvall, 1994). Institutional relations' patterns and structure can represent learning relations at an intra-organisational level (Škerlavaj et al., 2010). The lack of studies examining networking change and collaboration as a shared vision during national foresight stages is probably due to the difficulties in data collection (Škerlavaj et al., 2010). To the best of the researcher's knowledge, this present study is one of the first that examines and studies data concerning change in interactions for the sake of developing a shared vision of collaboration for the transition to KBE at an intra-organisational level.

There are seven main gaps in the literature that are relevant to this topic. Firstly, the triple-helix model neglects to organise the collective learning process (i.e. the feed-in and feed-back process) for alert decision-making on the transition from a commodity-based economy to KBE. Secondly, institutional learning in the triple-helix model and other innovation system theories have been explained intuitively, which means they have neglected the organisational process for institutionalising entrepreneurship in the expansion of the knowledge base of an economy. Thirdly, the triple-helix model does not provide a framework for the implementation of national strategic foresight based on the KBE concept. Fourthly, the triple-helix model focuses on scientific knowledge outcomes and technological advancement, and it neglects collective learning for transitioning to a KBE. Fifthly, the triple-helix model does not provide an analytical scheme for assessing the institutional capability to learn and deploy learning over time (i.e. cycles of the national strategic foresight). Sixthly, the triple-helix model does not identify interactions with relevance to the commodity-based economy compared to KBE.

Finally, while the triple-helix model does emphasise the importance of the shared vision among the institutional spheres, it does not identify the dimensions of a shared vision in practice.

The above gaps in the literature provide the rationale for conducting this study. This thesis aims to explore Qatar's vision to transition from a commodity-based economy to a KBE, focusing on Qatar's effort in developing institutional collaboration to increase the capacity of the national workforce. This study examines the extent to which the country has been successful in developing a shared vision of collaboration for transitioning to a KBE across institutional spheres in this endeavour as well as the potential organisational practices that facilitate (or impede) the establishment of a shared vision of collaboration for transitioning to KBE (Sarpong et al., 2017).

Thus, the research design for this study is an interpretivist research paradigm. The subjectivity in interpretivism allows us to deal with rich data in studying the context of the transition of Qatar's economy to a KBE (Saunders et al., 2016). It allows us to study the development of Qatar's institutional collaboration to increase its national workforce capacity (Saunders et al., 2016). A qualitative case study approach has been employed for that reason: to capture the experience and knowledge in practice (Sarpong et al., 2017) during the implementation of the Qatar National Development Strategy 2011-2016 (QNDS). The QNDS is the first strategic planning cycle in achieving Qatar's vision of transitioning its economy from a commodity-based economy to a KBE. The qualitative approach is suitable for studying the dynamics of social relationships (Blaikie, 2000), e.g. the quadruple-helix model, for transitioning to a KBE. An empirical inquiry, specifically a case study, is employed to study a specific phenomenon within its real-life context. Such an approach is useful where the boundaries between the phenomenon and the context are not clearly evident (Yin, 1994). This is also applicable to the Qatari context studied in this thesis, specifically for examining the process of transitioning Qatar's economy to a KBE in developing collaboration across institutions for national

workforce capacity development. Therefore, the qualitative case study is considered suitable for the exploratory study in this thesis due to the subjectivity in the case study of the transition of Qatar's economy to a KBE (Shaban, 2009; Yin, 1994; 2018). Moreover, the relevant literature highlights the scarcity of qualitative studies in studies relevant to the KBE domain (Asheim, 2000; Leydesdorff, 2006; Powell and Snellman, 2004). The main data collected for the empirical enquiry from the 53 semi-structured interviews with executives in the four institutional spheres of (1) government, (2) education, (3) industry, (4) civil society and professional bodies. The interview data was supplemented with archival data, such as Qatar's National Vision 2030 (QNV) document, the QNDS, and other related national economic policy documents.

1.2 Research Problem

Qatar's economy is driven by revenues from selling commodities (e.g. oil and gas commodities) – over 70% (Weber, 2011a; 2011b). Qatar is eager to achieve a diversified economy; thus, an ambitious vision and strategy for transitioning its economy to KBE was set. Increasing the Qatari workforce's contribution to labour market productivity was a main objective in the national strategy, i.e. developing a capable and effective national workforce in the Qatari labour market. However, most of the targets related to this objective in the national strategy remain unachieved. This attracted the researcher's attention. This study is based on the researcher's desire to explore how different institutional spheres interacted during the stages in the Qatari national strategy with the aim of achieving national targets as well as if their interaction was relevant to the establishment of a shared vision of collaboration for the transition of Qatar's economy to a KBE. Moreover, Qatar witnessed an accelerated change in institutional development (Kronfol et al., 2013; Weber, 2013). This change in Qatari institutional development encouraged the researcher to explore the relevant change in Qatar's institutional capability to learn and deploy learning for developing collaboration among the

institutional spheres of (1) government, (2) education, (3) industry, (4) civil society and professional bodies to achieve the transition of Qatar's economy to a KBE.

1.3 Contribution to the Literature

This thesis contributes to knowledge in six main areas.

Firstly, the thesis proposes a quadruple-helix model of four institutional spheres: (1) government, (2) education, (3) industry, and (4) civil society and professional bodies. Literature on the KBE domain mostly focuses on the triple-helix model of (1) government, (2) university, and (3) industry (Abdrazak and Saad, 2007; Abduljawad, 2014; Sarpong et al., 2017), while studies that employ a quadruple-helix model emphasise societies or communities as a fourth helix (Galvão et al., 2017; Kolehmainen et al., 2016; Yun and Liu, 2019). The use of the education system as a helix in this thesis provides a broader view of actors within this institutional sphere, which contributes to the learning practice at an intra-organisational level. An example of actors in the education institutional sphere (in addition to universities) are training and development institutions and schools. The role of university, though, is acknowledged as a lead in the institutional sphere of education in this thesis (Etzkowitz, 1998). This is because the education culture in the entire education system in a country influences the learning practice at an intra-organisational level and thus the development of a KBE (Tuijnman, 2003; Muysken and Nour, 2006). Therefore, alerted decision-making for developing education policies to promote intra-organisational learning strategy is necessary for transitioning the economy to a KBE. Moreover, civil society and professional bodies have been considered in this thesis as a fourth helix so as to provide a precise demonstration of entrepreneurial actors in societies or communities.

Secondly, the employment of discursive analysis in this thesis assists in exploring the organisational practices for collective learning at an intra-organisational level. Institutionalising learning entrepreneurship in discursive action across institutional spheres

(Phillips et al., 2004) can assist in expanding the knowledge base of an economy (Leydesdorff, 2006; Lundvall and Johnson, 1994; Schumpeter, 1962). The literature emphasises the need for organising a collective effort by discursive dynamics for institutionalising entrepreneurship for KBE development (Lundvall and Johnson, 1994; Phillips et al., 2004; Sarpong et al., 2017), as well as the role of discursive analysis for understanding the meaning of entrepreneurial action (Phillips et al., 2004). However, literature in the realm of institutional theory remains incoherent in its discursive analysis in that it is detached from organisational practices that constitute the institutionalisation of entrepreneurial action (Phillips et al., 2004). In this thesis, employing discursive analysis in the establishment of a shared vision of a collaboration strategy (Schatzki, 2005) helps in exploring the organisational practices that can facilitate (or impede) transition to a KBE. It also helps in providing a coherent framework of discursive practices that can constitute the institutionalisation of entrepreneurship in an interaction strategy for expanding knowledge base and institutional learning capability in an economy. Therefore, the conceptual model proposed in this thesis provides a framework for the implementation of national strategic foresight by alert decision-making in developing a relevant collaboration strategy to govern collective learning for a transition to a KBE. This means that, different to other relevant studies that address transitioning to a KBE with a focus on scientific outcomes and technological advancement, this thesis demonstrates a transition to a KBE within the collective intra-organisational learning domain across the four institutional spheres as an outcome from interaction strategy so as to achieve national strategic foresight.

Thirdly, the developed model in this thesis shows the interaction strategy in a KBE (i.e. feed-in and feed-back in practice) organised for a collective learning process, which can help in alert decision-making on the transition from a commodity-based economy to KBE. Most studies that address a transition to a KBE in triple- or quadruple-helix models (Abduljawad, 2014; García-Terán and Skoglund, 2019; Leydesdorff and Strand, 2013; Sarpong et al., 2017; Yun

and Liu, 2019) neglect the demonstration of an interaction strategy in a commodity-based economy compared to a KBE concerning the determination of a transition to a KBE. Due to the over-emphasis of scientific outcomes and technological advancement in developing KBE in literature and challenging the data collection process, the interaction strategy for collective learning has not gained much attention in the context of transitioning to a KBE (Lam, 2000; Škerlavaj, Dimovski, and Desouza, 2010). Moreover, the national strategic foresight in developing countries has been characterised as descriptive and based on ex-post concepts (Andersen and Andersen, 2017). Interaction strategy at a national level has been abandoned in the literature, specifically the transition to a KBE in the intra-organisational learning domain (Galabova, 2012; Lam, 2000; Lundvall and Johnson, 1994).

Fourthly, this thesis examines the transition to a KBE by discursively analysing collaboration in light of necessary alignment in interaction routines by governing a collective learning policy (Galabova, 2012; World Bank, 2002). Therefore, an analytical scheme and matrix are developed in this thesis to analyse the relevance of interaction routines and policy in order to govern collective learning in a KBE (Venkatraman et al., 2002; World Bank, 2002). Learning at a self-focused institutional level (or an institutional sphere level) has been included to enrich the analysis with another parameter from commodity-based economy interaction (Venkatraman et al., 2002). This provides a comparative representation of interaction strategy for the alert decision-making process in assessing the level of transition to a KBE at a national level, which is mostly unattended in the extant literature. Therefore, this thesis provides an analytical scheme for determining the relevance of an interaction strategy in collective learning governance policies in the context of a KBE compared to self-learning focused policies in the context of a commodity-based economy. This scheme provides insights concerning whether collaboration is organised as a knowledge-based action or a commodity-based action.

Fifthly, the comparative analysis developed in this thesis helps in observing awareness or understanding of a transition's dynamics and requirements during interaction with the aim of achieving national targets. This means that including the time aspect of national strategy stages and cycles assists the discursive analysis in this thesis in investigating the change in institutionalising a shared vision of collaboration by time among actors' institutional spheres, which can indicate institutional learning capabilities by time to learn and deploy learning for achieving the national target of transition to a KBE. The analysis according to time also supports this thesis in exploring the organisational practices that may facilitate (or impede) a transition to KBE.

Sixthly, the development of a shared vision of collaboration has been emphasised by relevant studies as important for collective entrepreneurship in a KBE (Leydesdorff, 2006; Sarpong et al., 2017). However, the literature has neglected to identify a shared vision's dimensions in collaboration for governing collective learning. This thesis contributes to the extant literature by deploying practice theory (Schatzki, 2005) for identifying the dimensions of a shared vision in collaboration, i.e. understanding, policy, and routines of interaction strategy, with the aim of achieving a transition to a KBE in a developing country (in this study, Qatar).

These six main contributions to knowledge distinguish this thesis from other studies deploying the triple-helix model in case studies (Abduljawad, 2014; Abdulwahed et al., 2013; Cheol et al., 2012; Faghih and Sarfaraz, 2014; Kolehmainen et al., 2016; Pin and Chun-Hua, 2010; Pinto, 2017; Sarpong et al., 2017), which were found to be descriptive in explaining the interaction among institutional spheres based on triple-helix interactional models without analysing the dimensions of a shared vision in collaboration nor the relevance of interaction to collective intra-organisational learning in a KBE versus organisational self-learning in a commodity-based economy. Moreover, the focus of literature has been found to be narrow in scope in terms of its study of the knowledge transfer process (Pin and Chun-Hua, 2010; Pinto,

2017) or the university's role in development (Abdrazak and Saad, 2007; Benner, 2000; Cheol et al., 2012; Gunasekara, 2006). A broader view of inclusive development in national strategic foresight has not yet been considered (Andersen and Andersen, 2017). Moreover, the studies mostly rely on secondary data sources for quantitative measures and ex-post concepts, e.g. documents and reports (Cheol et al., 2012; Kolehmainen et al., 2016; Pin and Chun-Hua, 2010). This present study, however, provides a coherent framework of developing a shared vision of a collaboration strategy across the four institutional spheres for intra-organisational learning. It also uses a qualitative case study to expose the knowledge and experience of actors in the various stages of national strategy implementation so as to discursively analyse the quadruple-helix model in a developing country that is transitioning its economy to a KBE: the case of Qatar.

Three stages of interactional levels among institutional spheres were recognised in the co-evolutionary model of helices for a dynamic transition to a KBE interaction (Etzkowitz et al., 2007a).

The studies that address developing countries as case studies from the Gulf Cooperation Council (GCC) (Cheol et al., 2012; Faghih and Sarfaraz, 2014), such as a case study of Saudi Arabia or Qatar, have also been found to be descriptive and based on secondary sources (e.g. documents and reports) in terms of describing the status of interactions between government, industry, and university. These studies employ a quantitative approach in studying the triple-helix model of a country's economy. For example, communication among the institutional spheres of government, industry, and university have been demonstrated in the triple-helix model by highlighting the different stages of interactional levels organised among institutional spheres in the co-evolutionary model of helices for a transition to a KBE, i.e. the statist, *laissez-faire*, and hybrid triple-helix models of institutional collaboration towards a KBE dynamic interaction (see section 2.5). Leydesdorff (2006) also used the case study of Germany for

analysing the interaction between university, government, and industry in the triple-helix model and relied on quantitative measures from secondary data, e.g. reports and documents. This means that intra-organisational learning and social capital development in the context of historical interaction across the institutional spheres have been neglected in terms of examining and explaining the transition process to a KBE. The literature, though, has highlighted the need for implementing qualitative methods in exploring transition to a KBE (Powell and Snellman, 2004; Sharma et al., 2013) in order to capture the experience and the knowledge of relevant actors concerning interaction (Abdrazak and Saad, 2007; Sarpong et al., 2017). The extant literature also calls for demonstrations of innovation systems in national strategic foresight (Andersen and Andersen, 2014, 2017) from a collective learning perspective (Galabova, 2012; Lam, 2000) rather than focusing only on scientific outcomes and technological advancements. Although, there are some studies that rely on primary data sources, e.g. qualitative methods, in analysing the relationships between institutions in the triple-helix model of university, government, and industry in developing countries; for instance, Malaysia (Abdrazak and Saad, 2007; Sarpong et al., 2017) and Qatar (Abduljawad, 2014). However, these studies do not consider the role of civil society and professional bodies as a fourth helix. Moreover, these studies focused on the transition to a hybrid triple-helix model (Sarpong et al., 2017), on the role of university in development (Abdrazak and Saad, 2007), or on the challenges in cultivating knowledge in partnerships across the main institutional spheres (Abduljawad, 2014).

Studies using the quadruple helix model emphasise society's or communities' role in addition to the other three helices: university, industry, and government (Galvão et al., 2017; Kolehmainen et al., 2016; Yun and Liu, 2019). However, this representation has been found to be imprecise in recognising actors in the transition to a KBE. The education system is considered a dynamic institutional sphere for knowledge production and includes

actors/institutions other than universities, such as professional training and development institutions and schools. Meanwhile, university is still viewed as a leading institution in the education system as an institutional sphere; however, this should not exclude other actors/institutions in a country's education system (Hodgson, 2001; Lucas, 1988). Moreover, societies or communities, as a fourth helix in the literature (Galvão et al., 2017; Kolehmainen et al., 2016; Yun and Liu, 2019), form the broad category of actors in the process of a transition to a KBE, while civil society and professional bodies in this thesis are presented as a fourth helix with the aim of identifying actors-institutions in civil society. This makes this thesis different in scope in four main areas: (1) it analyses intra-organisational learning for a transition from a commodity-based economy to a KBE; (2) it emphasises the shared vision of a collaboration strategy across institutional spheres; (3) it adds the role of civil society and professional bodies as a fourth helix in addition to the other three institutional spheres, as a clear interpretation of actors in societies or communities (unlike other studies), and (4) it recognises actors within the institutional sphere of education as well as the leading role of university.

1.4 Findings from this Study

The findings from the study suggest that the transition of Qatar's economy to a KBE has been slow in pace and remains far from achieving its objectives in the future. The interactions among the four institutional spheres of government, industry, education, and civil society and professional bodies do not reflect collective learning. Rather, the government has dominated the formulation of the national strategy, controls the QNDS, and has subjugated the other institutions to the role of mere implementers of government policies. The current state of Qatar's transition to KBE is characterised by:

- (1) An emerging workforce development strategy that is developed in silos at institutional levels and is devoid of a shared vision of a transition to a KBE;

- (2) A weak understanding among the various institutions of the relevance of collaboration and collective learning for a transition to a KBE;
- (3) The absence of a coherent networking strategy pursued by government to encourage inter- and intra-organisational learning; and
- (4) Frequent changes in institutional structures and priorities.

The study has also identified the broad range of organisational practices of the various institutional spheres that cumulatively facilitate (or impede) Qatar's transition to KBE as enshrined in the QNDS. The practices include:

- (1) Intra-organisational social capital development,
- (2) Cross-agency collaboration,
- (3) Strategy formulation,
- (4) Intra-organisational learning,
- (5) Management of KPIs, and
- (6) Government funding practices.

The findings in this thesis are distinguished from other studies that apply similar qualitative methods and a case study approach in the triple- or quadruple-helix model. Thus, the outcome of this thesis is a coherent framework of (1) the development and institutionalisation of a vision of collaboration to 'learn by doing' (i.e. by implementing the national strategy) and to deploy learning by time (i.e. over national strategic cycles). Moreover, this thesis presents an analytical scheme of the institutional capability to learn (i.e. about collective learning of the subject 'workforce development') and to deploy learning (i.e. by developing the process of collective learning on the subject 'workforce development'). This thesis therefore supplies new insights from the discursive analysis of interactional models, the triple- or quadruple-helix model, for institutionalising a shared vision of collaboration for learning, which could lead to expanding the knowledge base and learning capability in the economy of a developing country.

Below is a summary of the findings in the literature, and the similarities and differences between these past studies and this present study are justified.

Abdrazak and Saad (2007) examined the role of Malaysian universities and their social relationships with industry and government considering the statist, *laissez-faire*, and hybrid types of the triple-helix model. The purpose of their work is to analyse the challenges arising in the evolution of the institutional system under the triple-helix model in the context of the Malaysian socioeconomic environment. They achieved this purpose by using a qualitative case study approach. Semi-structured interviews were employed to collect data. The samples for the interviews were taken from the three spheres of the triple-helix model: the government (i.e. government ministries and agencies), industries (i.e. managers and executives), and universities (i.e. researchers, deputy vice-chancellors, and staff in research management centres). The findings show that most Malaysian universities are positioned either within the statist or *laissez-faire* triple-helix interactional models. Nevertheless, the development of a triple-helix system in Malaysia will not emerge for a long time. Universities are still struggling to achieve their entrepreneurial role. The government remains in a position of domination of other institutions in an approach that is seen as imposing, dictatorial, and ambiguous. Despite the active role of Malaysian universities in industry, this role does not exceed that of an instructive and ad-hoc consultancy. However, universities are still making efforts to seek partnerships with industry and to commercialise their research as a satisfactory level of research and development (R&D) collaboration between university and industry. These goals have not yet been achieved, and the Malaysian government continues to act as the dominant sphere.

The findings in the study of Abdrazak and Saad (2007) have been found to be descriptive, as the study is limited to the interactional routines in the Malaysian triple-helix model of government, university, and industry with an emphasis on the university role. Although the findings could be seen as similar in terms of the role played by institutional spheres, such as

the dominant role of government and the limited role of university in teaching, R&D, and ad-hoc consultancy services. However, this representation is limited to the interactional routines of the triple-helix model, while the institutionalisation of KBE as a strategy in interaction (Lam, 2000; Škerlavaj, Dimovski, and Desouza, 2010) is neglected in the findings of Abdrazak and Saad (2007). However, in this thesis, the findings are broader and highlight that the KBE strategy is not institutionalised in the interaction with the goal of implementing national targets, i.e. workforce development (Andersen and Andersen, 2017), across the four institutional spheres of government, industry, education, and civil society and professional bodies in Qatar. The government's role, as found in the study of Abdrazak and Saad (2007), is to dominate other institutions; however, unlike the findings of this present thesis, Abdrazak and Saad (2007) did not consider the absence of a coherent networking strategy pursued by government with the goal of encouraging inter- and intra-organisational learning. Therefore, the findings of this present thesis provide a coherent and integrated view of institutional interaction for the transition to a KBE in a developing country, Qatar, and find a broad range of practices that could facilitate (or impede) the transition of Qatar's economy to a KBE. This context is beyond what is offered in Abdrazak and Saad's (2007) findings. This is due to the different scope of the research and to difficulties in obtaining data concerning interaction at an intra-organisational level across the four institutional spheres for assessing the collective learning process (Škerlavaj, Dimovski, and Desouza, 2010).

Abduljawad (2014) attempted to identify the challenges in cultivating knowledge in the context of the Qatari triple-helix model of university, industry, and government. Their study focuses on the challenges in the university-industry partnership in Qatar. Therefore, they conducted a case study of Qatar using interviews to capture the perspectives of 31 participants from (a) Qatar University; (b) organisations in the oil and gas industries; and (c) government and semi-government institutions in the state of Qatar. Based on the collected data, challenges were

identified and grouped into three categories, as follows: (1) the **strategic direction and planning** theme included a unidirectional approach to innovation and organisational structure and identified the main challenges involved in cultivating knowledge created from university-industry-government (UIG) partnerships; (2) the **knowledge management** theme demonstrated that organisations focus on the technical aspect of knowledge management, while social interaction and the knowledge-sharing culture does not receive the same attention from management; and (3) the **UIG performance management theme** considered a lack of a measurable approach for performance management. Their study found that organisations are not able to measure performance; therefore, managing and improving collaborations with other actors in the UIG partnership became a challenge. They emphasised this theme as the most critical challenge in implementing the triple-helix model in Qatar – a lack of performance management impedes the implementation of strategies in an organisation.

Abduljawad (2014) focused on the challenges concerning the university-industry partnership in Qatar. Thus, their study findings are bound with the single partnership represented between Qatar university and the oil and gas sector. Due to this limitation (Abdulwahed et al., 2013), their findings are not relevant to Qatar at the national level. While this current thesis places equal emphasis on the roles of the four institutional spheres of (1) government, (2) industry, (3) education, and (4) civil society and professional bodies in terms of examining and exploring the transition of Qatar's economy to a KBE. This thesis examines the transition to a KBE specifically by studying interaction with the aim of implementing the national strategy across the four institutional spheres, a theme that is neglected by most studies on KBEs (Andersen and Andersen, 2017). Despite the variance in the research scope and the limitation of the findings of their study, there are some similarities between the findings of this thesis and the study of Abduljawad (2014). The interactional routines of interaction across institutional spheres – for instance, interaction between university and industry – are considered a statist

model according to which the government dominates other institutional spheres. However, the study of Abduljawad et al. (2014) does not examine the strategy for transitioning to a KBE (Venkatraman et al., 2002) and its institutionalisation (Phillips et al., 2004; Schatzki, 2005; Zilber, 2007) in a shared vision of collaboration with the goal of implementing the national strategy (Andersen and Andersen, 2017). The explored themes by Abduljawad (2014) are captured by the findings in this present thesis: the range of organisational practices that could facilitate or impede a transition to a KBE. For instance, the identified themes in their study (Abduljawad, 2014), strategic direction and planning as well as knowledge management, are captured in the findings in this present thesis in the context of the organisational practices theme in the form of strategy formation. Another example is that the theme of UIG performance management in their finding (Abduljawad, 2014) is also captured in the findings in this present thesis in the context of the organisational practices and management of KPIs theme. However, this thesis found further themes that explain the dynamics that facilitate or impede the process of transitioning Qatar's economy to a KBE, which are not exposed by the findings in the study of Abduljawad (2014): intra-organisational social development and intra-organisational learning. Thus, this present thesis places equal emphasis on the roles of the four institutional spheres, while the focus in Abduljawad (2014) is a single partnership for interaction between university and industry. Moreover, the emphasis on the KBE strategy as a collective learning strategy was not recognised in the study of Abduljawad (2014). Studying intra-organisational learning has not received much attention from scholars due to the different research scopes and to difficulties in obtaining data on interaction at an intra-organisational level across the four institutional spheres for assessing the collective learning process (Škerlavaj, Dimovski, and Desouza, 2010).

Sarpong et al. (2017) examined how the organisational practices of industry, university, and government facilitate (or impede) a transition to a KBE in developing countries using the

hybrid triple-helix model of innovation in Malaysia. Qualitative methods of data collection were adopted to capture the triple-helix model-related experiences and the knowledge inherited in related interactions, which are important in generating relevant insights into everyday organisational practices in the context of the triple-helix model. Semi-structured interviews were the main data collection method. Twenty-seven strategic actors were interviewed for data collection. The strategic actors had an average of 10 years of work experience in their strategic position in their institution. Emphasising the day-to-day practices of institutional actors, interactions, and collaboration efforts, the findings in their study identified three practice areas: (1) advanced research capabilities and external partnerships; (2) the quantification of scientific knowledge and outputs; and (3) collective entrepreneurship. These practice areas constitutively facilitate (or impede) partnerships and, in turn, a successful transition to a hybrid triple-helix model. They also highlighted that organisational innovation by the three institutional players was influenced by the context of differential interpretation schemata in developing countries. Three essential organisational practices were identified as potentially facilitating (or impeding) the transition to developing a hybrid triple-helix model of innovation in Malaysia: (a) proactive development of advanced research capabilities that could lead to the production of advanced technologies; (b) the practice of quantification of scientific knowledge and outputs can facilitate innovative development, but this is subject to the transmission of its ideals of accountability without uncertainty to others; and (c) collective entrepreneurship – a broader concept that includes the deployment of institutional spheres’ different visions for working in a collective effort to learn and redirect science and technology research attention to productive and predefined outcomes.

The outcomes of this present thesis can be distinguished from the study provided by Sarpong et al. (2017) in the following areas. Firstly, this present thesis emphasises the role of civil society and professional bodies as a fourth helix in the quadruple-helix model, representing

institutional entrepreneurs contributing along with other institutional spheres in the development and institutionalisation of a KBE strategy in the collaborative shared vision in the process of knowledge management for a transition from a commodity-based economy to a KBE. Meanwhile, the study of Sarpong et. Al., (2017) includes the triple-helix model of the industry, university, and government institutional spheres and neglects to include civil society and professional bodies. Secondly, the outcomes of this present thesis include themes of intra-organisational learning and social capital development that facilitate (or impede) a transition to a KBE. This thesis also proposes a method for helping practitioners to develop a professional network across the four institutional spheres for developing intra-organisational social capital and learning capabilities to expand the knowledge base of an economy. A leading example in the international oil and gas industries was given in the proposed method of a professional networking policy for workforce development in Qatar based on developing intra-organisational social and learning development, i.e. job rotations and job families. However, the outcomes of Sarpong et al. (2017) study emphasised the innovation process by focusing on scientific outcomes and technological advancement in a transition to a KBE rather than intra-organisational learning and social development. Meanwhile, other studies have highlighted the gap of considering intra-organisational learning in studying innovation as a practice for a transition to KBE (Galabova, 2012; Lam, 2000; Škerlavaj, Dimovski, and Desouza, 2010). Thirdly, this thesis shows that the KBE strategy is neither developed nor institutionalised in the interaction for achieving national targets. For instance, institutional interaction in Qatar is a static interactional model and irrelevant to a shared vision of collaboration for a transition to KBE and has been found to be more relevant to a commodity-based economy. However, the outcomes in Sarpong et. al. (2017) are limited to highlighting the interactional routines across institutional spheres in Malaysia in triple-helix models and neglect to analyse interaction understanding and policy in the dimensions of a shared vision of collaboration in practice

(Schatzki, 2005), i.e. understanding, policy, and routines. Meanwhile, this thesis has developed an analytical scheme for studying the historical interaction across the four institutional spheres. This has been done to determine the institutionalisation of a KBE strategy as a collective learning process in terms of interaction for a transition from a commodity-based economy to a KBE. The dimensions of a shared vision of collaboration in practice (Schatzki, 2005) have been applied in studying the institutionalisation of the KBE strategy in practising Qatari national strategy cycles in this thesis. Fourthly, this present thesis has identified the government funding practice as a theme of facilitating (or impeding) a transition to a KBE by promoting a collaborative vision across the four institutional spheres. This theme was neglected in Sarpong et al.'s (2017) study. This theme is supported by the literature (Benner, 2000), but the focus is the research funding realm and the literature does not consider the funding of collective learning across the four institutional spheres for achieving a transition to a KBE; thus, the scope of government funding practice as studied in this thesis is broader than the research funding findings of Sarpong et al. (2017). The need for developing national strategic foresight to reflect the concept of KBE has been emphasised in the extant literature (Andersen and Andersen 2014; 2017); however, KBE has only been addressed in the literature concerning scientific and technological outcomes. This thesis has emphasised the importance of developing the feed-in and feed-back process between social capital and learning capability at an intra-organisational level concerning transition to a KBE. The dynamics of intra-organisational learning and social capital development for a transition to KBE have been conceptualised by this present thesis in the context of the discursive dynamics presented in the work of Phillips et al. (2004). Phillips et al. (2004) offered a discursive understanding of institutions by developing a deep understanding of the text's mediating role between discourse and action, used in the discussion of the findings in this current thesis to provide a coherent framework of quadruple helix interaction for a transition to KBE, as shown in Figure 0-1. This has been done to show the

dynamics of organising institutional entrepreneurship (Phillips et al., 2004) in practice for a transition to a KBE by developing the institutional learning capability of learning and deploying learning for expanding the knowledge base of a developing economy (Lundvall and Johnson, 1994).

This thesis provides a set of recommendations that allow policymakers in a developing country to recognise collective learning in the implementation of national strategic foresight for inclusive development with the goal of a transition from a commodity-based economy to a KBE.

1.5 The Aim and Objectives of This Research

This thesis aims to explore the transition of Qatar's economy from being a natural resource-dependent economy to a KBE by focusing on Qatar's effort to develop institutional collaboration in order to increase the capacity of the national workforce.

This research aims to contribute new knowledge to the field that will benefit researchers and policymakers. Thus, to realise the research aim, the following objectives are pursued:

- (1) Conduct a comprehensive literature review to develop a deeper understanding of the definition of 'KBE'; its emergence and history; its theoretical background; and the employment of the triple-helix model and practice theory to QNDS exercise for national workforce development as a prerequisite for the Qatari economy's transition to a KBE as a case study.
- (2) Formulate a high-level conceptual framework for the transition of Qatar's economy to a KBE in the context of a workforce development strategy in order to achieve national competitiveness from the theoretical lens of the triple-helix model and practice theory.

- (3) Identify and evaluate the organisational practices in the four institutional spheres (1) government, (2) education, (3) industry, (4) civil society and professional bodies in terms of the achievement of the workforce development strategy for the attainment of KBE as in the QNV (using qualitative research – semi-structured interviews) based on the formulated conceptual framework.
- (4) Reconceptualise and evaluate the framework and explicate the organisational practices and other factors that facilitate (or impede) the adaptation of the proposed framework in the Qatari national strategy exercise for the workforce development agenda.
- (5) Formulate a set of recommendations aimed at addressing current organisational practices that facilitate (or impede) the attainment of a KBE by Qatar national strategic exercise.

The research questions that are addressed by this thesis are:

- (1) *What is the current state of play among the four institutional spheres (government, education, industry, and civil society and professional bodies) for a transition to a KBE in Qatar?*
- (2) *What are the organisational practices that facilitate (or impede) the transition of Qatar's economy to a KBE?*

1.6 Outline of This Thesis

This research is divided into seven chapters in order to achieve the aim and objectives mentioned in the previous section. An overview of the main points of the seven chapters is as follows:

Chapter 1 is an introductory section of the research background and the rationale for this research. The chapter also includes the aim, questions, and objectives of the research as well as an overview of this thesis. It also includes the research process diagram.

Chapter 2 presents a critical literature review of the organisational practices among institutional spheres that facilitate (or impede) the transition of a developing economy to a KBE. As an attempt to extend understanding in the field, three main literature pieces underpinning the thesis have been reviewed. Firstly, the empirical context of a transition to a KBE and workforce development is provided in terms of the critical perspectives of existing concepts, definition, models, analyses, dimensions, and characteristics. Secondly, the theoretical lens of the co-evolutionary model of the quadruple helix-model and the evolution of the institutional collaboration strategy in a KBE is provided in terms of the critical perspective of existing models, analyses, and arguments concerning the quadruple-helix model of institutional collaboration. The future of strategy in terms of shaping strategy research in a KBE is also conceptualised. Thirdly, the social practice theory is offered in terms of critical aspects of practice in contemporary theory, organisational practices, and psychological dimensions of social life.

In **Chapter 3**, the empirical research context, Qatar, is reviewed. This chapter discusses Qatari institutions' regulations and readiness for a KBE, including an overview of Qatar's permanent constitution and status of the economy's readiness for a KBE, as reported by the World Bank in 2007. This chapter also includes an overview of Qatar's strategic planning exercise for developing a KBE (QNDS) as a blueprint of the QNV, developed in 2008. Moreover, an overview of the institutional structure changes over time in Qatar and the interaction among institutional spheres are explained.

In **Chapter 4**, the methodological approach adopted in this thesis is explained. It includes a review of the methodological approach that drives this empirical research. The two objectives of this chapter are firstly to explain and justify the research adopted methodology underpinning the empirical analysis and secondly to explain and justify the ontological assumptions

underpinning the research paradigm as well as the employed theoretical lenses of practice theory and quadruple-helix theory.

In **Chapter 5**, each stage of the QNDS is described separately. The key findings from Chapter 5 are the themes of organisational practices that facilitate (or impede) collaboration among institutional spheres during the QNDS stages, explained in detail in Chapter 6.

In **Chapter 6**, the research findings concerning organisational practices that could facilitate (or impede) transition to KBE in Qatar are presented.

In **Chapter 7**, a discussion of the main findings and the revised theoretical framework and concluding remarks are presented.

Table 1-1 is a summary of the outline of this thesis.

Table 1-1. Outline of the thesis (based on Harvey, 2005).

Chapter	Chapter Content	Key Elements
1	Introduction	The object of the study, the justification of the study, the research objectives, and an overview of the thesis.
2	Critical Literature Review	A review of the relevant theories, models, and gaps in the extant literature.
3	Empirical Research Context	An overview of the empirical research context, a case study of Qatar. A discussion of Qatari institutions' regulations and readiness for a KBE and national strategic exercise for the transition to a KBE.
4	Sources and Methods	Research methodology; methods; an overview of the empirical research domain and context; and data analysis.
5	Issues and Findings (1)	<i>Research Question 1:</i> What is the current state of play among the four institutional spheres (government, education, industry, and civil society and professional bodies) for a transition to a KBE in Qatar?
6	Issues and Findings (2)	<i>Research Question 2:</i> What are the organisational practices that facilitate (or impede) the transition of Qatar's economy to a KBE?
7	Discussion and Conclusion	Restatement; a discussion of the main findings, implications for theory and policy; study limitations and directions for future research.

Chapter 2 Literature Review: Towards a Knowledge-Based Economy

This chapter is an in-depth review of KBE in the extant literature as a concept and strategy of transition. It also reviews practice theory (Schatzki, 2005) for institutionalising the process of transition to a KBE (Philip et al., 2004) in the context of intra-organisational communication (Leydesdorff, 2012). This chapter also includes a framework that has been developed based on a literature review. This literature review is structured in the form of nine sections. The first section is a critical review of the evolution of the concept of KBE and its definition as a new method of transitioning an economy into a learning economy. The second section is a review of the main dimensions of the KBE. In the third section, the strategic foresight exercise and policy development for transitioning to a KBE are outlined. In the fourth section, the roles of the institutional spheres in a KBE are explained. The fifth section is an overview of theoretical perspectives on the development of a KBE. It highlights how these theories explain the KBE, and it discusses relevant theories for the study. The sixth section presents insights on the discursive analysis approach to a KBE. The seventh section delineates the organisational practices and institutional collaboration for a transition into a KBE. In the eighth section, the conceptual framework of organisational practices among institutional spheres that facilitate or impede a transition into a KBE is developed. Finally, in the ninth section, a conclusion based on the critical review of the three broad literature pieces is presented and recommendations for future research are given.

A KBE is defined by this study as an economy that is based on collective learning cycles, which are fed-in (and by) the institutional capability to communicate, learn, and situated learning while organising intra-institutional interaction in response to anticipated future demands in national strategic foresight. The transition to a KBE became a national vision in many developing countries with the aim of maintaining sustainability and competitiveness by shifting

from a commodity-based economy to a diversified economy that is based on knowledge capital and capability. The change in competitiveness perspectives, from financial to human development, as well as the openness of the international labour market has motivated policymakers to aim for a transition to a KBE (Thurow, 1999; David and Foray, 2002b; Leydesdorff, 2006). Scholars have highlighted the role of institutional collaboration for responding to the change towards a demand for KBE competitiveness. Scholars have also emphasised the new arrangements required among institutions to adopt the changing market demand e.g. in an international labour market (Lundvall and Johnson, 1984, p. 26; Leadbeater, 2000). However, the literature has attended less to the institutional organisational practices for transitioning to a KBE – especially in developing countries (Sarpong et al., 2017). Moreover, the literature has not much considered the identification of transitional arrangements from a commodity-based economy to an economy that is based on the institutional capability to collaborate and learn about subject matter, especially in a developing country. Furthermore, extant studies in this field have not identified the dimensions of relevant interactions for transitioning to a KBE. The literature has also overlooked the identification of the organisational practices that could facilitate (or impede) a transition to a KBE in reference to the time, stages, or cycles of national strategic foresight. Finally, researchers have not yet offered an analytical scheme for analysing a transition to a KBE at a national level based on changes in institutional interactions and networking over time or over the stages of national strategic foresight.

Three main literature domains underpinning the thesis have been reviewed in an effort to extend understanding of the organisational practices among institutional spheres that facilitate (or impede) a transition to a KBE in a developing country. As shown below, Table 2-1 is a summary of the most important studies underpinning this thesis.

Table 2-1. Summary of the main literature underpinning the thesis.

	Conceptual Domain	Critical Perspective
Empirical Context	Transition to KBE and workforce development	Existing concepts, definitions, models, analyses, dimensions, and characteristics.
Theoretical lens	The co-evolutionary model of the quadruple-helix model and the evolution of institutional collaboration strategy in a KBE	Existing models, analyses, and arguments concerning the quadruple-helix model of institutional collaboration. The modelling, measurement, and simulation of the KBE. Theorisation of future strategy in terms of shaping strategy research in a KBE.
Philosophy and social theory	Practice theory	Practice changes in contemporary theory, organisational practices, psychological dimensions of social life, and the circuits of practice approach.

2.1 Evolution of the Concept of a Knowledge-Based Economy as a New Economic Era

Although the term ‘knowledge economy’ and its synonym ‘Knowledge-Based Economy (KBE)’ have only recently been addressed by researchers in the last two decades (James et al., 2011), the concept initially emerged during the post-industrial revolution. The terminology was formulated recently as a ‘sea-change’ rather than a sharp change (David and Foray, 2002a). The development of the concept of KBE has mainly been led by the gradual realisation of

change in the perspective of national competitiveness. The attention shift from the industrial to the service sector in the ‘post-industrial society’ (Ferkiss, 1979) and from commodities of goods to information in the ‘information economy’ (Boisot, 1998) introduced the early beginnings of a new economic era, which was referred to as the ‘new economy’ (Leadbeater, 1999, 2000). Eventually, scholars found that knowledge and learning form the main source and process of competitiveness in the new era. Thus, the concept has been indicated in related conceptual terms: ‘knowledge society’ (Bell, 1973), ‘learning economy’ (Archibugi and Lundavall, 2001), and ‘knowledge economy’ (Cooke, 2001; Cooke and Schwartz, 2008; Leadbeater, 1999). Moreover, recent literature has emphasised collaboration and networks as the main practices of KBE for economic growth and national competitiveness (David and Foray, 2002b; 2002a; Thurow, 1999).

The concept of post-industrialism was introduced by Professor Bell (1973) as a result of the realisation of a major change in the economy. This economic change was mainly represented in different forms – from the industry to the service sector in the expansion of new services, such as R&D, science, and business, as well as the increased number of new professionals, scientists, and academics in the economy. In the long run, this phenomenon drove a substantial change in economic structure (Bell, 1973, p. 37). The change to a new social hierarchy was due to the domination of the professional associations of the emerging ‘knowledge class’ (i.e. scientists, engineers, professionals, and professional service workers) (Bell, 1973, pp. 213-121). Moreover, the health, education, research, and government sectors began to play a leading role in such an economy (Bell, 1973, p. 15). These changes introduced a service-based society, also known as a ‘post-industrial society’ (Bell, 1973, p. 127).

Thereafter, the high evaluation of information for the productivity of the service sector and the increasing need for information technology for the production and exchange of information contributed to the emergence of an ‘information society’ (Castells and Manuel, 1996, p. 17).

Moreover, the development an information society has profound implications for communications in social and economic practices for networking (Castells, 1996, pp. 106-174); for instance, fax, email, internet, mobile data mining, and databases became essential for institutional networking at that stage. Thus, information and communication technologies have become vital for competitiveness, which promotes connectivity between the concepts of an ‘information society’ and a ‘networking society’ (Castells, 1997).

The information age has been dominated by the ‘knowledge-intensive’ attributes of various information technologies e.g. biotechnology and information systems (Castells, 1996, p. 30), which laid the foundation for the coming technological advancements for collaboration, networking, and organisational practices in a KBE. The intensity of technological and scientific advancement has led to the emergence of knowledge-intensive communities. Those communities are known for connectivity between technical businesses and scientific professional bodies as well as for their capabilities for learning and exchanging while networking with public and semi-public sectors (David and Foray, 2002b). The definition of KBE highlights the role of collaborative and networking practices in knowledge-intensive communities for competitiveness and emphasises the establishment of knowledge-intensive communities as a main requirement for the transition into a knowledge society (Thurow, 1999; David and Foray, 2002b).

2.1.1 Knowledge-Based Economy

Unlike in an information society, in a KBE, the focus is on lifelong learning in a knowledge society, which exceeds the focus on information and technology in an information economy. Thus, in a KBE, all economic sectors participate in a learning process. Hence, the rearrangement of institutions or ‘institutional revolution’ (Leadbeater, 2000, p. xi) is indispensable. This rearrangement increases the institutional capability to respond to changing

demands of competitors (Leadbeater, 2000, p. xi). Thus, the term ‘learning economy’ refers to an economy’s ability to be proactive and responsive to change (Lundvall and Johnson, 1994). Such an economy is an active mode of self-organised learning from an intelligent adjusting and balancing process (Lundvall and Johnson, 1994).

A KBE is a dynamic concept. It involves the capacity to learn and to expand a knowledge base. Its domain exceeds science and technology systems, and it includes the learning implications of institutional regimes, the institutional arrangement, and organisational practices (Lundvall and Johnson, 1994, p. 26). However, it is a challenge to find a single definition that captures all dynamics of a KBE as a broad concept (Brinkley, 2006; Foss, 2007; Leydesdorff, 2006). Institutions play an essential role in long-term economic transition and development. This role has been acknowledged by scholars in terms of its coordination and management of knowledge (Hodgson, 2000). Thus, institutions that are willing to be learners and able to manage different types of knowledge become the centre of a KBE (Lundvall and Johnson, 1994, p. 27). Moreover, cooperation among institutions in such an economy is important for collective learning in a KBE (Leadbeater, 2000, p. 231; Bell, 1973). Therefore, policy development for the arrangement of innovative and interactive institutions has been accentuated by researchers (Lundvall and Johnson, 1994).

A KBE is different to the purely public-controlled economy or market economy. Organisational practices of knowledge production and control have contributed an additional coordination dimension to the social system in a KBE (Leydesdorff, 2006, p. 16). This coordination dimension is different to the traditional dimensions of the social system in an economy i.e. economic exchange and political decision-making (Leydesdorff, 2006). Thus, it is challenging to capture the active mode of such a dynamic phenomenon, KBE, in a single definition (Brinkley, 2006a). However, several definitions of KBE have been used in the literature. These concepts are outlined in Table 2-2.

Table 2-2. A review of the definitions of KBE in the extant literature.

No.	Date	Author	Definition of KBE
1	2005	Economic and Social Research Council	‘Economic success is increasingly based on upon the effective utilisation of intangible assets such as knowledge, skills and innovative potential as the key resource for competitive advantage. The term ‘knowledge economy’ is used to describe this emerging economic structure’ (Brinkley, 2006, p. 4).
2	2004	Powell and Snellman	‘Production and services based on knowledge-intensive activities that contribute to an accelerated pace of technical and scientific advance, as well as rapid obsolescence. The key component of a knowledge economy is a greater reliance on intellectual capabilities than on physical inputs or natural resources (Powell and Snellman, 2004, p. 201).’
3	2002	David and Foray	‘Knowledge-based economies emerge when people, with the help of information and communication technologies, group together in an intense effort to co-produce (i.e., produce and exchange) new knowledge (David and Foray, 2002b, p. 14).’
4	1999	Charles Leadbeater	‘The idea of the knowledge driven economy describes a set of new sources of competitive advantage which can apply to all sectors, all companies and all regions, from agriculture and retailing to software and biotechnology’ (Brinkley, 2006; Leadbeater, 1999).’
5	1998	Department of Trade and Industry	‘...a general phenomenon encompassing the exploitation and use of knowledge in all production and service activities, not just those sometimes classified as high-tech or knowledge intensive (James et al., 2011).’
6	1996	Organisation for Economic Co-operation and Development (OECD)	‘...the economies which are directly based on the production, distribution and use of knowledge and information (OECD, 1996, p. 7).’
7	1994	Lundvall and Johnson	‘KBE is defined as a dynamic concept; it involves the capacity to learn and to expand the knowledge base, its domain exceeds the science and technology systems to include the learning implications of the economic and institutional regimes, the institutional arrangement, and organisational practices (Lundvall and Johnson, 1994, p. 26).’

Considering the main KBE themes addressed by Lundvall and Johnson (1994), KBE has been addressed as a learning economy and promotes the institutional capability to learn. These themes were addressed as the main drivers of economic competitiveness in a KBE (Lundvall and Johnson, 1994; Leadbeater, 2000). The themes also highlight institutional collaboration and organisational practices as enablers for institutional learning. Thus, transition to a KBE as a concept depends on the institutional capability to learn; to situate learning in different cycles of organising institutional networking; and to develop expertise and responsiveness to anticipated future demand.

As institutional learning capability has become more visible in networking and collaboration events, networking patterns and structures can be employed to study learning at an intra-organisational level (Škerlavaj, Dimovski, and Desouza, 2010). However, the extant literature has neglected to employ organised institutional networking at a national level i.e. in a national strategic foresight exercise to study the transition from a commodity-based economy to a KBE. The lack of studies examining intra-organisational networking structures for learning is possibly due to difficulties in obtaining data (Škerlavaj, Dimovski, and Desouza, 2010). For instance, allocation of knowledge resources and skills matching in institutional networking would be a source of enhancing learning capabilities (Crossan et al., 1999). This lack also has economic implications, since reasoning the engagement of the national workforce in networking events could, in the long run, contribute to the development of the national workforce and thus minimise the transactional costs of acquiring an outsourced service or expatriates, which is the case in developing countries.

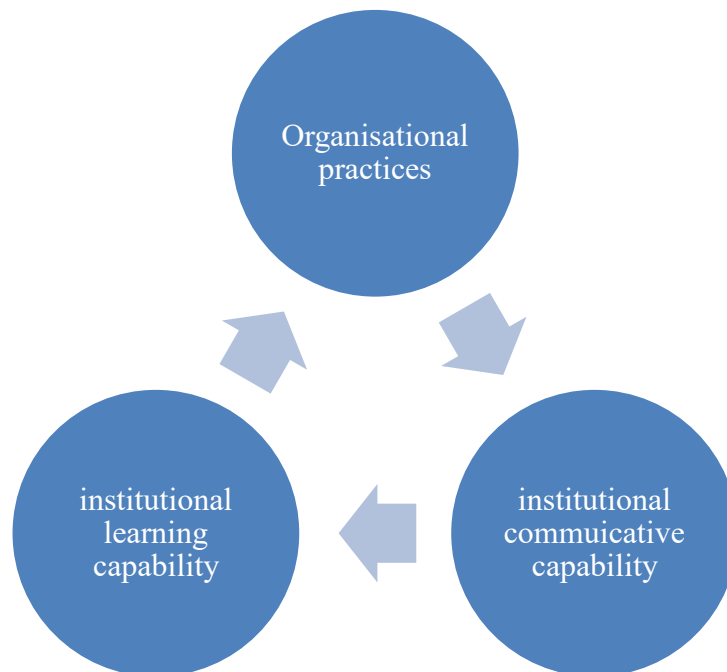
Therefore, the main themes highlighted by the definitions and explanations of KBE in the extant literature are:

- (1) Organisational practices to organise interaction among institutions with the aim of achieving a strategic target,

- (2) The institutional capability to communicate, and
- (3) The institutional capability to learn.

These themes are outlined in Figure 2-1 below.

Figure 2-1. The main themes arising from the definition of KBE.



This research defines KBE as ‘an economy that is based on dynamic collective learning cycles in a national vision of collaboration, which is fed in (and by) the institutional capability to communicate, learn, and situate learning in organising interactions at an intra-organisational level in order to respond to future demands in national strategic foresight’. Thus, based on the offered definition, it is vital to identify the relevance of intra-institutional interaction in a transition to a KBE through the lens of the discursive practice approach.

Attainment of a KBE is subject to the productivity of an interaction between the institutional environment and knowledge capital utilisation (World Bank Institution, 2007a). The entrepreneurial institutional environment is known for its high capability to learn and accept change and risk in order to respond to the demands of competitiveness, while high bureaucratic procedures and regulations are the obstacles of creating an institutional environment that accepts change and an open economy (World Bank Institution, 2007a). Thus, learning governance is important for maintaining an entrepreneurial institutional environment in a KBE

(World Bank, 2002a). Organisational practices provide an overview of the acceptable governance practices and employee competencies in the institutions (Sarpong et al., 2017). Thus, identifying the organisational practices that facilitate (or impede) a transition to a KBE at a national level helps us assess the relevance of situated interaction at an intra-organisational level to a KBE, withing the national transitioning process from a commodity-based economy to a KBE.

2.2 Main Dimensions of a KBE

The main dimensions of a KBE in the literature are education; learning; information and communication technology (ICT); and innovation. As a learning economy, KBE is mainly about the lifelong learning process for innovatively developing these dimensions for responding to changes in demand (Galabova, 2012). Each dimension of a KBE is overviewed in the following sections.

2.2.1 Information and Communication Technology

ICT is acknowledged by scholars as a dominant dimension of KBE, and utilisation of ICT is the dynamic force of a KBE (Zanini and Musante, 2013). ICT is the basic infrastructure of a KBE (World Bank Institution, 2007a); thus, the efficient utilisation of an advanced ICT infrastructure increases economic productivity in institutional communication and networking for competitiveness. Therefore, the accessibility, reliability, and speed of ICT infrastructure are considered basic indicators of a country's readiness for a KBE (World Bank, 2012). Technological industries lead the advancement of a KBE; for example, the Finnish model. These industries are distinguished by their high market competitiveness. For this reason, the workforce in the technology market is a factor that is hard to duplicate (Puri and Suchon, 1997). Thus, higher education and R&D are important contributors in educating and training engineers and scientists for high technology sector development in a country (Puri and Suchon, 1997).

Finland, for example, built its KBE based on the ICT sector (Parker, 2004; Schienstock, 2007). The ICT sector in Finland contributes to national human development by providing training and development programs according to international standards. Furthermore, the ICT sector participates in exporting knowledge management practices to other traditional industries in Finland (Schienstock, 2007). Knowledge diffusion and utilisation among sectors and institutions in such technologies and practices could accelerate the development of a KBE in the country in the long term (Schienstock, 2007).

Knowledge acquisition, creation, and implementation are essential for the development of future subject matter, expertise, and development of the capability to transfer knowledge to R&D for a transition to KBE (Wiseman and Anderson, 2012). Despite the availability of an advanced ICT infrastructure in education, the applied teacher-centered education approach in developing countries results in student disengagement with ICT-based education (Wiseman and Anderson, 2012). Furthermore, the transition of urban planning to a KBE requires ICT skills and knowledge development for all stakeholders, planners, developers, and citizens (Curwell et al., 2005). Thus, to achieve a competitive stock of competence, knowledge, and a high capability for innovation, Sweden conducted national programs for adult education and vocational training (Parker, 2010). This was done to maintain strong ICT skills among stakeholders. Teacher-student relations can be applied to institutions for intra-organisational learning (Crossan et al., 1999). This phenomenon demands high-level technologies in institutions' communication platforms and a focus on institutions' learning needs at an intra-organisational level (World Bank, 2007a). It requires technical ICT support for learning governance at an intra-organisational level.

2.2.2 Innovation

Innovation is the process of deriving economic and social value from knowledge and skills by generating, developing, and implementing ideas to produce or renew products, processes, and services (Madgett et al., 2005). Literature has shed light on the importance of national innovation systems and has focused on an innovation policy on a KBE for competitiveness (Etzkowitz, 2003; Leydesdorff and Strand, 2013). However, the implementation approach and monitoring mechanism of innovation policies in practice form the distinctive pattern for a KBE's competitive advantage (Galabova, 2012). The strategic alignment of innovation strategy and policy with an integrated performance system lends support to the establishment of an advanced KBE (Galabova, 2012). The case of Sweden provides a leading example of the innovation policies linked to a coordinated system that has access to the performance history of the technology sectors (Parker, 2004). Sweden has thereby maintained a leading position in a KBE that is led by technology industries (Parker, 2004).

An innovation at a national level is a co-evolutionary process resulting from technology and information interaction among different actors in the economy (Lundvall and Johnson, 1994; Nelson and Winter, 1982). This interaction is mostly among the institutional spheres of university, government, and industry (Etzkowitz et al., 2000; Etzkowitz and Leydesdorff, 1997; Leydesdorff, 2006); however, the literature has invited scholars to explore more actors that participate in the national innovation system based on the context of a country or region (Leydesdorff, 2012). Institutional interaction decides how innovation is generated, modified, and diffused in the system (Leydesdorff, 2012). A collective institutional effort is required to promote the requirements for innovative practices and sources (Leydesdorff, 2012). This is because innovation is beyond the economic returns of innovation outcomes. It is the innovative know-how of practices and sources that really matters for a KBE (Galabova, 2012). The most

vital factor in innovation is therefore the learning capability of individuals, institutions, and nations (Lundvall et al., 2002).

2.2.3 Education

The education system determines the level of human capital development, skilled workers in the labour market, and institutional capability for a transition to a KBE (Sam and Sijde, 2014). Education develops the capability to respond to modernisation, flexibility, and collaboration for KBE needs (Tuijnman, 2003; World Bank, 2007a). Practices in education have recently shifted to have more of a focus on self-dependency and self-learning (Tuijnman, 2003; World Bank Institution, 2007). This means that education and learning institutions are responsible for providing support, empowerment, and monitoring, while students or individuals take the lead in their education practice (World Bank Institution, 2007). This kind of innovative education aims to focus on ‘learners’ abilities to learn’ and to unlock their potential to explore and search (World Bank Institution, 2007). Thus, the focus is more on practices rather than subject-based approaches (Tuijnman, 2003). Per the KBE definition, this could also applied at an intra-organisational level of learners’ institutions (Lundvall and Johnson, 1994) transitioning to a learning economy. In addition, the link between the education system and institutions’ learning system is acknowledged by the extant literature (Sam and Sijde, 2014).

Student access to ICT in education has become one of the main demands of a KBE, but it is not the only factor that contributes to the development of ICT competencies among students (Wiseman and Anderson, 2012). Education in developing countries is mostly based on a teacher-centred education approach, which has less of a demand for a thinking process than in developed countries (Wiseman and Anderson, 2012). Thus, despite the access required for ICT in education, students’ engagement in ICT-based instruction should be encouraged in a way that promotes knowledge production and capacity, which is essential for a transition to a KBE

(Wiseman and Anderson, 2012). This point highlights the role of culture in education communities, which could impact how ICT is used for linking learning outcomes to the creation, acquisition, and implementation of knowledge in the labour market and civil society (Wiseman and Anderson, 2012). This conclusion supports the earlier emphasis on innovation as a learning practice and illustrates how access to high-level technology is important for supporting such a learning practice (Galabova, 2012). Thus, a school's curriculum should not be separated from higher education in terms of developing a KBE (Tuijnman, 2003). The recent tendency of new school curricula is that they are based on competencies, skills, and capabilities that enable 'doing' rather than subject-based learning (or 'knowing') (Tuijnman, 2003). Therefore, the drawbacks of such an education have impeded economic development (Muysken and Nour, 2006). Higher education plays a dominant role in a KBE, as it contributes to human capital formation (Muysken and Nour, 2006; Puri and Suchon, 1997). Thus, university programmes should be designed to match international standards for the development of public-private collaboration and fulfilment of labour market demand (World Bank, 2007b; 2007a). Thus, alerted decision-making for developing education policies in alignment with the KBE strategy for learning at an intra-organisational level is vital (Galabova, 2012).

2.2.4 Learning

KBE is mainly about lifelong learning (World Bank, 2007b; 2007a). KBE, as a dynamic concept, involves the capacity to learn and to expand a knowledge base (Lundvall and Bengt-Åke, 1995). Learning includes all forms of learning – not only the formal education system or term of study. Collaboration among a wide range of partners, mobilisation of resources, and rethinking resource allocation across all sectors and settings have become principles of a lifelong learning strategy (OECD, 2001; 2010). Fast learners have become the winners in a KBE – individuals, institutions, and nations (David and Foray, 2002a; Lundvall et al., 2002;

Thurow, 1999). Thus, there is a challenge in shifting focus to a learner's demands for a transition to a KBE (World Bank, 2007a; 2007b). As a learning system, a KBE demands developing a learner's capacity to learn, create, and apply knowledge (World Bank, 2007a; 2007b). The organisational practices adopted by institutions have contributed to success in achieving the learning system's demands (Lundvall et al., 2002, p. 224). Within such a learning system, knowledge codification becomes a part of the process of learning (Leydesdorff, 2006; World Bank, 2007a). Knowledge codification includes knowledge models, classification, and professions (World Bank Institution, 2007a). Organisational practices in institutions reflect the level of policy development and workforce skills and competencies in the institutional work environment to govern learning (Sarpong et al., 2017).

Furthermore, cluster literature conceptualises learning as a collective effort that involves individuals and institutional actors (James et al., 2011). Moreover, learning is linked to policies in the context of skills matching (James et al., 2011; Powell and Snellman, 2004). James et al. (2011) argued that policies have neglected what is offered in the cluster literature for bridging the gap between fostering learning as innovation initiative and promoting individualised learning via the acquisition of qualifications. In their argument, James et al. (2011) encouraged building on what Brown and Duguid (2001) addressed as a 'participation' concept that provides an integrated notion of individual and collective learning. The participation concept suggests that there are two situations of learning. Firstly, the familiarity of the existing work patterns, knowledge, and skills increases the capability of participation in a knowledge community of practice of growth in knowledge and skills. Secondly, it is necessary to encourage participation with other participants for generating new ideas from a practice model or building on it to renew and redesign work practices and develop new forms of knowledge and skills required for work (James et al., 2011).

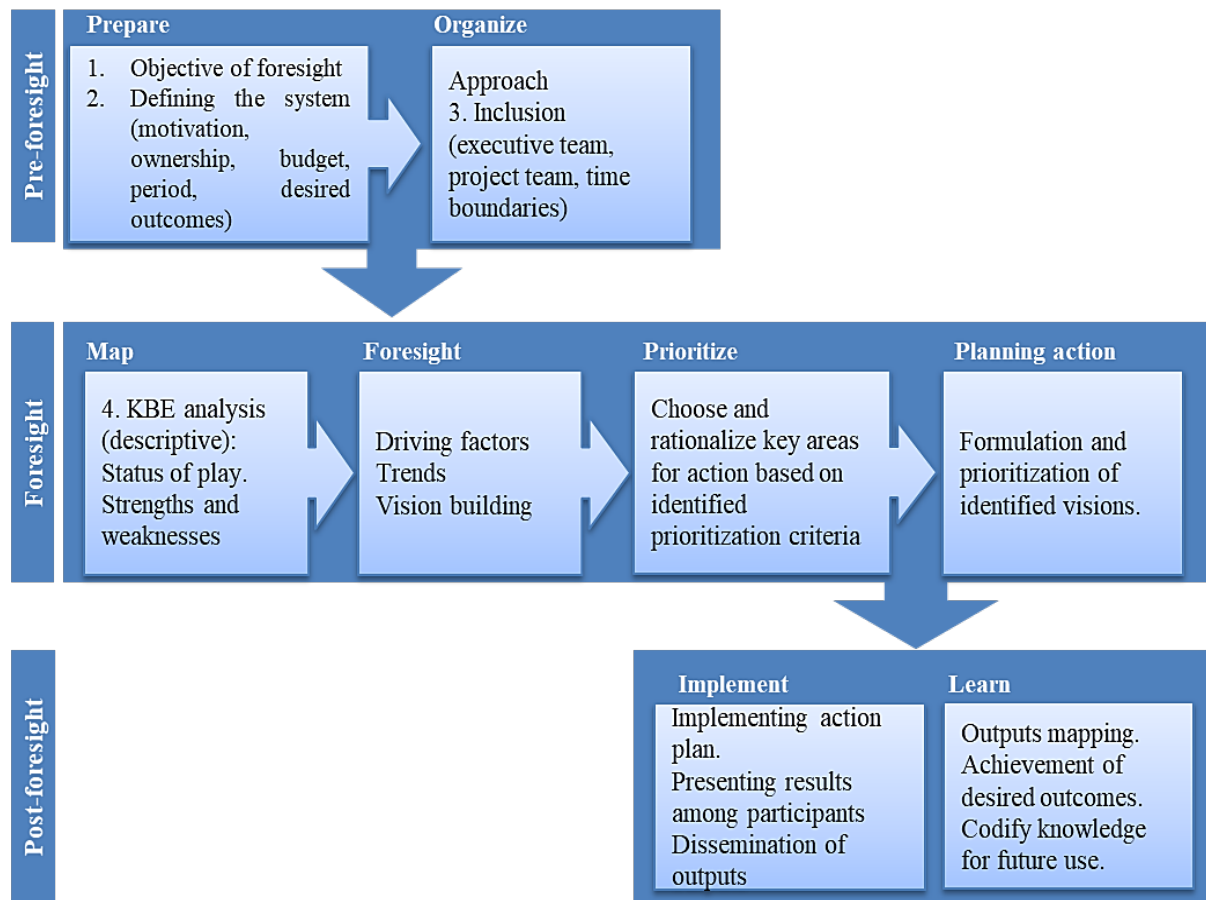
Intra-organisational learning represents a source of networking change, e.g. from knowledge sharing and lessons learnt. Thus, the institutionalisation of new learning (in other words, establishing explorative learning [Crossan et al., 1999]), policy, and routines is a key element in interaction change to a KBE. Meanwhile, reliance on already institutionalised learning, which represents exploitative learning (Crossan et al., 1999), represents a lack of networking change. Thus, in order to create change in networking that reflects intra-organisational learning, ‘the great destruction’ is required (Schumpeter, 1962) in a learning economy. Lane et al. (2006) asserted that absorptive capacity is the organisational capability of institutions to acquire, utilise, and reproduce knowledge from the external environment. They indicated that absorptive capacity is a result of three forms of organisational learning: exploratory, transformative, and exploitative learning. This finding suggests that as a form of learning, an institution plays the ‘teacher’ role, and another institution plays the ‘student’ role (Lane et al., 2006). However, there should be similarities in organisational structure, understanding, and policy as well as dissimilarities to share as a new learning experience (Lane et al., 2006). A successful transition to a KBE calls for alerted decision-making for an alignment between strategy and policy at an intra-organisational level for collective learning.

2.3 A Strategic Foresight Exercise and Policy Development for Transition to a KBE

Foresight is a field of practice that has recently become a scientific discipline. As a field in itself, it was established in the forum of public policymaking (Andersen and Andersen, 2014). The main motivation for public policy foresight is to ultimately link policies of developing KBE to social and economic development (Cagnin, 2011; Cagnin et al., 2012). However, the extant literature has not attended much to the provision of an agreed framework of strategic foresight for a KBE as a collective learning system in a time log. In their work, Anderson and Anderson (2014) focused on science, technology, and innovation to determine the framework

for strategic foresight in an innovation system. However, as a collective learning economy, the concept of a KBE was not employed by scholars in terms of the provision of conceptual systematic frameworks for national strategic foresight (i.e. for the aspects of the national foresight aim, criteria, and relevant participants). For instance, the strategic foresight process is usually represented in three stages: pre-foresight, foresight, and post-foresight (Andersen and Andersen, 2014) as outlined in Figure 2-2; however, this outline does not have a conceptual or theoretical basis in the literature on strategic foresight (Andersen and Andersen, 2017).

Figure 2-2. Phases and steps in foresight (based on Anderson and Rasmussen, 2017).



Moreover, strategic foresight as a practice tends to neglect the development of self-awareness concerning the definition of demands at a national level for setting priorities for aims, criteria, and relevant participants in strategic foresight. This study drew on Anderson and Anderson's (2014) argument that literature on strategic foresight has not yet identified a theoretical framework for defining the target system, the selection of participants, and the criteria of strategic foresight, which would provide understanding and an analytical scheme. In other words, scholars have not paid much attention to the need to provide a systematic theoretical foundation for developing strategic foresight, which could support the decision-making process before, during, and after strategic foresight (Anderson and Anderson, 2014). Thus, due to the unidentified strategic foresight (i.e. the aim, criteria, and participants), there are many failures in strategic initiatives in developing countries (Anderson and Anderson, 2017). From this standpoint, this present study argues that the engagement of relevant participants in collective

learning systems can provide a basis for supporting the decision-making process (Anderson and Anderson, 2017). This can be done by providing an analytically coherent scheme for assessing the transition from a commodity-based economy to a KBE.

A KBE demands a strategy of relationships for competitiveness (Venkatraman et al., 2002) as well as policy development for controlling interaction dynamics (World Bank, 2002); however, this must be done with a flexibility margin (Cirillo et al., 2019). The perspective on competitiveness in a KBE differs from that of a commodity-based economy (Venkatraman et al., 2002). As discussed earlier in Section 2.1., the evolution of the KBE concept shows how competitiveness perspectives in a KBE are different to other previous eras i.e. industrialism and the information society (Bell, 1973; Ferkiss, 1979; Leadbeater, 2000). The change in competitiveness perspectives imply changes in the patterns of strategy formulation in order to achieve competitiveness in a KBE. Relationships are considered as the main source of learning for competitiveness in a KBE (James et al., 2011). This suggests a new structure of organisation that supports related practices of internal and external relations and networking management within and among institutional spheres (Leadbeater, 2000, p. xi).

Competitiveness perspectives have changed from a commodity-based economy in industrialism and post-industrialism in an information society to a KBE. Different patterns are therefore necessary for formulating competitiveness strategies for a KBE (Leadbeater, 2000, p. xi). Changes occur in formulating the competitiveness strategy in terms of five strategic patterns. The scope of focus in strategy has shifted from the development of commercial portfolios in industrialism to the development of a portfolio of capabilities in an information society; however, a portfolio of relationships is the strategic scope of focus in a KBE (Venkatraman et al., 2002). The unit of analysis in the strategy was business units or department units in industrialism. This changed to corporate units in an information society, while in a KBE, the unit of analysis is the networking of internal and external relationships

(Leadbeater, 2000; Venkatraman et al., 2002). The determinant of competitiveness was the selection of products and market commodities in industrialism; however, this changed to capabilities in an information society. In the KBE, it became the flows of collective expertise (Lundvall and Johnson, 1994; Venkatraman et al., 2002), since expertise represents the capability to learn for creative and innovative productivity and re-productivity as well as being proactive in responding to changes in demand (Lundvall and Johnson, 1994). The competitive advantage is driven by economies of scale in industrialism as well as by both economies of scale and scope in an information society. Meanwhile, in a KBE, the competitive advantage is driven by economies of scale, scope, and expertise competitiveness (Lundvall and Johnson, 1994). Moreover, the leading strategy theme changed from positioning in industrialism, to process uniqueness in an information society, to a network centrality in a KBE (Bell, 1973; Ferkiss, 1979; Leadbeater, 2000). A comparison of strategic patterns for competitiveness between the KBE and previous eras of industrialism and the information society is outlined in Table 2-3.

Table 2-3: Patterns of competitiveness strategy: commodity-based economy towards the knowledge-based economy (based on Venkatraman et al., 2002).

Economic Era	Commodity-Based Economy (Industrialism)	Information Society (Post-Industrialism)	Knowledge-Based Economy
Competitive Strategy Patterns			
Scope of Focus	Businesses	Service and capabilities	Relationships
Scope of Analysis	Business department/unit	Institutions	Networking
Determinant of Competitiveness	Products' and commodities' market	Capabilities	Flows of collective expertise
Competitive Advantage(s)	Economies of scale	Economies of scale and scope	Economies of scale, scope, and expertise competitiveness
Leading Strategy Theme	Positioning	Process uniqueness	Network centrality

These changes in strategic patterns have demanded an alignment in policy development for governing the flow of expertise in networking for collective learning in a successful transition to a KBE (Galabova, 2012). Thus, policy plays a new role in a KBE that is different than the traditional role of policy (World Bank, 2002a) in six policy matters:

- (1) National-level collaboration and coordination;
- (2) Governance of coordination;
- (3) The facilitative role of government;
- (4) Education-labour and market-society interaction;
- (5) The qualification system; and
- (6) The role of management.

The Finnish model of transitioning to a KBE could be taken as an example of a path-dependency during the financial crisis in the last two decades. The Science and Technology Policy Council played a central role in upgrading knowledge strategy, chaired by the Prime

Minister with support from high-level representatives from government, academia, and industry (Benner, 2003a; 2003b). The council's role represents the realisation of demanded change in a policy role during a financial crisis: an activist structural economic policy demanded to form the backbone of crisis management and adequate support requiring governance for the renewal of the innovation system. This realised a change in the policy role, which changed priorities in the Finnish growth policy. Meanwhile, science and technology policies came to play a central role in coordinating efforts for mutual interest and crisis management (Benner, 2003a; 2003b).

Therefore, the suggested role of policy by World Bank (2002a) is in:

- (1) National-level collaboration and coordination has changed from using a sectoral approach to a new approach of multi-sectoral collaboration and coordination.
- (2) Governance of coordination has changed from one-way rules and regulation to a new role of partnerships and interactive mutual support (Etzkowitz and Leydesdorff, 1997b).
- (3) The facilitative role of government has changed from being based on rules and regulations to a new role of providing alternatives, incentives, and information to enable collaboration, cooperation, and provision (Abdrazak and Saad, 2007; Etzkowitz and Leydesdorff, 1997).
- (4) Education-labour and market-society interaction has changed from an institution-based supply to a new role of learner-based demand (Etzkowitz and Leydesdorff, 1997b).
- (5) The qualification system has changed from being based on curriculum and student assessment compliance with national standards to a new role of a diversified system of recognition and quality control (Önnerfors, 2007; Weber, 2011b; Wiseman and Anderson, 2012); and

- (6) The role of management has changed from developing rules and regulation to a new role of developing incentives and facilitating diversity (Etzkowitz and Leydesdorff, 1997b; Abdrazak and Saad, 2007). Table 2-4 outlines the traditional vs. the new versions of policy development for a KBE.

Table 2-4. Traditional vs. new policy roles in a KBE (based on World Bank, 2002).

Policy Matters			Traditional Role	New Role in the Knowledge Economy
National-level collaboration and coordination			Sectoral approach adoption	Multi-sectoral approach collaboration and coordination
Governance coordination		of	One-way regulation	Partnerships and interactive mutual support
Facilitation role of government	role	of	Rules and regulation	Provision of alternatives, incentives, and information. Enabling of collaboration, cooperation, and provision
Education-labour and market-society interaction		and	Institution-based supply	Learner-based demand
Qualification system			Curriculum and student assessment compliance with national standards	A diversified system of recognition and quality control
Management role			Development of rules and regulations	Development of incentives and facilitation of diversity

The concept of KBE stands on the principles of autonomy and responsibility. Accountability for results is based on the availability and sufficiency of autonomy, resources, and building capability (World Bank, 2007). Thus, individuals and institutions would not be responsible for results unless the policy and governance system have made autonomy and resources available for building capabilities (World Bank, 2007). For example, the linkage of a coordinated system to an integrated performance system in Sweden distinguishes the Swedish KBE model (Parker, 2004) in terms of establishing autonomy and responsibility in national strategic planning across stakeholders. Engagement of stakeholders from industry, education, civil society, and professional bodies with governments in developing the vision and strategy of action plans is what distinguishes national strategic foresight in developed countries. However, for developing a KBE in developing countries, developing foresight at a national level is ineffective in achieving a transition to a KBE (Aguirre-Bastos and Weber, 2018). Unlike the approach employed in developed countries, the approach in developing countries to national strategic

foresight for a KBE is descriptive and based on actual results and empirical outcomes rather than forecasts (Aguirre-Bastos and Weber, 2018).

More recently, foresight has been implemented as an instrument to improve the performance in innovation systems in the dimension of developing technological advancements and scientific research (Aguirre-Bastos and Weber, 2018; Andersen and Andersen, 2014; 2017). However, the collective learning concept of a KBE was not used as a framework for the national strategic foresight exercises. Thus, the deployment of a KBE concept in practice neglected the development of institutional capabilities to learn and deploy learning for competitiveness. Moreover, assessing networking change across the main actors in a time log was not done for recognising a transition to a KBE. Although change in networking by time (i.e. in practising national strategic exercise) can highlight situated learning and whether it was relevant to a clear framework for the transition to a KBE at a national level.

Thus, the development of a constructive discourse between strategic foresight and a collective learning system is important for a transition from a commodity-based economy to a KBE. This includes the identification of national strategic foresight's aim, criteria, and relevant participants in light of the need of a developing country, in other words, a reasoning approach (Andersen and Andersen, 2014; 2017). This should be done within a defined and distinguished learning system for a specific country context. Thus, applying inclusive networking across institutional spheres at a national level would serve inclusive development on an economic and social basis and would thereafter strengthen the collective learning system (Anderson and Anderson, 2014; 2017; Lundvall, 1994).

2.4 Institutional Spheres in KBE

Exploring the adopted institutional arrangements and organisational practices across institutions indicate the main dynamics of a KBE: institutional capacity to learn and expand a knowledge base (Leadbeater, 2000, p. 26) and institutional entrepreneurship (World Bank

Institution, 2007a). Thus, institutions can be considered as a performance reference that could be useful for justifying the order and frequency of activities that are formally and informally accepted by the cultural implicit understandings of social order (Garud et al., 2007).

Leydesdorff (2006) argues that the layout of governance, market, and knowledge production has three possible degrees of freedom and could be modelled in terms of a triple helix of government, university, and industry relations (Etzkowitz, 1998; Etzkowitz and Leydesdorff, 1997) to create a complex view of interaction dynamics in a KBE system. At a national level, the role of facilitation and organising in a KBE model is taken by a governance system or the government. The role of economic production and exchange is taken by industry, while the role of organising a knowledge-production function is taken by universities (Etzkowitz, 1998; Etzkowitz and Leydesdorff, 1997). In addition, in a KBE, government-university-industry relations develop in terms of institutional arrangements that incorporate the socioeconomic system: (1) wealth generation, (2) novelty production, and (3) control at the interaction of these sub-dynamics (Etzkowitz, 1998; Etzkowitz and Leydesdorff, 1997). This reflects the co-evolutionary dynamics of developed changes at a network level (Etzkowitz, 1998; Etzkowitz and Leydesdorff, 1997).

The future of institutional spheres' interaction for a transition to KBE competitiveness would most probably be influenced by two major tendencies: (1) the transition to a greater economic reliance on knowledge production and (2) a proactive effort to specify and guide anticipated future tendencies i.e. in knowledge production and its implications for society (Etzkowitz, 1998; Etzkowitz and Leydesdorff, 2000; 1997). There is a forthcoming transition from production function economics to the socioeconomic processes of a KBE (Etzkowitz, 1998; Etzkowitz and Leydesdorff, 2000; 1997). This transition, associated with institutional contribution to a new infrastructure of knowledge, has been addressed by leading scholars in the KBE domain, such as Lundvall (1995) and Leadbeater (2000). The main concept of

interaction and collaboration among institutional spheres in a co-evolutionary triple-helix model is that of bottom-up and top-down initiatives (Etzkowitz, 2003). Scholars have called for the extension of the triple-helix model with local-global components as a fourth dimension or, more generally, to an N-tuple of helices to analysing a KBE per the country's context, a case study, and availability of data (Leydesdorff, 2012). Cooper (2009) expressed that community-engaged scholarship concepts identify room for a fourth helix that could be added to the triple-helix model in a civil society.

Thus, in this study, it is considered most suitable to include civil society and professional bodies in the institutional networking and collaboration analysis, as it represents community engagement in the collective learning system. Moreover, the emphasis on the education environment and output in terms of the institutional capacity to learn (Sam and Sijde, 2014) has motivated this present study to include schools and university as one institutional sphere. However, university in this study has gained more emphasis in that university leads the education system (Etzkowitz, 2013; Etzkowitz and Leydesdorff, 1997; Svensson et al., 2012). The following is an overview of the role that could be played by each institutional sphere of government, university, industry, and civil society and professional bodies for the transition to a KBE.

2.4.1 The Role of Government in a KBE

The interaction among institutional spheres in the quadruple-helix model sheds light on the independence in the relationships between university, industry, government, and civil society and professional bodies, while the government owns the KBE at a state level and thus becomes the organiser. Thus, the government pushes the other three spheres to achieve the target networking level for developing a dynamic KBE learning system for the desired outcome of inclusive development (Andersen and Andersen, 2017; Etzkowitz et al., 2007a). This

relationship represents a potential process of exchange among the spheres (Leydesdorff, 2000; 2012). Therefore, communications (e.g. language and text) and expectations (e.g. national strategic foresight) of a network are the elements that reform organisational practices among institutional spheres in modern society (Andersen and Andersen, 2014; Leydesdorff, 2000; Phillips et al., 2004).

A KBE is a state vision and strategy that the government imposes on institutional strategies, practices, and routines. The government plays a significant centralised role in facilitation, building cooperation, and policy alignment to monitor the collaboration and coordination among the different actors in the economy (World Bank, 2007a; 2007b). The government is also required to maintain a suitable environment for institutional networking based on teamwork, collectiveness, and responsiveness for the needs and opportunities in a KBE. In addition, governments should provide the necessary support, motivation, and incentives to enable the private sector to grow (World Bank, 2007a; 2007b). The government plays the role of facilitator and coordinator in organising and financing the relationships between a university-industry-civil society (General Cooperation Organisation for Economic, 1996; Leydesdorff, 2012). Policy development contributes to the monitoring of organisational practices of institutional interrelationships and the implementation thereof (Abdrazak and Saad, 2007; Etzkowitz and Leydesdorff, 1997; Sarpong et al., 2017). Therefore, the government undertakes regulation and performance monitoring to strengthen the interaction between institutions for economic gain. This goal could be achieved by means of developing related public policies for revising industrial norms and recognising inclusive economic development for an academic industry and society (Etzkowitz and Leydesdorff, 1997). The government's role is mainly to provide the support required for bringing research to market, for joint technological innovation in academic research; for encouraging cooperation by providing legal tools and fiscal incentives; for evaluating the results of university-society-

industry collaboration and networking; for technological innovation in academic research; for sponsored research; for university-society-industrial identified niches of market; and for developing patent policies (Etzkowitz et al., 2000).

However, Etzkowitz and Leydesdorff (1997) and Leydesdorff (2012) argued that the interaction between the institutional spheres (government, university, civil society, and industry) is expected to differ from one country to another. This is due to differences in underlying factors that contribute to organising the function interaction between the institutional spheres. For example, for a developing country like Malaysia, a balanced control role needed to be played by the government (Sarpong et al., 2017). From certain perspectives, institutions (e.g. local universities) may need to be given a more empowered role while reducing the role of government, while from other perspectives, government intervention is certainly required for monitoring institutional interactions and for avoiding mission factions (Abdrazak and Saad, 2007). The networking centrality role of government can be seen in the statistical quadruple-helix model (Etzkowitz et al., 2007). However, greater recognition is required for the essential role the university could play in technology transfer, innovative inventions (Etzkowitz et al., 2000), and transactional costs for skills mismatching in outputs for labour market demands. Closer interactions between institutions and universities have been promoted by institutional innovations to facilitate the shift from traditional expected outcomes from research and a contribution to an infinite transition model of organisational practices that are stimulated by the government (Etzkowitz, 2013; Etzkowitz et al., 2000; Etzkowitz and Leydesdorff, 2000). This requires redesigning the policy and routine structure as well as a shared vision and strategy formulation (Etzkowitz, 2013; Etzkowitz et al., 2000; Etzkowitz and Leydesdorff, 2000). This formulation is done to identify new organisational practices for the market pull and technology push concept (Etzkowitz, 2013; Etzkowitz et al., 2000; Etzkowitz and Leydesdorff, 2000). An example of such programmes would be the Business Innovation

Research Programme (SBIR) and the Industry-University Cooperative Research Centres (IUCRC) in the USA among others (Etzkowitz et al., 2000). Other examples are the Technology Bridge Foundation and the Knowledge Competency Foundation in Sweden (Etzkowitz and Leydesdorff, 2000).

2.4.2 The Role of University in a KBE

The academic revolution, which happened in the late 19th century, suggested a new role that could be played by a university, different to the traditional role of a university in an economy. The suggested role of the university is taking an active partnership role in research, economics, and community for knowledge creation in a KBE. Therefore, a traditional university's mission was extended to combine research and active economic partnership as part of the learning and teaching process – at least at the graduate level (Etzkowitz, 1998). The role of university in economic development has been introduced as a third mission, 'scholarship of engagement' or 'social responsiveness', to respond to the accelerated silo between research and economic development, or in socioeconomic development (Cooper, 2009; Etzkowitz, 2013; Etzkowitz and Leydesdorff, 2000). Cooper (2009) introduced the concept that a university's role is a community-engaged scholarship. This is a scholarship that engages faculty members in a mutually beneficial partnership with the community. Community engagement refers to the process of solving issues and challenges facing communities by utilising institutional resources in collaboration with communities (Cooper, 2009). Scholarship refers to teaching, discovery, and integration with a clear vision and goals, appropriate methods, significant results, and a reflective critique that is peer-reviewed (Cooper, 2009). Cooper (2009) expressed that community-engaged scholarship concepts identify room for a fourth helix that could be added to the triple-helix model – university-civil society (U-CS) – according to which the role of a university should include:

- (1) High standards of scholarship among university academics (including peer review and the satisfaction of good research criteria);
- (2) Different forms of scholarship, such as teaching, discovery, application, and effective dissemination of findings with community engagement;
- (3) Mutual engagement of a university's academics and community for collaboration and a fruitful partnership; and
- (4) Intentional public good and benefits, the ultimate target of which is to create value for all stakeholders and to use inspired research.

Furthermore, the participation of academics in transferring technologies, establishing firms, and development at regional levels conveys conversion from a research-based institution to an entrepreneurial university as an academic model (Etzkowitz, 2013). The more the universities become entrepreneurial, the more the pressure increases due to its new entrepreneurial role and the role of balancing research and teaching functions. The more these functions become coherent, the more they are strengthening and enhancing each other (Etzkowitz, 2013). The entrepreneurial university is developed in three nonlinear stages:

- (1) Strategy formulation, priority setting, and seeking of self-dependent financial resources either by grant income, tuition fees, or resource providers' negotiations;
- (2) Commercialisation of the intellectual property activities' outcomes from the engagement of faculty, staff, and students. In this phase, a university builds its own capability for technology transfer and in-sources them from firms to which they may have been contracted; and
- (3) A proactive role in enhancing the efficacy of its innovation environment at regional levels in collaboration with industry and government actors (Etzkowitz, 2013).

The nonlinearity of the stages suggests the inapplicability of the sequential order among the stages (Etzkowitz, 2013). Etzkowitz (2013) defined four interconnected propositions that represent the model of the entrepreneurial university:

- (1) *Interaction*. The entrepreneurial university does not work in isolation; rather, it interacts closely with industry and government.
- (2) *Independence*. The entrepreneurial university is not established as a part of another institutional sphere; it is an independent institution.
- (3) *Hybridisation*. The resolution of friction between interaction and independence is a stimulus in forming a hybrid organisational arrangement to concurrently understand both principles.
- (4) *Reciprocity*. Entrepreneurial universities are distinguished by the flexibility and continuity of the restructuring process of their internal structure, based on the demanding change in industrial-governmental interactive relations.

Etzkowitz and Leydesdorff (2000) asserted that ‘the university’s unique comparative advantage is that it combines continuity with change, organisational and research memory with new people and new ideas, through the passage of student generations’. Despite the arguments related to the third mission, the most common argument would be concerning the university’s entrepreneurial role in socioeconomic development, and it is embedded in the entrepreneurial university’s role in collaboration with external stakeholders (Etzkowitz and Leydesdorff, 2000). The comparative advantage of the university is teaching and expanding the mission to include search and economic development, which is considered as growth – to its advantage. Furthermore, if the university succeeds in retaining its original educational mission, it will remain the central institution of the knowledge sector (Etzkowitz and Leydesdorff, 2000). Students, as potential inventors, represent an energetic flow of ‘human capital’ in academic research groups. This factor is unavailable in research institutes and industrial laboratories

(Etzkowitz and Leydesdorff, 2000). A transition to an entrepreneurial university is forthcoming, from various perspectives (Etzkowitz et al., 2000). The future of the entrepreneurial university is most probably influenced by two major tendencies: (1) the transition to greater economic dependency on knowledge production and (2) the proactive effort to specify anticipated future tendencies and guide knowledge production as well as their implications for society. There is a forthcoming transition from the economics of the production function to the socioeconomic processes of the KBE – with universities' contribution to a new infrastructure of knowledge, which has been addressed by leading scholars in the KBE domain such as Lundvall (1997).

The education system and environment determine the level of human capital development, skilled workers in the labour market, and thereafter the institutional capability of the transition to KBE competitiveness (Sam and Sijde, 2014). Thus, the school's role cannot be separated from the university's role in the development of a KBE (Tuijnman, 2003). Education approaches such as the teacher-centred approach in developing countries promote individuality and require a limited amount of thinking, as explained above (Wiseman and Anderson, 2012). This approach also highlights the role of culture in education communities, which could impact how ICT is used in linking learning outcomes to the creation, acquisition, and implementation of knowledge in the labour market and civil society (Wiseman and Anderson, 2012). Education outputs are the workforce the institutional body relies on for development. Thus, the approach to education and the education environment may have a considerable impact on capabilities of learning and deploying learning for a transition to a KBE (Wiseman and Anderson, 2012). The recent tendency of new schools' curricula is that they are based on competencies, skills, and capabilities that enable 'doing' rather than subject-based learning or 'knowing' (Wiseman and Anderson, 2012). Therefore, scholars call for strengthening the ties between schools and universities to develop a shared vision of educational outcomes for workforce development

(Sam and Sijde, 2014). Greater collaboration between schools and universities is necessary for shaping the education system based on labour market demands. This collaboration requires greater engagement of schools (students, teachers, and management) with university. It will strengthen the engagement between the education system (schools-university) and industry and civil society.

2.4.3 The Role of Industry in a KBE

Industry or market involvement in institutional interaction influences the innovative economic performance concerning the transition to a KBE at a national level (Etzkowitz and Leydesdorff, 2000; OECD, 1996). This influence suggests transparency and a clear dialogue between the institutional spheres and industry (Phillips et al., 2004). This transparency is also required for knowledge and technology transference; new product development; accelerated technological innovation; magnification of a knowledge base; and implementation of fiscal incentives for increasing cooperation (Etzkowitz et al., 2000). The competitive KBE models of Sweden, Finland, and Denmark could all represent an example of a coordinated model among institutional spheres that is based on clear expectations of each participant (Parker, 2004; Schienstock, 2007). Moreover, the technology sector in Sweden has further integrated its performance management system (Parker, 2004; Schienstock, 2007). Thus, transparency between institutional spheres is important for achieving a mutual understanding of the requirements and expectations of market advancement and the role of each institution for the transition to KBE competitiveness.

A KBE is known for its increasing demand for a more highly skilled workforce and higher wage premiums in the labour market (OECD, 1996). The role of leading industrial clusters in human development can be studied from the Finnish and Danish KBE models. Effective networking policy development led by global market players in Finland was done in reference

to international standards. This contributed to the development of a strategy for advancing a highly skilled workforce (Schienstock, 2007). In Denmark, workforce specialisation in knowledge-intensive activities in traditional industry sectors is derived from the Danish competitive KBE model. Moreover, the coordinated model of university-industry interaction in Denmark can be identified by two characteristics: the negotiated nature of its economic system and its strong system of vocational training (Parker, 2004). In Sweden, the industrial system is distinguished by labour market programmes, collective bargaining, and institutional emphasis on skills development (Parker, 2004).

The emergence of industry-based science has been acknowledged by scholars as a response to the changed demand of a KBE (Etzkowitz et al., 2000). This new industry has a new mission and a new organisational structure that is suitable for functionality and networking with universities for collaboration projects and entrepreneurial centres of higher technology (Etzkowitz et al., 2000). For example, in the UK, the coalition government emphasised coordination between universities and employers in the labour market to understand and meet labour market needs and to create a creative class of technicians, professionals, and highly skilled individuals (James et al., 2011).

Thus, an indirect, decentralised industrial policy across the institutional spheres is more effective than the traditional direct industrial policy, since it considers the differences between institutions (Etzkowitz, 2003). A teacher-student relationship across institutions can facilitate knowledge dissemination for intra-organisational learning (Crossan et al., 1999). However, forming such a relationship requires similarities in policy and routines across institutional spheres (Crossan et al., 1999). The main concept of the triple-helix model is based on bottom-up and top-down initiatives (Leydesdorff, 2006). However, the practices of open discussion groups for sharing knowledge are expected to be at minimum levels in the case that interaction was organised according to the total control of the government (Crossan et al., 1999). Thus,

considering the public's participation in professional bodies, a fourth helix would open the channel of bottom-up organisations (Etzkowitz, 2003).

2.4.4 The Role of Civil Society and Professional Bodies in a KBE

In line with what was suggested earlier by the cluster literature, Wolfe and Gertler (2004) highlighted local social dynamics as a key clustering indicator, especially those in the presence of community-level institutions for associative governance. Such institutions can promote the behaviour and social interaction required for successfully adopting change in order to face competitive challenges (Wolfe and Gertler, 2004). Such institutions therefore act as institutional entrepreneurs in enforcing policy changes in intra-organisational social construction (Phillips et al., 2004). The path-dependent nature of such local institutions provides them with a distinctive pattern and unique asset base that is hard to replicate (Wolfe and Gertler, 2004). The important themes in forming clusters for KBE development are learning, skilled labour, policy, and laboratories within the role of public institutions (Wolfe and Gertler, 2004). Knowledge is socially embedded in the coordination of organisational practices and structural routines, which are strongly influenced by societal institutions (Lam, 2012).

Scholars have called for an extended view of the triple-helix model with local-global components to a N-tuple of helices for analysing a KBE according to the country-specific context, case studies, and availability of data (Leydesdorff, 2012). Thus, adding a sphere of civil society and professional bodies to the collaboration and networking system of UIG in this study would represent the civil-society networking in the national development strategy. This sphere represents the professional society of practice and represents an active body of knowledge capital in a KBE. The openness of innovation and the creativity of the knowledge productivity process invites individuals and society at large to be part of a KBE organising

system with other institutions (Kolehmainen et al., 2016). This relationship has mainly been emphasised by the emergence of user-driven innovativeness. Hence, the quadruple-helix model becomes more relevant to a KBE than a triple-helix model, especially for developing countries in the case of an inefficient public sector and the absence of basic triple-helix elements (Kolehmainen et al., 2016).

The professional bodies represent knowledge capital in a country and could be a source of expertise, practical knowledge, and solutions (Cooke, 2001). Professional bodies form when groups of people with similar professions, capabilities, and qualifications develop a shared interaction space or network for learning and sharing knowledge. Therefore, engaging in such associations in networking during the institutional transition to a KBE would add value to policy development and knowledge-practice sharing and it would create suggestions for solutions to common problems. This is especially because some of those associations represent large communities of expatriates. Those expatriates are highly educated and skilled workers who have successful careers in developed countries. Thus, they can help in programmes and policy development for the efficiency of a KBE (World Bank, 2007a; 2007b).

Florida (2002) suggested that creative classes are driving economic growth. One of the classifications of the creative class thesis is that of creative professionals. Creative professionals are classic knowledge workers who can rely on a large amount of knowledge to solve specific problems and are represented in occupations related to education, healthcare, business, finance, and law (Florida, 2002). The institutionalisation of a KBE's norms in a knowledge society is subject to the establishment of knowledge-intensive communities within an economy. Such communities are created from the intensity of technological and scientific advancement and are characterised by their connectivity to technical, scientific, and business professions or projects; their strong knowledge production and reproduction capabilities; their links to public or semi-public spaces for learning and exchange; and their intensive use of

information technologies (Florida, 2002). Therefore, in defining a KBE based on recent literature, collaboration and networking are highlighted as important practices in knowledge-intensive communities for economic growth and national competitiveness (David and Foray, 2002b; Thurow, 1999). Therefore, it is essential to identify the minimum set of agents with necessary competences that are different yet complementary for producing new combinations and solutions in institutional collaboration (Eliasson, 1988; 1991; Eliasson and Eliasson, 1996). In the UK, one of the suggested practical steps for KBE competitiveness and growth by scholars, is defining Sector Skills Councils (SSCs) to interact with Group Training Organisations (GTOs) and professional bodies to provide guidelines for new practices to link skills development programmes and to provide guidelines. Another suggested step is the empowerment of local authorities with responsibilities to facilitate participation in creating a dialogue between institutions concerning new ideas and to rethink approaches to local path dependencies; combinations of components; and new capabilities and knowledge (James et al., 2011).

However, each institutional sphere of government, industry, education, and civil society and professional bodies plays a role in stimulating innovative outcomes for a competitive KBE (Etzkowitz et al., 2007b). Therefore, the following section explores management theories developed and applied in the literature expressing different views on developing the knowledge base of an economy in the context of institutional theory of entrepreneurial action (Phillips et al., 2004) in the practice of interaction and communication across institutional spheres in the context of the triple-helix model (Schatzki, 2005; Leydesdroff, 2006).

2.5 Theoretical Perspectives on the Development of KBE and Collaboration between Institutional Spheres

Scholars define the KBE as a learning economy and shed light on developing institutional learning capacity for a transition to a KBE (Lam, 2000; Leadbeater, 1999; 2000; Lundvall and

Johnson, 1994). The institutional ability to learn about a subject matter depends on organisational practices in achieving collective outcomes (Leadbeater, 2000, p. 231). Collaboration and networking among institutional spheres develop the capacity of institutional learning (Etzkowitz et al., 2007b; Lam, 2000; Škerlavaj et al., 2010). The relevant literature has highlighted the role of inter-institutional relations and calls for the development of new policies to support networking, clustering, and centralising expertise to maintain growth strategies in a KBE (Benner, 2003b). Thus, building a high-quality institutional regime has become a strategic requirement in the development of a KBE (World Bank, 2007b). This development extends the call to recognise KBE competitiveness from the viewpoint of institutional networking and collaboration (Leydesdorff and Strand, 2013; Powell and Snellman, 2004). Harmony among institutional spheres in an economy is an important element in building a knowledge base (Bell, 1973; Leadbeater, 2000). Such harmony is developed from the perspective of equivalent institutional capability and flexibility in policies to foster interaction across different sets of organisational bodies (Cirillo et al., 2019). Similarities in policies and routine structures across institutions allow for practising teacher-student forms of relationships across institutional spheres for intra-organisational learning and for the flow of expertise (Crossan et al., 1999), which contribute to the collective learning system of an economy (Lundvall and Johnson, 1994).

Management theories developed and applied in the literature have expressed different views on developing the knowledge base of an economy. Theories presented in the literature review and which were found relevant to the scope of this study were the evolutionary theory of economic change (Dosi, 1982; Freeman et al., 1982; Nelson and Winter, 1982); new growth theory (Lucas, 1988; Romer, 1986); national innovation systems theory (Freeman, 1987; Lundvall and Bengt-Åke, 1995; Lundvall et al., 2002; Nelson, 1993; Nelson and Winter, 1995); and the triple-helix theory (Etzkowitz and Leydesdorff, 2000; Leydesdorff, 2006; 2012).

However, each theory conceptualises the knowledge base in terms of explaining KBE dynamics differently. In this section, an overview of the theories on the knowledge base of an economy is given. This overview is followed by an argument concerning the identified theoretical gap, and knowledge base conceptualisation is also addressed in this study. This section also explains the rationale behind the selected theories: the quadruple-helix model (Etzkowitz and Leydesdorff, 2000; Leydesdorff, 2006; 2012) and practice theory (Schatzki et al., 2001; Schatzki, 2005) in the development of the conceptual framework of this study.

Dang and Umemoto (2009) offered a scale of knowledge conceptualisation across theories, i.e. knowledge as an asset, capability, or relationship, as outlined in Figure 2-3. In their work, they emphasised knowledge as a capability in a KBE. The scale in Figure 2-3 outlines the conceptualisation of knowledge in explaining a KBE across the theories in the literature. The knowledge was conceptualised in the theories as (1) an asset, (2) a capability, or (3) a relationship. Dang and Umemoto (2009) conceptualised knowledge as an asset in the new growth theory (Lucas, 1988; Romer, 1986); as a capability in the evolutionary theory of economic change (Nelson and Winter, 1982); and as a relationship in the triple-helix theory (Etzkowitz and Leydesdorff, 2000; Leydesdorff, 2006; 2012). In addition, more than one conceptualisation of knowledge was in the national innovation system theory (Freeman, 1987; Lundvall and Johnson, 1994; Nelson, 1993), as knowledge was conceptualised as a capability and a relationship.

Figure 2-3: Scale of knowledge proposition in the theories of KBE dynamics (suggested by Dang and Umemoto, 2009).

Views of Knowledge Economy	Knowledge as an Asset	Knowledge as a Capability	Knowledge as a Relationship
Theories of Knowledge Economy	New growth theory (Lucas, 1988; Romer, 1986)	Evolutionary theory of economic change (Nelson and Winter, 1982)	Triple-helix theory of knowledge economy (Etzkowitz and Leydesdorff, 2000; Leydesdorff, 2006)
	National innovation system theory (Freeman, 1987; Lundvall and Johnson, 1994; Nelson, 1993)		

New growth theory (Lucas, 1988; Romer, 1986) explains the KBE dynamics by including the change factor of technical knowledge in the economy's production function in a neoclassical economics view. The theory suggests that a combined effect of economic activities, the endogenous effect, and the effect of knowledge externalities could provide a knowledge economy with a sustainability advantage for long-term economic growth.

The evolutionary theory of economic change (Nelson and Winter, 1982) explains the economy by means of an evolutionary process according to which organisations perform as living organisms and the capabilities of organisations are heterogeneous (Nelson and Winter, 1982). Thus, innovation happens when there is a call for routine change; thus, organisational routines

are distracted by adopting another practice e.g. that of another successful organisation. The continuous positive change in organisational routine allows economic growth to happen at an economic level (Nelson and Winter, 1982). However, this calls for a collective effort, as individual effort could not affect overall economic growth (Anderson, 1994; Leydesdorff, 2010; Schatzki et al., 2001).

National Innovation System Theory (NIST) (Freeman, 1987; Lundvall and Johnson, 1994; Nelson, 1993) explains the process of innovation, creation, modification, and diffusion in an innovation system by interaction among various actors. The actors in the innovation system are (1) organisations concerned with knowledge of exploration and searching and (2) systems related to economic and institutional structure (e.g. financial, production, and marketing systems). The theory suggests the national state is the rational actor for developing the national innovation system and the economy (Freeman, 1987; Lundvall and Johnson, 1994; Nelson, 1993).

The triple-helix theory addresses knowledge as a relationship in KBE dynamics. Relationship, as a strategy focus, is more suitable for shaping strategy for a transition towards KBE dynamics (Venkatraman et al., 2002). The triple-helix theory (Etzkowitz and Leydesdorff, 2000; Leydesdorff, 2006) is cited more than 7,300 times. This theory addresses university, industry, and government as the main institutional spheres in a KBE. Referring to the triple-helix model, these institutional spheres network in a double-layered network – namely, the institutional layer and the functional layer. Moreover, the system's retention and reproduction comes from recombining and reproducing the following three functions: (1) the generation of economic wealth; (2) the generation of scientific and technological novelty; and (3) locally controlling the two functions at a system level. Moreover, the dynamics of the entire KBE are driven by (1) the frequency of interaction between the main three institutions as helices and (2) interaction between the two institutional and functional layers. Consequently, the KBE

emerged as a reflection of the three helices in a second-order interaction i.e. resulting from the past compromises between functions and institutions (Leydesdorff, 2006). Thus, networking and the capability to network across institutional spheres as well as between institutions and functions are emphasised in KBE development. The later revision of the triple-helix model suggests the quadruple-helix model, which includes other institutional spheres of civil society. The authors of the triple-helix model have invited scholars to identify the N-helices models based on a country-specific context. For instance, governance was suggested for the Japan N-helices model (Leydesdorff, 2012).

Knowledge as a capability was identified by the literature as the most suitable theoretical representation of knowledge (Dang and Umemoto, 2009; Sun and Anderson, 2012). However, relationships became the main focus in shaping strategies for KBE (Venkatraman et al., 2002), since collective effort for collective learning (Thurow, 1999) could be maintained by networking (Venkatraman et al., 2002). Moreover, the three types of knowledge conceptualisation can be found in institutional networking and collaboration events i.e. knowledge as an asset, in knowledge codification as a networking learning outcome; knowledge as a capability, in enhancing the capability to learn and implement learning in networking and networking change by time; and knowledge as a relationship, in strengthening relationships with partners to achieve strategic targets for mutual interest and for being proactive and responding collectively to anticipated future change. As indicated earlier, KBE is defined by this research as ‘an economy that is based on dynamic collective learning cycles in a national vision of collaboration, which is fed in (and by) the institutional capability to communicate, learn, and situate learning in organising interactions at an intra-organisational level in order to respond to future demands in national strategic foresight’. The definition of KBE in this study conceptualises knowledge for interaction across institutional spheres according to the three types of conceptualisation.

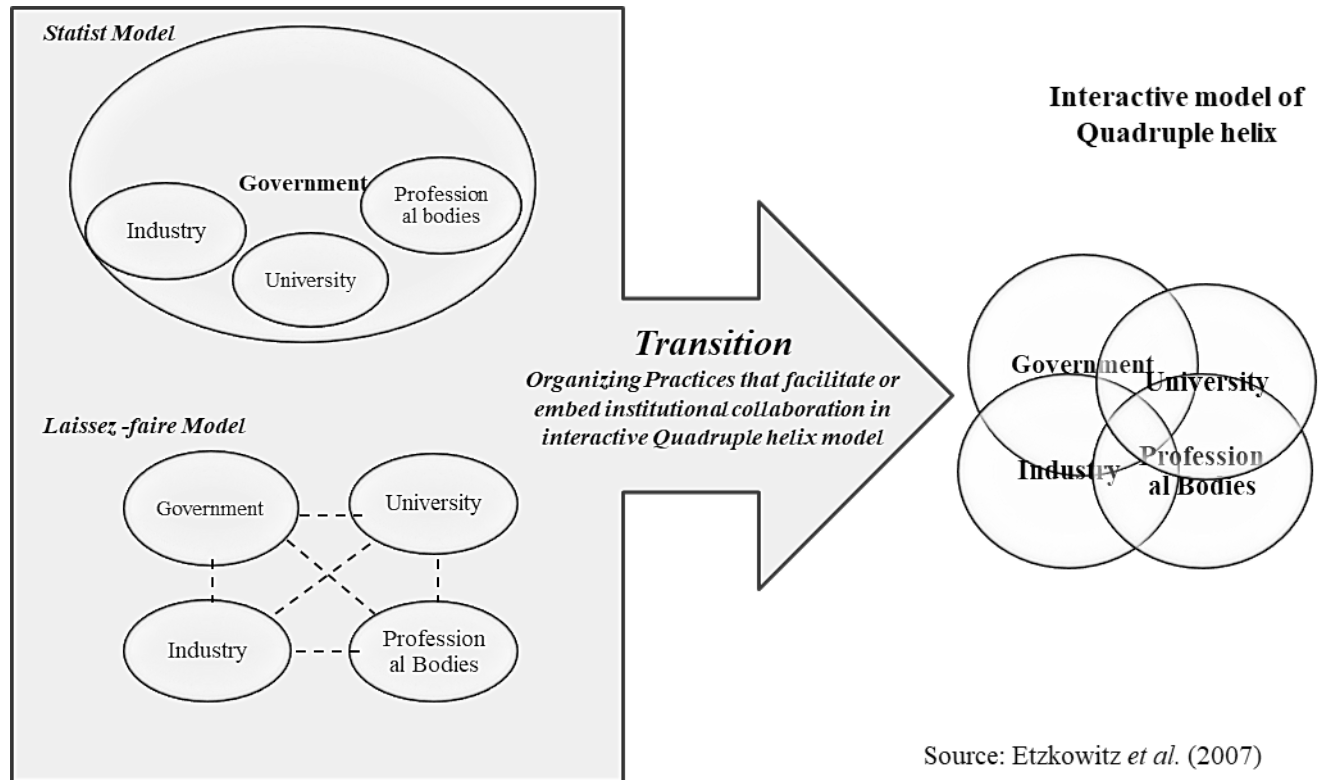
Therefore, in explaining the dynamic interaction across institutional spheres, the quadruple-helix model (of government, education, industry, and civil society) is considered suitable for application in this study. Moreover, the quadruple-helix theory explains the transformation of an organisation and agency in a knowledge-based system by addressing the importance of balance of incursive and discursive sub-dynamics in a KBE across institutional spheres (Etzkowitz and Leydesdorff, 2000; Leydesdorff, 2006). However, at a KBE level, the discursive dynamics change after such a transition and function differently to the previous stage of development. The evolutionary mechanism can be considered as feedback on the historical mechanism. Codified knowledge could again be communicated as discursive knowledge. The knowledge base of the social system provides discursive knowledge for restructuring the system at an intra-organisational level (i.e. at a supra-individual level) (Leydesdorff, 2006). This restructuring is a socioeconomic co-evolution (Cooper, 2009; Etzkowitz, 1998; Etzkowitz and Leydesdorff, 2000; 1997).

The co-evolutionary quadruple-helix model among the institutional spheres of government, university, industry, and civil society and professional bodies (Leydesdorff, 2012) was acknowledged as scholars for providing a layout of governance, market, knowledge production, and knowledge communities as four feasible degrees of freedom (Etzkowitz, 1998; Etzkowitz and Leydesdorff, 1997). Providing this layout creates a complex view of dynamic interaction in a KBE system (Leydesdorff, 2006).

Three stages in the interactional levels among the institutional spheres were recognised in the co-evolutionary model of helices concerning the dynamic interaction for transitioning to a KBE (Etzkowitz et al., 2007a). In the first stage, the statist N-tuple helix model, the government plays a dominant role in pushing academia and industry. While university is focused on teaching and academic research, R&D institutions assist in providing technical support to agricultural matters, initiatives of civil society are not recognised for economic development,

and industry provides the driving force for economic development (Etzkowitz, 2003). In the second stage, the *laissez-faire* triple helix, institutional spheres of government, industry, and university operate independently in the economy and rarely interact on a subject matter for collective outcomes (Etzkowitz, 2003; Etzkowitz et al., 2007a). In the third stage, the hybrid triple helix of institutional collaboration, institutions are autonomous and interactive at the same time in a modest form of institutional collaboration between independence and overlap (Etzkowitz et al., 2007b). Figure 2-4 outlines the quadruple-helix model of institutional collaboration in a KBE.

Figure 2-4. The quadruple-helix model of institutional collaboration in a KBE (based on Etzkowitz et al., 2007).



Social organisation is gradually transformed in KBE dynamics, but only if the change can be traced historically. Quadruple-helix theory argues that the representations are entertained and interfaced within the history of the system at the next moment in time (Leydesdorff, 2000). Thus, the more informative the preferences, the more these preferences can be included in decisions and can become organised knowledge (Leydesdorff, 2000). Moreover, the communicative competencies of agents and organisations are expected to change in the evolution of social coordination mechanisms as reflected in their learning capacities (Etzkowitz and Leydesdorff, 1997; Leydesdorff, 2000). The quality of decisions made by actors and institutional agents represent the communicative competencies of organisations and are subject to the capacity of the system to process complexity (Leydesdorff, 2006).

Although the functions, actions, and organisation were sufficiently explained in the quadruple-helix theory concerning transformation in organisations and agents, institutional learning was limited in its intuitive terms (Lam, 2000). Although the concept of communicative competence

is addressed in the quadruple-helix theory for a quality decision-making system, the theory has neglected to organise the collective learning process feed-in and feed-back approach for alerted decision-making to develop related communicative competencies and to stimulate networking and collaboration across institutional spheres.

Therefore, the theoretical gaps can be summarised in four main facets. Firstly, NIST is exclusively addressed in the literature (Etzkowitz and Leydesdorff, 2000; Lundvall et al., 2002; Lundvall and Johnson, 1994) at a macro level in terms of stating institutional learning in its intuitive terms (Lam, 2000). Secondly, the main dynamics of a KBE are (1) the institutional capacity to learn and to expand a knowledge base (Leadbeater, 2000, p. 26) and (2) institutional entrepreneurship (World Bank, 2007b; 2007a). Institutional entrepreneurship is defined by Maguire, Hardy, and Lawrence (cited in Phillips et al., 2004, p. 657) as ‘the activities of actors who have an interest in particular institutional arrangements and who leverage resources to create new institutions or to transform the existing ones’. In this context, it was found that not much attention was given to expressing the collective learning process in KBE dynamics for a transition from a commodity-based economy to a KBE. Thirdly, collective learning implications have not received much attention in the literature from the perspective of networking change to achieve a shared vision across institutional spheres according to a time log. For instance, in terms of relevance to the KBE as a collective learning system, the relevant literature has neglected to provide an analytical scheme for recognising the transition to a KBE at a national level by identifying reasoning change in institutional networking in a time log (Škerlavaj et al., 2010). This is because restructuring networking to achieve a shared vision could articulate the institutional capability to learn about a subject matter and learn about requisite networking in order to achieve a strategic target. Fourthly, exploring the organisational practices among institutional spheres in collaboration provides an understanding of each institution’s tradition in leveraging their traditional core competencies and

collaboration strategy for networking and an understanding of the shared mind set of institutional collaboration (Sarpong et al., 2017). However, the literature has attended less to the provision of an agreed framework for the transition to a KBE as a collective learning system for guiding national strategic foresight by identifying organisational practices that facilitate (or impede) such a transition. Moreover, the emphasis on university in a quadruple-helix model neglects the implication of internal interactions between educational institutions (i.e. university; training and development institutes; and schools) on education system outcomes and thus the communicative competences necessary for dealing with complexity in a KBE system for a transition to an increasingly KBE for competitiveness. A summary of the theoretical gaps found in the literature is outlined in Table 2-5.

Table 2-5. Analysis of knowledge conceptualisation in theories (developed by the researcher).

Theory	Author	Theoretical Lens	Views as	Knowledge	Knowledge is a Result of	Limitations across Theories in Addressing KBE as a Learning System	KBE Conceptualisation as a System
1. Evolutionary theory of economic growth	Nilson and Winter, 1982	Evolutionary economics	Capability		Adaptation of change in routines from others' best practices to achieve a position of innovative competitiveness in which the ceiling of economic growth is increased.	<ul style="list-style-type: none"> - The national innovation system is exclusively addressed in the literature at a macro level in terms of stating institutional learning in its intuitive terms. - Limited attention has been given to expressing the collective learning process in KBE dynamics for a transition from a commodity-based economy to a KBE. - Does not attend much to the provision of an agreed framework for transition to a KBE as a collective learning system in which national strategic foresight could be guided. 	Strategic macroeconomics
2. New growth theory	Romer, 1986; Romer, 1990; Lucas, 1988	Neoclassical economics	Asset		Endogenous conscious economic activity of knowledge change and externalities of knowledge.		Strategic macroeconomics
3. National Innovation System Theory	Lundvall, 1992; Nelson, 1993	Organisational economics	Capability networking	and	It is created by the interaction and activities of the various actors that determine the process of creation, modification, and diffusion of innovations in such an innovation system.		Strategic macroeconomics
4 Triple-helix theory	Witzkowitz and Leydesdorff, 2000; Leydesdorff, 2006)	Communication and networking	Networking and communicative competencies	and	Efficient proactive future-oriented networking between university, industry, and government in two institutional and functional layers to achieve the system-reproduced outcomes: (1) economic wealth generation; (2) scientific and technological novelty; and (3) local control of both functions (1) and (2).		Strategic networking-integrated system at a macro level

To overcome the addressed theoretical limitations outlined in Table 2-6, insights and concepts from the quadruple-helix theory were combined with concepts of practice theory. This combination was employed with the aim of developing a comprehensive theoretical framework for a transition from a commodity-based economy to a KBE, which could guide national strategic foresight in a developing country based on understanding organisational practices for institutional networking and networking change as a collective learning system.

Accounts of practice agree that social phenomena (i.e. knowledge, social institutions, and historical transformation) are aspects of the field of practice (Schatzki et al., 2001). Schatzki, Cetina, and Savigny (2001) in ‘The Practice Turn in Contemporary Theory’ have been cited more than 3,000 times in the field. The field of practice is represented in the total nexus of interconnected human practices (Schatzki et al., 2001). One of the aspects for which the practice approach can be distinguished: is the analyses that treat practices as studying the transformation of a subject matter (Schatzki et al., 2001, p. 2). Furthermore, in practice theory, informative institutional arrangements and organisational practices depend on a shared understanding of skills (Schatzki et al., 2001). Further elaboration on the discursive practice approach to a KBE is provided in the following section.

2.6 The Discursive Practice Approach to a KBE

Practice theory (Schatzki et al., 2001) argues that broad social phenomena (e.g. the KBE) are driven by slices of organisational practices and arrangements. According to practice theory, the transition process, in its broad social sense, is driven by the interaction between objects of meaning and doing in actual situations (Schatzki et al., 2001). Phillips et al. (2004) also highlighted that in order to understand institutional phenomena, developing a discursive conceptualisation of social construction is essential. They argue that most institutional theories are incoherent in their discursive analysis of institutionalisation in that they are detached from

the organisational practices that constitute institutionalisation. Thus, understanding the organisational practices through discursive analysis could provide a coherent framework for investigating the discursive practices that constitute institutionalisation in a transition to KBE (Phillips et al., 2004). The discursive aspect of institutionalisation indicates that creating a meaning of institutional arrangement leads to creating institutional order that is centralised by discursive actions (Phillips et al., 2004; Zilber, 2007). Phillips et al. (2004) developed a discursive model of institutionalisation that addresses the links between institutions, texts, discourse, and action (see Figures 2-4 and 2-5.). In their discursive model, they suggest combinations of conditions that most probably allow institutionalisation to occur (Phillips et al., 2004). They argue that language is essential for institutionalisation as a result of interaction and agreement on terms and define reality among different actors. In the model, they also highlight the link between discourse and social action by means of text production and text consumption processes (Phillips et al., 2004).

Discourse analysis offers a logical framework for understanding institutionalisation. In determining the basis for institutionalisation basis, discourse analysis shifts attention from actions to texts that communicate and explain actions. Hence, institutions themselves could be viewed as an outcome of the discursive practice that influences actions (Phillips et al., 2004; Zilber, 2007). Discourse analysis focuses on the process of social construction through which institutions are established; thus, it could provide a theoretical framework that is suitable for exploring the social construction of institutions (Phillips et al., 2004; Zilber, 2007). The discursive model outlined in Figures 2-5 and 2-6 created by Phillips et al. (2004) offers a discursive understanding of institutions by developing an in-depth understanding of the text's mediating role between discourse and action, which was not offered by the literature at that time. This allows for organisational research and institutional entrepreneurship to explore text courses in terms of from where texts are derived, how texts are utilised by organisational actors,

and what connections are established among texts. The model provides ontological schemes and the potential foundation for empirical studies of the proposed links between action, texts, discourses, and institutions. Furthermore, the discursive aspect of institutionalisation and institutional change can provide an insight into institutional entrepreneurship and intra-organisational learning in terms of what it is and how it would occur (Crossan et al., 1999; Phillips et al., 2004; Zilber, 2007). Based on what the model offers, institutional entrepreneurs would act to change the discourses on which institutions depend or the compliance mechanisms in a specific area, by focusing on alerting processes of institutionalisation by producing influential texts (Phillips et al., 2004). Thus, institutional entrepreneurship is a discursive action that demands the entrepreneur's direct involvement in the processes of social construction that underpin institutions (Phillips et al., 2004). Thus, the success of an institutional entrepreneur depends on their ability to produce persuasive texts that become embedded in central and continuing discourses in a field. Furthermore, institutional entrepreneurs can, for the most part, combine various strategies to ensure that texts have been successfully embedded in central discourses (Phillips et al., 2004). Phillips et al. (2004) believed that discourse analysis can emphasise the importance of power in institutional processes, given the connection of institutionalisation processes to actors with certain resources and strategies who would perform politically to gain certain targets. Thus, the representations of matters related to politics and power could be an important approach to the provision of a connection between old and new institutionalisms and for institutional theory development (Phillips et al., 2004). Furthermore, the factor of telling stories has been acknowledged as a source medium for the discursive dynamics of institutional entrepreneurship (Zilber, 2007). Institutional order could be maintained through the usage of telling stories as a factor in the professional deployment of explicit and implicit meanings by monitoring the balance between collaboration and contestations (Zilber, 2007). Therefore, the discursive approach of organisational practices

determines the institutional ability to collaborate, learn, and run through institutional entrepreneurship for the transition to a competitive KBE. Figure 2-7 outlines the relationship between the discursive approach of organisational practices and the transition to a competitive KBE.

Figure 2-5. The relationship between action and discourse (based on Phillips et al., 2004).

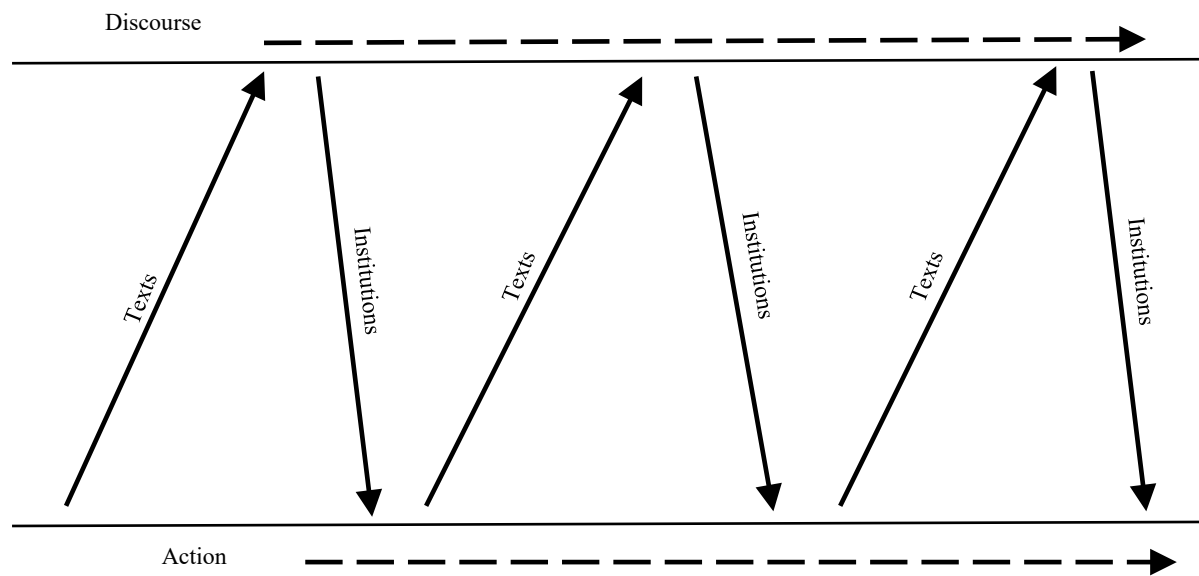


Figure 2-6. A discursive model of institutionalisation (based on Phillips et al., 2004).

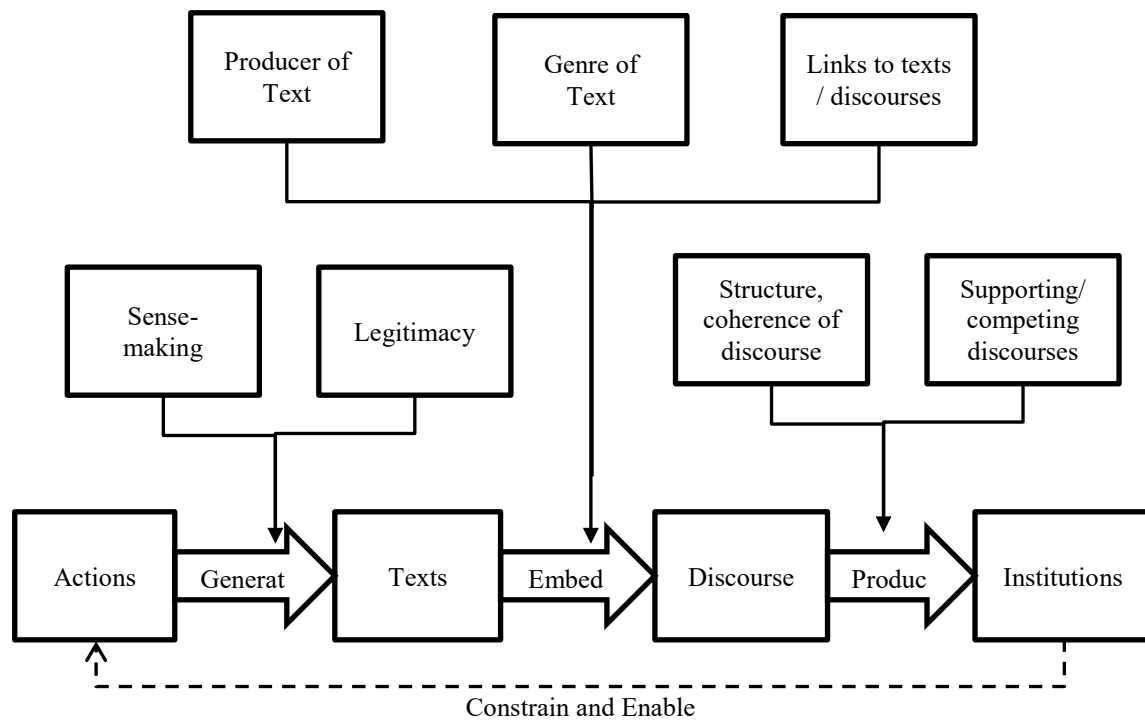
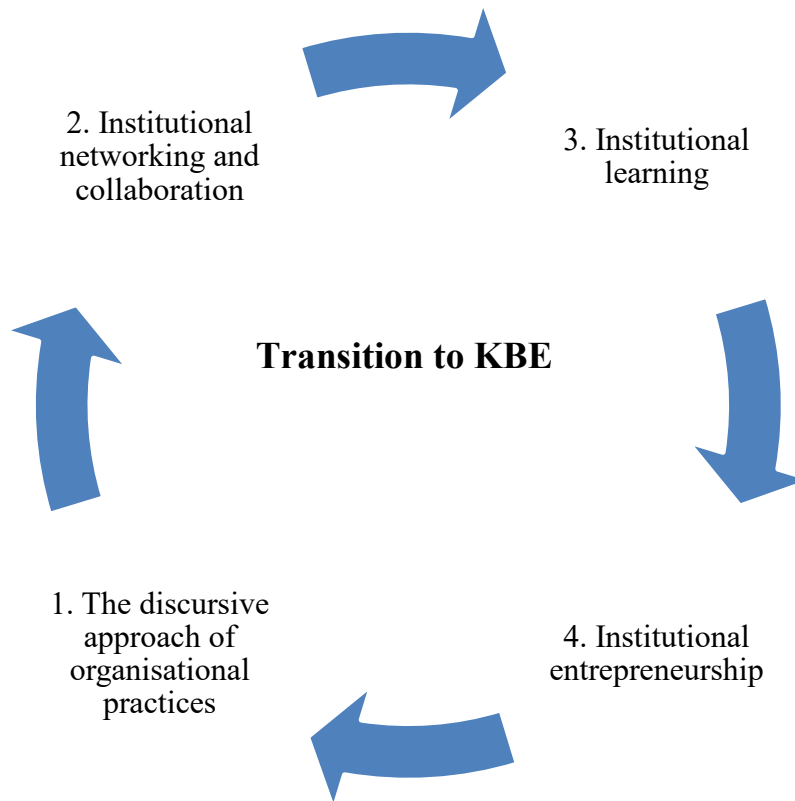


Figure 2-7. A discursive approach of organisational practices for a transition to a competitive KBE.



The analysis offered for the discursive practice approach highlights the importance of developing intra-organisational social capital that can foster communication across main players of a KBE transition as outlined in Figure 2-7. Ruíz et. al. (2010) suggests that ethical perspectives generate organisational social capital that can contribute to knowledge exploitation, innovation, and networking competitiveness. Thus, they emphasise ethical culture and community culture in delivering organisational social capital (Ruíz et al., 2010). Three dimensions were addressed in the extant literature for organisational social capital as follows: (1) the ‘structural dimension’, which represents the relationship structure (Lane and Lubatkin, 1998a; Škerlavaj et al., 2010); (2) the ‘relational dimension’, which represents interactive forces (Contractor and Lorange, 2002; Leydesdorff, 2000; Škerlavaj, Dimovski, and Desouza,

2010); and (3) the ‘cognitive dimension’, which reflects the common context for communication among players in the structure (Ruíz et al., 2010; Schatzki, 2005). These three dimensions represent the formation of social relations in an organisational body (Ruíz et al., 2010). This can be seen in the levels of trust, context, and desired outcomes in a community, which can facilitate collective action (Ruíz et al., 2010; Schatzki, 2005). Meanwhile, associability is defined by the willingness and desire of organisational members to achieve an objective in the achievement of desired collective goals and actions (OECD, 1996; Ruíz et al., 2010). Moreover, the concept of trust is embedded in intra-organisational social capital, as it has an impact on strengthening interaction, while interaction itself builds on trust as well (Gunasekara, 2006; Ruíz et al., 2010; Zanini and Musante, 2013). The development of intra-organisational social capital includes the development of both concepts of associability and trust to achieve desired outcomes and emphasise commonalities in the context and language of members of social networks (Ruíz et al., 2010).

The discursive practice approach in this study has been adopted to understand two interdependent aspects: (1) how institutions concerned with a strategic objective related to KBE (e.g. human and workforce development) would interact to create mutual understanding and learning capability concerning the related dimensions and meanings of this strategic objective i.e. workforce development and (2) how relevant institutions organise their cross-institutional practices and arrangements to solve a challenge or problem in a collective effort by corresponding their actions (‘doings’) to meanings, e.g. what they are doing complies with what they are saying to solve a problem. Hence, this study is an attempt to explore the institutional arrangements and organisational practices that can facilitate (or impede) a transition to a KBE. Therefore, as an effort to extend our understanding of organisational practices among institutional spheres, this thesis draws on (1) the quadruple-helix model of institutional collaboration (Etzkowitz and Leydesdorff, 2000; Kolehmainen et al., 2016) and

(2) practice theory (Schatzki et al., 2001; Schatzki, 2005) to identify organisational practices among institutional spheres by applying the organisational practice dimensions of understanding; rules or policy; teleoaffective structures or routine structures; psychological dimensions of social life based on practice theory; individual mental status; and objective common mental status (Schatzki, 2005). This selection has been made with the aim of identifying the organisational practices among the institutional spheres for workforce development that could facilitate (or embed) a transition to a KBE in a developing country.

2.7 Organisational Practices and Institutional Collaboration for a Transition to a KBE

This field of practice is represented in the total nexus of interconnected human practices (Schatzki et al., 2001; Schatzki, 2005). Accounts from practice agree on the social phenomena (i.e. knowledge, social institutions, and historical transformation) that are aspects of the field of practice (Schatzki et al., 2001). Studying transformation in a particular subject matter is done by means of an analysis that treats practice as one of the aspects that distinguishes the field of practice (Schatzki et al., 2001, p. 2). Furthermore, practice theorists acknowledge that activities of shared understanding or skills (which transform social life) mainly depend on the successful inculcation of shared embodied know-how (Schatzki et al., 2001, p.3). The common meeting points of mind and activity and of individual activity and society are aspects of a skilled body and command attention in practice theory. This means that informative institutional arrangements and organisational practices depend on shared understanding or skills (Schatzki et al., 2001; Schatzki, 2005).

Practice theory belongs to an ontological thesis that specifies the fundamental elements of social life. ‘Social phenomenon’ in the ontological thesis of human activities is related to the practice and material fields. Social ontology examines the nature and basic structure of social life and social phenomena. The practice theorist known as Theodore Schatzki, in his essay ‘The

Sites of Organisation' (2005), introduced a new kind of social ontology called 'site ontology'. He argued that the social phenomenon is beyond the explanation offered by individualism and socialism as the dominant forms of social theory. Therefore, he applied site ontology within an analytical framework to analyse organisation. Individualists focus mainly on individuals, and an individual's collective effort within a group while socialist views are mostly far from individual levels, e.g. social systems by Parsons (1951), production by Marx (1973), and whole societies by Malinowski (1926; Schatzki, 2005). Thus, there is a broadening disagreement among socialist views in terms of explaining a social phenomenon, yet they agree on the complex forms of individual involvement in such phenomena. Schatzki (2005) argued that social theories' main forms, individualism and socialism, explained or originated most social aspects to people as groups or individuals, while the site ontology approach of social life is beyond individuals. Schatzki (2005) refers to this concept as alternative site ontology. Site ontology stands for that social life or human coexistence, and it is inherently linked to the context in which it emerges. Site ontology confronts all social orders that emerge from, are established by, or are instituted in local phenomena like micro-oriented approaches to social life, e.g. ethnomethodology and actor-network theory (Schatzki, 2005). The term 'site' reflects an option for applying a context that is flexible enough to be a broader set of phenomena in the sense of an inherent space and not a spatial site (Schatzki, 2005). Thus, a phenomenon is part of the existence or occurrence of something that is inherently a part of it, such as an institution or an event (Schatzki, 2005). However, site ontology is distinct due to its emphasis on interrelated practice arrangement bundles as a comprehensive representation of the existence of local phenomena, similar to micro-foundationalism (Schatzki, 2005). This means that interrelation bundles would be the reifying bases rather than the macro levels of structure and institution (Schatzki, 2005.).

Social life and human coexistence are linked to spaces of a person's actions, mental states, and identities, or in other words, intelligibility (Schatzki, 2005). Intelligibility relies on human lives, which in turn depend on each other in terms of shared mental states and actions; material layout; an interconnectedness of settings; and a connected chain of actions. Schatzki (2005) agreed with the philosopher and political theorist Charles Taylor (1985) that social reality is a practice. He also used Taylor's example that any element that presently develops in practice depends on the provided meaning or the 'semantic space' that was articulated by previously used actions, mental states, and language in developing such a practice (Taylor, 1985). Therefore, on his account, Schatzki (2005) expressed that the site of the social consists of nexuses of practices and material arrangements, in which social life inherently emerges as a part of such nexuses and where practices are defined as human activities, e.g. cooking, management, and educational practices. The set of actions that composes a practice is organised by three dimensions: (1) an understanding of how to do things, (2) rules, and (3) a teleoaffective structure. In terms of rules, Schatzki (2005) refers to explicit formulations that provide direction, command, require, or instruct actions. A teleoaffective structure is a range of ends, projects, routines (of subject), and could even be prescribed or accepted emotions for participants in practice. For instance, for arranged actions like collaboration or the learning capability of related practices to achieve a workforce and human development, the following are required: (1) an understanding of the process of human development, knowledge management, training, planning, advocate learning, tertiary education, workforce recruitment, workforce development, performance management, and (or) project management; (2) an understanding of the related rules, procedures of human resources and workforce development in a specific context of a country or institution; and (3) an understanding of a teleoaffective structure that embraces results and ends, such as the development of a highly skilled workforce enjoying successful careers. Moreover, understanding the subsequent structure of the ends to

reach such strategic objectives, such as specific organisational practices, leads to collaboration for a developed highly skilled workforce as a part of the transition to a KBE. Furthermore, each institution understands the difference between individual institutional missions, visions, and objectives aligned with a shared vision along with other participants in the collaboration process to achieve or complete a strategic mission, vision, and objective. Thus, if those dimensions of practice are available and common among institutional agents, it means that the alignment of individual mental status with an objective common mental status was achieved, which represents transparency in a KBE. Table 2-6 below outlines the dimensions of the organised actions of a practice.

Table 2-6. The dimensions of the organised actions of a practice (* Schatzki, 2005, pp. 471-472).

The Dimensions of the Organised Actions of Practice*	Definition*	Example of Human and Workforce Development Practice as a Strategic Objective of a Transition to a KBE	Psychological Dimension of Social Life*	
			<i>Individual Mental Status</i>	<i>Objective Common Mental Status</i>
(1) Understanding	‘[an] understanding of how to do things, rules, and teleoaffective structure’	Understanding the process of human development, knowledge management, training, planning, advocate training, tertiary education, workforce recruitment, workforce development, performance management, and project management	Individual know-how	Objective know-how patterns
(2) Rules (i.e. Policy Development)	‘explicit formulations that prescribe, require, or instruct that such and such be done, or the case’	The related rules, procedures, guidelines, and requirements about these matters in a specific context of a country or institution.	Objects of belief	Objective belief patterns
(3) Teleoaffective Structure (i.e. Routine Structure)	‘an array of ends, projects, uses (of things), and even emotions that are acceptable or prescribed for participants in the practice’	A teleoeffective structure that embraces results and the end development of a highly skilled workforce enjoying successful careers and effectively participating in the country’s workforce.	Objects of desire	Objective desire patterns

Human coexistence is a part of a practice-arrangement bundle and material arrangements. Human coexistence can be illustrated in two ways: (1) chains of actions and (2) commonalities and orchestrations of ends, projects, or (and) emotions. A chain of action represents a sequence of tasks, each of which is dependent on the next, while a participant responds to the predecessor of such a dependency (Schatzki, 2005). Schatzki (2005) used the example of an educational practice whereby a teacher asks a question and students raise their hands, and the teacher then selects one student to answer, and so on, as a sequence of tasks that leads to the common end of learning. This method also could be applied to management practices, whereby producing a report about performance review, for instance, will require input from different departments, and someone will be required to input information according to a specific layout template or procedure. Another agent would finalise the report and send it to a specialist agent for review before it can be sent to the performance manager for endorsement and circulation to senior management teams as a desired end. These steps are objects of desire; however, they serve a common object of desire, such as monitoring performance excellence (Schatzki, 2005). Such a practice involves material objects for facilitating doing the practice. Material arrangements are also linked to human coexistence in terms of physical connections and its settings layout among particular material entities, e.g. communications and networking, physical meetings, virtual meetings, letters, learning blackboards, telephone calls, faxes, and emails. Thus, human coexistence is part of both categories of practices and material entities. Therefore, practices and material entities cannot be separated from each other, and they are connected in a practical arrangement mesh (Schatzki, 2005). Table 2-7 outlines the examples and meanings of practices and material arrangement bundles in terms of representing human coexistence.

Table 2-7. Examples and meanings of practices and material arrangements bundles in representation of human coexistence (based on Schatzki, 2005).

Terms	Meaning	Examples
<i>Practice arrangements</i>	Human activities.	Management, education, and cooking practices.
<i>Material arrangements</i>	The preparation of material entities to be utilised in carrying out a practice.	Types of material entities: human beings, objects, and other organisms and things.

2.8 Developing a Conceptual Framework

Most of the literature emphasises the alignment between national strategic foresight and policy for achieving an innovation system (Galabova, 2012; Leydesdorff, 2006) and has not demonstrated the alignment of the social and the mind (Schatzki, 2005), as a KBE is a social phenomenon that requires more than just policy alignment for a transition from a commodity-based economy to a KBE. The literature has focused on linking strategic foresight to the concept of a national innovation system from the narrow angle of scientific and technological innovation and advancement, and it does not present the KBE in the form of collective learning dynamics at the level of interaction between institutional spheres (Lam, 2000). Transition to a KBE requires an alignment of strategy and policy for strategy implementation, which establishes a shared vision of collaboration across the four institutional spheres of government, education, industry, and civil society and professional bodies. The aim of the collaboration is to make a collaborative effort for collective learning (Schatzki, 2005). Thus, in this study, a conceptual framework has been developed with the aim of showing that alignment between policy and strategy for establishing a shared vision of collaboration for the alignment of the social and the mind, which facilitates the transition from a commodity-based economy to a KBE. The shared vision needs to be developed across the four institutional spheres of government, industry, education, and civil society and professional bodies. Thus, the

conceptual model in this study outlines the transition from an individual vision of interaction at the institutional levels in a commodity-based economy to a shared vision of collaboration across the four institutional spheres in a KBE (Venkatraman et al., 2002; World Bank, 2007b).

The insights offered in the literature have guided the development of the conceptual framework in this study. The emphasis on the alignment required for developing a KBE (Galabova, 2012) between strategy patterns (Venkatraman et al., 2002) and policy matters (World Bank, 2007b; 2007a) for a shared mind set model of collaboration (Sarpong et al., 2017) led to the development of this study's conceptual framework for identifying the organisational practices that facilitate (or impede) the transition from a commodity-based economy to a KBE, as outlined in Table 2-8.

Therefore, the organisational practices that facilitate a transition to a KBE using the national foresight implementation approach are as follows: (1) a multi-sectoral approach to build relationships; (2) organised networking to serve learner-based demands; (3) motivating partnerships and interactive mutual support to serve the competitiveness of a collective expertise; and (4) development of intra-organisational social capital for achieving networking centrality. The organisational practices that impede the transition from a commodity-based economy to a KBE are: (1) the sectoral approach to developing business, service, and capabilities; (2) organised interaction to serve institution-based supply; (3) one-way regulation in interaction control to serve competitiveness among products, commodities, or capabilities; and (4) development of a business or service value chain to serve market positioning or to process uniqueness.

Table 2-8. Alignment of strategy and policy for facilitating (or impeding) a transition to a KBE (developed by the researcher, based on Venkatraman et al., 2002; World Bank, 2002; 2007a).

Strategy Patterns	Scope of Focus		Scope of Analysis		Determinant of Competitiveness		Leading Strategy Theme	
	Relationships	Business, Service, and Capabilities	Networking	Department Unit /Institution	Flow Collective Expertise	of Products and Commodities Market/Capability	Networking Centrality	Positioning/Process' Uniqueness
Policy Matters	Facilitates	Impedes	Facilitates	Impedes	Facilitates	Impedes	Facilitates	Impedes
National-level collaboration and coordination	C.1. Multi-sectoral approach to build relationships	D.1. Sectoral approach to develop business, service, and capabilities						
Interaction across institutional spheres			C.2. Organised to serve learner-based demand	D.2. Organised to serve institution-based supply				
Governance of coordination					C.3. Motivating partnerships and interactive mutual support	D.3. One-way regulation in interaction control		
Management role							C.4. Development of intra-organisational social capital	D.4. Developed business or service value chain

Therefore, the conceptual model developed in this study shows the transition from a commodity-based economy to a KBE by representing the following main themes:

- A. Individual vision of interaction;
- B. Shared vision of collaboration;
- C. Organisational practices that facilitate the establishment of a shared vision of collaboration; and
- D. Organisational practices that impede the establishment of a shared vision of collaboration.

Each of the main themes consist of a set of elements, as follows:

A. Individual Vision of Interaction

This main theme represents the individuality in formulating a vision of interaction (Leydesdorff, 2000; Schatzki, 2005), which serves the strategy of an institution or an institutional sphere's interest and not mutual interests at a national level. This theme consists of five subthemes:

A.1. Understanding

This theme reflects interaction know-how that is limited for institutions or institutional spheres' business or service competitiveness (Metcalf and Ramlogan, 2005; Schatzki, 2005).

A.2. Policy

This theme reflects policy development to serve interaction for achieving a strategic scope that is limited for institutions or institutional spheres, e.g. business or service competitiveness (Galabova, 2012; Leydesdorff, 2006; Schatzki, 2005).

A.3. Routine structure

The theme represents interaction routine structure, which serves the narrow scope of an institution's or institutional sphere's competitiveness (Schatzki, 2005).

A.4. Belief

This theme of belief reflects the adoption of interaction in a particular approach to get the outcomes that serve an institution's or institutional sphere's strategy in business or service competitiveness (Anderson et al., 2010; Daft and Weick, 1984; Eliasson, 2005).

A.5. Desire

This theme represents the desire to interact using a particular approach to achieve the outcomes for an institution's or institutional sphere's strategy (Schatzki, 2005).

B. Shared Vision of Collaboration

This main theme represents collectiveness in formulating a vision of collaboration, which serves inclusive development as a mutual interest across the four institutional spheres of government, education, industry, and civil society and professional bodies for a transition to a KBE (Andersen and Andersen, 2017; Sarpong et al., 2017; Schatzki, 2005). This theme consists of five subthemes:

B.1. Common understanding

This theme reflects the understanding that is common across the four institutional spheres concerning knowing what and how the requisite collaboration and networking achieve national strategic objectives in the collective learning approach for national mutual interests across the four institutional spheres (Leydesdorff, 2006; Metcalfe and Ramlogan, 2005; Schatzki, 2005).

B.2. Common policy

This theme covers policy development to serve the required collaboration for a national strategic target for mutual interests across the four institutional spheres in supporting collective learning (Galabova, 2012; Leydesdorff, 2006; Schatzki, 2005).

B.3. Common routine structure

This theme represents the interaction routine structure that is common across the four institutional spheres to serve national strategic targets for mutual interests and national competitiveness, and it supports the collective learning process concerning how to achieve strategic targets (Schatzki, 2005).

B.4. Common belief

This theme represents the belief across the four institutional spheres in a collectivist and collaborative approach adopted for a collective learning for a transition to a KBE as well as the belief that the collective approach serves national mutual interests across the four institutional spheres (Anderson et al., 2010; Daft and Weick, 1984; Eliasson, 2005; Schatzki, 2005).

B.5. Common desire

This theme represents the desire across the four institutional spheres to interact using a particular approach to achieve the outcomes for the national development strategy and collective learning about the subject matter. It reflects the desire for a transition to a KBE across the four institutional spheres (Schatzki, 2005).

C. The role of policy

This theme covers the role of policy (World Bank, 2007b) in organising the implementation of national strategic foresight for a transition to a KBE, and it consists of the following subthemes:

C.1. National-level collaboration and coordination

This subtheme reflects the level of collaborative initiatives required for dynamic KBE interaction at a national level across the four institutional spheres (Leydesdorff, 2012).

C.2. Interaction across institutional spheres

This subtheme highlights the purpose of interaction situated among institutional spheres (for mutual or institution-specific interests) and whether it serves learning or service and commodity supply (Venkatraman et al., 2002; World Bank, 2007b, 2007a)

C.3. Governance of coordination for competitiveness

This theme reflects the governance in coordination and if it motivates interactive mutual interests or one-way regulation (Bradford, 2016; World Bank, 2007b; 2007a).

C.4. The role of management across the Institutional spheres

This theme reflects the role of management in achieving the leading strategy theme across the institutional spheres. This means that the management role for a KBE would be networking centrality, while a commodity-based economy would be positioning or processing uniqueness (World Bank, 2007b; 2007a).

The conceptual framework developed in this study has two forms:

First composition: to identify the organisational practices in a national objectives implementation approach that **facilitates** the transition from a commodity-based economy to a KBE. Therefore, the main themes of **D. Strategy Patterns** and **C.D. National Strategic Foresight Implementation** are as follows:

D. Strategy Patterns

This theme reflects the strategy patterns (Venkatraman et al., 2002) developed for KBE and consists of the following subthemes:

D.1. Relationship focus (General Co-operation Organisation for Economic, 1996; Ruíz et al., 2010);

D.2. Networking analysis (Škerlavaj et al., 2010);

D.3. Competitive flow of collective expertise (Florida, 2002; Venkatraman et al., 2002);

D.4. Networking centrality role of government (Leydesdorff and Strand, 2013; World Bank, 2007b; 2007a).

C.D. National Strategic Foresight Implementation

C.D.1. Multi-sectoral approach to building relationships (Etzkowitz et al., 2007a; Etzkowitz and Leydesdorff, 2000; Leydesdorff, 2006; 2012);

C.D.2. Organised networking to serve learner-based demands (Leadbeater, 2000; Leydesdorff, 2000; Lundvall and Johnson, 1994);

C.D.3. Motivating partnerships and interactive mutual support to serve competitive flow of collective expertise (World Bank, 2007b); and

C.D.4. Development of intra-organisational social capital for achieving networking centrality (Etzkowitz, 1998; Ruíz et al., 2010);

The development of intra-organisational social capital includes developing associability and trust to achieve desired outcomes, and it emphasises commonality in the context and language of members of social networks (Ruíz et al., 2010). The commonality in text was also emphasised for the institutionalisation of institutional entrepreneurship (Phillips et al., 2004). The quality of decisions made by actors and institutional agents represents the communicative competencies of organisations; however, it is subject to the institutional capacity to process complexity in networking centrality (Leydesdorff, 2006).

Second composition: to identify the organisational practices in a national foresight implementation approach that **impedes** the transition from a commodity-based economy to a KBE. Therefore, the main themes of **D. Strategy Patterns** and **C.D. National Strategic Foresight Implementation** for the second composition are as follows:

A. Strategy Patterns (Venkatraman et al., 2002)

- D.1. Business, service, and capabilities focus;
- D.2. Department or institution analysis;
- D.3. Competitive commodity or capability; and
- D.4. Positioning or process uniqueness.

C.D. National Strategic Foresight Implementation Approach

- C.D.1. Sectoral approach to developing business, service, and capabilities (World Bank, 2007b; 2007a);
- C.D.2. Organised interaction to serve institution-based supply (World Bank, 2007b; 2007a);
- C.D.3. One-way regulation in interaction control to serve products, commodities, or capabilities competitiveness (Etzkowitz et al., 2007b); and
- C.D.4. Development of the business or service value chain to serve market positioning or process uniqueness (Venkatraman et al., 2002).

The first composition of the conceptual framework is outlined in Figure 2-9 and the second in Figure 2-10.

Figure 2-9. Organisational practices in national strategic foresight implementation that facilitate the establishment of a common vision of collaboration across the four institutional spheres for a transition from a commodity-based economy to a KBE (developed by the researcher).

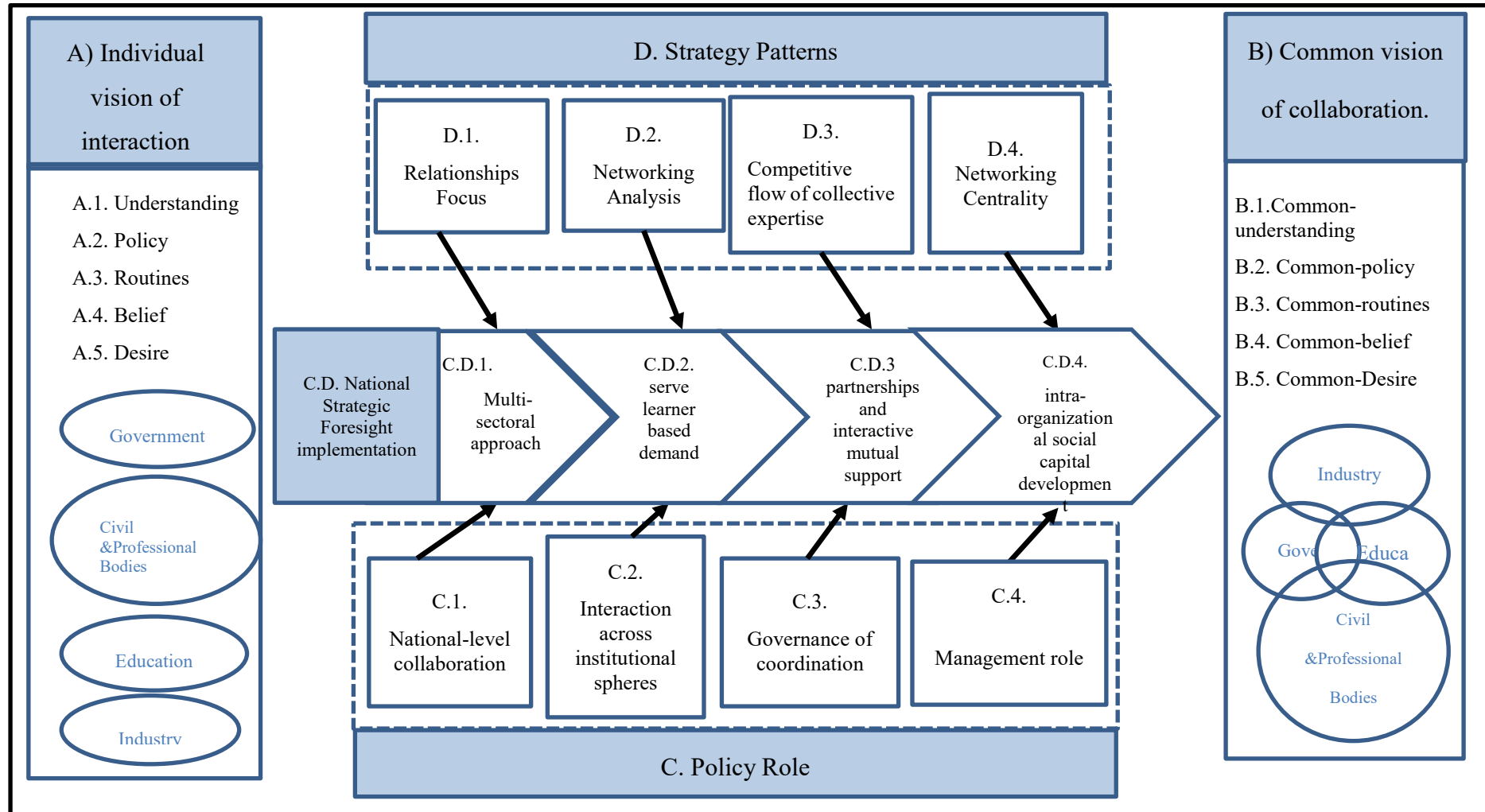
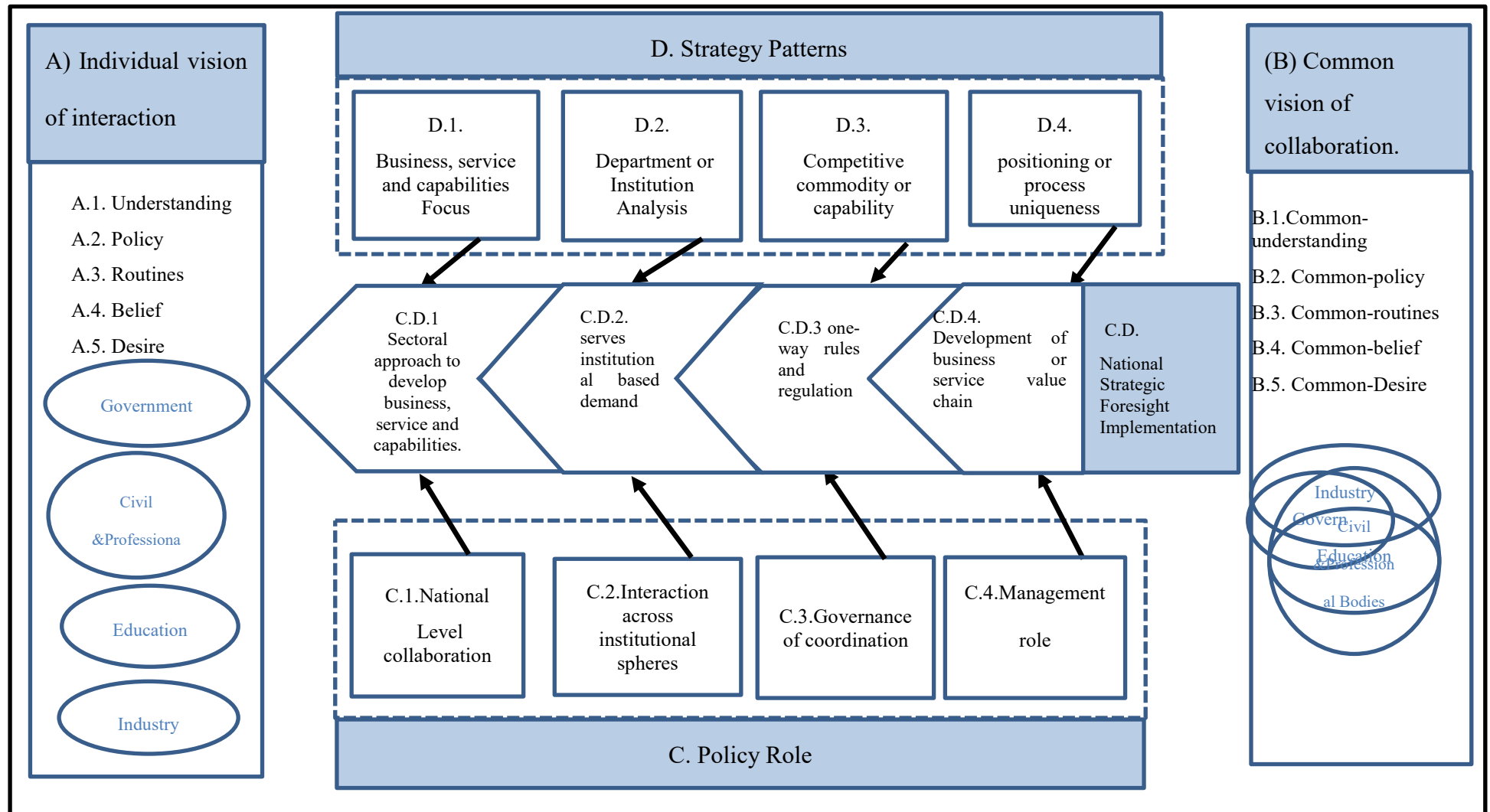


Figure 9-10. Organisational practices that impede the establishment of a common vision of collaboration across the four institutional spheres in national strategic foresight implementation for a transition from a commodity-based economy to a KBE (developed by the researcher).



2.9 Chapter Summary

This chapter has reviewed the extent of the literature on transitioning to a KBE in terms of the relevant concepts, dimensions, and visions of human workforce development. It has reviewed the extent of the literature on the practices that facilitate or impede a transition to a KBE among institutional spheres at a national level. This chapter argues that KBE concepts, dimensions, and vision are built on the concept of a collective effort for increasing learning capabilities in dealing with changing labour market demands. Moreover, institutions are the main actors in the transition to a KBE and an institution's capability to collaborate, learn, and implement institutional entrepreneurship has an important role in the transition to a competitive KBE. Building a strong institutional regime is fundamental for the transition to a KBE; therefore, there is a great emphasis in the literature on inter-institutional collaboration and clustering concerning the transition to a KBE. However, less attention has been given to the development of a shared mindset of inter-institutional relations for the transition to a KBE (Sarpong et al., 2017; Venkatraman et al., 2002) as a collective learning system. Most of the literature on strategic foresight has emphasised a national innovation system from the narrow angle of technological advancement and scientific development (Lam, 2000) and has neglected studying the transition to a KBE as a collective learning process in practice across the four institutional spheres. Moreover, the literature does not attend much to the identification of organisational practices that could facilitate (or impede) collaboration across institutional spheres in developing countries (Sarpong et al., 2017) in the context of a shared understanding of collaboration (Metcalf and Ramlogan, 2005; Schatzki, 2005; Shove, 2012). Thus, this chapter has addressed the argument that the transition to a KBE requires organisational practices while implementing national strategic foresight, which can establish a shared vision of collaboration across the four institutional spheres for stimulating interaction for collective learning about a subject matter, e.g. national workforce development. Thus, the developed

conceptual framework is based on the insights offered in the literature that emphasise policy alignment to strategic patterns in a KBE (Galabova, 2012; Leydesdorff, 2006) in order to organise the implementation of a national strategy for establishing a shared vision of collaboration to achieve the national objective of workforce development in a transition to a KBE.

Qatar has a developing economy, over 70% of whose income is from sales of oil and gas. Its dependence on hydrocarbon production has resulted in economic vulnerability to fluctuations in prices of oil and natural gas (Berrebi et al., 2009). The Qatari government set strategic targets in its QNV and QNDS for transitioning from a commodity-based economy to a KBE. Qatar's economy is facing challenges in terms of increasing the contribution of the national workforce to a local labour market, especially under the domination of expatriates in key positions in Qatar's economy. Moreover, skills mismatching in Qatar's labour market creates high transactional costs in the development of a workforce that is compatible with international labour market demands. Thus, the transition of Qatar's economy to a KBE remains a pending vision. Thus, this study aims to examine the transition of Qatar's economy to a KBE as a national foresight to achieve a national workforce development objective. Thus, this thesis will study Qatar's institutional interaction for learning about national workforce development in order to achieve the national vision of transition from a commodity-based economy to a KBE. Thus, in the following chapter, the research context of Qatar, a developing country, is further elaborated.

Chapter 3 Empirical Research Context

This chapter provides an overview of Qatar as the empirical research context. Thus, in section 3.1, an overview of Qatar's institutional regulation and readiness for a KBE includes a review of Qatar's permanent constitution, its meaning, its purposes, different aspects thereof, and its role in Qatar. The same section includes an outline of Qatar's KBE assessment report of the World Bank in 2007. The section includes a summary of the reasons for the report; the assessment methodology; and the indicators of the World Bank and other international organisations. In section 3.2, a summary of the Qatari government's strategic planning exercise for developing a KBE represented in the QNV is given. Section 3.2.1 highlights the main pillars of the vision as well as their meaning and objectives. Section 3.3 is concerned with formulating the QNDS as a blueprint of the QNV, the objectives of the strategy, and when it was introduced. Section 3.3.1 focuses on strategy preparation and its different stages; the approaches taken to the development of the QNDS; the organisational structure of the work team; and implementation challenges. This section also presents objectives related to labour market outcomes. Section 3.3.2 discusses strengthening the public sector as a strategic objective in the national development strategy and its related indicators. Section 3.4 considers the institutional structure changes over time in Qatar, the interaction between the institutional spheres, and the implications of different economic and political changes. This is all followed by the chapter's summary in section 3.5.

Qatar is a peninsula located in the Middle East with a total area of 11,586 sq. km and a total population of 2,314,307 people (CIA Factbook, 2017). Qatar shares borders with the Arabic Gulf from three sides – North, East, and West – and shares borders of land with Saudi Arabia to the South (CIA Factbook, 2017; Kronfol et al., 2013). In the past 60 years, Qatar has been transformed from a country that was considered poor, with an economy depending on pearling, to a rich country with strong economic growth that depends on oil and remarkable gas revenues

(CIA Factbook, 2017; Kronfol et al., 2013). In 2007, Qatar reached the highest per-capita income in the world (CIA Factbook, 2017; Kronfol et al., 2013). The development of Qatar has accelerated, especially after getting the rights to host important sporting events such as the Asian Games in 2006 and the World Cup in 2022 (Kronfol et al., 2013). Consequently, Qatar experienced institutional growth in development and numbers that started with policy development, such as announcing Qatar's permanent constitution in 2004, followed by Qatar's KBE readiness assessment report in 2007, and, in 2008, QNV was announced. QNV has four main pillars: human, social, economic, and environment development. Developing Qatar into a KBE was a standing objective under the economic development pillar. QNDS is a blueprint of QNV and was also the first strategic planning exercise that took place at a national level. Developing Qatar's labour market productivity and institutional modernisation in the public sector were two sectoral objectives in the QNDS. However, these strategic objectives were not achieved by the target date of 2016.

The labour market in Qatar strongly depends on expatriates and imported knowledge, while most Qatari workers have low skills and competencies (Berrebi et al., 2009; Weber, 2013). The ratio of Qatari workers to expatriates is 1:20, which means that for each Qatari worker, there are 20 expatriate workers (Qatari Government, 2017). Qatari workers represent 5% of the total workforce in the labour market, and 85% of Qatari workers are in the public sector, where the level of skills and competencies required for work are relatively low (Berrebi et al., 2009). Meanwhile, 84% of expatriate workers are in the private sector, where skills and competences are low to moderate, i.e. non-skilled construction workers represent the majority of this category (Berrebi et al., 2009; Weber, 2011b; 2013). Qatar's labour market composition of Qatari workers is outlined according to sector in Figure 3-1, and Qatar's labour market composition concerning expatriate workers is outlined according to sector in Figure 3-2.

Figure 3-1. The composition of the Qatari labour market: Qatari workers according to sector.

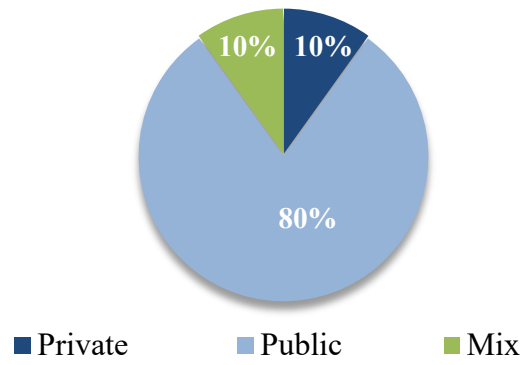
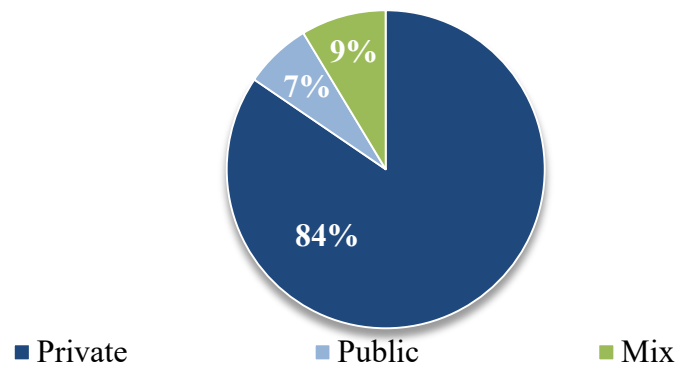


Figure 3-2. The composition of the Qatar labour market: expatriate workers according to sector



The workforces with high skills and competencies are mainly mixed sectors, where government has the most shares in foreign companies. The workforce in mixed sectors represents only 9% of the total labour market workforce, while Qatari workers have a considerably low representation in the mixed sector – only 6%. Figures 3-3 and 3-4 outline the composition of the labour market according to sector as well as the representation of Qatari workers in these sectors (Qatari Government, 2017).

Figure 3-3. The composition of the Qatari labour market according to sector.

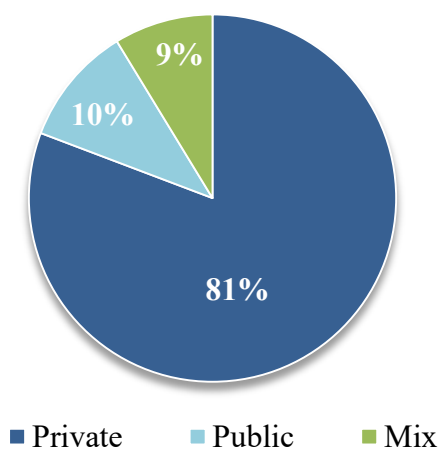
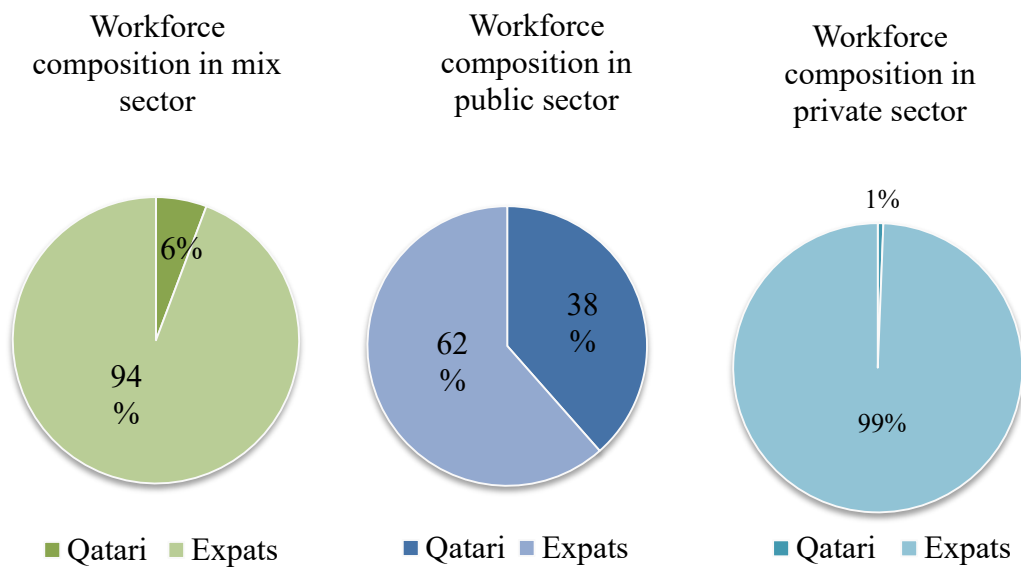


Figure 3-4. The composition of the Qatari labour market and representation of Qatari workers according to sector.



Expatriate workers' growth is a result of economic growth and increasing job opportunities over the last few decades for non-skilled expatriate workers i.e. construction mega projects, like the World Cup in 2022, Qatar Rail, and more (Berrebi et al., 2009; Kronfol et al., 2013; Weber, 2013). Consequently, Qatari citizens became a minority in society and at work (Bunglawala, 2011; Ibrahim and Harrigan, 2012). However, this category of unskilled workers from expatriates do not assist in a KBE. Moreover, the contribution of Qatari workers is minor in the labour market, not only due to their low number, but also due to their skills and competency levels, as they mostly work in the public sector (Berrebi et al., 2009; Weber, 2013). Therefore, public sector workforce development has been emphasised as a main objective in the labour market strategy in QNDS. However, this objective has not been achieved and was cancelled due to the scarcity of capable resources to do the task in the public sector, as reported in the QNDS midterm review of 2014 (Qatari Government, 2014a).

Institutional development in Qatar has undergone several changes within a short period of time. The restructuring of the government sector in 2013 was mainly a response to economic and political changes, such as the falling oil prices in 2012. Institutional changes also took place in

the recent Qatar blockage crisis in 2017 to ensure a supply of sufficient food and medicine. Thus, political contingency in decision-making has had an impact on the development of the national workforce in the public sector (Al-Horr, 2011). For instance, the national workforce development process was centralised under one ministry in 2013, which was done to establish government control of training and development.

Institutional interaction among institutional spheres (government, industry, education, and civil society and professional bodies) for the workforce development strategy is mostly led by each institution in silos to serve the required targets at an institution level rather than at a national level (Abduljawad, 2014; Berrebi et al., 2009). The interaction between industry and education requires further development to define education curricula that suit the labour market (Berrebi et al., 2009; Weber, 2011b; 2013). Thus, skills mismatching is an issue in the Qatari labour market (Al-Horr, 2011; Al-Horr and Salih, 2011). Therefore, to avoid this issue, leading companies in Qatar's industry sector, which follow international standards for recruitment, need to take the initiative to provide tailored development plans for national workers (Qatar Petroleum, 2015; RasGas, 2014). The plans attract high-school graduates and provide scholarships in universities abroad in the required specialisations by employer companies in the Qatari energy sector (Qatar Petroleum, 2015; RasGas, 2014). Moreover, these leading companies in Qatar have developed their training centres to develop the required skills for employees, compatible with international labour markets. This development indicates the poor training sector in Qatar, which does not fulfil the requirements to develop skills that are compatible with the international labour market (Weber, 2013). It also indicates the high transactional costs for leading companies in the Qatari industry sector to fill the educational system deficiency of skills mismatching. An extra cost would also be the provision of accommodation and financial incentives to attract expatriates to work in the local labour market to fill the skills mismatch gap. However, unskilled expatriate workers and their high

contribution to local labour markets is another issue that Qatar faces in the transition to a KBE (Muysken and Nour, 2006).

In terms of the national strategy, the interaction for workforce development is mostly dominated by the government, represented by the ministries (Al-Horr, 2011; Weber, 2013). Communication between ministries in government is notoriously poor and slow. The interaction in the strategy development project was mainly led by public sector ministries, and teams were reformed at executive and operational levels for strategy preparation. Frequent meetings were organised to determine the sector's strategy implementation projects, roles, and responsibilities. By using the Qatari strategic planning exercise in this study, the thesis attempts to identify (1) the current status of interaction across institutional spheres for workforce development with the goal of establishing a KBE in Qatar and (2) the organisational practices of government, education, industry, and civil society and professional bodies that facilitate or impede the transition of Qatar's economy to a KBE.

3.1 Qatar's Institutional Regulation and Readiness for a KBE

The institutional development that Qatar's economy has undergone since 2004 and the assessment of Qatar's readiness for a KBE were initial phases in the development of the KBE. The Permanent Constitution, announced in 2004, represents the state's and institutions' regulation guide that defines the principles (Ibrahim and Harrigan, 2012). Qatar's permanent constitution has been ratified and became effective in 2005. The constitution defines the roles of the three state powers (i.e. the legislative, executive, and judiciary) as well as the rights and duties of Qatari citizens (Qatari Government, 2008). It regulates economic rights that guarantee economic freedom, rights to private property, and state ownership of the country's resources (Ibrahim and Harrigan, 2012). In addition, Qatar's Permanent Constitution sets the framework for a society that is based on the values of justice, equality, freedom, morals, and equal opportunities for all citizens (Qatari Government, 2015). The Permanent Constitution has

established social justice as the basis for the regulation of economic enterprises and employer-employee relations. It also identifies the commitment of the state to education, health, and effective social protection enhancement as well as the empowerment of women (Qatari Government, 2015).

Based on the economic and social development that the Qatari economy has achieved in the past few decades and after the successful accomplishment of projects related to oil and gas reserves and production, the government's attention has turned to target an economic diversification approach in order to reduce the economy's dependency on the oil and gas sectors (Qatari Government, 2007; World Bank, 2006). Therefore, government initiatives have been used to direct the economy towards a KBE in order to increase the economy's competitiveness. Thus, related public sector institutions, the Planning Council and the Qatar Foundation, took the initiative to ask the World Bank to provide a KBE assessment report for Qatar and formulated a KBE vision as part of the QNV (Qatari Government, 2008). The KBE assessment for Qatar is based on a generic knowledge economy assessment using the Knowledge Assessment Methodology (KAM) indicators developed by the World Bank; benchmarking methodologies and indicators prepared by other international organisations; and background reports on KBE pillars developed by public sector institutions (Qatari Government, 2008).

The report of the World Bank entitled 'Turning Qatar to a Competitive KBE: Opportunities and Challenges', devoted a chapter to each KBE pillar in order to assess the strengths and weaknesses of Qatar's readiness for a transition to a KBE (Qatari Government, 2008). The report scope was used to discuss recommendations during a workshop with stakeholders. Therefore, assessment reports were discussed with key stakeholders, including policymakers, strategic planners, and representatives from private and civil societies at a workshop in January 2007 (Qatari Government, 2008). The report gave a brief overview of Qatar's current economic

context and highlighted that a KBE policy agenda required integration with the overall macroeconomic and political conditions and reforms. The report also gave a brief overview of Qatar's overall readiness for a KBE by assessing the KBE pillars (education, learning, innovation, and ICT) using KAM indicators. Although the report scope was not about policy recommendations for improving Qatar's readiness for a transition to a KBE, it proposed issues and questions that could guide discussions on how to turn Qatar into a competitive KBE (Qatari Government, 2008).

One of the points raised by the report is that although a number of measures and projects are related to a KBE in Qatar, many of them were developed in isolation of an integrated long-term vision practice that involves key stakeholders (Qatari Government, 2007). The report also emphasised that Qatar has the potential to develop an enterprising KBE vision for deploying the energy and enthusiasm of the nation and to provide consistency from existing and new plans. The assessment report concluded that the formulation of a KBE vision is subject to (1) extensive plans, encouraging economic incentives and governance schemes that support a KBE; and (2) the development of the KBE pillars: education, learning, innovation, and ICT. The report also emphasised that Qatar's economy must take important steps to become a KBE. The report indicated the need for a decision on the following process for turning Qatar's economy into a KBE, which consists of a strong and clear KBE vision and the established dynamics of a KBE. However, this needed to be based on clearly stated and implemented practical policies, plans, projects, and measures for KBE pillars. Thereafter, QNV was formulated to respond to such demands. An overview of the QNV is given in the following section.

3.2 Towards a KBE: Qatar National Vision 2030

The Qatari government aims to transform Qatar into an advanced country and diversify its economy by developing it into a KBE in order to sustain its development; decrease its dependence on oil and gas; and increase living standards there (Qatari Government, 2008; 2011). Therefore, the Qatari government launched QNV in October 2008 to set the target future of Qatar and to relate it to its present (Qatari Government, 2011). QNV promotes the realisation thereof in economic and social justice; collective efforts; and strong moral and societal values that are aligned with Qatar's Permanent Constitution (Qatari Government, 2011). The values promoted by QNV that are in line with the Permanent Constitution are as follows: (1) protection of personal and public freedoms; (2) moral and religious values; and (3) preservation of traditions and opportunities for equality, security, and stability assurance. QNV defines the long-term milestones for the country and provides a broad framework for the development of national strategies and the implementation of plans (Qatari Government, 2008). Furthermore, the development of QNV is a response to the challenges and opportunities facing Qatar and will probably influence the shaping of Qatar's future (Qatari Government, 2008). Those challenges and opportunities include modernisation versus traditional preservation; the needs of this generation versus the needs of future generations; managed growth versus uncontrolled expansion; the size and the quality of the expatriate labour force and the selected path of development; and economic growth, social development, and environmental management.

The accelerated growth in Qatar's economy and population has increased competition due to the demands of globalisation and modernisation. However, like any other society, Qatar has its own traditions and values that would, to some extent, confront the demands of such competition. QNV aims to respond to this challenge by providing a direction that would balance these contrasting elements and modernise Qatar around its core societal values (Qatari Government, 2008). Moreover, Qatar aims to achieve sustainable development on an

integrational justice basis, which means meeting the needs of present generations while considering the future generation's rights to be able to satisfy their needs (Qatari Government, 2008). This requires a strategy of diversified renewable resources and wise decisions concerning the utilisation of current resources (Qatari Government, 2008). However, the high economic growth the country has experienced in the past decade could largely consume and exhaust the country's resources and economy. This could be happening due to the rapid rates of economic growth and imbalances represented in the unjustified increasing prices, which are, in the long-term, causing economic weaknesses (Qatari Government, 2008). The low quality of financial and public services; labour productivity; project management; and environmental and social damage are indications of such economic weaknesses (Qatari Government, 2008). Therefore, Qatar should focus on rational economic development that is compatible with logical expectations for a sustainably developed quality of life, since real levels of economic growth and expansion are those that account for the national capacity (Qatari Government, 2008). The large scales of urban development, investment projects, and government expenditure in Qatar have caused the accelerated population growth rates that contributed to the expatriate and immigrants' largest share of the total workforce (Qatari Government, 2008). This raises concerns about incompetent and unskilled workers among the expatriate and immigrant groups (Qatari Government, 2008). Therefore, it is essential that the country precisely determines the required size and quality of its expatriate labour force and that it accounts for the transaction costs as well as the financial, cultural, and social impacts associated with recruitment decisions concerning national expenditure, labour force, and identity (Qatari Government, 2008). Indeed, this level of growth required the country to seriously consider environmental protection and conservation. Although all efforts have been made to cope with international environmental standards, there is always environmental damage associated with heavy industry operations (Qatari Government, 2008). The implementation of advanced

technologies and proper planning for economic projects to minimise environmental damage should be considered when economic benefits conflict with environmental protection needs (Qatari Government, 2008). Furthermore, rather than the sole effort of Qatar to protect the environment, which is insufficient for its ecological systems, a collective regional effort is required from all Gulf countries for environmental protection (Qatari Government, 2008).

3.2.1 The Main Pillars of Qatar's National Vision 2030

The main aspects of QNV focus on empowering Qatar's people by developing them to sustain a prosperous society: (1) 'Human Development' – developing a society with high moral standards that embed justice and caring values in practice and is competent to fill positions of international partnerships and strategic alliances; (2) 'Social Development' – developing an economy that is diversified and competitive in order to meet and secure the present and future generations' requirements for high living standards; (3) 'Economic Development' – creating harmony between social development, economic growth, and environmental protection in order to provide sound environmental management of development patterns; and (4) 'Environmental Development' (Qatari Government, 2008). Further explanations of each item are offered in the subsections below.

Human Development

Qatar's economy depends heavily on non-renewable sources of hydrocarbons – oil and gas resources (Qatari Government, 2007; 2008). However, sustainable development emphasises the need for a diversified economy of renewable and reliable resources, and the considerations of economic advancements and competitiveness have changed and are now set around knowledge-based patterns (Cooke and Schwartz, 2008; David and Foray, 2002a; Qatari Government, 2007; 2008). Therefore, Qatar has recognised the challenge of developing its people to be compatible with international demands and competitiveness. As a response to such

challenge, the Qatari government aims to develop advanced systems of education and health in order to effectively increase the contribution of Qataris in the labour force and the enhancement of the expatriate and immigrant labour force portfolio (Qatari Government, 2008).

The Qatari government aims to develop a world-class educational system that provides locals with the preparation required to fulfil their aspirations as well as the needs of Qatar's society (Qatari Government, 2008). This includes developing educational curricula and training programmes that are highly relevant to current and future requirements and labour market needs; drawing educational and training opportunities around an individual's abilities and aspirations at high-quality standards; and providing easy access to lifelong learning educational programmes (ibid.). In addition, Qatar's education system ought to prepare capabilities while emphasising the principles of moral and ethical values; traditions and cultural heritage; loyalty to citizenship; creativity and innovation; and participation in different cultural and sporting activities. These elements should equip the Qatari children to effectively contribute to the society and consequently increase their participation in a national network of formal and non-formal educational and training programme (Qatari Government, 2008).

This section of QNV also sheds light on the required set of institutional characteristics that would allow such education and R&D institutions to fulfil the proposed mission (Qatari Government, 2008). Therefore, the educational institutions that would be effectively contributing to Qatar's vision are expected to be independent, highly developed, self-managing and accountable, following self-developed guidelines (Qatari Government, 2008). Educational institutions are also required to make effective arrangements for collective funding for scientific research from private and public sectors in collaboration with leading international organisations and R&D centres in order to be able to participate substantially in international scientific research, intellectual capital, and cultural events (Qatari Government, 2008).

Furthermore, since human development is an objective, enhancing the healthcare system is an important requirement (Qatari Government, 2008). Thus, the Qatari government is eager to develop a wide-ranging world-class healthcare system that allows all the population to have easy access to its services (Qatari Government, 2008). This would include offering effective services that are affordable for patients by adopting a partnership approach to be able to control and manage the cost of healthcare. In addition, they would cover different ranges of health care services, including curative and preventive as well as physical and mental health care, while distinguishing the different needs among different classified groups e.g. men, women, and children. Qatar's government also targets healthcare quality enhancement by means of directing high-quality research (Qatari Government, 2008).

The achievement of such healthcare outcomes requires a reconcilable institutional structure that reflects an integrated healthcare system. Such a system is expected to provide world-class services in public and private institutions operating under the regulation of a national health policy (Qatari Government, 2008). The national health policy should play the role of setting and monitoring those standards, which are related to different social, economic, and administrative dimensions of healthcare (Qatari Government, 2008). Thus, such a national healthcare system demands a skilled national workforce that can provide high-quality healthcare services. The state is committed to providing continuous sufficient funding to ensure the provision of the required healthcare to Qatar's population and to maintain healthcare costs by adopting a partnership approach.

Qatar's must also develop its workforce's capability and motivation. Qatar's government intends to increase the participation of Qataris in the workforce by requiring heavy investment in certified training programmes by public and private institutions; by providing incentives for Qataris to enter professional and management roles in the healthcare, business, and educational sectors; by providing opportunities of high-quality training for all citizens, considering their

abilities and ambitions; and by empowering and providing opportunities and vocational support for Qatari women.

Qatar's government will put all its efforts into increasing citizen participation in the workforce; however, it will also consider the shortage of the Qatari population number comparative to the required labour force to accomplish its ambitious vision to manage a fast-growing, diversified economy; complex technologically sophisticated systems; infrastructure; and other requirements. Therefore, targeted expatriate participation is needed. Bearing in mind the negative and positive impact of expatriates in the workforce, the right, balanced mix of skills is required. Yet, attracting and retaining a highly skilled workforce also demands a set of incentives and associated costs of institutional arrangements, including accommodation, safety, and protection of rights. Thus, the costs of institutional arrangement in conjunction with the negative and positive impacts of expatriates need to be considered in the early stages of the recruitment process in order to make wise decisions.

Social Development

'The family is the basis of the society. A Qatari family is founded on religion, ethics, and patriotism. The law shall regulate adequate means to protect the family, support its structure, strengthen its ties, and protect maternity, childhood, and old age (Qatari Government, 2004).'

Qatar's government aims to develop the social aspects of Qatari society by improving the ability of citizens to be responsive and effectively interact and contribute to the needs of each era they are experiencing (Qatari Government, 2008). Furthermore, citizens should enjoy social care, support, and protection due to building and maintaining strong and coherent family relationships. Women play a significant and active role in the decision-making process in all institutional fields, especially economics and politics. The Qatari government believes that institutional effectiveness is the gateway to the achievement of societal stability, safety, and security. Moreover, it is the gateway to the creation of a tendency towards openness to other

cultures while maintaining its Arabic and Islamic identity (Qatari Government, 2008). Thus, the Qatari government will fulfil its regional and international commitments to maintain its peace and security; thus, Qatar intends to act positively and responsibly as a member at regional and international levels from the Gulf countries to the Arab League, the Organisation of Islamic Conference, and the international community.

Qatar's government visualises its society in terms of strong and coherent family relationships that epitomise caring of and protection for its members and that maintains moral and regional values and models (Qatari Government, 2008). Thus, Qatar's government intends to build a strong social protection system that secures individual civil rights. This will include the establishment of public institutions that are effective and promote civil organisations that are active and strong enough to maintain societal stability and security based on the principles of justice, equality, and the power of law. Meanwhile, the national heritage of Qatar will be preserved; the country's Arabic and Islamic identity and values will be upheld; the capabilities of women to unlock their potential to participate in the decision-making processes in the political and economic domains will be empowered and enhanced; the needs and requirements of individuals and businesses in providing high-quality services will be addressed; and finally, a culture of tolerance, constructive exchange of ideas, and openness to other cultures will be established (Qatari Government, 2008).

The Qatari government will continue to build on its role; however, in the international community, Qatar has a continuous commitment to increase its active economic, political, and cultural role at a regional level i.e. the Gulf Cooperation Council, the Organisation of Islamic Conference, and the Arab League; the cultural dialogue on both regional and international levels; the active contribution to achieve international security and peace by means of political efforts in conjunction with developmental and humanitarian support; and the support of

dialogue between civilisations, specifically between different religions and cultures (Qatari Government, 2008).

Economic Development

‘The State shall guarantee freedom of economic enterprise on the basis of social justice and balanced cooperation between private and public activity in order to achieve socioeconomic development, an increase in production, achieve public welfare, raise the standard of living, and provide job opportunities in accordance with the provision of the law (Qatari Government, 2004).’ Qatar’s government aspires to divert its attention from hydrocarbon resources to the development of a diversified economy and to its positioning as a regional hub for knowledge and high-quality industrial and service productivity (Qatari Government, 2008). Therefore, the Qatari government intends to invest the financial wealth of hydrocarbon resources in the achievement of sustainable development for its entire population (Qatari Government, 2008). This requires wise economic management to achieve reasonable levels of economic growth, which could lead to security for a high quality of living for current and future generations; economic and financial stability with low inflation rates; a secure and efficient financial system based on a well-developed financial policy; an encouraging climate of businesses that attract foreign funds and technologies and motivates national investments; economic structure flexibility and a willingness to enter global competition and cope with change; economic coordination and trade; and investments and financial associations (Qatari Government, 2008). Therefore, the Qatari government aims to extend its call for responsible and optimal exploitation of hydrocarbon resources and to achieve a balanced economic position that stands between reserve levels versus production rates as well as diversification schemata versus depletion rates of the economy; a dynamic sector of oil and gas that produces advanced technological innovations and participates with human resources development and economic capacity enhancement all over Qatar; an entirely developed operation chain in the gas industry

that could produce a key source of clean energy for Qatar and for the world; and maintenance of strategic oil and gas reserves for national security and sustainable development (Qatari Government, 2008).

Therefore, to secure proper diversification of the economy, Qatar's vision is to achieve an economy that moderately becomes less dependent on hydrocarbon industries while improving the contribution of the private sector and maintaining economic competitiveness (Qatari Government, 2008), which will be done by:

- Expanding industries and services with competitive advantages obtained from the hydrocarbon industries;
- Developing and designing economic activities and their required human and technical aspects as a specialist direction that Qatar can obtain; and
- A KBE that is distinguished by
 - Innovation and entrepreneurship;
 - Superior education;
 - Infrastructural excellence;
 - Efficiency of public service delivery; and
 - Government accountability and transparency.

Environmental Development

Qatar has a unique environment and enjoys an environmental abundance that it intends to protect, preserve, and care for. Therefore, Qatar's government is committed to maintaining a responsible and balanced development approach that simultaneously counts and acts for economic, social, and environmental requirements locally, regionally, and internationally (Qatari Government, 2008). Thus, Qatar's government is committed to environment protection and preservation, including water, air, land, and biological diversity by

- Increasing public awareness of environmental issues and the importance of preserving the natural heritage of Qatar and its neighbouring states;
- An alerted, comprehensive, and respondent legal system that protects the environment and acts on challenges as they arise;
- An effective and advanced environmental institutional system that increases public awareness about protecting the environment and usage of technology that is environmentally friendly (e.g. conducting campaigns and applying environmental research and environmental planning tools);
- An inclusive plan of urban development that follows a relevant sustainable policy for population distribution and urban expansion;
- Promoting regional cooperation to decide preventive plans and measures that could assist in minimising the negative environmental effects associated with development activities; and
- A proactive international role in the issue of climate change in the assessment of its negative impacts in the Gulf.

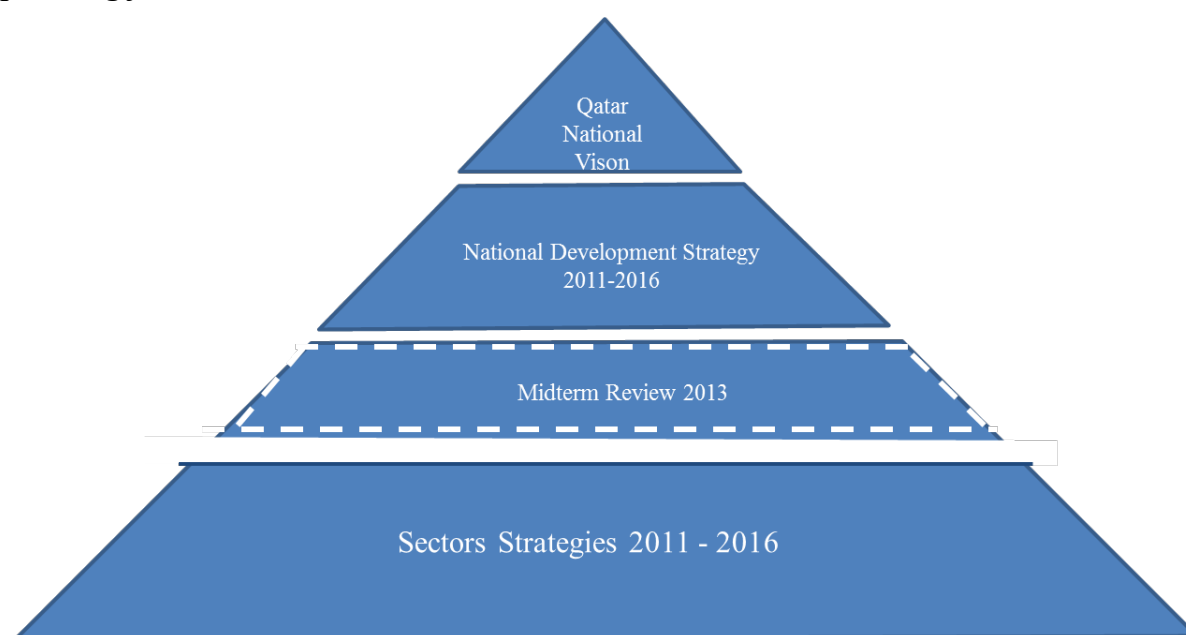
QNV provides the strategic direction for long-term objectives (Qatari Government, 2008). It is a broad framework for formulating a national strategy with short-term targets. The identification and prioritisation of timely targets assist in realising the vision, which provides clarity on the expected performance from stakeholders and related processes. Therefore, Qatar's related public authority at that time, known as the General Secretariat for Development Planning (GSDP), coordinated with Qatar's higher authorities and consulted relevant stakeholders such as civil society, the private sector, ministries, and government agencies to formulate the QNDS as a blueprint of actions. GSDP, at that time, represented the role regulator in creating stakeholder understanding, engagement, and commitment to the achievement of QNV. This comes from the belief that achieving the vision is a national responsibility that

requires a collective effort from all of Qatar's people, institutions, and organisations to deliver high-quality and transparent public services, productive partnerships, and cooperation between public and private sectors as well as to increase the dynamic climate of businesses and a broader space for civil society. Undoubtedly, this goal demands developmental capacity from both institutional and organisational perspectives.

3.3 Qatar National Development Strategy (2011-2016)

In line with the QNV and the guidance from the Permanent Constitution, the Qatari government produced the QNDS. The QNDS launched in March 2011 and represents the QNV's commitment to development with responsibility (Qatari Government, 2015). QNDS was the Qatari government's first experience of developing a national strategy (Qatari Government, 2011). QNDS is the second planning stage necessary to achieve the QNV in the national planning framework of Qatar, as outlined in Figure 3-5. QNDS was established to develop short-term objectives to balance the main challenges arising in the achievement of QNV, which were addressed earlier in section 3.1. Forming the QNDS was Qatar's first national initiative for reforming dialogue and analysis among executive stakeholders. The broad scope of strategy demanded reforming a cross-sectoral task team that included representative members from government ministries, agencies, civil society organisations, and private companies (Qatari Government, 2011; 2015). Thus, to increase the levels of engagement and ownership, the strategy was based on extensive interviews; discussion; research; and regional and international situational analysis (Qatari Government, 2011; 2015). Detailed strategic action plans were formulated for each sector, which have timelines and performance indicators (Qatari Government, 2011; 2015). Thus, QNDS was mainly an action plan that presented new initiatives while building on work that was existent or operational e.g. providing an additional focus and incentives for projects, institutions, and policies that were already being processed (Qatari Government, 2011).

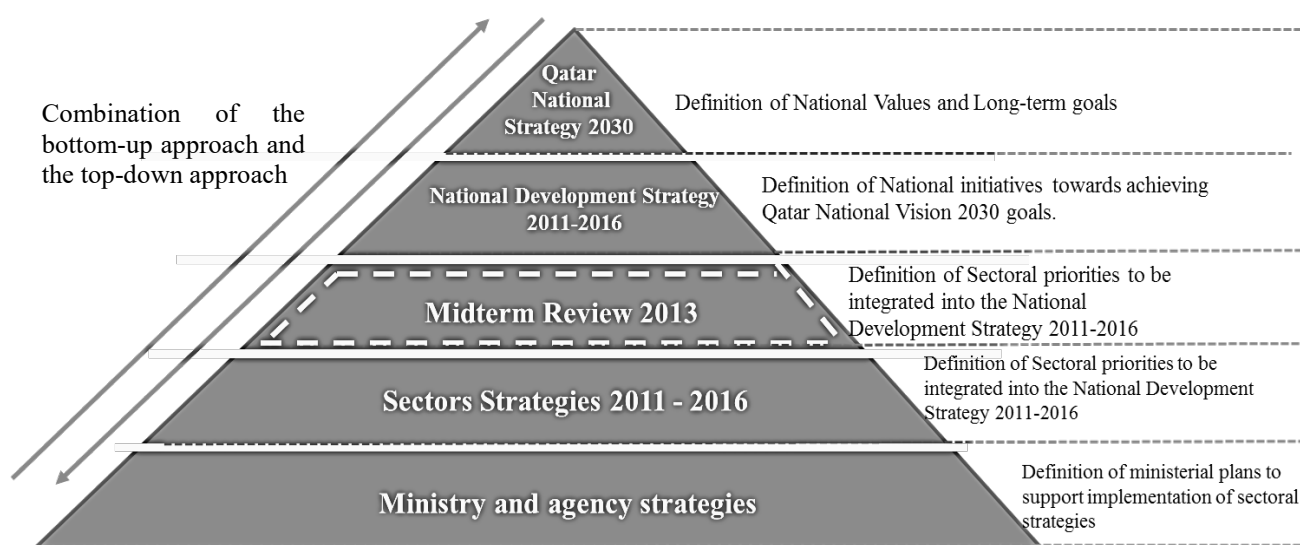
Figure 3-5. Qatar National Development Strategy 2011-2016: an integrated national planning framework



3.3.1 Preparing the National Development Strategy 2011-2016

In the QNDS, the national initiatives were identified using top-down and bottom-up approaches, as seen in Figure 3-6. The identification of development objectives and challenges was based on priority, while the identification of strategic initiatives was based on the QNDS's alignment with QNV. QNDS changed the approach of budget planning for a national development project from ad-hoc to outcome-based planning, which ensures strategic alignment and coherence between the budget and national development planning (Qatari Government, 2011). QNDS aims for developing an adequate resource structure for effective implementation and enhancing the capability of the public sector institutions to implement the planned change (Qatari Government, 2011).

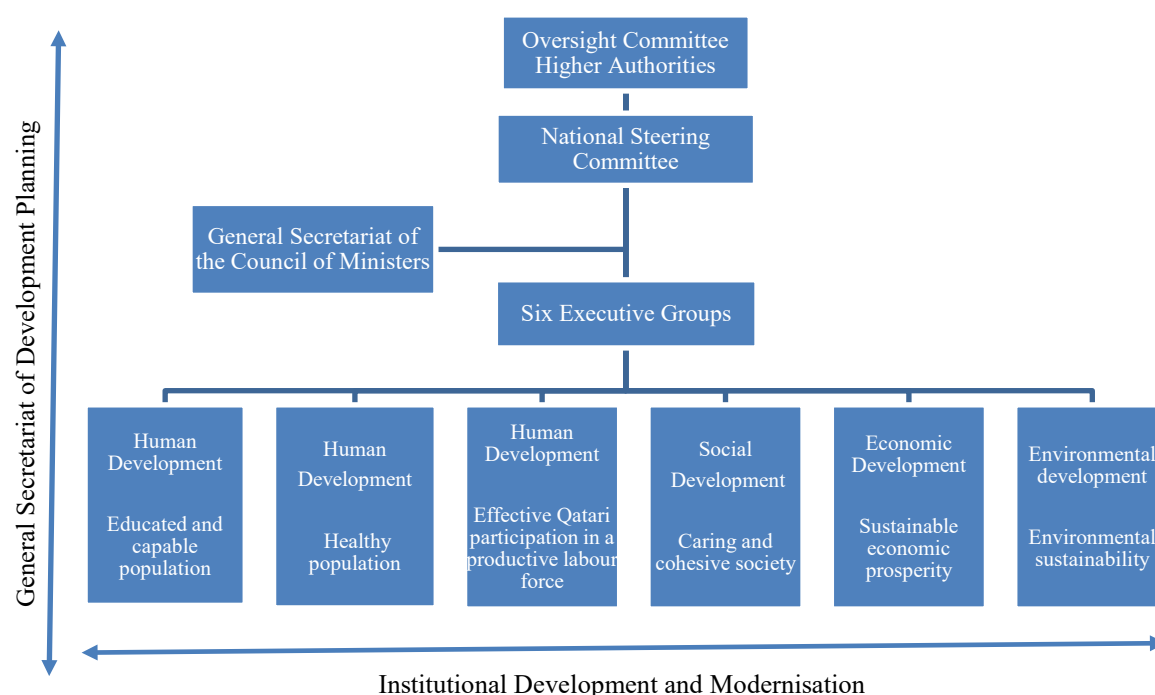
Figure 3-6. The Approaches Used in Developing the Qatar National Development Strategy



Participation in the QNDS was cross-societies and sectors and it engaged Qataris and non-Qataris. Stakeholder engagement can be seen in the engagement of ministers and prominent leaders in executive groups in addition to the engagement of participants across 13 sectors from the public, private, and civil society sectors in task teams. The task teams were each led by an agency and included strong governmental participation. Furthermore, each task team required inputs from multiple sub-task teams of stakeholders. The aim of consultation among participation bodies is to build a strategy with strong public ownership; thus, it was extensive and occurred through interviews, discussions, debates, and research (Qatari Government, 2011). The GSDP at that time played a co-ordination role by establishing the National Development Strategy Project Management office, which provided technical support to each task team, while each team was preparing comprehensive sectoral strategies that identified sectoral priorities by collaboratively using strategic management techniques such as situational analysis and benchmarking of best practices – regionally and internationally (Qatari Government, 2011). These strategies were submitted for approval to the national steering committee and one of the executive groups. After integrating sectoral strategies, QNDS was formulated (Qatari Government, 2011). The organisational structure of QNDS is outlined in Figure 3-7. There are six executive groups in QNDS’s organisational structure, and they are

categorised as follows. Three executive groups served human development objectives in different themes (e.g. the development of an educated and capable population was overseen by the Supreme Education Council, a healthy population by the Supreme Council of Health, and effective Qatari participation in a productive labour force by the Ministry of Labour); One executive group served social development objectives within the theme of a caring and cohesive society by the Supreme Council for Family Affairs; one executive group served economic development objectives within the theme of sustainable economic prosperity by the ministry of economic and finance; and the last executive group served environmental development within the theme of environmental sustainability by the ministry of the environment. The six executive groups' tasks are to ensure alignment with the identified outcomes and challenges in QNV – namely, to define development concerns; to prioritise strategic areas for QNDS; to select task teams and to provide their resource needs; and to ensure the high quality of task team deliverables (Qatari Government, 2011).

Figure 3-7. The organisational structure of Qatar National Development Strategy 2011-2016.



QNDS was comprehensive and multidimensional, since it listed the different challenges of implementation for the following aspects: promoting sustainable prosperity; promoting human development; taking an integrated approach to sound social development; sustaining the environment for future generations; and developing modern public sector institutions. Identifying and designing the mechanisms of QNDS's implementation while progressing already commenced projects was a challenge that demanded strong and prompt accomplishment. QNDS emphasised the country's leadership's commitment to regularly reviewing the performance and progress of the strategy across the entire government institution and its role in the success of strategic implementation (Qatari Government, 2011). QNDS also highlighted the importance of taking ownership for the strategy's operational plans and of the acceptance of accountability by ministries and agencies (Qatari Government, 2011). Eventually, the strategy addressed the concerns of processes and practices that involve key

decision-making on resource utilisation and related tools to integrate performance measurement and assessment for projects and policy. The strategy identified challenges in building institutional and human capital capabilities, such as effective planning and project implementation (Qatari Government, 2011).

The implementation of QNDS required government ministries and agencies to apply competent project management functions. During the transition period, such services might be brought in; however, they were expected to count as knowledge transfer and enhancement of national capabilities (Qatari Government, 2011). However, human resources is a capability considered as an obstacle to implementation and involves a complicated dilemma. The strategy emphasises the importance of simultaneous progress in three main areas: increasing the value of the productive base; establishing economic efficiency and stability; and establishing a discovery-led and innovative culture in a diversified economy based on a partnership between the public and private sector. The productive base is the value of human capital, natural resources, and man-made capital (construction, infrastructure, technology, and institutions) (Qatari Government, 2011). The growth of such a productive base represents opportunities for average citizens. Thus, the expansion of a productive base is expected to cope with the growth of population in the most ideal case. The capabilities of institutions and people drive the expansion of a productive base. This expansion represents the ability to be proactive and to respond to changing demand, while maintaining stability and efficient resource allocation and utilisation (Qatari Government, 2011). Thus, the underlying structure of economic activity determines economic stability and efficiency. Thus, a highly skilled and productive workforce is one of the key drivers for a productive base expansion.

The challenges that face the implementation of QNDS in Qatar have clearly been identified and explained in the strategy document itself. One of the challenges is ensuring the alignment of education and skills development with industry requirements. Another challenge is labour

market restructuring for achieving a talent base at a world standard level (Qatari Government, 2011). The Qatari government planned to draw a suitable roadmap to technical education and vocational training in order to meet the demand for technical and vocational workers (Qatari Government, 2011). QNDS put a strong emphasis on the importance of participation of private sector institutions and civil society for successfully implementing the sector strategy and achieving the goals of QNV. Therefore, stakeholder awareness of implementation progress is important. The recruitment of labour market experts was another implementation challenge in establishing the required technical capacity that could lead to strategy implementation at the sector levels. Project management and implementation was one of the identified areas for skills training and development in Qatar for it to build its technical capacity. Knowledge sharing and networking with experts were identified as an approach for capacity enhancement that should be at all levels – national to international. QNV calls for an increase and diversification of Qatari participation in the labour force by means of education and training investment; professional and managerial careers' incentives in all sectors; and measures to encourage more Qatari women to enter paid employment (Qatari Government, 2011). This increases the emphasis on higher education and lifelong learning.

One of the challenges Qatar's government is facing in relation to the labour market is achieving the target size and quality of expatriate productivity. Balancing expatriate productivity and economic benefit on the one hand and their cost of living, required healthcare, education, housing, and public services as well as their impact on national culture and identity on the other hand, is a challenge. Such a balance depends on policies related to private sector incentives and regulations and participation in the transition to a highly productive and highly salaried economy. In addition, the participation of Qataris in the labour force is low and is declining among men due to their retirement at a young age (Qatari Government, 2011). Therefore, it is necessary to encourage men to secure a tertiary education. Recently, in Qatar, women's

participation in the labour force is at a sharp incline and is associated with higher education levels for women. Focusing on increasing the quality of education and training that creates lifelong learning opportunities and mindset changes could facilitate Qatar in its developmental path (Qatari Government, 2011). This could be achieved by increasing awareness and realisation of the ultimate returns of education and training in order to motivate the Qatari commitment to education and educational attainment. In order to create informative jobseekers from the young population, some areas related to information on training and employment require further development, particularly those related to career counselling and mentorship (Qatari Government, 2011). Although the Qatari unemployment rate is very low, low productivity levels raise more major concerns. The public sector – the energy sector in particular – contributes a great deal to Qatari employment due to a supportive employment policy (Qatari Government, 2011). Thus, motivated young Qataris should take tertiary education and training opportunities, while institutions should realise the capability and motivation of the workforce (Qatari Government, 2011). Education output improvement is the primary source of Qatar's employment transition from a numeric-based target to a market-based mechanism in a wage-to-productivity ratio (Qatari Government, 2011), which will narrow the wage gaps between the Qatari people and the expatriate community as well as between the public and private sectors. The goal of this improvement is to achieve the strategic aim of increasing Qatari participation in the private sector. Minimising the gap in social allowances and work conditions would reduce the dependence on the public sector for Qatari employment. Thus, entrepreneurial development among Qatari youth and women would motivate them to enter the private sector. In QNDS, the government aims to raise market efficiency in the labour market by ensuring supply and demand outcomes are matched in both the public and private sectors. Organised practices and measures would contribute to several labour market outcomes for Qataris and would increase the quality of training opportunities;

provide incentives to participate in the private sector; enhance labour force productivity and flexibility; attract and retain talented and highly qualified expatriates; help in human resources management; and would also help improve employment and career services. Thus, QNDS has connectivity and relationships among policy- and decision-makers in the education, training, and market (or industry) institutional spheres (Qatari Government, 2011). QNDS calls for suitable institutional arrangements to take place for regulating the labour market, education, and training. In QNDS, there is a list of tasks and planned initiatives for achieving each of these outcomes. Table 3-1 outlines the tasks and targets of these strategic outcomes.

Table 3-1. Labour market outcomes of Qataris in Qatar National Development Strategy 2011-2016.

	Strategic Tactic	To Achieve Outcome	Target
<i>Increase the quality of training opportunities</i>	Skills upgrade programme to increase the participation of Qatari employees in the public sector.	Increase skills' quality in the public sector to enhance administration and institutions in Qatar. Skills' enhancement in the private sector to encourage an economic role that is more diversified for Qataris.	Increase the participation rate of Qatari men and women aged 20-59 in the labour market with a secondary education or below.
<i>Provide incentives to participate in private sector</i>	Diversified programme for Qataris' participation in the private sector.	Develop entrepreneurial initiatives for the Qatari youth and women. Decrease the compensational differences between the private and public sectors.	Increase the participation of Qataris in the private sector from 5% to 15%.
<i>Enhance labour force productivity and flexibility</i>	Labour strategy	productivity Enhance the attractiveness of highly skilled labourers to employers. Develop a change and communication management plan to ensure ownership and engagement by all stakeholders.	Improve Qatar's global ranking in labour productivity from 35 th to 29 th .
<i>Attract and retain talented and high-quality expatriates</i>	Comprehensive programme for the recruitment and retention of expatriates.	Implement a recruitment and retention programme, including review and revision as may necessary, of Qatar's sponsorship system.	Increase the proportion of highly skilled foreign labourers from 17% to 23%.
<i>Develop the capacity of key labour market stakeholders</i>	Increased capacity of key labour market stakeholders.	Increase the capacity of the main government stakeholders, improving their structure and promoting more efficient organisation by running an inter-ministerial body to coordinate labour market policies, for which purpose a government-private sector partnership is suggested.	Strengthen the capacity of key labour market stakeholders and improve coordination between them.

3.3.2 Strengthening Public Sector Institutions as a Strategic Target in QNDS

QNV and QNDS both called for strengthening the public sector as an objective for institutional maturity and a transition to a KBE in the areas of human development, economic diversification, social development, and environmental sustainability (Qatari Government, 2011). This goal is represented in the following ways: in the objectives of public service efficiency and transparency; building institutional and organisational capacity; collaboration and cooperation between public and private sectors; business-oriented work climates; and freedom in civil society (Qatari Government, 2011). In 2008, Qatar's government was restructured towards a ministry portfolio-based approach that builds on government improvement, accountability, centrality in one ministry for a given policy domain, a result-based approach, encouraging cross-ministry coordination, and discouraging decision-making disintegration (Qatari Government, 2011).

Service improvement requires a client-focused approach and the institutional capability to act proactively in adopting demands for change (Qatari Government, 2011). QNDS included mapping the Qatari institutional modernisation stages for the public sector to achieve institutional advancements for the transition in achieving the QNV targets as outlined in Figure 3-8. Management techniques were used in the mapping exercise, such as situational analysis, benchmarking, and focused areas for modernisation. In the situational analysis of the current development level of institutions and the modernisation strategy, data was collected by means of a questionnaire completed by ministries and agencies as one of government's central functions for identifying the requirements for public service performance improvement (Qatari Government, 2011). Three phases of long-term institutional maturity development were identified in QNDS, as shown in Figure 3-9 (Qatari Government, 2011). QNDS defines institutional development and maturity in three terms: short-term, medium-term, and long-

term. The short term is related to the five year period of QNDS as a foundation stage that is focused on: (1) strategic policy and planning; (2) budget and financial management; (3) organisational alignment; (4) human resources development; (5) enabling institutional development; (6) enabling institutional processes; and (7) performance management. QNDS targeted the establishment of the foundation of institutional capabilities in those six areas at the entire government level (Qatari Government, 2011). The second phase of institutional development is related to the period after QNDS and the second five-year national strategy. The second phases' objective is embedding institutional capabilities and creating a high degree of capability and capacity. Thus, flexibility and adaptability in implementation are required to allow for a design demand-based improvement. The third phase is related to the third five-year national strategy and focuses on developing cross-institutional excellence by creating a culture of collaboration in delivering services (Qatari Government, 2011).

Figure 3-8 . Mapping Qatar’s public sector institutional modernisation journey (Qatari Government, 2011).

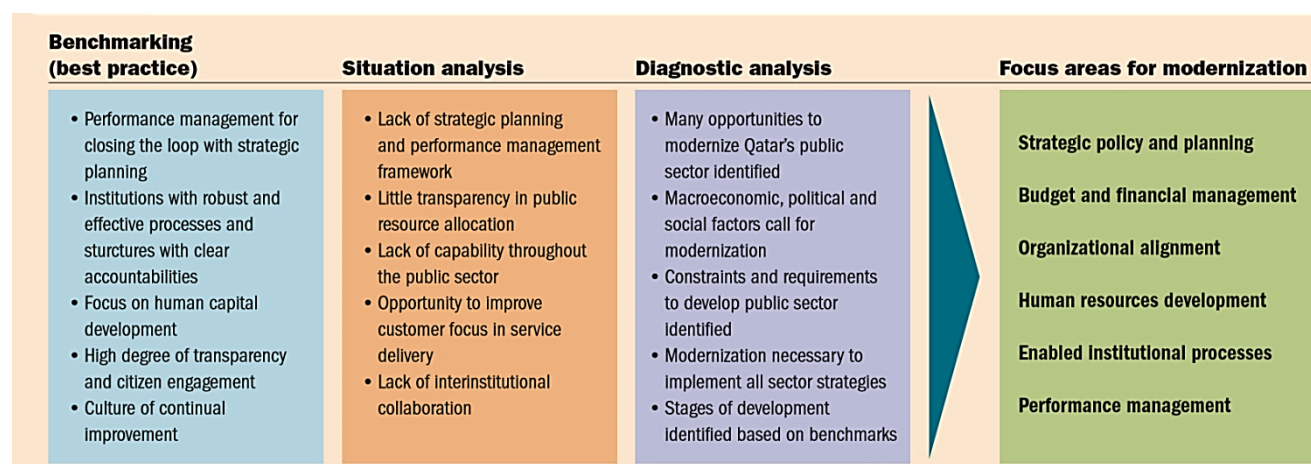
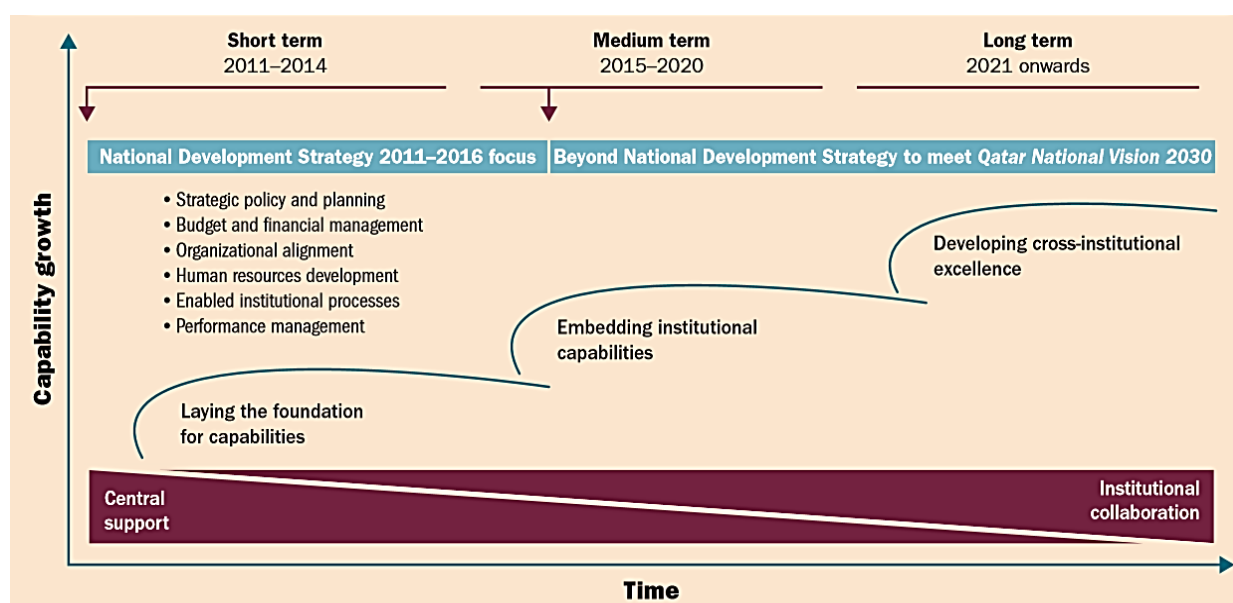


Figure 3-9. The phases of institutional development and modernisation: a long-term journey (Qatari Government, 2011).



3.4 Institutional Structure and Interaction

In 2007, Qatar had the highest per capita income in the world (Qatari Government, 2011). This increase accelerated development in Qatar, especially after securing the rights to host important sporting events, such as the Asian Games in 2006 and the World Cup in 2022, which is consequently associated with institutional number growth. In 1994, Qatar Airways was launched. This development introduced Qatar to the international air transport industry and in 2017, the airline won the award for being the best airline in the world by SKYTRAX (Ibrahim and Harrigan, 2012; Zhang, 2017). In 1996, the Al Jazeera television news network started broadcasting (Ibrahim and Harrigan, 2012). In 2004, the Qatar Science and Technology Park was opened as a technological innovation hub, and ICT Qatar, for industry development and regulation, was established. For development in the financial services industry, the Qatar Financial Centre Authority was founded in 2005 (Ibrahim and Harrigan, 2012). In addition to the remarkable institutional developments in the education sector, independence of the national university from the government (Qatar University) and the development of research divisions

for strengthening the university's research function was begun. At the school level, the K-12 system of education was introduced and applied, and in 2003, the Supreme Education Council was founded. The independent school model was intended to provide alternative education options and to provide the grounds for educational innovation and accountability concerning performance. The public sector in Qatar is highly centralised and bureaucratic (Ibrahim and Harrigan, 2012). These advances attracted reformative projects for creating an environment of governance and transparency to ensure the high quality of public services. Thus, the administrative control and transparency authority was established in 2011 with a legal identity and it is directly under the control of the country's ruler, the Amir of Qatar, as an anti-corruption government agency (Qatar Legal Portal ALMEEZAN, 2011). Institutional structures in the government have changed several times in the past decade as a result of the economic crisis and political changes, such as a drop in oil prices in 2012 and the government change in 2013. Therefore, there was a ministerial restructuring in the government sector in 2013 as a response to these changes. Many institutions were merged into ministries, and new ministries were created, such as the Ministry of Developmental Planning and the Ministry of Administrative Development.

In Qatar, the government dominates state strategic planning, development practice, and developmental projects. The government sector leads the mission of transitioning Qatar to a KBE as an objective in QNV. In the past decade, the government has faced frequent structural changes, and one major change was due to financial reasons – when oil prices dropped in 2012. This impacted the government budget, and many budget cuts happened at that time. Thus, ministerial restructuring and mergers as well as employment constraints were applied in most institutional spheres in Qatar as a response to the economic crisis. This government restructuring was followed by a government leadership change in 2013. The government is characterised by a high amount of bureaucracy, slow productivity, low cross-institutional

communications, and low development of management and strategic planning skills among its workers. Therefore, institutional interaction among ministries in the government sector is extremely poor, and each ministry acts in isolation from other ministries. However, institutional interaction has improved during the formulation of the national strategic planning practice and the implementation stages of QNV and QNDS. Ministries have considerable control of their domain and over other institutional spheres' activities and interactions, such as in education, professional associations, and industry. The government's income is mainly from the oil and gas industries (the source of over 70% of its income) and is distributed through the government to other institutional spheres, such as local schools, colleges, and universities; health services; semi-government industries; and selective civil society organisations. In 2016, the government was busy preparing for the second QNDS 2018-2022; however, public sectors' institutional development and modernisation was not a standing strategic objective anymore; rather, it was a national generic concept.

The government practises a father leadership and provides free services for its people, such as education, health, and infrastructure – with no tax applied. This, on some occasions, compromises the effective contribution of civil society in the decision-making process for developing services and economic performance. On 5 June 2017, Qatar's neighbouring countries (Saudi Arabia, the UAE, and Bahrain) blocked their shared borders with Qatar from any type of exchange – trade, transport, and human capital. This embargo included products like food and medicine as well as cross-border travel authorisation over land or by air. Furthermore, employees and companies from these three countries operating in Qatar were recalled to their home countries (they were required to return) within 14 days, and the same was asked from Qatari employees and companies working in the neighbouring countries. Social ties with the countries enforcing this embargo made families suffer the most from this crisis. Thus, a notion of national self-efficiency and dependency has been developed in Qatar. Qatari

people have been called upon to lead the development and defence of their country. This crisis also emphasised the need for developing a KBE and reducing the risk of knowledge turnover during a crisis.

3.5 Chapter Summary

Qatar is located on a peninsula in the Middle East, in the Arabic Gulf, with a total area of 11,586 sq. km and a total population of 2,314,307 Qatari citizens, representing 11.6% of the total population. Qatar faces an accelerated development speed, associated with institutional growth, especially after securing the rights to host important sporting events such as the Asian Games in 2006 and the World Cup in 2022. The labour market in Qatar is dominated by expatriates, the ratio of whom to Qatari workers is 20:1. This has consistently been a concern for policymakers. Qatar went through different economic and political changes that have contributed to the reform of recent Qatar institutional characteristics. In 2004, the government announced Qatar's permanent constitution, which defines the roles of the three state powers: the legislative, executive, and judiciary. The Qatari strategic planning exercise was started in the form of QNV. It was the government's first strategic foresight exercise at a national level, created in 2010. QNV consists of four main pillars: human development, social development, economic development, and environment development. QNDS was the blueprint of QNV. The progress in QNDS was affected by several economic and political changes and crises, i.e. falling oil prices in 2012, a government change in 2013, and the trade embargo crisis in 2017. Thus, targets related to the transition to a KBE and the development of the labour market workforce were not achieved according to QNDS 2011-2016.

The Qatari strategic planning exercise was begun in 2008 in the form of QNV and was followed by the development of the first QNDS – the first five-year strategy to be followed with sequential five-year strategies until the year of the anticipated accomplishment of the vision – 2030. In the strategic development stages, there were organisational charts of two team levels:

executive and working teams. The development and implementation of QNDS were organised by the Qatari government. The development of QNDS was organised in four levels in addition to the cross-level coordination and monitoring role. This included approximately 70 employees – leaders, seniors, and subordinates. The implementation of QNDS was organised according to each objective, i.e. by owner for each sectoral strategy. This study has considered the organisation of QNDS and has focused on the strategic objective of increasing the effective participation of Qatari workforce in the labour market. Thirteen ministries and other institutions from different institutional spheres in Qatar were involved in working towards achieving this strategic objective. The implementation of QNDS took place in two levels, for each objective, with no cross-objective organising role. This included approximately 15 employees from the sectoral strategy owner ministry and stakeholder representatives from other ministries and agencies (Qatari Government, 2011). Communication among team members in the development of QNDS was in the form of team periodic meetings, while in the implementation of QNDS, communication was based on the owner institution's requests and needs.

The development stage framework of the Qatari strategic planning exercise consists of five approaches, as outlined in Figure 3-6: (1) defining national targets and long-term goals for QNV; (2) defining national initiatives to achieve QNV goals for QNDS; (3) defining and integrating sectoral priorities with QNDS for medium-term review in 2013; (4) defining and integrating sectoral priorities with QNDS for sectoral strategies; (5) defining ministerial plans to support the implementation of sectoral strategies for ministry and agency strategies. It was planned that each of the five approaches would be achieved consecutively on a yearly basis, relying on the top-down and bottom-up alignment of the planning process. During the implementation stage, the government underwent a major structural change in most ministries in 2013, and as a result, most employees in the implementation teams have changed. Furthermore, structural changes have forced a shift in institutional focus to operation settlement

rather than the QNDS project implementation. At the end of 2016, the strategic objective of increasing the effective participation of the Qatari workforce in Qatar labour market has not been achieved. Therefore, this study aims to explore the organisational practices among institutional spheres that could facilitate (or impede) achieving this objective for a transition to a KBE in Qatar – in other words, the organisational practices among institutional spheres that facilitate (or impede) intra-organisational collaboration for KBE in Qatar.

Chapter 4 Research Methodology and Design

The aim of this chapter is to review the methodological approach driving the empirical research study. Firstly, it presents the research paradigm from philosophical, theoretical, and methodological perspectives. Secondly, this section presents a review of an exploratory qualitative research approach as well as the theoretical justification for selecting a qualitative case study approach. Thirdly, it provides an overview of the qualitative case study adopted in this study. Fourthly, the empirical research focus is reviewed, detailing the research stage in Qatar's national strategic foresight timeline; presenting the processes of the selection and recruitment of participants from the four institutional spheres in Qatar; and outlining the data collection from the semi-structured interviews and archival data sources. Moreover, the limitations of the data collection methods, data analysis, and trustworthiness of the data are also explained. This explanation is followed by the chapter summary.

4.1 Research Paradigm

A research paradigm is a theoretical, philosophical, and methodological foundation for understanding the world and conducting social research. It is the belief of reality composition, ontology, and knowledge contribution of epistemology in an empirical scientific domain (Kuhn, 1979). There are five major philosophies in business and management: positivism, critical realism, postmodernism, pragmatism, and Interpretivism. The differences between them are shown in Table 4.1. Positivism is related to the application of philosophy in natural science, which deals with the observable social reality for generalising produced law. Critical realism explains views and experiences in the underlying reality's structural terms that reform observable events (Saunders et al., 2016). Postmodernism highlights the language and power relationship role as an attempt to test the accepted approaches of thinking and letting different marginalised views emerge. Pragmatism asserts that the relevance of concepts depend on concepts supporting action. It always starts with a problem and aims to contribute solutions to

inform future practitioners in pragmatist research (Saunders et al., 2016). Interpretivism distinguishes human from physical phenomena by developing meanings that allow interpretivist to study these meanings (Saunders et al., 2016). This process entails employing different ways of studying human beings and their social worlds, where the differences in people, their cultural backgrounds, and their circumstances create different meanings; thus, they experience different social realities (Saunders et al., 2016). Such methods are different to studying physical phenomena. Interpretivism is the philosophy employed in this study for dealing with social phenomena in a KBE and developing an in-depth understanding of social interactions and practices within the social science domain. For management researchers, this involves viewing organisations from the perspectives of different groups of people e.g. within the organisational structure.

Interpreting social world contexts and developing a new, rich understanding is the interpretivist's research goal (Saunders et al., 2016). Interpretation of what appears to be a KBE differs between across historical or geographical contexts (Saunders et al., 2016). By collecting what is meaningful from their research participants, interpretivist researchers attempt to get an account of such a complex framework (Saunders et al., 2016). Furthermore, in forming interpretations of organisational and social domains, language, history, and culture are the main areas of the interpretivist's attention (Saunders et al., 2016; Crotty, 1989). The different aspects of Interpretivism determine different focuses in practising such philosophy among hermeneutists (who focus on cultural aspects such as symbols, stories, texts, and images), phenomenologists (who focus on existence by means of participants' experiences), and symbolic interactionists (who see meanings emerge from interactions between people and focus on the observation and analysis of social interactions, such as meetings, dialogues, and teamwork).

Interpretivism is explicitly subjectivist, since it emphasises richness, complexity, multiple interpretations, and the generation of meaning (Saunders et al., 2016). Interpretivists are aware that their interpretation of research data and materials as well as their values and beliefs represent an axiological implication and influence the research process (Saunders et al., 2016). Thus, researchers need to follow an empathetic line that is important to the interpretivist philosophy (Saunders et al., 2016). The challenge for the interpretivist is therefore to access the social world of research participants and understand the meanings of that world from their viewpoints (Saunders et al., 2016). In addition to business situation complexity, the context of business situations makes them unique in terms of grouping specific people in specific times; therefore, it is arguable that interpretivism is a highly suitable perspective for business research (Saunders et al., 2016).

4.2 The Research Approach

The development of the KBE as a new social phenomenon demands setting research questions for exploratory experimentation in this study (Yin, 2018). An exploratory case study is conducted to explore unclear intervention situations in which evaluating them does not thus far lead to a clear, single set of conclusions (Yin, 2003). The exploration and confirmation are recursively applied in order to advance science and knowledge; however, apparently, this complementary relationship is not prosperous in organisational research (Jebb et al., 2017; Schickore, 2016). Theory provides a guide for exploratory work; however, exploratory work is not limited to the proposed theoretical framework (Jebb et al., 2017; Schickore, 2016). Exploratory experimentation is not theory-driven; rather, it is informed by the general theoretical background (Schickore, 2016). Since most recent phenomena, like the KBE, have not sufficiently been explored by theories (Schickore, 2016), exploratory experimentation as a discovery-oriented approach is suitable for emerging topics in management and psychology in inductive deductive studies (Schickore, 2016). The recursive relationship between exploration

and confirmation enriches new ideas that emerge to restart a new cycle of testing by a confirmatory approach, which probably encounters further courses of exploration and validity (Jebb et al., 2017; Schickore, 2016).

The term ‘exploratory’ was coined in the 1990s, primarily by Richard Burian (1997) and Friedrich Steinle (1997), but the two authors attended to the term’s exploration from different research notions of identification, for different reasons, and from different angles of experimentation practice presentations (Schickore, 2016). Steinle (1997) explored exploratory study from two perspectives: (1) as a knowledge generation practice of new concepts, such as the epistemic function, and (2) as an experimental practice that can be distinguished by a methodological strategy bundle and by its allowance of proper perceptions to drive empirical directions for experimentation governance. However, Burian (1997) attended to exploratory study by focusing on the research style of a typical individual. Burian (1997), similar to Steinle (1997), suggested that exploratory experimentation is a knowledge generation function, yet pursuing methodological strategies allows phenomena to employ a set of new techniques in different fields of triangulation. This could probably allow new courses to emerge in order to change research direction (Burian, 1997). Burian’s work considers triangulation as a source of innovation, since it allows for an understanding of how interaction points can be made across experimental systems (Burian, 1997, p. 44; Schickore, 2016). Thus, for Burian (1997), exploratory experimentation is a tool whereby methodological strategy is specific to certain research situations. In contrast, Steinle (1997) considers that exploratory experiments’ main objective is generating new concepts and knowledge that can be met by the stabilisation of an experimental arrangement. Steinle considers that allocating a great deal of attention to the ‘know what’ in the exploratory experimentation term and ignoring the ‘know-how’, capability, and skills is a source of knowledge generation. Knowledge generation and exposing new ideas can stem from different knowledge aspects of ‘know what’, ‘know-how’, and ‘know who’;

thus, knowledge generation is limited to the sole aspect of ‘know what’, which became an incomplete view (Schickore, 2016). Furthermore, exploring new experimentation failure paths could also generate new knowledge for the research domain. This allowed us to identify the aspects of knowledge generation in this study as ‘know what’ as the organising practice that facilitates or impedes the development of a shared vision of collaboration. Knowing how to transition to a KBE in a framework could guide the implementation of a national strategic foresight in a developing country and by knowing who the institutional spheres that contribute to the transition to a KBE by collaboration are.

4.3 The Qualitative Case Study Approach

Yin (1994, p. 13) defined a case study as ‘an empirical enquiry that investigates contemporary phenomenon in its real-life context, especially when the boundaries between phenomenon and context are not clearly evident’. The type of study questions considered in a case study include ‘what’ and ‘how’ questions. The scarcity of conducting empirical research in relation to KBE development and national strategic foresight implementation for establishing a shared vision of collaboration across institutional spheres makes the exploratory qualitative research approach using the case study technique the most appropriate for extending our understanding of organisational practice domains (Sarpong et al., 2017; Yin, 2018). Therefore, an exploratory research approach was adopted in this study by applying an in-depth case study analysis. Case studies are used to understand new phenomena in depth, e.g. KBE concepts of employment in national strategic foresight to show why and how a decision or set of decisions were made and implemented and what the results of it/them were as well as to study contemporary events while no control is required over such events (Shaban, 2009; Yin, 1994). Case studies can be used in many disciplines, such as humanities, political science, health, education, sociology, and public administration (Shaban, 2009; Yin, 1994). The challenges in using the case study technique are mainly human research ethics and protecting human rights by means of an ethics committee,

which plays an active role during the design, development, and planning of the research protocol (Shaban, 2009; Yin, 1994). Thus, prior to data collection, participant information sheets and consent forms were prepared and ethics approval was obtained from the Research Ethics Committee at Brunel University.

The selection of the research context in this study was mainly based on the need to select a developing country that has undertaken strategic planning and implementation exercises for development of a KBE at a national level within the past ten years; to find high development speeds of institutional bodies related to national strategic foresight in workforce development; and most importantly, to ensure the researcher's sufficient access to data and related documents (Yin, 2018). Therefore, the strategic planning exercise in the state of Qatar for the national workforce development was chosen as an empirical research context in this study. This is because Qatar went through strategic planning exercises in 2008, and one of its objectives was to develop the workforce for its transition to a KBE. Qatar is also witnessing a high speed of development in projects and institutions related to KBE pillars, which present opportunities for exploring the organisational practices among the institutional spheres during the strategic planning exercise that facilitate (or impede) the transition of Qatar's economy to a KBE. Furthermore, the researcher has sufficient access to most of Qatar's institutions for data and document collection (Yin, 2018).

A single case study has been employed in this study, as it explores the organisational practices of developing a shared vision of collaboration at a national level in a single country, Qatar, as a case study. The case study is related to the theoretical proposition for exploration for future research direction in a specific field, e.g. a KBE can make a significant contribution to knowledge by means of a single case study (Yin, 2018). Single case study designs require careful examination of the candidate case to reduce the risk of misrepresentation and to maximise the required access to collect case study data (Yin, 2018). Linking data to

propositions helps in data analysis (Yin, 2018). Thus, this case study is linked to national workforce development proposition as a strategic target in the QNDS. The aim of this connection is to explore the organisational practices that facilitate or impede the establishment of a shared vision of collaboration across the four institutional spheres in order to deploy a collective learning concept in achieving national workforce development. The analysis requires preparing case study data to directly reflect the case study proposition (Yin, 2018). The proposition in this research case study, i.e. a national workforce development strategy, has a temporal sequence of data sequences representing the stages of the national strategic planning cycle. Therefore, a time-serious analysis is suitable for data analysis in this research (Yin, 2018), which is illustrated further in the following section.

4.4 Empirical Research Focus

In this section, the research stage and scope are presented, followed by an explanation of the sampling strategy and the techniques of data collection conducted, i.e. semi-structured interviews and documentation. Thereafter, data analysis and the trustworthiness of data are discussed.

Qatar's strategic planning and implementation exercises lasted for eight years in the first national strategy cycle, QNDS 2011-2016 (hereafter, QNDS 1). Therefore, the timeline started from 2008 when QNV was announced, and it ended in 2018. The interaction was analysed after the end of the strategic planning cycle in 2016. Therefore, the case study timeline is divided into four phases in this study for exploring the interaction between the institutional spheres. The four phases of QNDS 1 in this study are: (1) pre-strategic planning exercises; (2) during the development of strategic planning exercises; (3) during the development phase of implementation exercises; and (4) post-strategic planning exercises. The entry to institutions was mainly in June and July of 2017 and communications lasted until April 2018. The timeline of the research empirical case study and the research stage are outlined in Figure 4.2.

The research data collection stage lasted from June 2017 until April 2018. This time period covered the four stages identified in this study, which also cover the framework of Qatar's national strategic foresight and the unplanned institutional restructuring events that occurred at that time in the public sector. The strategic planning framework represented the announcement of QNV in 2008; the announcement of the first blueprint of QNV; QNDS 1 in 2011; the midterm review of the implementation of QNDS 1 in 2014; and finally, the end of QNDS 1 in 2016. Therefore, the research data collection stage occurred over 2017 and 2018. The unplanned institutional restructuring events that impacted the implementation of QNDS 1 mainly include the merger in the institution that led the national workforce strategy, the Ministry of Work, in 2012. This was followed by the restructuring of the government in 2013. Many institutions were established at that time, including the Ministry of Administrative Development, which was concerned with centralised human resources management process of public sectors and a government scholarship programme for targeted specialisations for labour market demand, including private sector demands. Afterwards, a third merger followed in 2016, merging the Ministry of Work and Social Affairs with the Ministry of Administrative Development, as outlined in Figure 4-1.

Figure 4-1. Timeline of Qatar's national strategic planning exercise.

Timeline	2008	2011	2012	2013	2014	2015	2016	2017 - 2018
								Research Stage
QND 1 case study time series (of Qatar National Development Strategy [QND] 2011-2016)	(1) Pre-development phase 2008-2011	(2) Development phase 2011-2012	(3) Implementation phase 2012-2016					(4) Post-implementation phase 2016-2018
Qatar national strategic foresight framework	QNV 2030 announcement	QND 1 announced	Commencement of implementation of objectives		Midterm review 2013		QND 1 ends	
Unplanned institutional restructuring events			Owner institution first merger: Ministry of Work and Social Affairs	Restructuring of government			Owner institution second merger: Ministry of Administrative Development; Ministry of Work and Social Affairs	

4.4.1 Selection and Recruitment of Research Participants

The participants were mainly from the four institutional spheres (government – 11 participants; education – 12 participants; industry – 14 participants; and civil society and professional bodies – 17 participants). The selection of participants from the four institutional spheres was guided by the quadruple-helix theory (Leydesdorff, 2012). The profile of the research participants are outlined in Table 4-1 and Table 4-2. The proportion of participants per institution in this study over the total number of interviews (53 interviews) is demonstrated in Figure 4-2. Upper management has a considerable influence on strategic organisational change processes (Daft and Weick, 1984; Isabella et al., 2014; Kiesler and Sproull, 1982). Thus, participants were initially selected based on the high- and middle-management positions they hold, which related directly or indirectly to QNDS 1's different stages. Achieving data saturation on the topic (Bowen, 2008; Padgett, 1998) was a goal; thus, purposeful sampling was followed in selecting the sample (Lincoln and Guba, 1985), and random sampling was avoided. A support letter was obtained from an office of a non-governmental organisation (NGO) that has strong business ties with leaders in different sectors. The chairman of the board of trustees in the NGO is also a former minister, and thus, a support letter obtained from him increased access to data. The snowballing technique was used as a subsequent step: Each participant was asked to nominate others who participated in the different stages of QNDS 1 or who have been exposed to the project. Furthermore, the theoretical sampling was applied in the study, by which the information notion from early participants was used to provide further focused sampling by seeking participants based on information indicated by earlier participants. An essential part of this grounded research process is that it is driven by a thematic analysis represented in the continuous analysis of data in addition to data comparison across participants (Glaser and Strauss, 1967). A gradually data-focused sample of participants resulted from this approach; however, no explanations of themes were concluded unless further data collection and analysis

that would be relevant to theoretical saturation occurred (Glaser and Strauss, 1967). The research sample interview strategy was a less-engaged-first-interview strategy, in which the participants in the institutional sphere in which they are the least engaged with the national strategy foresight exercise of QNDS were interviewed. This was done to increase data reliability and to concentrate the sample by creating a discursive triangulation approach that related issues to be addressed from an outsider's view with less organisational structure pressure and to provide more focused sampling and interview questions about QNDS 1 to later interview participants with participants engaged with the Qatari national strategic exercise. On the other hand, a more-engaged-first-analysed strategy was adopted in the data analysis process to first emphasise the organisational practices that facilitate collaboration, which were addressed by the participants engaged in QNDS 1 and to analyse data from less engaged interviewees at a later stage of analysis. This discursive approach in data collection increases the intensity, validity, and reliability of data, while qualitative triangulation data sources serve the accuracy of the collected data (Yin, 2018).

Table 4-1. Profile of the research participants.

Institutional Spheres	Interview Number	Interviewee Position	Institutional Affiliation
Government (11*)	1.	Minister	Ministry 1
	2.	Department Manager	Ministry 2
	3.	Assistant Undersecretary for Planning Affairs	Ministry 3
	4.	Former Principal Administrative Officer	Secretariat 1 (2006 - 2011)
	5.	Director	Ministry 1
	6.	Director of Planning	Ministry 4
	7.	Director of Planning	Ministry 1
	8.	Strategic Planning Advisor	Ministry 5
	9.	Director of ICT and E-Learning Projects	Ministry 5
	10.	National Human Resources Director	Ministry 1
	11.	Organisation Expert	Ministry 1
Education(12*)	12.	Director of Planning	Ministry 6
	13.	Former Director	Council (2002-2016)
	14.	School Principal	School Complex (Pre-Grade 1 'til Grade 12)
	15.	Director	Islamic College
	16.	Executive Vice-President	Research and Development Division at the Civil Society Institute
	17.	Chief Strategist	University 1

Industry (14*)	18.	Vice President	University 1
	19.	Associate Vice President	University 1
	20.	Managing Director	Private Management Training Centre
	21.	Director	Strategic Planning Division at the Governmental Training institute
	22.	Certified Coach and Trainer and Founder	Governmental Training Institute
	23.	Certified Coach and Trainer and Founder	Private Training and Consultation Centre
	24.	Former Minister	Ministry 7
	25.	Chief Executive Officer	Energy Company 1
	26.	Chief Executive Officer	Energy Company 2
	27.	Chief Executive Officer	Telecommunication Company 1
	28.	Chief Corporate Services Officer	Telecommunication Company 1
	29.	Director of Talent Management	Telecommunication company 1
	30.	Chairman	Business Association
	31.	Managing Director and Chairman of the Executive Committee	Transportation Mega Project Company
	32.	Head of Strategic Planning and Projects	International Committee 1
	33.	Director of Planning	Authority 1
	34.	Chief Tourism Development Officer	Authority 1
	35.	Chief Executive Officer	Bank 1
	36.	Group Chief Executive Officer	Bank2

Civil Society and Professional Body (17*)

37.	Senior Manager Learning and Talent Development	Bank 2
38.	Chief Operations Officer	Energy Company 1
39.	Chief Development Officer	Energy Company 1
40.	Chief Technical Officer	Energy Company 1
41.	Chief Corporate Planning Officer	Energy Company 1
42.	Senior Advisor for Chief Executive Officer	Energy Company 1
43.	Former Chairman and Owner	Private Company 1
44.	Group Chief Executive Officer	Social Institutions group
45.	Advisor	Energy Company 3
46.	Founder – Talent Management	Private Company 2
47.	Media Programs Director	Authority 2
48.	Engineer: Construction Planning and Compliance	Transportation Company 1 Mega Project
49.	Manager	Stock Market
50.	Former Chief Executive Officer	Charity Organisation 1
51.	Director	Charity Organisation 2
52.	Chairman	Civil Society Association 1
53.	Chairman	Civil Society Association 2

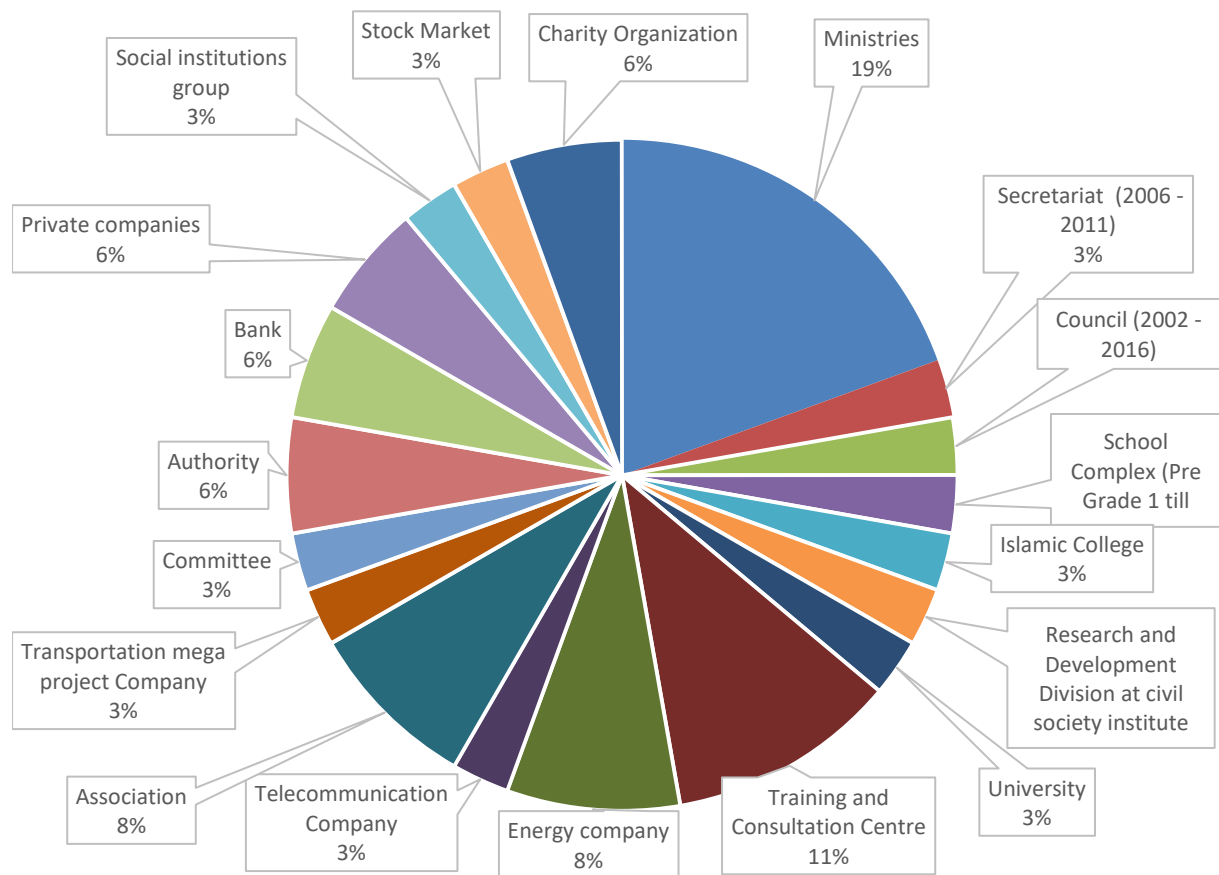
*Number of interviewees in each institutional spheres.

Table 4-2. Proportion of study participants per institutional affiliation.

Institutional Affiliation	Institutions' numbers	Institutions' participants' numbers
Ministries	7	12
Secretariat (2006-2011)	1	1
Council (2002-2016)	1	1
School Complex (Pre-Grade 1 'til Grade 12)	1	1
Islamic College	1	1
Research and Development Division at the Civil Society Institute	1	1
University	1	3
Training and Consultation Centre	4	4
Energy Company	3	8
Telecommunication Company	1	3
Association	3	3
Transportation Mega Project Company	1	2
Committee	1	1
Authority	2	3

Bank	2	3
Private Companies	2	2
Social Institutions	1	1
Stock Market	1	1
Charitable Organisation	2	2
Subtotal	36	53
Total		

Figure 4-2. Study participants in this study per affiliated institution (percentage of the total number of interviews).



The data presented in Tables 4-2 and 4-3 show that the participants in this study from ministries represent the highest proportion of the participants in this study by approximately 20%; followed by training and consultation centres by 11%; and then energy companies and associations have the same participation proportion in this study at 8%. This is because QNDS 1 was mainly led and implemented by the government, and thus, this high level of participation is to ensure the collection of sufficient information for the case study of collaboration in the QNDS 1 national strategic foresight for a workforce development strategy.

4.4.2 Data Collection

The main data for the research inquiry was collected through one-to-one semi-structured interviews and archival data sources, including hard copy and electronic documentation as well as documented executive speeches. In this section, greater detail on the semi-structured interview technique used in this study is presented; details of the consulted archival sources are given; and the limitations of the data collection process and how these limitations were overcome in the study are explained.

4.4.2.1 Semi-Structured Interviews

Fifty-three one-to-one in-depth interviews were conducted with the 53 selected upper and middle-management employees from the four institutional spheres in Qatar: government, education, industry, and civil society and professional bodies, as detailed in Table 4-0. The participants were asked to provide their own opinions based on their knowledge and experience. Interviews lasted between 90 and 120 minutes. Forty-nine interviews were in Arabic, while four were conducted in English according to the participants' preference. The interviews were conducted after the deadline of the first cycle of the national strategic foresight 2011-2030, the first five-year strategy of QNDS 1 for national workforce development. The interview started with an introduction that clearly stated the aim of the research and outlined

the targets related to workforce strategy as outlined in QNDS 1. Collective institutional collaboration to achieve KBE development in Qatar was indicated as a strategic target in QNDS 1, as outlined in Table 4-3. This table was shared with the interviewees for providing a guiding reference for the interview questions. This was done to create an understanding among participants about the study focus from the perspective of their profession. The introduction was followed by the interview questions, which were grouped into five themes: (1) 18 questions to identify the current status of institutional interaction for achieving the targets in Table 4-3 for a transition to a KBE and the underpinning reasons; (2) 8 questions to identify the ideal status of institutional collaboration to achieve the targets in Table 4-3 for a transition to a KBE and the underpinning reasons; (3) 4 questions to identify the organisational practices that would facilitate achieving the targets in Table 4-3 for a transition to a KBE and the underpinning reasons; (4) 4 questions to identify the organisational practices that would impede achieving the targets in Table 4-3 for a transition to a KBE and the underpinning reasons; and (5) 4 closing questions to seek further information. This structure was established with the goal of examining the shared vision of collaboration for achieving national strategic objectives for a transition to a KBE from the perspective of the participants from across the institutional spheres of government, industry, education, and civil society and professional bodies. The ‘four whys technique’ was used during the interview to reveal the underpinning reasons for the answers. The interview protocol was standardised across participants, with some customisation for the institutional context and hierarchical level of the participant. Participants interviewed later were asked about the issues raised by the participants interviewed earlier. However, the same generated terms by the earlier interviewed participants were used for asking questions on the raised issues. This was done to gradually increase the focus and the structure of the interviews as the themes emerged in the data. The QNDS 1 targets for fostering a capable and motivated

labour force are outlined in Table 4-3, and the themes of the interview questions are outlined in Table 4-5.

Table 4-3. QNDS 1 targets for fostering a capable and motivated labour force (Qatari Government, 2011).

Outcomes for Qataris	Strategic Tactic	To Achieve Outcome	Target
Increase the quality of training opportunities	Skills enhancement programme to increase the participation of Qatari employees in public sector work.	<ul style="list-style-type: none"> • Improve skills in the public sector to enhance administration and institutions in Qatar. • Improve skills in private sector that enable Qataris to have more of a diversified economic role. • Ensure wide access to vocational training for new market entrants to achieve high skills in different levels of education. • Increase the ability of Qataris ability to drive the development force by strengthening leadership skills in public and private sectors. 	Increase the participation rate of Qatari men and women aged 20-59 in the labour market with a secondary education or below.
Enhance labour force productivity	Labour productivity strategy.	<ul style="list-style-type: none"> • Increase employers' demand for high-skilled labour. • Enhance access to capital by reducing capital cost by means of subsidies or targeted lending programmes. • Develop a change and communication management plan to ensure ownership and engagement by all stakeholders. 	Improve Qatar's global ranking in labour productivity from 35 th to 29 th .
Developing the capacity of labour market's main stakeholders	Increase the capacity of main labour market stakeholders.	<ul style="list-style-type: none"> • Increase the capacity of the main government stakeholders. • Enhance the structure of the main government stakeholders. • Promote a more efficient organisational process by an inter-ministerial body that would coordinate the labour market policies. • Promoting a partnership between government institutions and the private sector to strengthen the coordination process. 	Strengthen the capacity of the main market stakeholders and enhance the process of coordination between them.

Table 4-5. Themes of the interview questions.

Interview's Questions in Themes
(1) 18 questions to identify the current status of institutional interaction to achieve targets in Table 4.2 for transition to KBE, and underpinning reasons.
(2) 8 questions to identify the ideal status of institutional collaboration to achieve targets, in table 4.2. for transition to KBE, and underpinning reasons for the answers.
(3) 4 questions to identify the organisational practices that would facilitate achieving targets in table 4.2. for transition to KBE, and underpinning reasons for the answers.
(4) 4 questions to identify the organisational practices that would impede achieving targets in table 4.5. for transition to KBE and the underpinning reasons for the answers.
(5) 4 questions as ending questions to seek further information.

The first stage of the data collection strategy was to collect data from participants who were the least engaged with the national strategic foresight of QNDS 1. These participants were from institutional spheres that had little or no participation in the Qatar national strategic foresight exercise of QNDS 1. This choice was made for two reasons: firstly, to examine the establishment of a shared vision of collaboration to achieve national workforce development across the four institutional spheres, while less organisational pressure is on the participant, and secondly, to strengthen the researcher's knowledge of the issues raised by the participants interviewed earlier in relation to implementing the national strategic foresight for the transition to a KBE in order to enrich the questions asked in the interviews of the engaged participants at a later stage of the data collection process. All interviews were audio recorded by the researcher's personal device, and only one interview was partially recorded and partially transcribed by taking notes during the interview at the interviewee's request (a National Human Resource Director in Ministry 1). Due to limited access to higher executive management levels, it was suggested that two of the interviews should be done remotely, since the study was conducted in different geographic locations – the UK and Qatar. One of the interviews was deleted from the study because the researcher found out that the participant was unaware of the

confidentiality of the data collection process in this study despite that it was clearly indicated by the interviewer at the beginning of the interview and in the participant information sheet. This interview was deleted from the sample to maintain data reliability. This case was not considered as a study limitation, since this case was limited to a single interview with no probability of recurrence.

4.4.2.2 Archival Data Sources

Conspicuous and inconspicuous data documents were collected by documents related to the strategic exercise for KBE development in Qatar (Webb and Weick, 1979). The documents came in three forms: (1) Qatar KBE artefacts – including hard copy and electronic representations as well as descriptions of Qatar’s target objects and policy development to achieve a KBE, such as visions, strategies, and policies; (2) organisational practices artefacts – including hard copy and electronic representations of progress made to achieve the targets of the national strategic exercise as well as how it was made and how it was reported in midterm progress reports and institutional strategic plans; and (3) institutional collaboration artefacts – including hard copy and electronic representations of the institutional spheres that participated in the strategic exercise and initiatives of institutional alliances across institutions for workforce development. This also includes initiatives across institutions that were not a part of the national strategic foresight implementation. These documents (e.g. executive memos, press releases, and printouts of the government website text) provide a secondary data source (Jick, 1979) concerning collaboration events for workforce development across the institutional spheres. Furthermore, these documents provide a tool (Forster, 1994) for engaging interviewees in discussions of how collaboration events were made by institutions to achieve the national strategic objective of workforce development and whether it was included in (or separated from) the progress report for the national strategic foresight exercise and the workforce development strategy. More detail about the documents is shown in Table 4-7,

which also illustrates the communication sources and audience of the documents as well as the externality and internality among institutional spheres for each phase of the Qatar strategic exercise.

Table 4-6. Quantitative details of archival data sources.

Source/Audience	QNDS 1 Phases				
	Pre- strategic exercise	Development	Implementation	Post- strategic exercise	Total
External/external (e.g. news articles)	1	2	5	-	8
Internal/internal (e.g. memos/reports across institutions within one institutional sphere)	-	6	6	1	13
Internal/external					
Memos across institutional spheres	-	-	4	1	5
Press releases	1	3	1	1	6
Webpages	-	-	-	-	0
Executive speeches	1	-	-	1	2
External/internal (e.g. regional requests to local institutional spheres)	-	-	-	1	1
Subtotal	3	11	16	5	35
Total					

4.4.2.3 Limitations of the Data Collection Methods

The qualitative data collection was limited to interviews and documentation sources and it did not include other soft qualitative data collection techniques; for example, video recording or focus groups. Although multiple qualitative techniques of interviews, videos, and observational data are vital for capturing the actors doing activities and saying things to draw on the practice theory for data collection (Rasche and Chia, 2009), limiting the data collection in this study to

interviews and documentation was due to the sensitivity of executive position level samples to employ these techniques. Moreover, the research stage was at the post-implementation stage of QNDS 1, so it is too late to include other qualitative data collection techniques like video recording or focus groups. Another reason is that data was collected to examine the shared vision of collaboration across institutional spheres for a transition to a KBE for national workforce development. This makes interviewing a sufficient technique for exploring the shared vision of collaboration according to the interviewees.

Another limitation is the lost trace of engaged and knowledgeable personnel in the Qatar national strategy foresight exercise due to a high frequency of unplanned organisational restructuring during the eight years of QNDS. Thus, the number of knowledgeable personnel who were engaged in the process and who participated in this study is limited. This is due to job moves and organisational restructuring, especially because empirical data collection was pursued in the post-implementation stage of the first cycle of QNDS, as outlined in Figure 4-1. For example, the midterm review of the QNDS 1 was conducted in 2014 after the organisational restructuring of the government in 2013. Thus, most executive team members who were active in the development stage of QNDS 1 are no longer active due to institutional restructuring and employee turnover. This situation limited the researcher's access to knowledgeable personnel in the data collection stage. Furthermore, the trade embargo on Qatar by its neighbouring countries on 5 June 2017 limited timely access to the data.

Furthermore, most of the interviews were conducted in Arabic, and a great deal of time and effort is required for prudently translating the interviews into English without missing any meanings intended by the interviewee and for dealing with rich Arabic words (Al-Amer et al., 2016; Croot et al., 2011; Freeman, 1987; Im et al., 2016). Therefore, the researcher did the thematic analysis in Arabic and then translated it into English (Al-Amer et al., 2016; Croot et

al., 2011; Freeman, 1987; Im et al., 2016). Furthermore, the large sample number – 53 interviews – represented a challenge in the transcription process.

Moreover, to overcome the cross-language research challenges in interpreting the data, assistance was obtained from an international translation company located in Qatar to assess the interpretation of the data and cultural metaphors in the interview transcriptions with the involvement of the researcher for internal validation checks (Al-Amer et al., 2016; Croot et al., 2011). The reason for choosing a translation company located in Qatar was that there would be a sufficient level of familiarity with the Arabic cultural metaphors used within a Qatari context. The researcher's involvement in the translation process of the transcriptions is important, since data interpretation depends on the researcher's interpretation skills, even in single-language research (Croot et al., 2011).

Hosting interviews by internet calling and using mobile calls in two interviews was done in order to overcome the limited access to executive-level samples. During the online call interview, the participant was asked to ban features of receiving calls to avoid distractions during the interview. This approach was used for only two interviews and received participant approval prior to the interview date.

4.4.3 Data Analysis

Data inductive analysis was conducted manually while collecting the data and carefully following the identified guidelines for naturalistic inquiry approaches (Lincoln and Guba, 1985) and constant comparison techniques (Glaser and Strauss, 1967). These methods provide a basis for intensively collecting and analysing qualitative data and contribute to defining the focus range of later data collections in relation to sampling and content. Furthermore, comparing and examining key events (Isabella, 1990) in addition to the ideas expressed by the interviewees provides a basis for outlining themes and collective dimensions (Gioia and

Chittipeddi, 1991; Gioia and Pitre, 1990). This was applied by conducting the interviews in a specific order, which eventually ended with interviewing the sample engaged in the QNDS 1 development and implementation stages; the decision-making and technical processes; and the analysis of data used in a different order from the data collection, which engaged the sample data analysed first as an analytical starting point. The data from less or disengaged samples in QNDS 1 was also analysed. This was done to observe how the symbolic views changed from an engaged to a less engaged sample with regards to the established shared vision of collaboration to achieve the QNDS 1 strategic exercise. This also provided the opportunity to find answers from the QNDS 1 engaged sample to the questions addressed by the less engaged sample.

Data analysis can be done with ease by means of data management systems; however, coding is an intellectual exercise, and both electronic and manual data analyses require the same set of researcher data analytical skills and capability for coding (Basit, 2003). The choice depends on the researcher's expertise and inclination; the research project size; and the time and funding sources available (Basit, 2003). Therefore, in the study, manual data analysis was conducted using two approaches: deductive data analysis followed by inductive data analysis (Saunders et al., 2016). The theoretical proposition from the conceptual model in the study has been used for preparing the theoretical framework for the deductive data analysis as outlined in Table 4-7. The induction data analysis approach was chosen to incorporate additional themes that emerged in the data and that were not addressed by the theoretical framework (Saunders et al., 2016). The dimensions of the organisational practice actions of policy development, understanding, and routine structures were used to provide a distinction to the themes driven by the conceptual framework of the study. The triple-helix model determinants at a national system level were also considered in order to provide a further distinction in the themes as a second order: the state ecosystem; capability to network for competitiveness; and the

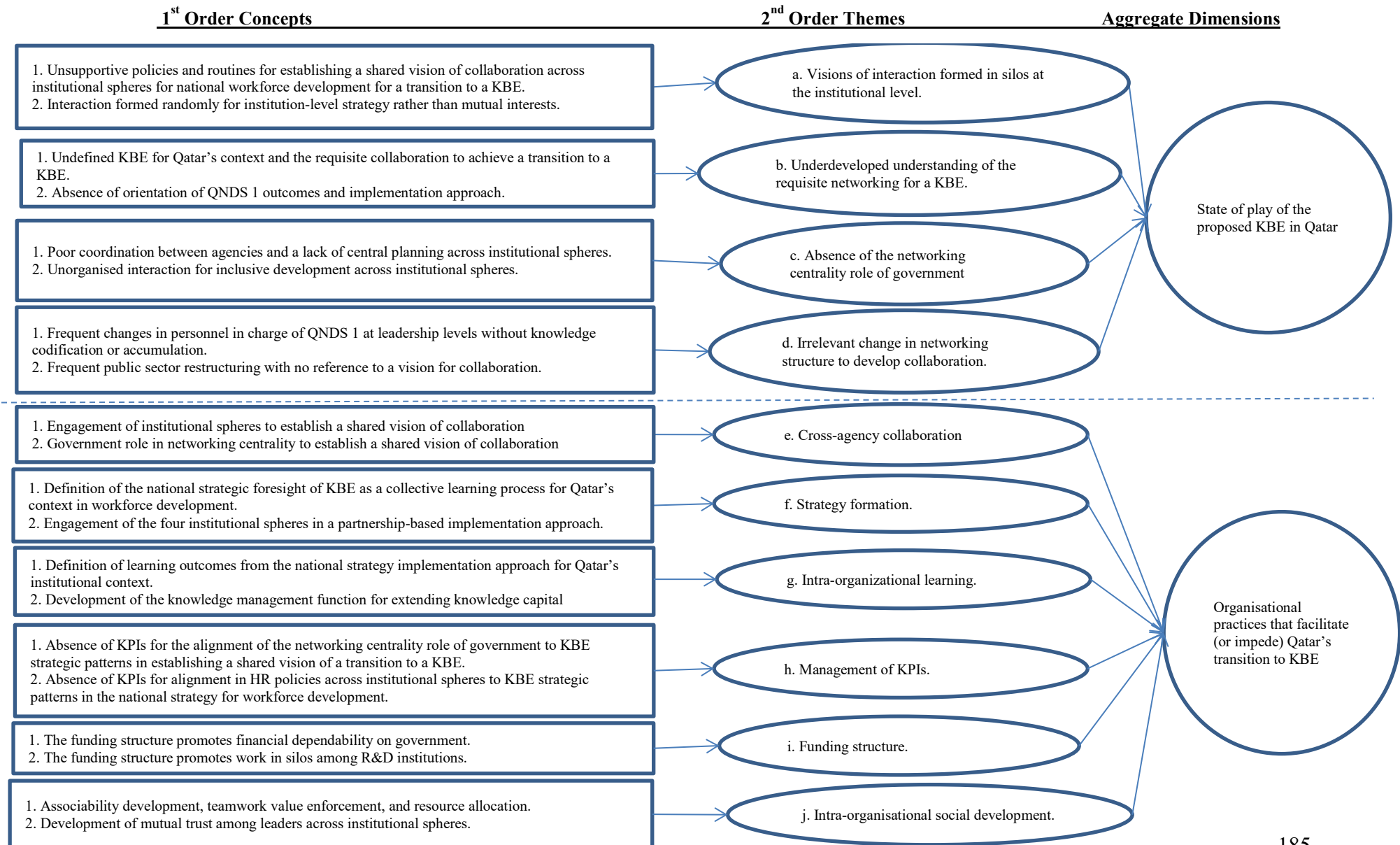
government's role of ensuring networking centrality and the stability of the organisational structure. The analysis over the case study time series incorporates additional themes emerging in the data that were not addressed by the theoretical framework, such as change that was irrelevant to KBE interaction and unrecognised interaction across institutional spheres. In addition, the absence of a networking centrality role in the government across institutional spheres to motivate dynamic interaction towards a KBE while keeping high political contingencies e.g. frequent changes in the government's organisational structure.

Open coding was used in the early stages of the analytical process by determining the initial themes in the data and categorising them. Conceptual coding used first-order codes (Van Maanen, 1979) e.g. from interviewees who used certain phrases and languages. Another approach used was a simple descriptive phrase. Thereafter, a search was conducted for relationships among and between the identified categories, or in other words, axial coding. This process allowed for grouping the first-order codes into higher-order themes. Similar themes were assembled to form the basis of the emergent framework. This approach formed a 'recursive process-oriented analytic procedure' (Locke, 1996, p. 240) rather than a linear technique (Corley and Gioia, 2004). This suggests the continuity of the data collection process, unless the clarity of the formed theoretical relationships was made when further interviews did not expose new data relationships. The final data structure is outlined in Table 4-8, and representative supporting data for each second-order theme is in Appendix C.

Table 4-7. Deductive data analysis theoretical framework.

Theoretical Dimension		Case Study Time Series or Stages of National Strategic Foresight Exercise: The Workforce Development Strategy			
Practice theory to identify Established shared vision of collaboration for KBE	Quadruple-helix model to identify the stage of interaction for the KBE among the four institutional spheres of government, industry, education, and civil society and professional bodies	Pre- QNDS 1	QNDS 1 development	QNDS 1 implementation	Post- QNDS 1
Policy development	State ecosystem: organisational, social, and welfare systems (enforcement of collective learning for a KBE)	Policies that are irrelevant to the enforcement of collaboration to stimulate collective learning across institutional spheres about national workforce development			
Understanding	Requisite network for learning about a subject matter for competitiveness i.e. learning about national workforce development	Underdeveloped understanding across institutional spheres about the requisite development of the workforce in Qatar for a transition to a KBE			
Routine structure	The government's role of ensuring networking centrality for developing intra- organisational social capital to motivate collaborative efforts	The absence of the networking centrality role of government across institutional spheres to motivate dynamic interaction The development of a shared vision for collaboration for a transition to a KBE in a workforce development strategy			

Figure 4-2. Data structure.



4.4.4 Trustworthiness of the Data

Several steps were taken into consideration in order to ensure the trustworthiness of the data collected for this study by using the triangulation technique, continuously confirming the perceived data with interviewees during the interview and by following Lincoln and Guba (1985). The triangulation technique was adopted by asking the same questions to different interviewees from the different institutional spheres of government, education, industry, and civil society and professional bodies in order to examine the established interaction across the institutional spheres in achieving the national objectives of workforce development in the context of a shared collaboration vision for a transition to a KBE. ‘Triangulation’ was initiated as a term in the navigation domain, according to which the angles of two known points are used to determine a location (Heale and Forbes, 2013). Triangulation is used in social research as a term to refer to multiple theories, methodologies, data, or methods in investigating phenomena (Jick, 1979). ‘Data triangulation’ refers to the combination of data types in recent empirical social research (Huberman and Miles, 1994, 1998; Miles et al., 2007). The reason for deploying triangulation is that there is a deficiency in applying the single data method – regardless of how carefully it was applied – therefore, applying multiple data methods in empirical research is an approach used to overcome the deficiency of each method if applied separately (Jick, 1979). Therefore, to improve the rigour of a research and promote the comprehensive understanding of a phenomenon under study, triangulation is considered (Heale and Forbes, 2013). Data triangulation is crucial for naturalistic studies of trustworthiness (Lincoln and Guba, 1985). Therefore, in this study, the researcher relied on more than a single institutional sphere to collect data in its triangulated form. Moreover, another method of data collection used in this study was documentation. As information emerges in the study, the validation process conducted occurs against at least one other source (Lincoln and Guba, 1985). Furthermore, the researcher continuously confirmed the data with the participants during the data collection

interview in order to avoid any misunderstanding of the points that the interviewees intended to address. As an attempt to ensure the trustworthiness of the data collection for this study, the data was carefully analysed by using tabulation of data coding – as the data analysis was based on the deductive data analysis theoretical framework shown in Table 4-8 from the study's conceptual model (practice theory and the quadruple-helix theory). The data included records, interview transcripts, field notes, and archival source documents.

4.5 Chapter Summary

Methodology is the philosophical, theoretical, and sociological basis of research, which shows the strength of its contribution to existing knowledge. This chapter provided explanations and justifications of the explicit and implicit assumptions underpinning the entire research process for this study. This chapter also justifies the strategies and techniques employed in the data collection process used in the research. There were two objectives of this chapter. The first was to explain and justify the research methodology underpinning the empirical analysis. Thus, ontological assumptions underpinning the research paradigm were explained and justified through the employed theoretical lens of practice theory and the quadruple-helix theory to show how the organisational practices among institutional spheres facilitate (or impede) the transition to a KBE by either facilitating (or impeding) the establishment of a shared vision of collaboration for national workforce development. Moreover, it showed how the organisational practices could be conceptualised and researched within this thesis. The second objective was to provide an overview of the methods and sources used in the data collection and analysis of the case study. This was done by presenting an extensive overview of the case study approach of the Qatar national strategic foresight that was used as the research context for the empirical analysis of developing a shared vision of collaboration across the four institutional spheres for developing a national workforce for a transition to a KBE. The primary qualitative and secondary sources of the data collection were also presented, including semi-structured

interviews and documentation. Different sources of data collection by the semi-structured interviews of the four institutional spheres (government, education, industry, and civil society and professional bodies) were reviewed in the data analysis section. Consequently, the data collected from different methods and sources was triangulated and analysed. The findings from the empirical analysis are presented in the following two chapters. The two chapters address the two main research questions indicated earlier in Chapter 1.

Chapter 5 The State of Play: The Transition of Qatar's Economy to a KBE

This chapter presents the current status of Qatar's shared vision of collaboration across the four institutional spheres for a transition to a KBE as well as the case of national workforce development in QNDS 1, highlighting the interaction among the four institutional spheres for developing the workforce needed to support the country's transition to a KBE. Thus, the evolving interaction during the national strategic foresight for workforce development is presented in four stages, reflecting the timeline of QNDS 1. The first phase covers the pre-2010 Qatari strategy prior to the initiation of QNDS 1. The second phase covers the period of 2010-2012, the time during which the country developed QNDS 1. The third phase covers the period of 2013-2016, which is period for the implementation and review of QNDS 1. The fourth phase covers post-2016 interaction after the implementation of QNDS 1. Finally, the chapter is summarised.

5.1 Stage 1: Qatarisation Strategy Pre-2010

The Qatari labour market highly depends on expatriates while most of the Qatari workforce are known for their low skills and competencies (Berrebi et al., 2009). QNV was announced in 2008, which set a milestone for a new era of strategic planning in the country. Thus, the Qatarisation strategy was imposed by the government to enforce the development of the Qatari workforce to lead the economic productivity of the labour market.

National level of collaboration and coordination: Each institution was told by the government to develop its own Qatarisation strategy based on a timeframe and submitted implementation plan. The implementation plan consists of replacing expatriates with Qatari workers in positions related to the core business or service in a company or institution by a

specific time. The plans were criticised by the study data due to their being numeric for a target time period, which does not necessarily mean achieving the desired target of knowledge transfer from expatriates to national workers. The approach of enforcing a percentage of Qatarisation at a sector level was chosen mainly to increase commitment among institutions e.g. the Ministry of Energy enforced a percentage of 50% of Qatarisation for the industry sector and requested companies to submit a target date for this percentage based on their capabilities and experience working in this field. Therefore, the Qatarisation strategy's implementation was based on the institution's requirements without considering the national shared vision across institutional spheres for qualitative outcomes of the Qatarisation strategy. This reflects a sectoral approach to the development capabilities rather than a multi-sectoral approach for building relations across institutional spheres (Venkatraman et al., 2002; World Bank, 2007b; 2007a).

Interaction across institutional spheres: Moreover, the interaction developed to achieve a set Qatarisation strategy was based on institutions' operational needs for experimentation learning, in other words, its operational experience rather than exploratory learning for the country's strategic transition to a KBE. Thus, the Qatarisation strategy was based on numeric outcomes over time, and institutional interaction to Qatarisation was mainly a response to institutional-based demand rather than learner-based demand. This was indicated by the study data as an ineffective approach for knowledge acquisition and capability development.

Interaction among institutions is mainly numeric [ally] driven by [an] institution's strategy, initiative[s] for workforce development, and Qatarisation (Chief Technical Officer, Energy Company 1).

Without a proper implementation plan for knowledge transfer that is carefully supported by expats' contractual terms, an immediate

replacement under Qatarisation strategy is a knowledge loss (Director, Strategic Planning Division at the Governmental Training Institute).

Governance of coordination: The enforcement of the Qatarisation strategy came from the government regulator in the form of order i.e. one-way regulation. In addition, the formulation of the Qatarisation strategy was from each institution in silos – which does not reflect a shared vision. The industry sector was the leading sector in developing and implementing the Qatarisation strategy. For instance, the Ministry of Energy forced energy companies to submit a 50% Qatarisation implementation plan according to a timed target for the industry sector in light of competitive commodities and capabilities in the industry sector. Thus, the Qatarisation strategy was formed in silos based on capabilities for business competitiveness rather than for the competitiveness flow of collective expertise. Therefore, participants from each institutional sphere reflect the sectoral business or service needs in indicating the specialisations required for a KBE. For instance, some participants from the industry sector indicated that the capabilities of the Qatarisation strategy should be composed of the current economic leading sector – the industry sector. Participants raised the issue of the need for specialisations for the energy industry, since it is the leading industry for economic wealth in Qatar. Meanwhile, other participants highlighted the importance of following the advancements in the international labour market in identifying the specialisation required for the Qatarisation strategy within the transition to a KBE. The Qatarisation strategy was formed in silos in institutions for workforce development. Thus, government coordination was absent across the four institutional spheres of government, industry, education, and civil society and professional bodies for a shared vision of the workforce development strategy for a KBE. For example, a communication platform was not developed by the government in order to develop a shared vision of the Qatarisation strategy for the transition to a KBE.

Management role: Thus, routines in managing the Qatarisation strategy pre-2010 were developed to support interaction with the goal of achieving competitiveness strategies in business or service institutions, as shown by the comments of the study participants below:

I do not know what Qatar KBE means in QNV 2030, it is not clearly defined, and institutional interaction to achieve KBE is not defined either by [the] national vision [of] government (CEO, Energy Company).

There is no policy that organises institutional interaction in Qatar for [the] Qatarisation strategy or workforce development at a national level (Director of Planning, Ministry 4).

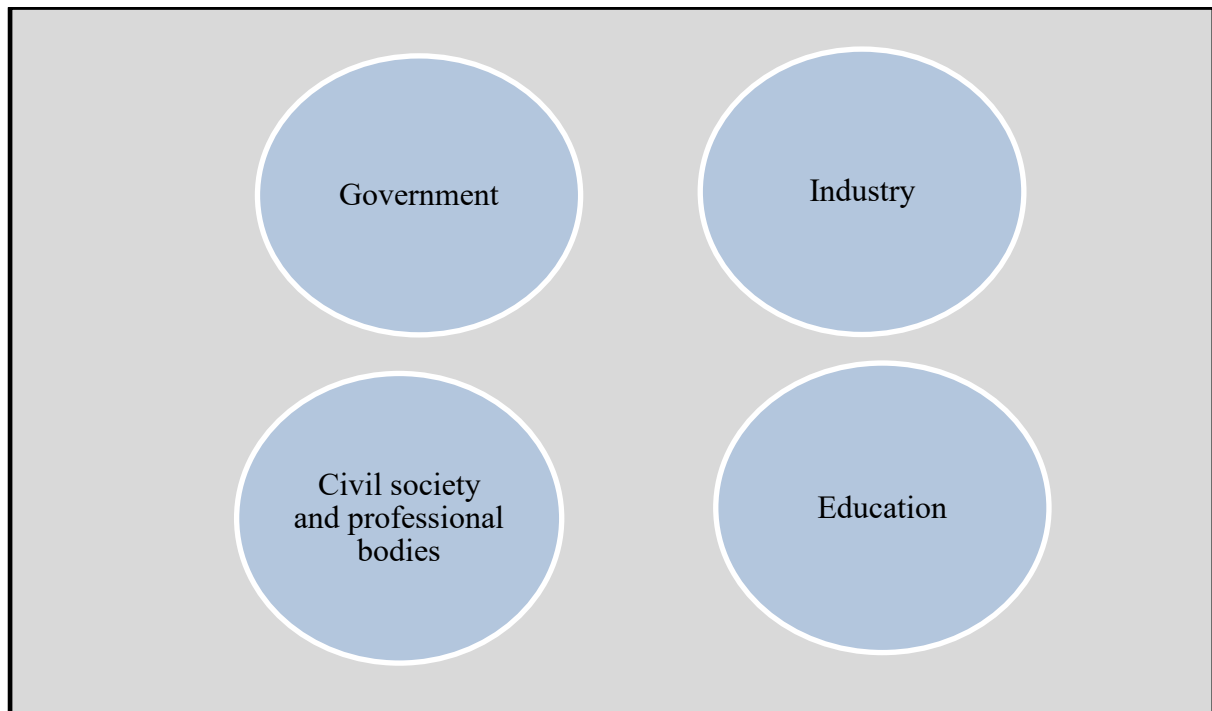
There wasn't interaction across institutions – even across ministries in government – any interaction is via [the] council of ministers [and] sometimes committees formulated for a specific issue resolution. Therefore, ministries in government used to work in silos pre-2010 (Director of Planning, Ministry 1)

The participants asserted that interaction across institutional spheres and within government was disorganised, which indicates the lack of established, organised interactions for a clear vision of collaboration across institutional spheres for national workforce development. This means that understanding of the required interaction for collaboration across the institutional spheres was underdeveloped in the Qatarisation strategy pre-2010.

The management role in the Qatarisation strategy and workforce development was mainly to develop business or service values at an organisational level. This role neglected the development of intra-organisational social development across the four institutional spheres to support networking centrality management by the government.

Qatarisation strategy patterns pre-2010: Strategy patterns derived from the Qatarisation strategy pre-2010 focused on businesses and services' capabilities to determine the interaction based on the sector's vision and strategy for achieving Qatarisation. It also shows that departments and institutions are the unit of analysis for formulating the Qatarisation strategy and interaction for competitiveness in positioning or in processing uniqueness by product, service, or capability competitiveness. These strategy patterns are related to a commodity-based economy rather than a KBE (Venkatraman et al., 2002). This means that at this stage, pre-2010, institutional interaction was disorganised concerning a shared vision of collaboration in developing the Qatari workforce (Schatzki, 2005) for a transition to a KBE (Venkatraman et al., 2002). Therefore, each institutional sphere formulated its Qatarisation strategy in silos separated from others. This situation indicates the absence of interaction across the four institutional spheres for developing a shared vision of collaboration for the transition to a KBE by developing a national workforce pre-2010, as outlined in Figure 5-1.

Figure 5-1. Absence of interaction across the four institutional spheres for developing a shared vision of collaboration for a transition to a KBE by developing the national workforce pre-2010 (produced by the researcher).



QNDS 1 was announced in 2010 as a blueprint of QNV. QNDS 1 was the first experience of strategic planning across institutions for the Qatar national development strategy. More highlights of the data are presented in the following section concerning the development stage in QNDS 1 (2010 – 2012).

5.2 Stage 2: QNDS 1 Development Stage (2010-2012)

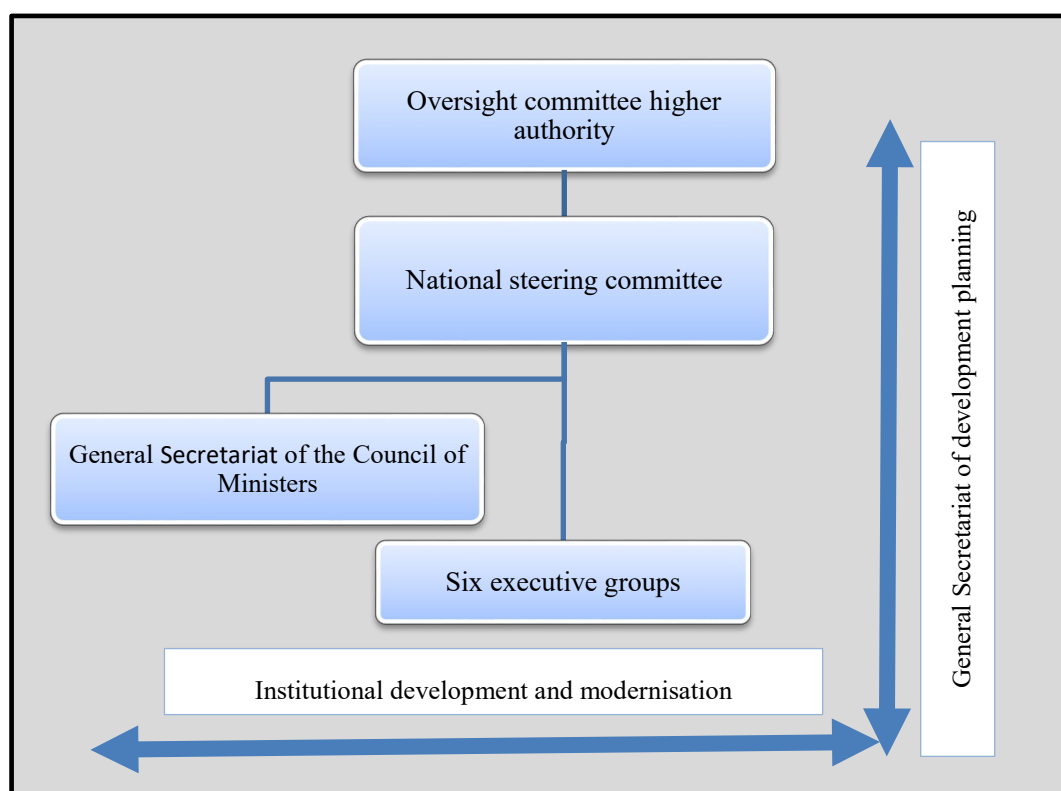
The aim of QNDS 1 was to ensure alignment between the national vision and institutional strategies. Thus, the outcome of the national strategy was to define strategic targets in order to achieve QNV 2030, satisfy sectoral strategies, and to align ministry strategies in the government institutional sphere.

National-level collaboration and coordination: National strategic foresight was led and implemented in the government institutional sphere mainly by government ministries. Based on the data highlighted, the first step in the QNDS 1 development stage was to formulate the national strategy from QNV. The data revealed that the QNDS 1 strategic objectives were

formulated by QNDS 1 leaders and with a high level of engagement from the World Bank. The second step was defining sectoral strategies to align the national strategy of the QNDS 1 with the strategies of institutions. Thus, collaboration and coordination were decided based on a sectoral approach. This means that interaction to achieve strategic targets was determined based on the demand for existing operations for business and service supplies in the regulated sectors by the ministries.

Interaction across institutional spheres: QNDS 1 was introduced as a national foresight project and was led by GSDP in 2010. GSDP was a member of the steering committee and reported progress to higher-level committees in the QNDS 1 organisational structure, which is the supreme overseeing committee for implementing QNV. The organisational structure of the QNDS 1 is outlined in Figure 5-2 to show the scope of QNDS 1 interaction among the institutional spheres.

Figure 5-2: QNDS 1 Organisational structure at the commencement of QNDS 1 (Qatari Government 2011).



Teams were selected from different institutions and levels to formulate the strategic objectives from QNV in developing the national strategy. Team lists for each organisational level are outlined in Tables 5-1, 5-2, 5-3, and 5-4.

It was noticed that most team members were from government institutional spheres and upper management. This is evident from the list of team members outlined in Tables 5-1, 5-2, 5-3, and 5-4. Members of the supreme oversight committee team for implementing QNV are listed in Table 5-1, and members of the QNDS 1 steering committee team are listed in Table 5-1.

Table 5-1. Supreme oversight committee for implementing QNV 2030 (Qatari Government, 2011).

Title (and agency if applicable)	Role in committee
Heir Apparent of the State of Qatar	Chair
Prime Minister of the State of Qatar	Deputy chair
Deputy Prime Minister and Chairman of the Emiri Diwan	Member
Secretary General, General Secretariat for Developmental Planning	Member
Director General, General Secretariat for Developmental Planning	Rapporteur

Table 5-2. Qatar National Development Strategy (QNDS 1) steering committee team.

Agency	Title
Ministry of Interior	Minister of State for Interior Affairs
Ministry of Economy and Finance	Minister of Economy and Finance
Ministry of Labour	Acting Minister of Labour
Ministry of Municipality and Urban Planning	Minister of Municipality and Urban Planning
Ministry of Energy and Industry	Minister of Energy and Industry
General Secretariat of Council of Ministers	Minister of State of Cabinet Affairs
Ministry of Environment	Minister of Environment
Ministry of Social Affairs	Minister of Social Affairs
Supreme Education Council	Minister of Education; Secretary General, Supreme Education Council
Supreme Council for Health	Minister of Health; Secretary General, Supreme Council for Health
Ministry of Business and Trade	Minister of Business and Trade
Qatar Central Bank	Governor, Qatar Central Bank
General Secretariat for Development Planning	Secretary General, General Secretariat for Development Planning
General Secretariat for Development Planning	Director General, General Secretariat for Development Planning
Supreme Council for Family Affairs	Chairperson, Supreme Council for Family Affairs

Six groups were formed at an executive level to follow up on the progress in task teams, as outlined in Figure 5-3 and Table 5-4. There were three executive groups that followed up on progress in tasks related to the human development objective. The tasks were (1) developing

effective Qatari participation in a productive labour force; (2) producing an educated and capable population; and (3) maintaining a healthy population. The two lists of team members are outlined in Tables 5-3 and 5-4 as a comparative example of the interaction across institutional spheres in executive groups (1) and (2).

Table 5-3. Team members of executive group (1) to achieve human development in effective Qatari participation a productive labour force (Qatari Government, 2011).

Agency	Title
Ministry of Labour	Acting Minister of Labour
General Secretariat of Council of Ministers	Minister of State of Cabinet Affairs
General Secretariat for Development Planning	Secretary General, General Secretariat for Development Planning
General Secretariat for Development Planning	Director General, General Secretariat for Development Planning

Table 5-4. Team members of executive group (2) to achieve human development – an educated and capable population (Qatari Government, 2011).

Agency	Title
Supreme Education Council	Minister of Education
Secretary General	Supreme Education Council
General Secretariat of Council of Ministers	Minister of State for Cabinet Affairs
General Secretariat for Development Planning	Secretary General
General Secretariat for Development Planning	Director General

From Tables 5-3 and 5-4, it is evident that both groups (1) and (2) were from the government's institutional sphere. Moreover, although both teams aimed to achieve the same objective of human development, their list indicated different stakeholders across the four institutional spheres. This was also observed by the task team lists.

Governance of coordination: Interaction across institutional spheres was based on random selection criteria. The human development objective is taken as an example below to outline the selection criteria of the team members. The data indicated that team selection was based on authority rather than knowledge and subject matter expertise, as follows:

Team selection criteria in [the] QNDS 1 development stage [were] based on authority, not specialisation; thus, you can see that most of the members hold high executive positions but [do] not necessarily have the required experience [in] strategic planning or the subject matter. Moreover, those people do not have the time nor [the] expertise to execute the [tasks required off] them. Given that this was the first developmental strategy introduced to institutions in the state, thus, progress was a challenge for

*achieving targets as [the] required expertise was absent [for achieving]
strategic targets on time* (Director of Planning, Ministry 4).

A comparative list of the participants is outlined in Table 5-5. This highlights the differences in interaction within the same objective.

Table 5-5. Random team selection criteria for QNDS 1 interaction: comparative list of the participants in two teams within the human development strategic objective in QNDS 1 (developed by the researcher based on Qatari Government [2011]).

Strategic Objective of Human Development in QNDS 1	(1) Population, Labour Force and Employment	(2) Education and Training
Owner ministry	Ministry of Labour	Supreme Council Education
<i>Representation of team members</i>		
Ministry of Labour	✓	✓
Supreme Education Council	✓	✓
Supreme Council of Health	✓	✓
Supreme Council for Family Affairs	✓	✓
Ministry of Social Affairs	✓	✓
Ministry of Interior	✓	
Ministry of Justice	✓	
Ministry of Economy and Finance	✓	
Ministry of Business and Trade	✓	
Ministry of Culture, Arts and Heritage		✓
Cabinet Office Department of Policy and Planning	✓	
Qatar Petroleum	✓	
Qatar University	✓	✓
Qatar Foundation	✓	
Qatar Statistics Authority	✓	✓
Permanent Population Committee	✓	✓
Chamber of Commerce & Industry	✓	✓
Supreme Council of ICT	✓	✓
General Secretariat for Development Planning	✓	

Despite that the members in both executive groups (1) and (2) were from education (university), industry (chamber of commerce and industry as the private sector), and civil society (the Qatar Foundation) institutions, their roles were limited to a consultation role:

Their role was only to avoid conflict in implementing related projects to QNDS 1 that was led by government (CEO, Bank 1).

This means that their role in the QNDS 1 development stage was not an interactive one. In other words, participation of these institutions was dependent on government orders and decisions. This reflected organisational interaction based on one-way regulation in controlling interaction for achieving competitiveness in market products, services, and commodities.

Moreover, the data revealed that most institutions like universities, banks, and NGOs in Qatar received financial support from the government. This means that institutions participating in QNDS 1 in a consultative role were funded or owned by government i.e. by an annual budget or a majority of shares. This is considered positive government support for institutional development in the country. However, this would also have negative implications on practising partnerships and interactive mutual support across the institutional spheres, which is considered an important dynamic for institutional development for the transition to a KBE.

Furthermore, the data also highlighted the missing orientations of the interactions identified among the Qatari institutional spheres based on the strategy for a transition to a KBE in Qatar. In other words, a clear interaction model for achieving a KBE has not been identified by the government. Thus, the government did not create a communication platform for other institutional spheres to develop a shared vision of collaboration for the transition to a KBE in national strategy objectives, especially those related to the development of the national workforce. This was highlighted by the study participants as follows:

A unified vision for human development was absent at objective levels in QNDS 1, because a strategy unifies the goal, but at the same time, the mechanism to build human capability and to achieve goals should be identified by the strategy – and this was absent at an objective level (CEO, Bank 1).

KBE was not clearly defined by [the] government [concerning that it] models the interaction across institutions, and [it] is required for the transition to a KBE. It was not clearly defined. What worries me the most is that we always rely on generalities in defining targets. Thus, the target would be considered achieved, while it wasn't truly achieved. This is wrong (Director of Planning, University 1).

Management role: The data highlighted that the interaction in the development stage was dominated by the government, while the other institutional spheres of education and industry were inactive in institutional interactions. This means that institutional interaction across institutional spheres in the development stage (2010-2014) was disorganised.

The institutional work environment in ministries doesn't accept the institutional strategic planning process nor cooperation. The level of institutional maturity, especially in the public sector, doesn't allow such a process to be a routine (Director of Planning, Ministry 6).

The organisational structure in ministries does not support cooperation – we have a silo system, and everything is through the minister (Former Principal Administrative Officer, Secretariat 1).

In particular, engagement of civil society associations was neglected in the national strategy development stage, as indicated by data evidence below:

We have not been invited to any meeting related to national strategy, and our activities are limited by the law of civil society (Chairman, Civil Society Association 2).

Interaction for QNDS 1 is only for government institutions, [and] other institutions from [the] private banking sector or civil society do not represent an independent role, as they've been funded or owned by shares of the government; thus, you can find civil society is not really active in Qatar (CEO, Bank 1).

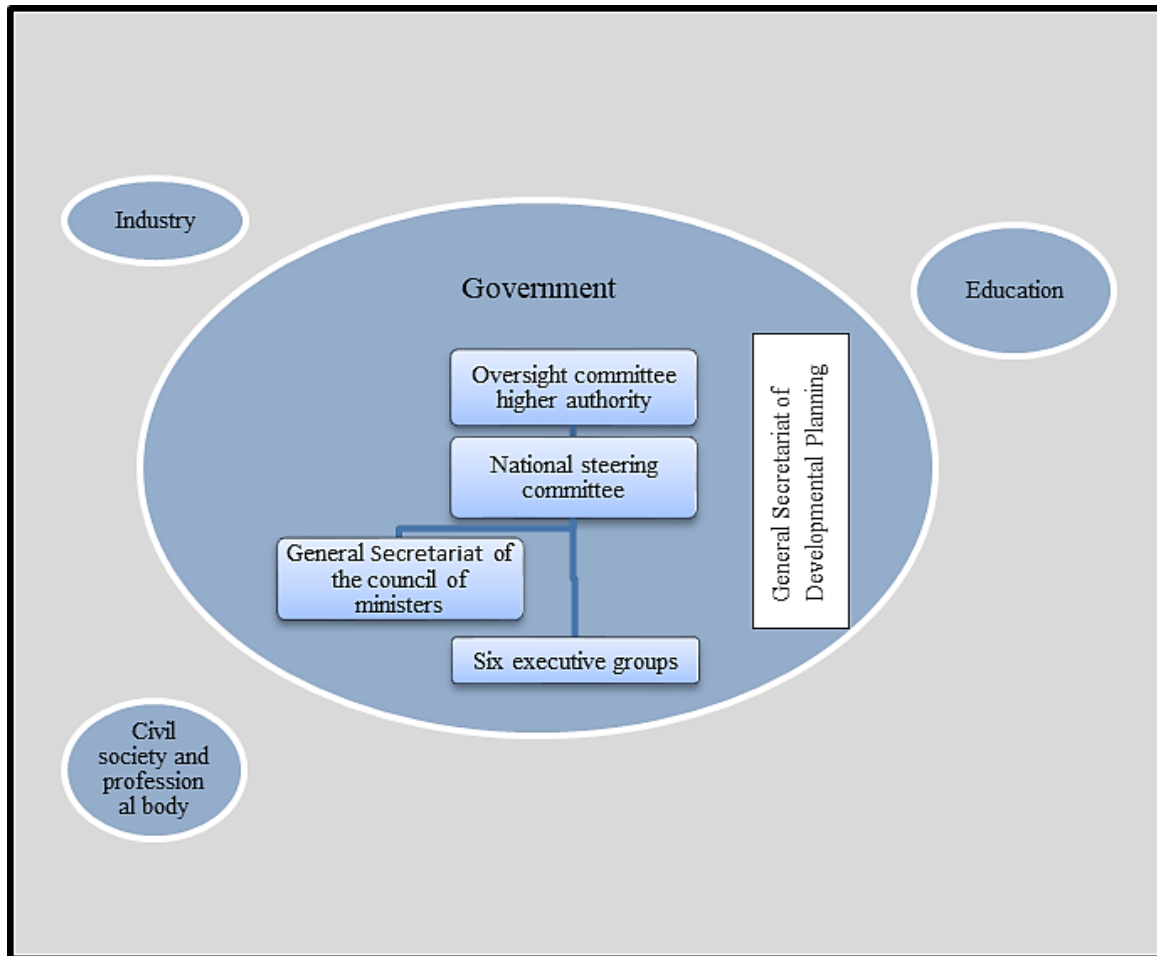
This evidence shows the absence of the government's role of ensuring networking centrality to provide a communication platform for the other institutional spheres to develop a shared vision of collaboration for the transition to a KBE in terms of the human development objective, specifically the national workforce development. It also shows that the development of intra-organisational social capital was neglected at the development stage of QNDS 1. A management role across the institutional spheres was needed to develop values related to sectoral businesses or services for competitiveness in silos at each institutional sphere.

The strategy patterns in developing QNDS 1 highlighted the fact that the strategy was formulated based on business or service requirements at a sectoral level i.e. the institutional sphere level. Thus, the scope of the analysis in terms of formulating a strategy was institution-based rather than networking-based. Moreover, the competitiveness or capability of a product market focuses the strategy patterns on competitiveness rather than the flow of expertise across the four institutional spheres. Thus, the leading theme in developing the national strategy was mainly process uniqueness rather than networking centrality. These strategic patterns were implemented in the development stage of QNDS 1. Thus, national-level collaboration and coordination occurred by enforcing a sectoral approach to the development of business and services as well as their capabilities. The interaction across institutional spheres was organised to serve the institution-based supply of services or products in order to achieve competitiveness in a commodity market or service process. Therefore, governance of coordination occurred in

one-way regulation for the control and management role, which was done to develop business or service value.

The above indicates the absence of interaction across institutional spheres for developing a shared vision for collaboration in developing the national workforce in readiness for a KBE in the QNDS 1 development stage, as outlined in Figure 5-3. This is because the national workforce development strategy is one of the sectoral strategies in QNDS 1.

Figure 5-3. Absence of interaction across the four institutional spheres for developing a shared vision of collaboration in developing the national workforce for KBE in the QNDS 1 development stage (2010-2012) (developed by the researcher).



The data indicates three events of unplanned organisational restructuring that occurred during the development stage of QNDS 1 and that directly impacted the progress of strategy implementation. The three unplanned organisational restructuring events were: (1) the owner institution of the national workforce development strategy underwent its first merger in 2012 – the Ministry of Work merged with the Ministry of Social Affairs; (2) government restructuring in 2013; (3) owner institutions of the national workforce development strategy went through a second merger in 2016: the Ministry of Work and Social Affairs merged with the Ministry of Administrative Development, becoming the Ministry of Administrative

Development, Work, and Social Affairs. These three events impacted the progress in implementing the national workforce strategy; however, the second unplanned organisational restructuring – government restructuring in 2013 – had the most impact on the entire project of the Qatar national strategic foresight, as it changed the organisational structure of the QNDS 1 project and formed teams. The following is an overview of the impact of the government restructuring on the QNDS 1 strategic foresight and its organisational structure. This overview is given in order to examine if the QNDS 1 networking structure was reformed based on collective learning about the requisite networking for the transition to a KBE in a shared vision for collaboration.

Unplanned Organisational Restructuring Event: Government Restructuring in 2013

The data reveals that in the development stage, progress in the QNDS 1 was given a lower priority due to the restructuring of the ministerial body in 2013. The restructuring event was driven by the urgency to react to the financial crisis due to the fall in oil prices in 2012. Thus, at that time, organising institutional interaction for human development was not the main aim of the restructuring. For instance, training budget cuts were one of the objectives of the ministerial restructuring as well as a centralised human development process in one newly established ministry for the public sector i.e. the Ministry of Administrative Development, as indicated by the interviewees below:

I think [the] priority was not for [the] human development strategy [in] the ministerial restructuring in 2013, it was financial crisis requirements, which was a wise decision as a response to the crisis (CEO, Bank 1).

The main reason for establishing the Ministry of Administrative Development as a leader of [a] centralised human development process in

the public sector [was] for public sector training budget cuts to respond to [the] financial crisis in 2012 (Director of Planning, Ministry 4).

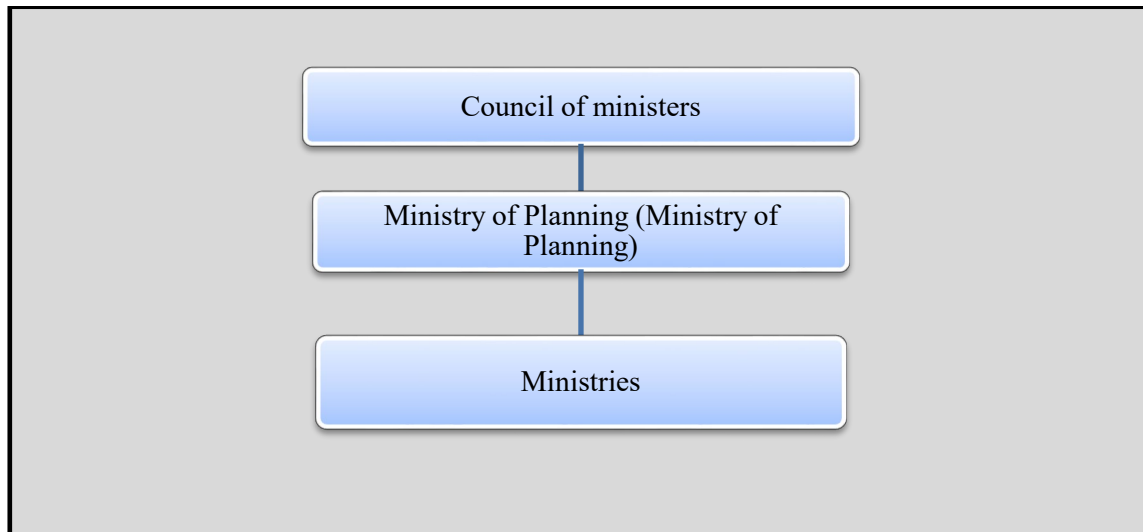
In addition to training and development budget cuts in the public sector, government funds for R&D were also reduced as a result of the 2012 financial crisis, as highlighted by the comment below:

Funding R&D was the first element to be cut from the government budget under the financial crisis. Another problem is the absence of a clear process to follow for R&D funding in case it [is] rejected by an institutional leader (Executive Vice-President, Research and Development Division).

The participants also highlighted the underdeveloped transparency in the decision-making process for funding R&D, which indicates the absence of a shared vision of collaboration across institutional spheres for the transition to a KBE.

As a result of the government restructuring in 2013, the organisational structure of the QNDS 1 changed. The head of the QNDS 1 was changed from the GSDP to the Ministry of Planning. The new organisational structure of QNDS 1 as of 2013 is outlined below in Figure 5-4.

Figure 5-4. The new organisational structure of QNDS 1 in 2013 (developed by the researcher).



National-level collaboration and coordination: The change in the QNDS 1 organisational structure shows that the inclusion of institutional spheres other than the government was neglected in the new organisational structure for QNDS 1. The implementation of the strategy was based on a sectoral approach, and interaction across the institutional spheres was organised to serve the institutions based on a supply strategy, which in turn is based on a process operated in ministries. Moreover, the values were developed based on operational process uniqueness, as suggested by the study participants:

The Ministry of Planning asked each ministry to follow their strategy based on what they are doing, and then they gather [all the strategies] and call them ‘the state strategy’. This is not a state strategy. The intersections among institutions to deliver the objectives is the strategy, and not [working] in isolation (Director of Planning, Ministry 4).

Thus, the new organisational structure adopted for the QNDS 1 implementation approach promotes the development of multiple visions of interaction for the institution’s strategy and not a shared vision of collaboration for a KBE.

Governance of coordination: The role of the institutional spheres of education, industry, and civil society remains a consultative role only, and government communication occurs in one-way regulation in interaction control. Moreover, the new structure embedded issues relating to accountability in developing a partnership for interactive mutual support, as indicated by the study participants:

The accountability in QNDS as a project is only for government institutions, and interaction among the ministries is weak. We attended the meetings as stakeholders, but if you ask me if its efficient...the process is very fruitless. For instance, a stakeholder ministry does something, and the QNDS 1 coordinator ministry follows up and updates the strategy (Executive Vice-President, Research and Development Division at the Civil Society Institute).

Management role across institutional spheres: QNDS 1 became more controlled by the executive authority of ministries in the government. It is worth mentioning that prior to the 2013 restructuring, QNDS 1 was led by the GSDP. Although the GSDP was a government body, it was independent from the ministerial body and was assessed by a steering committee. This highlighted that governance of coordination remained in the form of one-way regulation in terms of interaction control after the government restructuring.

The accountability became very weak; for example, the Ministry of Developmental Planning is accountable in front of the Council of Ministers, but the planning process should be assessed by a neutral party or higher committee to follow up (Former Principal Administrator Officer, Secretariat 1).

This highlighted that the QNDS 1 implementation approach was under work in silos among ministries in one institutional sphere of the government. Moreover, disengagement of stakeholders with the mechanism used in linking strategies at a ministerial level to a sectoral level and national objectives to achieve national vision were emphasised as a gap by the participants in this study. This was indicated by a study participant below:

Participants in the QNDS 1 haven't been invited to work on linking the mechanisms of their strategy to the vision to achieve part of the vision in the coming five years (Director of Planning, University 1).

In addition, the centralisation of the workforce development process under one public sector institution was criticised for its high bureaucracy and ineffective process by the study participants as follows:

The merge of the three ministries under one in [the] Ministry of Administrative Development causes bureaucracy, and from my point of view, it does not serve the human development process but serves other purposes under the financial crisis faced by the state at that time, which is considered a wise decision due to [an] urgency to respond to falling oil prices (CEO, Bank 1).

Most of the Qatari workers attended the training offered by the Ministry of Administrative Development – they always complain about the low level of training courses and trainers (CEO, Energy Company 2).

Moreover, the development approach of the national workforce development strategy in QNDS 1 was disengaged from the centralised workforce development and training process in the public sector assigned to the Ministry of Administrative Development before the new cycle of

QNDS 2 in 2016. It was also disengaged from the developed strategy of national research and development by the civil society institution – The Qatar Foundation – which was independent from the entire QNDS 1 project.

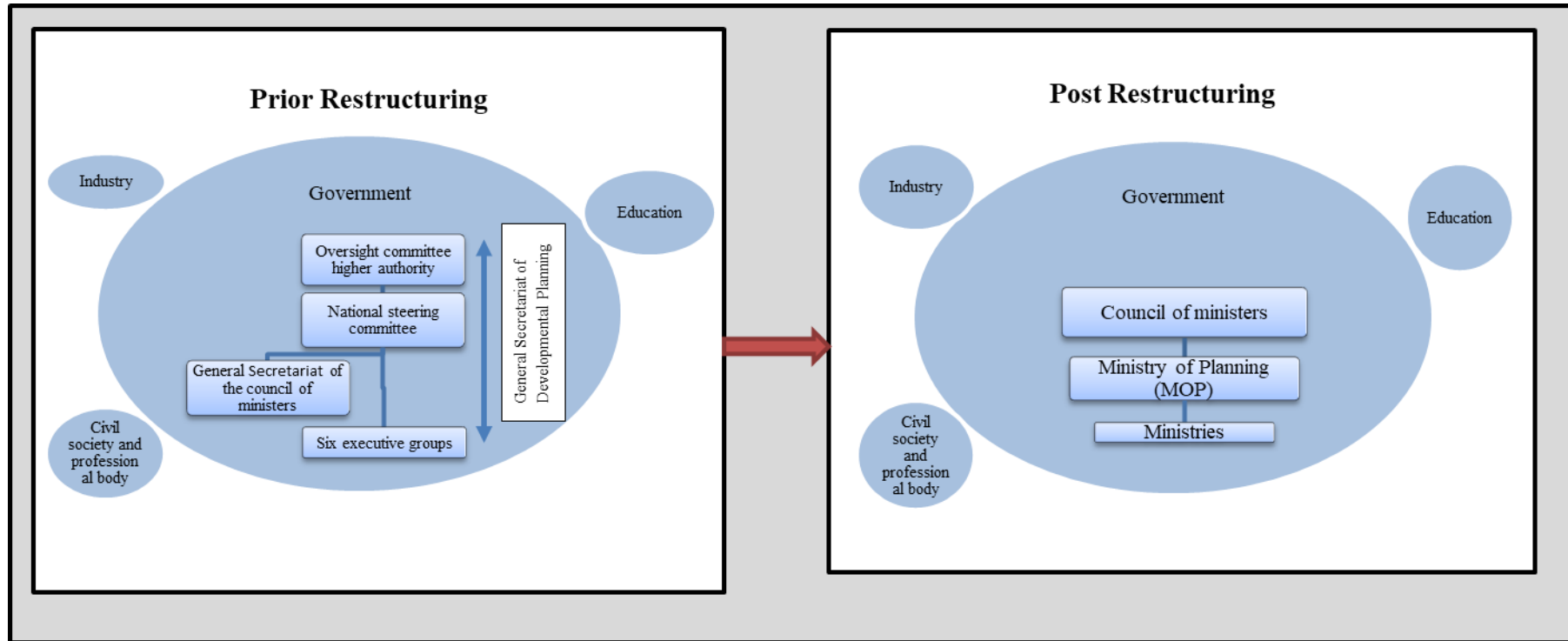
National strategy patterns and the national workforce development strategy in the development stage (2011-2013):

The data shows that the strategy patterns that derive from the QNDS 1 in its development stage (2011-2013) focus on businesses and services and their capabilities in terms of determining the interaction required for the supply of business or service sectors. This means that interaction was determined based on visualising sectoral business or service requirements in order to develop sectoral strategies regulated by the owner ministry. It also shows that departments and institutions were the units of analysis for formulating sectoral strategies and related interaction for competitiveness. These strategy patterns of strategy are related to a commodity-based economy rather than a KBE (Venkatraman et al., 2002). This means that the approach used in organising the QNDS 1 development stage promotes institutional interaction for multiple visions of interaction in developing the Qatari workforce (Schatzki, 2005) for a commodity-based economy (Venkatraman et al., 2002). This also means that the adopted organisational approach in the QNDS 1 development stage does not promote the development of a shared vision of collaboration in developing the national workforce for the transition to a KBE by networking and the flow of expertise (Venkatraman et al., 2002). Therefore, each institutional sphere formulated their workforce development strategy in silos separate from others.

Moreover, comparing between organising the QNDS 1 interaction prior- and post-restructuring shows that interaction across the institutional spheres remains absent in the post-restructuring of the QNDS 1 organisational structure in 2013. This shows that the adopted approach in organising the national strategy according to sector does not promote collective learning about requisite networking for the transition to a KBE. This shows that interaction across institutional

spheres was absent during the development stage for establishing a shared vision of collaboration in developing the national workforce for the transition to a KBE, as outlined in Figure 5-5.

Figure 5-5. Interaction across institutional spheres in the QNDS 1 development stage prior restructuring and post-restructuring (2011 - 2013) (developed by the researcher based on Qatari Government [2011]).



The outcome of the QNDS 1 development stage is the definition of sectoral strategies and the owner institution of each sectoral strategy and regulator ministry. Sectoral strategies and ownership were defined; however, the approach adopted in the development stage promoted work in silos in a sectoral approach, as strategies were defined based on an operational process. Thus, interaction across institutional spheres was absent concerning a shared vision of collaboration for the transition to a KBE.

During the implementation stage of the QNDS 1, each owner ministry was required to develop plans and then implement them to achieve the defined sectoral strategy. This presented another challenge for owner ministries during the QNDS 1 implementation stage – especially due to the absence of a shared vision of collaboration, the absence of the Ministry of Planning’s coordination role, and poor planning capabilities in the public sector. More insights on the implementation stage of the QNDS 1 are offered in the following section.

5.3 Stage 3: QNDS 1 Implementation Stage (2013-2016)

The implementation of the QNDS 1 was capsulised in developing implementation plans and implementing them to achieve each sectoral strategy by each owner ministry. Defining sectoral strategies is one of the main outcomes of the QNDS 1 project, and per the QNDS 1 framework, the midterm review in 2013 was a follow-up point of the progress in the journey towards the achievement of sectoral strategies. Therefore, the Ministry of Planning’s co-ordination role of the QNDS 1 was inactive in the implementation stage, and progress reporting to the Council of Ministers was left to each owner ministry. Procedures adopted in the ministerial body suggest regular follow-ups by the Council of Ministers concerning the ministry’s strategic targets. The co-ordination role of the Ministry of Planning was planned to be resumed at the point of the midterm review in 2013, though, to follow up on the progress in achieving the sectoral strategies in alignment with the targets set by each owner ministry.

National level collaboration and coordination: Interaction is driven based on a sectoral approach in developing and implementing the plans for sectoral strategies. Each owner ministry developed its own interaction in their developed implementation plans.

Thus, **interaction across institutional spheres** was organised to serve institution-based supply rather than learning networking. Interaction was mainly among government institutions and ministries.

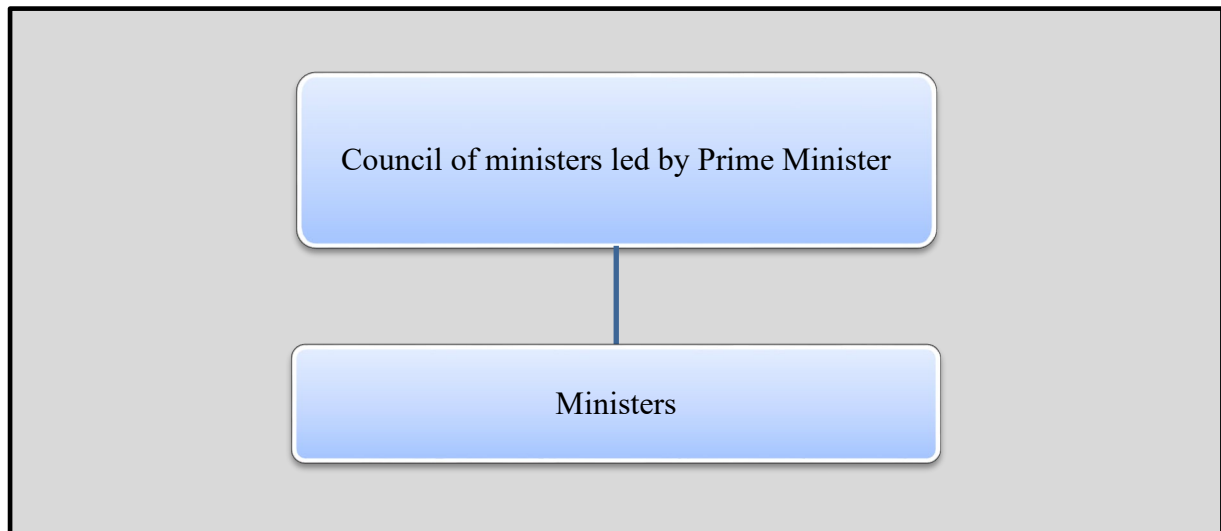
Governance of coordination: Governance of coordination was absent in the QNDS 1 implementation stage. This was due to the absence of the coordination role played by the Ministry of Planning in the implementation stage of the QNDS 1. Thus, a shared vision of collaboration was underdeveloped across the institutional spheres for developing and implementing plans for achieving the QNDS 1 sectoral strategies, as indicated by a study participant:

The participation of each institution was not identified for implementing strategies, while the ownership of sectoral strategies was for more than one ministry. Ownership should be centralised, and this wasn't happening
(Former Principal Administrative Officer, Secretary 1)

Management role: The lack of a co-ordination role at the implementation stage highlighted the absence of the networking centrality role in developing intra-organisational social capital, like associability, teamwork values, and resource allocation. Distributing ownership among ministries leading the sectoral strategies reflects the work in silos strategy and denies associability, according to which each institution recognises how they contribute to achieving the strategic objectives. Reflecting on the Ministry of Planning's inactive co-ordination role in

the implementation of sectoral strategies, the organisational structure of QNDS 1 at the implementation stage is outlined in Figure 5-6.

Figure 5-6. QNDS 1 organisational structure at the implementation stage (developed by the researcher).



Developing implementation plans for sectoral strategies was a challenge for the ministries. Most of the ministries do not have the workforce capability nor the experience to develop an implementation plan without guidance from a strategy coordinator, as indicated below by a study participant:

The implementation plans in some ministries were absent. These problems have been heard by many representatives from ministries, especially that this was the first national strategy introduced to public sector. The workforce capabilities in strategic planning and project management are low (Assistant Undersecretary for Planning Affairs, Ministry 3).

Another challenge ministries faced was the resistance of stakeholders to participate in developing and implementing the plans. The lack of definition of interaction for collaboration in QNDS 1 contributed to such resistance. Thus, a shortage of staff was a reason for stakeholders to send inadequate participants to meetings or to simply excuse themselves from

participating in developing or implementing the plans with sectoral strategy owner ministries, as indicated by a study participant:

We invited stakeholders to participate in our strategy and they were uncooperative. Some ministries directly apologised due to workload and insufficient workforce capacity, and some ministries sent inadequate representatives with required knowledge and expertise to participate in our strategy projects. Thus, we ended [up] developing and implementing our plan in silos to achieve target dates (Director of Planning, Ministry 4).

Another main issue that impeded the implementation of most plans was a failure to gain the allocated budget from the Ministry of Finance for developmental projects in the implementation plans. This failure was due to the undeveloped setup of a budgeting system to list items rather than administrative and consumption items among ministries i.e. computers and office supplies. For these reasons, progress was poor in developing and implementing plans in order to achieve sectoral strategies, as indicated by a participant below:

Financial connectivity was a problem in implementing plans. For example, representatives said: 'I failed to gain financial approvals from Ministry of Finance'. Although Ministry of Finance attended meetings of formulating strategy plans, but the reason of this financial issue was the absence of legislative seminars to help the Ministry of Finance to link the implementation plans to [the] state budget (Assistant Undersecretary for Planning Affairs, Ministry 3).

Midterm review of the QNDS 1

The midterm review was planned to take place in 2013; however, delays in the QNDS 1 timeline were due to ministerial restructuring in the same year. Consequently, the midterm review was rescheduled for 2014 and was organised by coordinator Ministry of Planning.

National-level collaboration and coordination: Although the other institutional spheres of education, industry, and civil society and professional bodies played a consultative role at the development stage of QNDS 1, participants in the midterm review were only from ministerial bodies. The progress made in sectoral strategies was presented by each owner ministry.

Interaction across institutional spheres: Interaction was organised for ministries in government institutional spheres to serve institution-based supply. It was indicted by data evidence that the presentation layout was not unified in terms of its format nor its reflection on specific KPIs.

Governance of coordination: The data highlights that the unified format and KPIs were neither identified nor enforced by the QNDS 1 coordinator as well as the Ministry of Planning throughout the development and implementation stage. Thus, the presentation was given in distinctive patterns across ministries during the midterm review in 2014.

Management role: It was also indicated by the study participants that collective feedback was not adopted as a management approach of interaction during the midterm review. It was highlighted by the data that collective feedback was not promoted in ministry work environments and routines. Thus, feedback was mainly from the Ministry of Planning, which represents one-way regulation in interaction control, as highlighted by the participants below:

In the midterm review in 2014, it was noticed that every ministry provided a different format in reporting progress...the Ministry of Planning did not

provide a standard format or communicate the required performance reporting mechanisms (Director of Planning, Ministry 1).

The Ministry of Planning was the only party [that] commented on presentations (Director of planning, Ministry 4).

But [concerning] other sectors, when we [attended] their strategy presentation[s], they were focused only on their strategy and [did not highlight] the intersection between their sectoral strategy and other sectoral strategies. It's like if every owner of sectoral strategy work[s] [on a] separated island and [has] no relations [to other] owners of sectoral strategies. You can see it in their presentation[s]. We are one state [in] the end (Director of Planning, Ministry 4).

Based on the midterm review and feedback from the Ministry of Planning in 2014, most of the strategic objectives of the QNDS 1 were not achieved. The Ministry of Planning prepared a report about the progress made in QNDS 1 2010-2016 and the lessons learnt in the QNDS 1 exercise. The reported challenges were mainly workforce capabilities; objectives were set higher than workforce capabilities; underdeveloped KPIs for strategic objectives; poor coordination; and poor financial allocation for developmental projects, as highlighted in the midterm report and by a study participant:

There was no documentation for the project progress that represents evidence-based documentation. [The] absence of identifying planning tools for ministries represented an implementation challenge. There was a lack of an agreed unified documentation form across institutions to document the project progress at the implementation phase. Thus, project

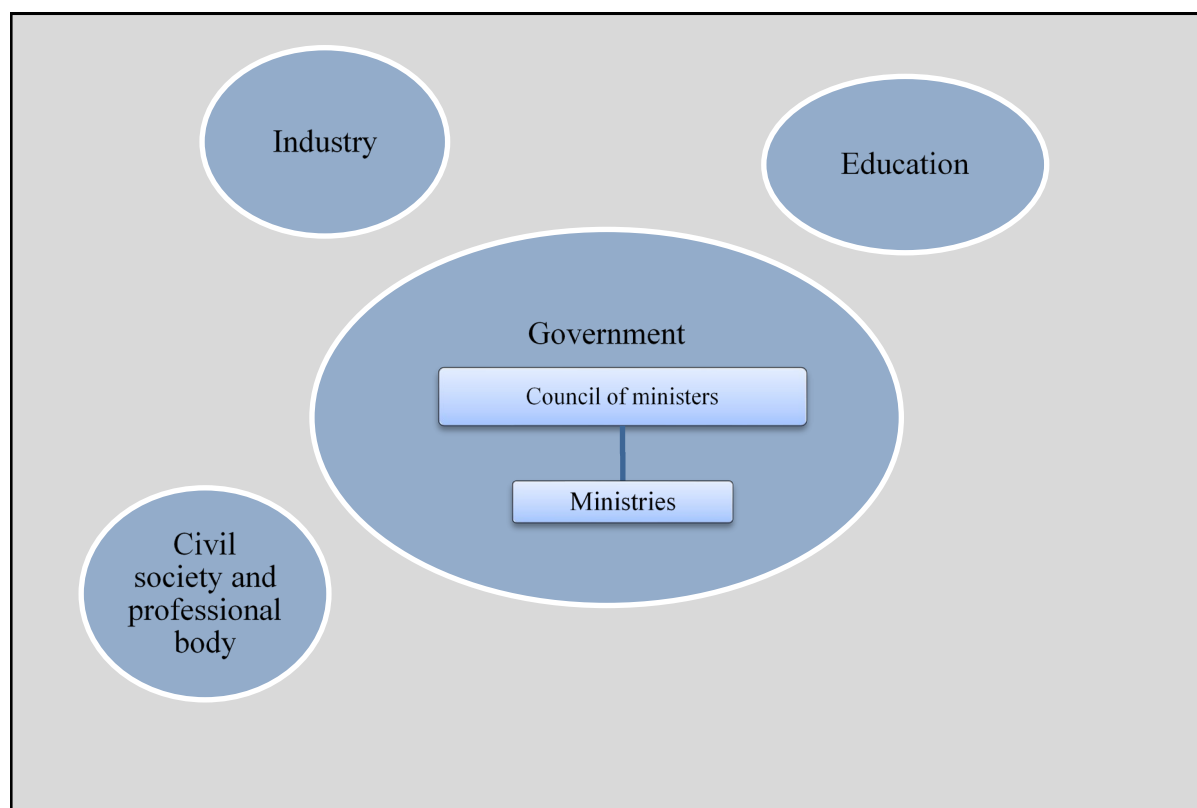
management became compulsory in training now by the Ministry of Administrative Development (Assistant Undersecretary for Planning Affairs, Ministry 3).

Progress in the labour market strategy and most of the objectives in the Qatari workforce development plans were also unachieved. This was due to: (1) the failure to develop an implementation plan based on strategy; (2) the unavailability of high management representation of the main stakeholders in the strategy supervisory committee; (3) a weak follow-up process to ensure effective leadership for monitoring the projects' progress; (4) scarcity of human resources in the Ministry of Work that have the capabilities and expertise for a project's implementation, progress monitoring, and validation; and (5) a lack of labour market policy development (Qatari Government, 2014b). Figure 5.4 outlines the steps that were taken by the Ministry of Work to accomplish this objective until 2014 and is based on the midterm report issued by the Ministry of Work (Qatari Government, 2014a).

The midterm review was the last interaction for the QNDS 1 across ministries. The Ministry of Planning circulated draft copies of the midterm report among the ministries i.e. the QNDS 1 midterm review report. However, the report was formed in draft and was never officially produced by the Ministry of Planning. Moreover, education (Qatar University), industry (Qatar Chamber of Commerce and Industry), and civil society (e.g. the Qatar Foundation) institutions were engaged in a consultative role during the development stage of QNDS 1; however, they were not invited to the midterm review and did not receive a copy of the draft report of the midterm review that was only circulated among the ministries. Thus, the data indicates work in silos in the QNDS 1 implementation stage among government institutions and across institutional spheres.

National strategy patterns and national workforce development strategy in the QNDS 1 implementation stage (2013-2016): Strategy patterns that derived from QNDS 1 in the implementation stage (2013-2016) focused on how the ministry that owns the sectoral strategies regulates the business or service supplied by the sector based on the capabilities required for the business and service supplied. Thus, interaction for sectoral strategies was decided by each ministry in silos while developing implementation plans based on the sectors' vision and strategy to develop business excellence or service uniqueness. This shows that interaction for competitiveness was determined based on the competitiveness patterns of operational processes and experience of business production or service supply by each sector. These strategy patterns promote interaction for a commodity-based economy rather than collaboration for transitioning to a KBE (Venkatraman et al., 2002). This means that in the QNDS 1 implementation stage, institutional interaction occurred mainly for developing various visions of interaction in developing the workforce for each sectoral strategy requirement, while a shared vision of collaboration in developing the Qatari workforce (Schatzki, 2005) for the transition to a KBE (Venkatraman et al., 2002) was absent across the four institutional spheres. Therefore, each institutional sphere formulated their implementation plans and implemented them under their own workforce development strategy in silos separate from others. The absent interaction across the four institutional spheres for establishing a shared vision of collaboration in the national workforce development for a KBE is outlined in Figure 5-7.

Figure 5-7. Absence of interaction across the four institutional spheres for establishing a shared vision of collaboration in the national workforce development for a KBE in the QNDS 1 implementation stage (developed by the researcher).



Thereafter, the preparation for the next planning cycle (QNDS 2) was started. More insights on this stage are illustrated in the following section: post-QNDS 1 (post-2016).

5.4 Stage 4: Post-QNDS 1 (Post-2016)

After the midterm review meeting, preparation for the new strategic planning cycle QNDS 2 began. The coordinator ministry, the Ministry of Planning, decided to enhance coordination and interaction based on the lessons learnt in the midterm report in 2014 in order to enhance the organisational approach of the QNDS 2 development stage.

National level collaboration and coordination: The approach to the development of QNDS 2 remained based on sectoral strategies in the public sector, and interaction across institutional spheres remained neglected. Civil society associations were not engaged in QNDS 2, while the same university institutions, the Qatar Chamber of Commerce and Industry, the banking sector,

and the Qatar Foundation participated in QNDS 2. However, their role was limited to a consultative role in developing QNDS 2 rather than an interactive role, as indicated by a participant below:

No change [was] made on interaction across institutional spheres; it remained the same. Same participants [that] had [a] consultative role in QNDS 1 have the same role in QNDS 2. It is not [an] interactive role; this means that they do what Ministry of Planning asked them to do, so it's not a [real] interaction (Director of Planning, Ministry 4).

We have not been invited to any meeting related to national strategy, and our activities are limited by civil society association law (Chairman, Civil Society Association 2).

Interaction across institutional spheres: The networking enhancement for QNDS 2 included a networking structure only among the government ministries, as a new department in each ministry was created as a counterpart for the national strategic foresight. In particular, a department of planning and quality was established in each ministry with the main departmental function of supporting national strategic foresight coordination.

Management role in interaction: This networking restructuring established an interaction across counterpart departments from each ministry to support the coordinator Ministry of Planning in QNDS 2. This shows networking centrality across the ministries for performance monitoring for the coordination of process uniqueness. In addition, a dashboard was created by the Ministry of Planning to monitor the progress of the strategic objectives.

Governance of coordination: To monitor progress, a live dashboard was proposed with KPIs identified at a sectoral strategy level. The live dashboard was accessed only by the QNDS 2

project leaders, the Prime Minister, and other leaders of the state. This was done to create accountability and to increase commitment among sectoral strategy owners and ministries as well as to facilitate progress by the coordinator ministry, the Ministry of Planning, as asserted by a participant below:

We have a problem of poor coordination between the agencies and [a] lack of major or central planning in the ministries. This was resolved for QNDS 2 after the change in government structure in 2013. Planning and quality departments were established in all state ministries and then became the counterpart between Ministry of Planning and ministries as identified communication channels to technical parties in each ministry. This assists in raising coordination levels between Ministry of Planning and ministries. Now the reporting is going to be automated via [a] monitoring and evaluation system – we are at the first stage of this project, [which ends] with [the] dashboard for decision-makers to assess progress. This takes time (Assistant Undersecretary for Planning Affairs, Ministry 3.

The development stage of the QNDS 2 was led by the Ministry of Planning. Intensive meetings among ministries were resumed at the start of the QNDS 2 development stage. Teams were identified for QNDS 2 in the form of a supervisory group, a consultative group, and task chairs. Institutional participation in the QNDS 2 teams is outlined in Tables 5-6, 5-7, and 5-8.

Table 5-6. Members of the supervisory group for QNDS 2 (Qatari Government, 2018).

Agency	Title
Ministry of Development, Planning, and Statistics	Minister of Development Planning and Statistics
Ministry of Foreign Affairs	Director of International Cooperation Department
Ministry of Interior	Director of Strategic Planning Department
Ministry of Energy and Industry	Director of Planning and Quality
Ministry of Administrative Development, Labour and Social Affairs	Director of Planning and Quality
Ministry of Education and Higher Education	Director of Planning and Quality
Ministry of Economy and Commerce	Director of Planning and Quality
Ministry of Endowments and Islamic Affairs	Director of Planning and Quality
Ministry of Transport and Communications	Head of Policy Section
Ministry of Municipality and Environment	Director of Planning and Quality
Ministry of Finance	Director of Planning and Quality
Ministry of Culture and Sport	Director of Planning and Quality
Ministry of Public Health Project	Management Specialist
Ministry of Justice	Director of Planning and Quality

Table 5-7. Members of the consultative group in QNDS 2 (Qatari Government, 2018).

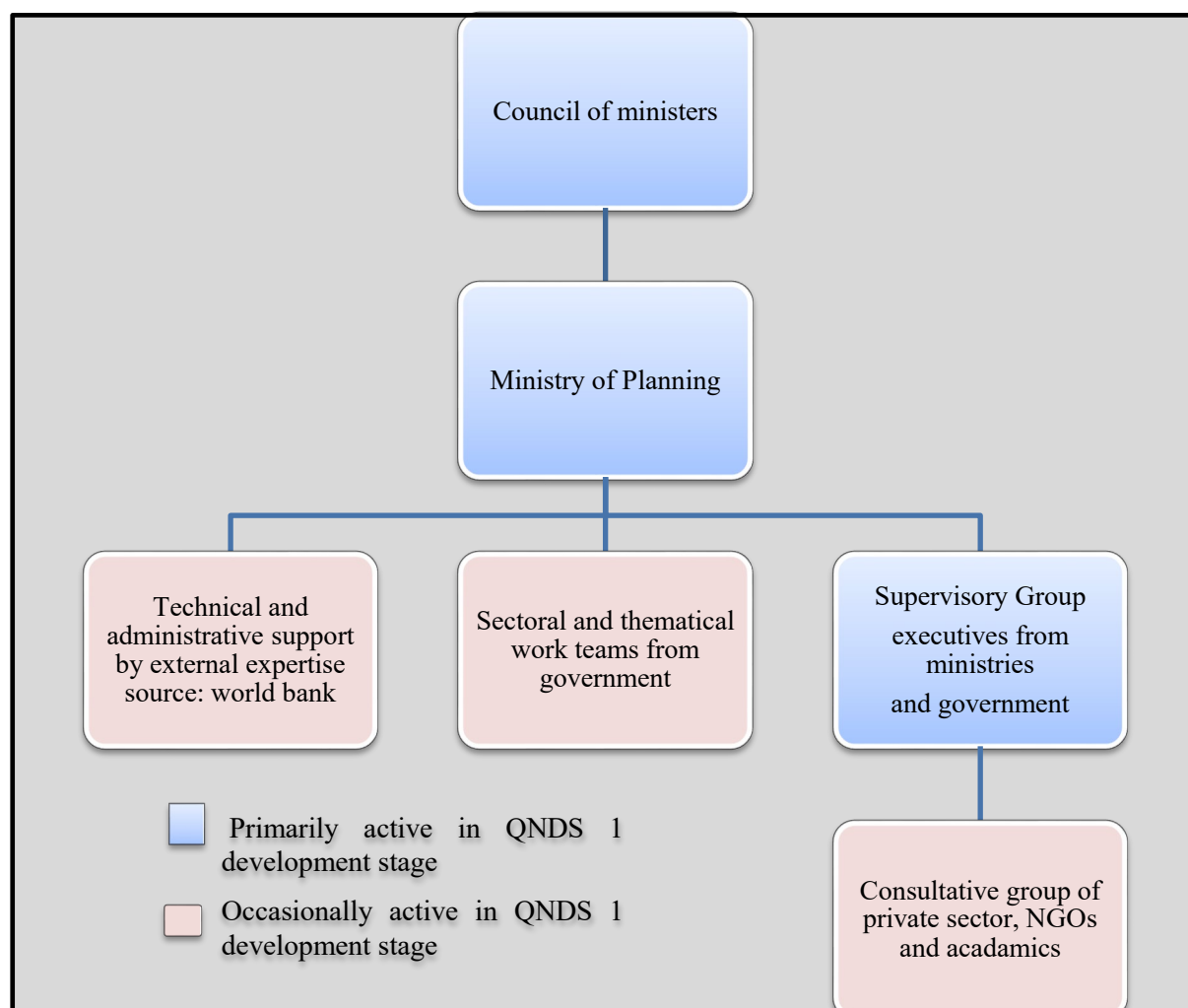
Agency	Title
Community College of Qatar	College President
Qatar Foundation for Social Work	Chief Executive Officer
Qatar Development Bank	Chief Executive Officer
Qatar University	Dean, College of Arts and Sciences
Qatar Chamber of Commerce & Industry	Board member & Vice Chairman
Qatar Foundation	Chief Financial Officer
Qatar Museums	Chief Strategic Planning Officer
National Commission for Human Rights	Director of Programs and Research
Qatar Charity	Director of Planning and International Cooperation
Qatar Museums	Director of Strategic Planning

Table 5-8. Members of the task team in QNDS 2 (Qatari Government, 2018).

Agency	Title
Ministry of Foreign Affairs	Director of International Cooperation Department
Ministry of Interior	Director of Strategic Planning Department
Ministry of Administrative Development, Labour and Social Affairs	Director of social security department
Ministry of Education and Higher Education	Director of Planning and Quality
Ministry of Economy and Commerce	Director of Planning and Quality
Ministry of Municipality and Environment	Director of Planning and Quality
Ministry of Culture and Sport	Director of Planning and Quality
Ministry of Public Health Project	Assistant secretary general for medical affairs

As outlined in Tables 5-5–5-7, interaction in QNDS 2 was mainly among government institutions, while engagement of the institutional spheres of education, industry, and civil society and professional bodies in QNDS 2 was in the form of a consultative role only i.e. by participating in a consultative group that falls under the ‘supervisory executive group’ category, as outlined in the organisational structure of QNDS 1 in Figure 5-8.

Figure 5-8. Organisational structure of the QNDS 2 development stage (Qatari Government, 2018).



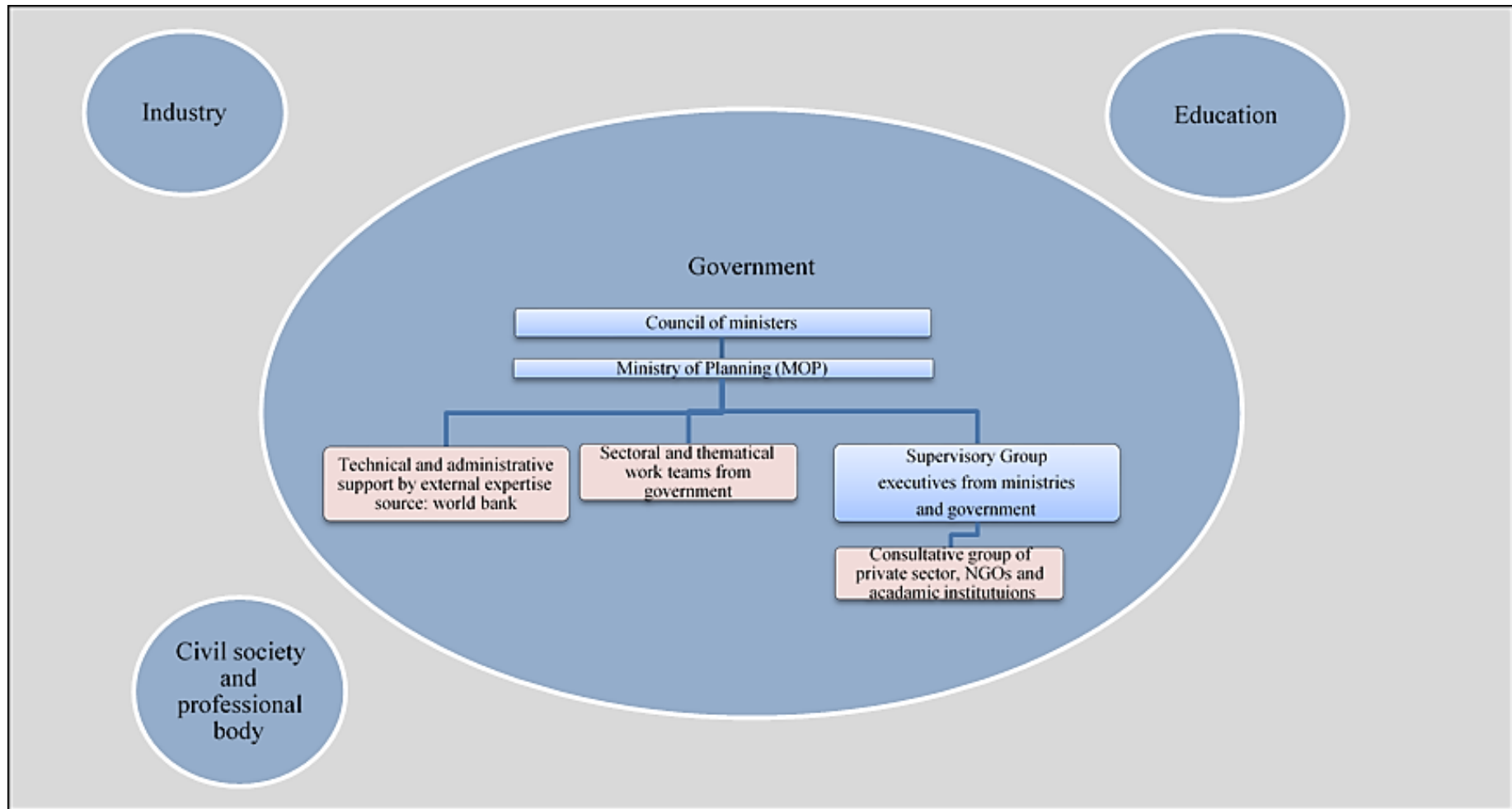
Thus, the consultative group is acting temporarily in the development stage only and will be discontinued in the implementation stage. The main role of the consultative group is to ensure alignment of the plans of the participants and QNDS 2-related projects to avoid any conflict with executing projects related to QNDS 2. Moreover, considering government funding, civil society and professional bodies' role as a neutral party was ineffective. Furthermore, there are no participants in QNDS 2 representing civil society associations in Tables 5-5–5-7.

National strategy patterns and national workforce development strategy post-2016

QNDS 1: The strategy patterns in developing QNDS 2 post-2016 mainly focus on lessons learnt from the sectoral approach in the previous national strategic planning cycle (QNDS 1)

based on work in silos from other institutional spheres and on the exploitative learning of capabilities required for sectoral strategies, which is about business or service supply competitiveness. Thus, the change in interaction is focused on developing planning capabilities and project management skills in government institutional spheres. Moreover, the interaction restructuring was limited to a scope of government institutional spheres and was based on individual decision-making from the coordinator of QNDS 1, the Ministry of Planning. This means that a shared vision across institutional spheres was not adopted in the approach for determining the required collaboration for the transition to a KBE in achieving QNDS 2 in association with national workforce development. Thus, interaction in the QNDS 2 was based on business operation or service uniqueness as well as the required capabilities for organising QNDS 2. These strategy patterns are relevant to a commodity-based economy rather than a KBE (Venkatraman et al., 2002). This means that in this stage, institutional interaction was developed that does not serve the establishment of a shared vision of collaboration in workforce development (Schatzki, 2005) for the transition to a KBE (Venkatraman et al., 2002). Therefore, workforce development strategies were formulated in silos among institutional spheres apart from what was formulated for national workforce development in QNDS 2. The absent interaction across the four institutional spheres for developing a shared vision of collaboration in developing the national workforce for a KBE is outlined in Figure 5-9.

Figure 5-9. The absence of interaction and collaboration across institutional spheres in developing national workforce post-QNDS 1 (post-2016) (developed by the researcher).



The organisational structure of the QNDS 2 and team members come mainly from the government institutional sphere, while civil society associations are disengaged from QNDS 2 interaction. Moreover, participation of institutions other than the government was in the form of a consultative supervisory group, which does not present an interactive partnership for mutual interest, nor does it have a neutral party role. This is because the consultative role does not allow institutions to practice empowered and effective interactions, especially because most of the institutions participated in NGOs and because education is financially dependent on the government either through direct funds, budget allocation, or owned shares.

More highlights on the interactions across the four stages of the national strategy foresight QNDS are offered in the following discussion and summary of the chapter.

5.5 Discussion of the Current Status in Qatar

The change in interaction across institutional spheres over the four stages of QNDS 1 reflects negligible change towards the transition to a KBE. The data shows that there was minimal change in the interaction among the institutional spheres in terms of achieving national strategic targets in a collective learning approach. For example, over the four stages of QNDS 1, there was a restructuring event in 2013; however, the change in the QNDS 1 structure was negligible concerning developing the interaction across the four institutional spheres to achieve strategic targets. This is applicable to the networking restructuring for QNDS 2 for a new cycle of national strategic foresight. Thus, change in the interaction for QNDS 1 and QNDS 2 was not significant for inclusive development across the four institutional spheres, as it includes only agencies from the public sector.

The institutional interactions are not organised – it was not based on a specific organisation (Director of Planning, Ministry 1).

Thus, the data indicates that there was not much change in terms of establishing a shared vision of collaboration in QNDS 1 for national workforce development in the transition to a KBE. This was reflected by the failure to establish an understanding of the networking required across institutional spheres for national workforce development for the transition to a KBE; underdeveloped policy to enforce collaboration across institutional spheres for a developing workforce in the transition to a KBE; and unsupportive routine structures for collaboration across the four institutional spheres for workforce development.

A unified vision for human development was absent at objective levels in QNDS 1. Because a strategy unifies the goal, but at the same time, [the] mechanism to build human capability to achieve goals should be identified by strategy, and this was absent at [an] objective level (CEO, Bank 1).

At first, KBE is a large concept, are we up to it or not? Knowledge comes from where? [It] comes from education institutions. Do we develop education institutions in a required approach for [a] transition to KBE? Or [do we do so] just for preparing future employees for other institutions in Qatar? [These questions] should be asked to ensure that we are ready for KBE. KBE should not be a concept that we say it, and we are happy with it, then we reach 2030 and 2050, and we are turning the same circle. Frankly, if I ask: are we prepared [for] KBE in 2030? I don't think we are ready. The logic and facts show that we are not eligible to [become a] KBE in 2030 (Vice-President, University 1).

Thus, a vision of collaboration across the four institutional spheres for a transition to a KBE was not established in the common understanding, belief, and desire in QNDS 1 among the four institutional spheres for the transition of Qatar's economy to a KBE. The data emphasises

that **strategy formulation** for the transition to a KBE facilitates national workforce development by developing a shared vision of collaboration across the institutional spheres for the transition to a KBE.

National level collaboration and coordination: The data shows that the change in interaction among government institutions during QNDS 1 over the four stages was only a structural change, which shows limited change in networking across the institutional spheres. Moreover, the interaction was formed in a sectoral approach to develop business and services as a form of collaboration in a commodity-based economy. This does not reflect a multi-sectoral approach to building relationships for a transition to a KBE.

Interaction across institutional spheres: Over the four stages of the QNDS 1, interaction was organised to serve institutional operational requirements for supply, which is the scope of analysis relative to a commodity-based economy and which neglects to analyse networking in organised interactions across institutional spheres to serve a learner-based demand for transition to a KBE.

Governance of coordination: Coordination over the four stages of the QNDS 1 occurred using one-way regulation for interaction control. It was implemented by the QNDS 1 coordinator (the Ministry of Planning) in the pre-development, development, and post-QNDS 1 stages, while coordination for developing and implementing plans was implemented by the sectoral strategy's owner ministry at the implementation stage. Interaction was governed for competitiveness in terms of the supply of products or services by institutions, which is a form of interaction in a commodity-based economy, which neglects the governance of coordination for motivating partnerships and interactive mutual support for the competitive flow of collective expertise as it is in a KBE.

Management role: Managing interactions over the four stages of the QNDS 1 was mainly to develop business or service supply at the sector level for better market positioning or process uniqueness with a management practice in a commodity-based economy. This practice prevents the exercise of the networking centrality role for developing intra-organisational social capital for the transition to a KBE in inclusive development across the four institutional spheres by collective learning and workforce development.

This shows the absence of interaction across the four institutional spheres over the QNDS 1 stages, as outlined in Figure 5-10.

Figure 5-10. The state of organised interaction across institutional spheres in the four stages of QNDS 1 (developed by the researcher).

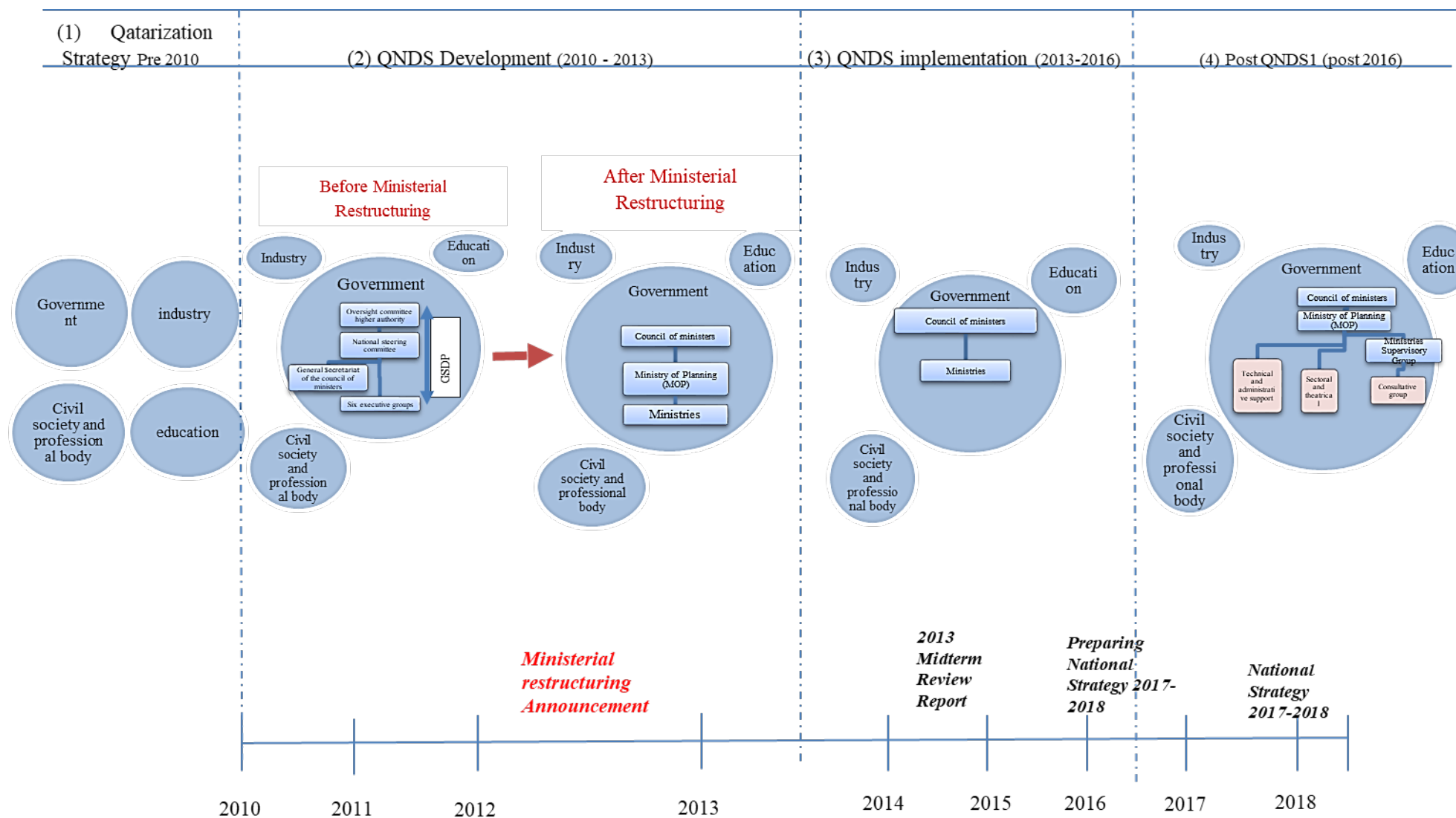


Figure 5-10 outlines the status of interaction across the institutional spheres over the four stages of the Qatar strategic foresight, QNDS 1. It provides an overview of how the co-ordinational role in QNDS 1 did not recognise the required collaboration across the institutional spheres for a transition to a KBE over time. Thus, it could provide insights about how the dominated interaction of the national strategy by government impacts the potential institutional capability to learn about the required collaboration for a KBE in a shared vision over time. Figure 5-10 shows that the institutional spheres of government, education, industry, and civil society and professional bodies worked in silos over the four stages of the national strategic foresight QNDS 1, which shows the unestablished vision of collaboration for the transition to a KBE over the four stages for workforce development.

Furthermore, the data shows that the strategic coordination role in QNDS 1 adopted the patterns of a commodity-based economy: a sectoral strategic approach to develop business and services and their capabilities. Thus, the coordination of strategic targets is irrelevant to building a multi-sectoral approach to build relationships across the four institutional spheres of government, industry, education, and civil society and professional bodies. Thus, the data revealed that the strategic patterns adopted in coordinating QNDS 1 are irrelevant to a KBE and do not lead towards the establishment of a shared vision of collaboration across the four institutional spheres for the transition to a KBE. The absence of a common policy, a routine structure, and an understanding that supports establishing a shared vision of collaboration across the four institutional spheres in QNDS 1 reflects an unsupportive desire and belief among personnel in charge of QNDS 1 coordination in the transition to a KBE.

Policy: Data highlights the absence of policy and policy development over the four stages of QNDS 1. Interaction across institutions denies inclusive development while achieving national targets in interactive mutual support. As shown by the participants below:

There wasn't any policy to maintain interaction across institutions
(Director of Planning, Ministry 4).

Other than ministries, most of the institutions [that] participated in QNDS played only a consultative role i.e. in QNDS 1 and QNDS 2. [The participant] institutions in [a] consultative role do not act as [neutral parties] because they receive funds from the government or have been owned by the government in the form of majority of shares – even if they represent the private sector. Thus, what we have is not a true civil society in Qatar, because civil society needs to generate its financial resources from society not from government to avoid being biased to government institutions (CEO, Bank 1).

The financial resources and funding issue was indicated by the data as a source that either facilitates or impedes partnerships and interactive mutual interests for a transition to a KBE in QNDS 1. Moreover, financial funding in R&D was highlighted by the data as a source to motivate collaboration across the four institutional spheres by creating the need to collaborate on R&D funding policy and structure.

Government funds for R&D are unequal among education and civil society institutions. This doesn't promote collaboration and makes institutions [that] receive higher funds too financially independent to seek collaboration in R&D. They also think that they are better than us and do not need to cooperate [in] R&D projects. This creates work in silos. We have more national researchers in numbers and call for equal financial funds (Vice-President, University 1).

The government funding occurs in a sectoral approach and is based on institutional supply; thus, it motivates them to work in silos. The funding does not occur in a multi-sectoral approach to build relations across the institutional spheres. The funding is also not based on learner demand to motivate networking for the transition to a KBE. The absence of a clear strategy formation for the transition to a KBE in a shared vision of collaboration across the four institutional spheres is reflected in the absence of common policy development and highlighted unequal capabilities and maturity across institutional spheres.

The maturity and workforce capabilities are unequal across institutions; public sector has low workforce capabilities and administrative maturity levels compared to industry and education. Thus, communication and language across institutional spheres differ in management practices
(Director of Planning, Ministry 6).

This unequal maturity and capability in management harms the communicative capabilities across institutional spheres for partnership and mutual interests. It also harms the alignment of policy with national strategy for inclusive development across the institutional spheres, especially in the public sector, which has the highest number of Qatari workers with low capabilities (Berrebi et al., 2009). Thus, an alignment between strategy, financial funding and allowances in HR policy is emphasised by the data in this study for the transition to a KBE. For instance, policy in the public sector does not enforce collaboration nor national workforce development for the transition to a KBE. Financial allowances and salary structures in the public sector are not aligned with the national strategy for the transition to a KBE in developing the national workforce for the transition to a KBE, as indicated by a participant below:

Workers with high-school qualifications got high salaries in the public sector. This motivates them to discontinue their studies. Eventually, many

high school graduates don't want to continue their studies to get a degree from university (Director of Planning, Ministry 1).

Work in silos develops more communication boundaries between the public sector and other institutional spheres for collective development in national workforce development under the transition to a KBE. Thus, the coordination of the national strategy shows inconsiderable change in policy for the transition to a KBE in the context of coordination governance for developing a competitive flow of expertise across the institutional spheres and motivating partnerships and interactive mutual support. The communication system – knowledge codification – is poor in the public sector, as indicated by participants below:

There is no information confidentiality classification in most institutions.

The classification would assist participants in meetings to identify what information to share across institutions (Associate Vice-President, University 1).

Poor communication system in the public sector that uses hard form of correspondence and bureaucratic organisational structure does not help institutional interaction nor worker development (Former Minister, Ministry 7).

There wasn't any job description or documentation in government, we start doing it now; however, it takes time (Director of Planning, Ministry 1).

Thus, the management role was poor in developing communication across the institutional spheres over the four stages of the QNDS 1. This prevents the practice of networking centrality in QNDS 1 coordination for developing intra-organisational social capital in the routine structure.

Interaction routine structure: The work environment and routines in government are unsupportive to collaboration across institutional spheres for developing partnership and mutual support in an inclusive development towards a KBE. Thus, the coordination approach in QNDS 1 is structured by sectoral strategies rather than multi-sectoral strategies to build relations. Bureaucracy is one of the management practices that was highlighted by the data as impeding the development of collaboration across the institutional spheres for a KBE, as indicated by the participants:

The work environment in ministries suggests no interference across department responsibilities within one ministry; thus, this is applied across ministries as well. Personally, if I provide feedback on their performance at department or ministries' levels, it is perceived negatively as interference in their business (Director of Planning, Ministry 4).

The organisational structure in ministries doesn't support interaction – everything goes through the minister (Former Principal Administrative Officer, Secretariat 1).

Civil society is not active in Qatar, and the national strategy is led by government institutions (CEO, Bank 1).

The strategy process is owned by the government, and it was given to the ministries, and the system work in silos; thus, there is no collaboration among institutions (Former Principal Administrative Officer, Secretariat 1).

I find the cooperation between the ministry and the association is weak because the law gives them a domination role on association.

Unfortunately, in relation to civil society interaction, most of the people formulating the laws are expats and are inadequate (Chairman, Civil Society Association 2).

The institutional work environment doesn't accept cooperation for strategic foresight (Director of Planning, Ministry 6).

Thus, the data highlighted that routine structures do not support interaction nor development of a shared vision of collaboration for the transition to a KBE. This is reflected in the absence of a common understanding of QNDS 1 outcomes across institutional spheres in terms of what and how the transition to a KBE is an outcome of interaction in the QNDS 1.

Understanding: Absence of understanding across the four institutional spheres for the QNDS 1 outcomes under the transition to a KBE was highlighted by the participants:

There wasn't enough orientation at initial stage of the QNDS 1, and there are difference[s] in institutions from maturity level. Maturity is unequal across institutions and bodies (CEO, Bank 1).

I met with high-level management. They asked me about the strategy, what it is about, and why we have a national strategy (Director of Planning, Ministry 6).

First, there is no unified definition of KBE for Qatar across agencies. If you ask 10 people to define KBE for Qatar, I assure you that you will get 10 different definitions (Chief Strategist, University 1).

The definition of KBE for Qatar is unestablished in the common understanding across institutional spheres; thus, it is based on a sectoral vision and strategy for developing business

and services supplied by each institution, rather than a shared vision in multi-sectoral relationship developments. Understanding of KBE across institutional spheres reflects the routines of one-way rules and regulations adopted for interaction control by suggesting a provided definition of a KBE from the coordinator of the QNDS 1. This limits the role of management to enforce collaboration across institutional spheres in a shared vision of KBE in QNDS 1. For example, during data collection of this study, participants from government were frequently asked about the rationale for engaging other institutional spheres in the QNDS 1, given that the government plays the three roles in QNDS 1: the organiser, implementer, and implementation scope determiner. Some participants also highlighted that based on law and policy, the civil society association was left inactive. Thus, their role was unrecognised in interaction routines across institutional spheres. Civil society was therefore unexpected to be engaged in national strategy interaction by participants in this study, since the situated policy and routines do not allow civil society interaction. In other words, the interaction policy and routines limit the understanding of the required interactions for the transition to a KBE and the required role of civil society under the enforcement of government domination of interaction in the national strategic foresight. The enforced interaction – formed by situated policy, procedures, and routines – is irrelevant to collaboration across institutional spheres for the transition to a KBE. Moreover, the data highlighted the role of developing reflective management KPIs in facilitating (or impeding) the transition to a KBE, as indicated by a participant below:

SMART KPIs were missing in QNDS 1 (CEO, Bank 1).

Defining the development of **KPI management** in relation to KBE strategic patterns was emphasised by the data. This suggests reflective management KPIs in networking centrality for developing intra-organisational social capital; motivating partnership and interactive

mutual support for a competitive flow of collective expertise; organising interaction based on learning demands across institutional spheres for inclusive development; and developing multi-sectoral relationships. Thus, data reflects the participants' disbelief in the QNDS 1 as a policy and routine structure for developing collaboration in a shared vision for the transition to a KBE in national workforce development.

Belief: The data indicates the participants' lack of faith in the policy and routine structures adopted in the QNDS 1 for the transition to a KBE, as shown by participants below:

Because of the Qatarisation strategy, you take out the high-quality expats and bring Qataris, so this affects the work (Vice-President, University 1).

Without a proper plan for knowledge transfer that is supported by expats' contractual terms, immediate replacement of expats under the Qatarisation strategy is considered as a knowledge loss (Director, Strategic Planning Division at the Governmental Training Institute).

QNDS 1 has many shortages, one of which is that to some extent, the communication is weak, because we do not believe in communication – we believe in orders, not in teamwork (Former Principal Administrative Officer, Secretariat 1).

Work in silos in work environment is deep-seated from school days. We did not learn how to interact with each other as students. For example, the classrooms were organised in separate desks, [with a] teaching-centered approach, not teamwork (Director of Planning, Ministry 4).

Data shows that the absence of **cross-agency collaboration** in the QNDS 1 impeded establishing a shared vision of collaboration and inclusive development for the transition to a

KBE e.g. undeveloped national workforce for labour market needs. This emphasises **intra-organisational learning** across agencies about strategic matters and governing learning for an inclusive transition to a KBE. However, the data shows that the policy and routines structures adopted hinders the development of teamwork values, resource allocation, associability and trust across personnel in charge across the four institutional spheres. Thus, the data emphasises the absence of **intra-organisational social capital development** for facilitating the transition to a KBE in interaction supportive routine structures, especially in the public sector – the coordinator institutional sphere of the QNDS 1. The education environment in the classroom and the teacher-centred approach were highlighted as reasons for the undeveloped values of teamwork among agents and institutions. Thus, based on the data, the desired outcomes of the strategic foresight reflect the institutional demand for workforce development – not learning demands about national-level workforce development – in a partnership and mutual support approach for collective development.

Desire: Based on data, the transition to a KBE in networking and a competitive flow of expertise across the four institutional spheres is not perceived by the participants in this study as a desired outcome from QNDS 1. As highlighted by a participant:

Some people think the planning is socialism, and they do not want socialism, and they do not want external interference (Former Principal Administrative Officer, Secretariat 1).

Intra-organisational social capital is not developed across the four institutional spheres to develop trust and teamwork values, nor to develop associability in achieving strategic targets, as indicated by a study participant below:

The World Bank was primarily involved in formulating the national vision and strategy; thus, at the implementation stage, it was difficult to be

implemented due to the disengagement in developing the QNDS by the native workforce and the workforce capability level is low in the public sector. Thus, one of the challenges indicated in the midterm review was that strategic objectives were set higher than the available workforce capabilities in public sector (Director of Planning, Ministry 1).

Education institutions should be given trust, freedom of movement, and educational process leadership (Vice-President, University 1).

Thus, it was found from data evidence that the **government funding structure** can facilitate (or impede) collaboration across the institutional spheres for the transition to a KBE. This is by promoting collective learning for inclusive development of national workforce across institutional spheres. Data also emphasised strategy formulation for the transition to a KBE, which facilitates developing a shared vision of collaboration across institutional spheres for the transition to a KBE i.e. in national workforce development. In addition, data shows that **cross-agency collaboration** facilitates inclusive development in national workforce development. This is by establishing a shared vision of collaboration across agencies for national workforce development. This emphasises **intra-organisational learning** across agencies about strategic matters in association with policy alignment for an inclusive transition to a KBE. However, this highlights the policy role for developing teamwork values, resource allocation, associability, and trust across personnel in charge across the four institutional spheres. It also highlights **intra-organisational social capital development** in interaction routine structures, especially in the public sector – the coordinator of the QNDS 1.

In summary, the analysis of the status of QNDS 1 for national workforce development highlighted interactions in the following themes: (i) visions and strategies of workforce development and its requisite interaction are formed in silos at institutional levels and are

irrelevant to a shared vision of collaboration for the transition to a KBE; (ii) understanding requisite networking across the four institutional spheres for the transition to a KBE for the context of Qatar is undeveloped; (iii) the networking centrality role played by government is absent for the inclusive development of intra-organisational social capital; and (v) frequent change in the organisational structure during the national strategic foresight QNDS 1 was irrelevant to a shared vision of transition to a KBE. Based on an analysis of the status of Qatar's national workforce development, themes that emerged over the four stages were capsulised in proposed organisational practices that could facilitate (or impede) the transition to a KBE in workforce development in Qatar. Thus, the organisational practices proposed are as follows: (1) intra-organisational social capital development; (2) cross-agency collaboration; (3) strategy formulation; (4) organisational learning; (5) management of KPIs; and (6) government funding structures, as outlined in Table 5-9.

Table 5-9. Organisational practices that facilitate (or impede) transition to KBE from emerged themes.

Organisational practices	Facilitate transition to KBE	Impede transition to KBE
1 Intra-organisational social capital development	Defined networking relations' structure, forces, and common context and language for a shared vision of collaboration for national workforce development.	Interaction structure, relations, and communication language sat randomly in sectoral strategies.
	Emphasis on resource allocation, contribution of national workforce and teamwork values for associability and trust.	Competitive sprit is promoted over teamwork values
2 Cross-agency collaboration	Government networking centrality role for motivating relations structure, interactive forces, and common context in learning networking at the institutional spheres level.	Developing one-way interaction at the business, services required, and capabilities level in sectoral strategies.
	Institutional entrepreneurship role and self-dependency approach for dynamic interaction and collaboration for learning about competitive national workforce development for Qatar context.	Traditional role of institutional spheres that promote dependency on government and work in silos.
3 Strategy formulation	Planning implementation approach of national strategy in a shared vision of collaboration under institutions' learning needs about national workforce development for KBE.	Develop sectoral strategy for business, services or capabilities at competitiveness at sectoral context.
	Government capacity for networking centrality and promoting interactive learning for achieving national workforce development as a part of implementing plans for QNDS.	Segregated strategies at sectoral level and multi-visions of collaboration to serve each sectoral strategy.

4 Intra-organisational learning	Interaction aims for learning from partnership for mutual support.	Interaction aims for institutional learning in silos about business supply in one-way interaction.
	Interaction self-organisation is based on explorative learning.	Interaction reorganisation is based on exploitative learning.
	Values of mistake tolerance, timeliness, lessons learnt, and knowledge-sharing established work values.	Values of mistake intolerance, untimely decisions, and doing the same mistakes are established in work values.
5 Management KPIs		
	SMART KPIs that balance international standards with local contexts and assess learning networking for learning needs and to promote learning based on self-organisation across institutional spheres.	Operational-level KPIs for each sectoral strategy (not SMART) that neglect learning from networking for self-organisation.
	Management validation process of the set KPIs by a neutral coordinator.	Conflict of interest in setting KPIs by an agency that will be assessed on KPIs.
	KPIs on resource allocation, associability, and trust across the four institutional spheres to maintain transactional costs from a competitive networking perspective.	Random resources allocation based on authority rather than expertise and a focus on competitiveness of service, commodities, or capabilities at a sectoral level.
6 Funding structure		
	Government funding policy update for matching the requirements of institutions and the enforcement of collaboration, financial independency, and learning across institutional spheres.	Enforces work in silos by one-way regulation and neglects to create a need for collaboration.
	Financial independency across institutional spheres promotes collaboration for mutual support, financial complementary needs, and	Financial dependency on government reduces the need for interaction for mutual financial support and does not support

the use of a neutral party interacting with government.	neutral party practice in interaction with government.
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Organised structure of government funding for alerted decision-making with national prioritisation promotes networking centrality in a shared vision of collaboration for Qatar's transition to KBE.	Random structure promotes random distribution of funds, which promotes work in silos and inequalities.
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More illustration on the identified organisational practices will be in the following chapter.

Chapter 6 Organisational Practices Facilitating (or Impeding) the Transition to a KBE

This chapter presents findings from the study highlighting the range of organisational practices potentially facilitating (or impeding) the collective effort across the institutional spheres of government, education, industry, and civil society and professional bodies to develop the requisite workforce. This is to aid the inclusive development towards the transition to a KBE. The chapter is structured as follows: Firstly, insights on developing intra-organisational social capital for a KBE are illustrated. Thus, the defined networking relational structures, players, and common context are emphasised for the transition to a KBE, while a random selection of networking players can impede developing a shared vision of collaboration across institutional spheres. Secondly, highlights of cross-agency collaboration are outlined for interactive learning, which facilitates developing a competitive national workforce for Qatar. Thus, sequences of government-dependency interactions are illustrated by promoting work in silos and impede collective learning. Thirdly, highlights of strategy formulation for the transition to a KBE are outlined. This is to emphasise planning for the national strategy's implementation approach based on institutional learning needs across the institutional spheres under the transition to a KBE. Thus, insights on how the administrative and communicative capacity of the government can facilitate or impede playing a networking centrality role in motivating interactions for the transition to a KBE are given. Fourthly, intra-organisational learning from collaboration across the four institutional spheres is illustrated. Therefore, the chapter emphasises setting learning aims for the interaction to foster interactions towards a competitive workforce development for a KBE. Fifthly, it emphasises the definition of KPI management for building learning relations across the four institutional spheres. A focus on how operational-level KPIs for business or service supply competitiveness at a sectoral level can impede building a shared vision of collaboration for a KBE. Sixthly, highlights of the government

funding structure that promotes collaboration among the institutional spheres for a KBE are presented. Moreover, we elaborate on how collaboration could be discouraged by funding structures that could lead to work in silos and impede the transition to a KBE. Finally, the chapter is summarised.

6.1 Organisational Practice 1: Intra-Organisational Social Capital Development

Participants in this study highlighted the need for a defined KBE in a shared strategy and vision to serve the Qatari context i.e. in workforce development. Data also calls for a defined institutional interaction for strategic objectives in workforce development under the transition to KBE, as highlighted below:

Until now, we, as a state or as institutions, didn't [sit] with each other to [ask]: What do we mean by KBE? And what part of the knowledge economy [do we choose]? All of them call for KBE, and believe me, if I asked 10 people 'which knowledge economy do you want?', you will find different answers (Director of Planning, Ministry 6).

KBE was not clearly defined by government, what interaction model across institutions is required for transition to KBE. It was not clearly defined. What worries me the most is that we always rely on generalities in defining targets? Thus, target would be considered achieved while it wasn't truly achieved. This is wrong' Chief Strategist, university 1.

Data aimed to avoid random interactions in a random selection of stakeholders for strategic objectives, which does not reform the aligned collaboration across the institutional spheres to transition the strategy towards a Qatari KBE:

The institutional interactions are not organised. It was not based on a specific organisation, it was based on initiatives, because the people or the institution [that manage] the planning process have weak capabilities or management problem[s] (Director of Planning, Ministry 1).

There wasn't enough orientation at initial stage of QNDS 1, and there are difference[s] in institutions [in terms of] maturity level. Maturity is unequal across institutions and bodies (CEO, Bank 1).

I met with high-level management. They asked me about the strategy – what it is about, and why we have a national strategy (Director of Planning, Ministry 6).

I do not know what Qatar KBE [is] and the defined approach to achieve it. It should be defined by personnel in charge of QNDS 1 in government. We [have] never been invited to QNDS 1 meetings. [In] the end, it is a national strategy in which we all contribute to it – not only ministries (CEO, Energy Company 1).

Data on the QNDS 1 teams shows that forces in interaction were randomly set in the QNDS 1 interaction and were based on authority rather than expertise. This denies proper resource allocation for the competitive flow of collective expertise in achieving national strategy targets. The random selection of stakeholders for interaction across institutions for a strategic objective (e.g. ICT inclusion in education) was expressed by a participant due to the absence of a shared vision of collaboration for the country's transition to a KBE:

I notice that for strategic projects I decide the stakeholders list from my own experience, I always ask other seniors if they think that I need to

include other institutions in the interaction list for strategic ICT projects in Qatar. I would think that a database that identifies institutional interaction for strategic projects would help in this (Director of ICT and E-Learning Projects, Ministry 5.)

The participant highlighted the randomly selected institutional interaction for strategic objectives. Data also emphasised the need for identified interaction among institutions for the strategic project. This requires a defined vision across institutional spheres of collaboration for the transition to a KBE, which is missing in Qatar, as seen in data evidence.

Moreover, engagement and teamwork values were not established to achieve associability across the four institutional spheres to achieve strategic targets and inclusive development towards a KBE in workforce development. For example, disengagement of institutional spheres of education, industry, and civil society and professional body in the interactions over the four stages of the QNDS 1 and the domination of the government institutions on interactions of the QNDS 1 hinder the development of associability and teamwork spirit. This reflects work in silos in developing workforce strategies and related interactions at an institutional sphere level or institutional level, as indicated by participants below:

The emphasis on work values related to teamwork is missing in the work environment of the public sector. Instead, there is [a competitive] spirit in performing the work. Teamwork was not a practice, since schooldays – teaching in classroom was [a] one-way approach from teacher to students, and students' desks were separated (Director of Planning, Ministry 4).

Interaction among institutions is mainly driven by [an] institution's strategy and initiative for workforce development and Qatarisation (Chief Technical Officer, Energy Company 1).

Thus, the common context for communication was not developed in a shared vision of collaboration for the transition to a KBE in workforce development in the QNDS 1 interaction. The educational environment and teacher-centred approach in the classroom were highlighted by the data for deep-seated missing values of teamwork in the work environment of institutions (Muysken and Nour, 2006; Wiseman and Anderson, 2012). Moreover, the system of meaning across institutional spheres represents shared narratives and language amongst a workgroup, which is essential for the successful achievement of desired ends (Ruíz et al., 2010). However, the data indicates that the meaning of a KBE and national workforce for the transition to a KBE in the Qatari context was undefined or unified among leaders across the four institutional spheres. This shows a gap in the cognitive dimension of intra-organisational social capital as highlighted by a study participant below:

KBE was not clearly defined by government [in terms of] what interaction model across institutions is required for transition to KBE. It was not clearly defined. What worries me the most is that we always [rely on] generalities in defining targets. Thus, [the] target would be considered achieved while it wasn't truly achieved. This is wrong (Chief Strategist, University 1).

Moreover, the data emphasised trust in the national workforce and leaders across institutions as a source of collaborative effort since a high reliance on expats shows contradictory behaviour by decision-makers to develop an intra-organisational social capital. For example, the high reliance on the World Bank in the QNDS 1 resulted in the disengagement of domestic

workers across the four institutional spheres in the national strategy. This affects the system of belief in the QNDS 1 and the QNDS 1's desire to achieve a KBE as a strategic objective by domestic workers, as shown by study participants below:

Participants in the QNDS 1 haven't been invited to work on the linking mechanisms of their strategy to the vision to achieve part of the vision in the coming five years (Chief Strategist, University 1).

The World Bank was primarily involved in formulating [the] national vision and strategy; thus, at the implementation stage, it was difficult to be implemented due to the disengagement in developing QNDS by [the] native workforce, and workforce capability level is low in the public sector. Thus, one of the indicated challenges in [the] midterm review was that strategic objectives were set higher than the available workforce capabilities in [the] public sector (Director of Planning, Ministry 1).

Education institutions should be given trust, freedom of movement, and educational process leadership (Vice-President, University 1).

The QNDS 1 has many shortages. One of them is that to some extent, the communication is weak, because we do not believe in communication – we believe in orders, not in teamwork. Some people [think] the planning is socialism, and they do not want socialism, and they do not want external interference (Former Principal Administrative Officer, Secretariat 1).

The behaviour of individual decision-making is one [that] sometimes allows the person in the position to do so as a manager or minister. This behaviour could affect the integrated system. Thus, the main decisions

should be reassessed and should not allow individuality in decision-making. Moreover, the consultative approach should be followed in decision-making across more than one institution [that] grants achieving the main objectives (CEO, Bank 1).

Moreover, the findings show that the delineated team member selection for the QNDS 1 indicates a gap in resource allocation, as teams were selected based on authority rather than expertise in the subject matters. The data also indicates that common understanding, policy, and routines were not established to develop an intra-organisational social capital for a KBE. This was reflected in irrelevant relationship structures, interactive forces, and in common context and language for developing the competitive flow of collective expertise in the QNDS 1. Furthermore, associability and trust were almost absent in networking across the four institutional spheres i.e. for national workforce development. Disengagement of institutional spheres in formulating a shared vision on national workforce development strategy was also highlighted by data. This shows that intra-organisational social capital (Ruíz et al., 2010) was not developed in the QNDS 1 for a KBE (Etzkowitz and Leydesdorff, 2000; World Bank, 2007b; 2007a).

6.2 Organisational Practice 2: Cross-Agency Collaboration

Findings show that the government's role in the national strategy presents domination and bureaucracy in interactions rather than networking centrality to support interactions across institutional spheres by being an information and communication platform to foster collaboration in achieving the national strategy. Moreover, the communication system in the government is considered poor and is based on a bureaucratic system that motivates people to work in silos. Thus, formal correspondence is printed only, and emails are considered an unofficial communication channel. The poor communication system has impeded interaction among institutions for inclusive development for the transition to a KBE, as stated by participants below:

The communication system in the public sector is poor. For example, formal correspondence took a long process and time, since it is only in printed letter form. This suggest time-consuming communication. In addition, [the] bureaucratic organisational structure does not help institutional interaction nor worker development (Former Minister, Ministry 7).

Moreover, the bureaucratic system in government was associated with poor policy development i.e. an outdated policy. Thus, interaction and activities of university, industry, and civil society were limited by the poor policy review and development to empower those institutional spheres to participate in the national strategic foresight for inclusive development towards a KBE. For example, the activities of civil society associations were limited by law and regulations; moreover, outdated funding policies limit R&D related projects at university, as indicated by participants below:

I find the cooperation between the ministry and the association is weak, because the law gives them a [dominating] role [over] civil society associations. Unfortunately, policies and regulations related to civil society interaction [do not] reflect values of partnership and mutual support across institutions (Chairman, Civil Society Association 2).

We have currently some issues with Ministry of Finance because they consider us as a ministry, while we are a university. Policy should be updated to suit institutions' needs. Moreover, R&D government funding is unequal across institutions – this impedes collaboration in R&D projects (Vice-President, University 1).

In routine structures, the government interferes in other institutional sphere outcomes that hinder the new empowering role of the government in providing the required interactive platform for collaboration across institutional spheres for inclusive development towards the transition to a KBE with monitoring networking centrality for national targets. This sheds light on the government in the national strategy, the QNDS 1, which played a traditional role that does not reflect the new role required from the government for the transition to a KBE, as indicated by a participant:

The failure of strategy 1 was due to the weak public sector, which is assigned to lead the strategy. Strategy 2 [is] expected to face the same challenge (Former Principal Administrative Officer, Secretariat 1).

Findings show that the government played a role in the QNDS 1 interaction in one-way interaction and order for the sake of control. Thus, strategies were formulated in silos to develop the national workforce at an institutional level. Therefore, situated interaction across

institutional spheres does not show cooperation or interaction across institutions (e.g. civil society and professional bodies, schools, university, industry, and government). For example, interference of the government in the education process in university was frequently raised as an issue by study participants:

As a response to the labour market demand, we asked university to close specialisations that [have] no demand in the labour market – like geography (Minister, Ministry 1).

The ministry did a good step in coordinating with university to close specialisations that have no demand in the labour market – like geography (Assistant Undersecretary for Planning Affairs, Ministry 3).

Government interference in university education functions illustrates that both the government and the education institutional sphere played an irrelevant role in the transition to a KBE. This is because the government is not supporting interaction across institutional spheres by providing information and communication platforms, while the university is not performing its self-dependent role as an entrepreneurial university, as required in a KBE (Cooper, 2009; Etzkowitz, 1998; Etzkowitz and Leydesdorff, 1997). These roles do not reflect the required role from institutional spheres in Qatar for the transition towards a KBE in workforce development as indicated by data:

Education institutions should be given trust, freedom of movement, and educational process leadership. Someone would say ‘why should [we have] graduate students from specialisations like history or geography? They wouldn’t have [job opportunities]’. We as an educational institution should teach students fundamental specialisations that [make] them eligible to

work [whether] they graduate from specialisations like history or others. But someone comes and says that national strategy doesn't support history studies – such interference is unacceptable (Vice-President, University 1).

This means that the situated education process is directed to fill vacancies in the labour market more than developing the workforce under the transition to a KBE, as indicated by a study participant:

At first, a KBE is a large concept – are we up to it or not? Knowledge comes from where? [It] comes from education institutions. Do we develop education institutions in a required approach for transition to KBE? Or just for preparing future employees for other institutions in Qatar? [These questions] should be asked to ensure that we are ready for KBE. KBE should not be a concept that we say it and we are happy with it, then we reach 2030 and 2050, and we are turning the same circle. Frankly, if I ask: 'are we prepared for a KBE in 2030?' I don't think we are ready. The logic and facts show that we are not eligible to be a KBE in 2030 (Vice-President, University 1).

Thus, a shared vision of collaboration for developing the national workforce for the transition to a KBE was highlighted as a requisite by the data.

6.3 Organisational Practice 3: Strategy Formulation

Although the QNV 2030 documentation indicates KBE attainment as a strategic aim, the data revealed that a strategy for the transition to a KBE was missing in the QNDS as a blueprint of QNDS 2030:

There is not a specific strategy for the transition to a KBE in the QNDS
(Assistant Undersecretary for Planning Affairs, Ministry 3).

Moreover, although the national workforce development strategy in the QNDS 1 suggested preparing the workforce for developing into a KBE, a strategy to prepare the workforce to achieve the national strategy development was missing even for sectoral strategies – as shown by a participant below:

A unified vision for human development was absent at objective levels in QNDS 1. Because a strategy unify goal, but at the same time, a mechanism to build human capability to achieve goals should be identified by strategy, and this was absent at [an] objective level. Moreover, SMART KPIs were missing in QNDS 1 (CEO, Bank 1).

The poor strategic planning capacity in the public sector for workforce planning impeded developing the requisite skills and competencies under a clear approach for achieving QNDS 1, which was highlighted by study participants:

Workforce strategic planning is not an adopted function in the public sector institutions. HR management in government ministries consists of very basic functions like training, recruitment, and promotion. This is because the manager of the HR department is mostly unspecialised in a field related to HR and workforce development (Director of Planning, Ministry 4).

This highlights the skills mismatch in the public sector for strategic planning. Although the strategic planning skills for workforce development were not developed in the public sector, it was indicated by participants that this skill is advanced in HR practices in other institutional spheres like industry and some education institutions, as indicated by the data below:

We can see the difference in skills and capabilities in interaction with industry. The HR managers' skills are well developed, and they use management tools and practices [that are] missing in the public sector (Director of Planning, Ministry 4).

However, utilisation of available skills across institutional spheres for developing a relevant flow of expertise was abandoned in the QNDS 1. QNDS 1 was developed as a standing strategy for the local labour market, which neglects developing the required workforce for QNDS 1 under each sectoral strategy in the transition to a KBE. At the post-implementation stage of the QNDS 1, there was a plan to develop project management skills in the public sector.

The implementation plans in some ministries were absent. The workforce capabilities in strategic planning and project management are low. There was no documentation for the project progress that represents evidence-based documentation. [The] absence of identifying planning tools for ministries represented an implementation challenge. There was a lack of agreed unified documentation forms across institutions to document the project progress at the implementation phase. Thus, project management became a compulsory skill in training (Assistant Undersecretary for Planning Affairs, Ministry 3).

KBE as a target was indicated in the national vision; however, KBE for Qatar as a strategy was not formulated, nor was a collaboration vision developed to achieve a KBE for Qatar in QNDS. Thus, it was decided that interaction would achieve the workforce strategies in a narrow scope of business or service supplies under sectoral strategies, and it is based on the owner ministry's determinations. Thus, the element of preparing the workforce was developed in silos, which

developed required capabilities under sectoral strategies. This was highlighted in the following data:

Interaction among institutions is mainly driven by the institution's strategy and initiative for workforce development and Qatarisation (Chief Technical Officer, Energy Company 1).

The organiser ministry of national strategy asked each ministry to do their strategy based on what they are doing, and then they gather [all the strategies] and call them the state strategy. This is not a state strategy. The intersections among institutions to deliver the objectives [are] the strategy – not to work in isolation (Director of Planning, Ministry 4).

Moreover, a KBE as a desired outcome was not established in a common language or in communication of the QNDS 1 outcomes. Thus, the R&D national strategy was missing in the QNDS 1. A national R&D strategy was therefore encouraged to be developed separately to the QNDS 1 by another institutional sphere – NGOs. However, such organisations are funded by the government. Thus, they could be considered as government institutions. This was indicated by a participant below:

KBE was a concept and objective that was [set] to follow advanced countries. There wasn't a strategy for research development in QNDS 1, while KBE aspects were uncovered by QNV 2030. If you can notice from the official documents review, KBE terminology disappeared and [was] replaced with [the] new terminology 'diversified economy' in most speeches. If you notice, no one is talking about a KBE as much as they talk

about diversifying the economy now (Executive Vice-President, Research and Development Division at the Civil Society Institute).

The participant indicates that the R&D strategy was not developed in QNDS 1 and thus it was developed in distinction from the QNDS 1 efforts and initiatives by the Qatar Foundation – an NGO R&D institute. Moreover, the participant indicates that the terminology of KBE was replaced recently by ‘diversified economy’ in public speeches. This reflects a change in common language and text; however, this change is not associated with change in the interactive forces and relations’ structure across the four institutional spheres to reflect the development of intra-organisational social capital for the transition to a KBE (Ruíz et al., 2010). Thus, data indicated that a proper strategy for implementing plans was missing due to the absence of a networking centrality role played by the public sector. The poor communicative and strategic planning competencies; knowledge management; and governance in the public sector creates a gap in developing a shared strategy of collaboration to properly implement plans in the QNDS 1 under workforce development, as indicated by participants:

The strategy will not succeed if there is no efficient public sector, I grant you now, put the best strategy in the world. In my point of view, the public sector is weak, and its productivity is weak. Thus, its progress in any subject would be impacted by this [fact]. We are expecting that for strategy 2. The required public sector for strategy implementation is written in strategy 1. It calls for assessing the required public sector performance, it requires transparency, efficiency, accountability, and links to people’s needs. These all should be appended. Now, who would assess it? I [suggest] that it could not be assessed by the sector itself, it should be by a neutral party (Formal Principal Administrative Officer, Secretariat 1).

The communication system in the public sector relies mostly on letters in printed papers, emails are not considered as an official communication channel... the work environment in the public sector doesn't accept the experience of strategic planning (Director of Planning, Ministry 6).

As per the QNDS 1 midterm review report, the two main tasks in national workforce development are related to developing the workforce in the public sector, which were cancelled by the owner ministry – the Ministry of Work. The tasks were to develop the national workforce skills in the public sector and leadership training in the public sector. The reported reasons for cancelling the tasks are the unavailability of required workers to do the task in the public sector and due to a government restructuring event in 2013, as the human development and training processes were moved by the Ministry of Administrative Development.

Thereafter, the practices adopted for the national workforce development in the QNDS 1 and the QNDS 2 were determined by forecasting the five-year demand of the local labour market. Thus, a network of HR managers across ministries and public sector institutions was developed and led by the Ministry of Administrative Development. The demand is mainly based on job vacancies. Thus, it is mostly numeric data that does not count for the advancement of the international labour market, nor for incorporate global trends towards a KBE, as indicated by a participant below:

To identify the job market requirements and to direct students in the right way, first, the state collects data on required specialisations and vacancies from HR direction in different institutions. This [is] to avoid a situation where the person randomly studies a specialisation that has no demand in the Qatar local labour market. We build our focused objectives based on our demands, which we defined from the beginning for directed manpower.

We perform a career supervision [and] fair governmental scholarship for this purpose. We build and concentrate our objectives on our demands, which we define from the start to direct the manpower (Minister, Ministry 1).

The government ministry interferes in education to define students' future paths based on the local labour market needs. The needs are determined from a circulated survey among the public sector institutions of the government and university for the upcoming five years. Consequently, these needs are communicated to civil society at an annual event called a career fair, where job applicants have the opportunity to meet recruitment representatives from different institutional spheres in the country and to know about the labour market demand and to provide their CV. This was the approach used to determine the labour market demand and to direct target applicants from civil society based on the identified demand.

The government scholarship approach in forecasting the local labour market demand was mainly done by identifying the job vacancies and specialisations from data collected from HR departments for the coming five years. The data collected to direct civil society in a government scholarship programme to ensure responding to the local labour market demand. The terms of a contract for a government scholarship programme and a candidate are signed to guarantee that candidate's future job in the local market with a salary while studying abroad. This is to motivate candidates to go through this programme for workforce planning in the public sector. However, the contract has fixed conditional terms that serve unchanged specialisations during the study period according to learner candidate preference:

Some applicants, after signing the contract, go to study abroad by government scholarship and may want to change specialisation. We do not

allow this change, since it was decided based on national targets (Minister, Ministry 1).

This approach was criticised by study participants to be an unreflective forecasting approach as the technological advancements in the international labour market demand are not incorporated in the demand forecast. Moreover, it is numeric and numbers are hard to predict for a long period of five years. Moreover, the absence of a validation process concerns participants for reflective values in the international labour market:

Market and technology advancement accelerates, so you might need to employ more workers, but from different kinds of specialisations like programmers, maintenance, and technicians. I believe this is the problem, especially in the ministries' plan. I think the issue is in assessing the size of coming advancement in five years. We always struggle. We don't get good numbers (Director of Planning, University 1).

The work environment, welfare, and reward system basis are not linked to the international labour market requirement, and thus, the local labour market was seen as giving exaggerated value to the workforce that does not reflect the real value of the workforce (Executive Vice-President, Research and Development Division at the Civil Society Institute).

Participants asserted that the local labour market does not reflect the same value of workforce capabilities in the international labour market. This is because the national strategic foresight of QNDS 1 is based on one-way communication rather than partnership and mutual support across the four institutional spheres. This indicates the absence of processes that validate the strategic direction across institutional spheres.

The validation process is missing. No one validates formulated strategies by institutions and its alignment for mutual interest at national level like a transition to a KBE (Director of Planning, Ministry 6).

This was driven by the level of belief in a KBE as an outcome of the QNDS 1 across the four institutional spheres and their desire for collaboration as a collective learning approach to achieve the QNDS 1 outcome, as indicated by the participants below:

QNDS 1 has many shortages. One of them is that to some extent the communication is weak, because we do not believe in communication – we believe in orders, not in teamwork. Some people think the planning is socialism, and they do not want socialism and they do not want external interference (Former Principal Administrative Officer, Secretary 1).

Workforce strategic planning is not an adopted function in public sector institutions. HR management in government ministries consists of very basic functions like training, recruitment, and promotion. This is because the manager of the HR department is mostly unspecialised in a field related to HR and workforce development (Director of Planning, Ministry 4).

Some administrative jobs don't require a specialised qualification, such as HR or public relations, as any specialisation can work in those jobs. But now, those jobs became a science and eventually require a degree from universities (Minister, Ministry 1).

Therefore, skills mismatch in human resource management in the public sector in Qatar was one of the main issues raised for implementing the QNDS 1 (Powell and Snellman, 2004).

The behaviour of individual decision-making, which sometimes the position allows the person to do so as a manager or minister, could affect the integrated system (CEO, Bank 1).

Hence, finding a favourable balance is a vital step for decision-makers, which maintains a local identity while adopting necessary changes in national workforce development for a shared vision of collaboration across institutional spheres for the transition to a KBE (Yates and Young, 2010).

6.4 Organisational Practice 4: Intra-Organisational Learning

The findings show that learning about the national objectives across institutional spheres was neglected in the QNDS 1 interaction. The need to learn and implement learning was not considered in forming interactions in the QNDS 1.

Firstly, orientation for the QNDS 1 objectives for developing a shared vision of collaboration in developing the workforce was missing in the QNDS 1. This was highlighted by study participants as follows:

KBE was not clearly defined by government [in terms of] what interaction model across institutions is required for the transition to a KBE. It was not clearly defined. What worries me the most is that we always rely on generalities in defining targets. Thus, targets would be considered achieved, while [they were not] truly achieved. This is wrong (Director of Planning, University 1).

There wasn't enough orientation of national strategy outcomes and roadmap from the beginning (CEO, Bank 1).

The communication of national strategy outcomes wasn't clear for the participants in a documented roadmap, for example, to guide in implementation (Director of Planning, Ministry 1).

Thus, the data highlighted that there was an issue of understanding national strategy outcomes and mechanisms (i.e. in a clear roadmap) among stakeholders and participants. Moreover, organisers of the national strategy highlighted the workforce capabilities and commitment of stakeholders as challenges in organising interaction for developing shared sectoral strategies (e.g. attendance of the meetings or sending inadequate participants from the public sector).

Second, it was highlighted by the findings that the lessons learnt during the QNDS 1 midterm review in 2014 neglected the engagement of other institutional spheres of industry, education, and civil society and professional bodies for the inclusive development of the national workforce for achieving the national strategy. Moreover, mutual interests were not recognised across the four institutional spheres after the experience of the QNDS 1. It was also highlighted by the data that impact analysis was not adopted post-QNDS 1 to learn about the impact of the national strategy on other institutional spheres:

After the QNDS 1, the impact of the QNDS 1 on civil society has not been studied, for example, via a questionnaire. To me, this was an important step that seems to be missing (Former Director, Council [2011-2016]).

It's an ecosystem that is a coherent system. Elements of civil society as non-governmental organisations have an important role and reflect the vision of civil society. Thus, it is required to account for society in introducing an economic decision-making system. Laws governing KBE can have

implications for the individual and society. A passion for knowledge [encourages individuals] to participate in KBE (CEO, Bank 1).

Engagement of institutional spheres other than the government was neglected in reorganising networking for QNDS 1 and QNDS 2 during the 2013 government restructuring event and formulating teams for the QNDS 2 in 2016, as indicated by data:

The same institutions that played a consultative role in QNDS 1 played the same role in QNDS 2. Thus, there wasn't any change in the team selection criteria in QNDS 2 that serves developing interaction across institutional spheres (Director of Planning, Ministry 4).

Moreover, the data indicates negative behaviour from middle management in the public sector in practicing timely decision-making and knowledge seeking, which slows the decision-making process for developmental projects of the QNDS 1:

I noticed that middle managers can't [make] timely decisions without a [good] reason. This slows the process in implementing projects. Moreover, seeking knowledge from peers on a subject matter isn't an adopted practice by middle management. From my point of view, there is a fear [of] showing ignorance or making mistakes in a subject matter (Director of Planning, Ministry 1).

The fear of making mistakes can lead to creating communication boundaries that impede collaboration and learning across institutional spheres under the transition to a KBE. This highlights the importance of promoting the values of tolerance for mistakes, knowledge-seeking, and lessons learnt in developing an intra-organisational social capital as well as the management of KPIs.

6.5 Organisational Practice 5: Management of KPIs

KPIs in the QNDS 1 were criticised by the study participants for not being SMART i.e. having SMART objectives (i.e. specific, measurable, attainable, relevant, and timely). Moreover, it was indicated by the data that the KPIs in the QNDS was missing the objective level for developing the requisite workforce to achieve the strategy. Moreover, a preferable balance between international standards and local context was missing in developed KPIs, as highlighted by the study participants below:

A unified vision for human development was absent at objective levels in QNDS 1, because a strategy unifies the goal, but at the same time, the mechanism to build human capability to achieve goals should be identified by strategy, and this was absent at [an] objective level. Moreover, SMART KPIs were missing in QNDS 1 (CEO, Bank 1).

Some KPIs and objectives were set too high at international standards, which are inapplicable to the Qatari context and current status. This is a gap in developing KPIs balanced between international standards and Qatar's current status (Director of Planning, Ministry 6).

The work environment, welfare, and reward system basis are not linked to the international labour market demand; thus, the local labour market gives an exaggerated value to qualified national workers, which does not necessarily reflect the international labour market values for the qualified workforce (Executive Vice-President, Research and Development Division in the Civil Society Institute).

Some ministries put easy targets and KPIs as they are going to be assessed against them (Director of Planning, Ministry 4).

Thus, KPIs were set higher or sometimes lower than the capabilities in the public sector. The KPI validation process was missing as the owner ministry set KPIs according to their sectoral strategy. Thus, some KPIs were set too easy:

Validation process is missing to validate strategic targets (Director of Planning, Ministry 6).

KPIs for assessing the competitive flow of collective expertise in the QNDS 1 interaction were neglected in the QNDS 1 and QNDS 2 coordination. This means that the required flow of expertise and QNDS 1 interaction for the transition of Qatar's economy to a KBE was not recognised by the coordinators of QNDS 1 and QNDS 2. Thus, new learning was not established concerning the requisite networking relation structure, forces, and common language and context for the transition to a KBE in developing the workforce for QNDS 2. This shows that the government is not planning a role for Qatar's transition to a KBE in QNDS 1 or QNDS 2. This is because the transition to a KBE requires the institutions' capability to learn and exploit learning in interactions (Lundvall and Johnson, 1994), and this was not a role played by the government in QNDS 1 and QNDS 2.

Thus, the networking change (i.e. relational structure, interactive forces, and common language and context) for QNDS 2 was irrelevant to developing the intra-organisational social capital for learning under the transition to a Qatari KBE as the relational structure was changed only in the government institutional spheres among ministries. This does not reflect the relevant change to learning for Qatar's transition to a KBE. The interactive forces and common text and

communication in networking remained unchanged from QNDS 1 to QNDS 2, as indicated by participants:

Workforce strategic planning is not an adopted function in public sector institutions. HR management in government ministries consists of very basic functions like training, recruitment, and promotion. This is because the manager of an HR department is mostly unspecialised in a field related to HR and workforce development (Director of Planning, Ministry 4).

The institutional interactions are not organised due to weak capabilities of executive management in strategic planning (Director of Planning, Ministry 1).

Team selection criteria in the QNDS 1 development stage was based on authority, not specialisation; thus, you can see that most members hold high executive positions but do not necessarily have the required experience of strategic planning or the subject matter (Director of Planning, Ministry 4).

Participants in this study also indicated a skills mismatch in the stakeholders' participation in teams under the QNDS 1 sectoral strategies:

We invited stakeholder ministries to participate in our strategy, and they were uncooperative. Some ministries directly apologised due to workload and insufficient workforce capacity, and some ministries sent inadequate representatives in terms of knowledge and expertise required to participate in our strategy projects. (Director of Planning, Ministry 4).

Furthermore, the disengagement of owner ministries of sectoral strategies at a workshop on linking mechanisms and the lack of an approach to represent how operational KPIs reflected progress concerning national objectives were gaps highlighted by participants in this study:

Participants in the QNDS 1 haven't been invited to develop linking mechanisms in their strategy to the vision (Director of planning, University1).

Thus, it was found that resource allocation, associability, and trust were not developed for the transition to a KBE in approaches adopted for the QNDS 1 coordination.

Moreover, although government funding was structured to deal with developmental projects in the QNDS 2, motivating partnership and mutual support was neglected as a scope of change in the new government funding structure for the transition to a KBE.

Thus, it was found that learning from the QNDS 1 coordination experience was mostly exploitative and came from empirical knowledge that already developed learning from practised routines in the public sector. For example, the same participants and coordination approaches used in the QNDS 1 reflect the same interactive forces and common language texts for the QNDS 2. The only explorative learning deployed in the QNDS 2 interaction was the relational structure, because the new department was developed as a counterpart to support QNDS 2 coordination.

Considering the KPIs based on knowledge management and utilisation for learning (Powell and Snellman, 2004) can provide insights on how interaction contributes to the new collective learning and learning exploitation in networking for inclusive development. This is to reflect the KBE concept of institutional capabilities to learn and exploit learning for the transition to a KBE (Lundvall and Johnson, 1994). This was raised as a concern by participants as follows:

Although the networking structure changed for the QNDS 2, it mainly represents interaction within the government ministerial body. Thus, it [is] not really a change in the interaction structure to engage other institutional spheres in the QNDS 2 interaction. Institutional spheres' roles [remain] unchanged from QNDS 1. Institutional spheres [play] a passive role under instruction from the QNDS 2 coordinator ministry, so it's not an interaction (Director of Planning, Ministry 4).

I was wondering that my knowledge and CV have not been documented in any database for future needs. The documentation of capabilities at national level is not happening and this is in contradictory with the national target of developing national workforce capabilities and increase their contribution in Qatar labour market (Former Principal Administrative Officer, Secretariat 1).

KPIs on institutional administrative capacity were neglected in the QNDS 1 for assessing communicative competencies across the institutional spheres for networking (Leydesdorff, 2006). Findings show that knowledge codification and dissemination were not practised in interactions across institutions for maintaining learning and skills mismatches. This shows poor communicative competencies (Leydesdorff, 2006) in the public sector to organise the QNDS for (and based on) intra-organisational learning across the four institutional spheres, as indicated by participants below:

There is no information confidentiality classification in most institutions, this classification would assist participants in interactions to identify what information to share in the interaction (Vice-President, University 1).

Poor communication systems in the public sector, [which] uses printed paper forms for formal correspondence and the bureaucratic organisational structure does not help institutional interaction nor worker development (Former Minister, Ministry 7).

There wasn't any job description or documentation in government
(Director of Planning, Ministry 1).

Thus, assessing knowledge codification and utilisation (Powell and Snellman, 2004) in the QNDS across institutional spheres can show development in an administrative capacity of knowledge management practices and provide data to assess the competitive flow of collective expertise (Powell and Snellman, 2004; Venkatraman et al., 2002) across the four institutional spheres under the transition to a KBE.

6.6 Organisational Practice 6: Funding Structure

Findings show that the government funding structure was not organised to foster collaboration across the institutional spheres. This is because the structure does not recognise collaboration as a target. For instance, funding institutions (e.g. NGOs, universities, etc.) tended to be for institutional development in the country; however, it turns out that it affected practising partnership and mutual support. For example, the role of entrepreneurial university suggested by Etzkowitz (2013) requires independence in performing university functions for the transition to a KBE, which includes generating funds. The concept requires full independence in university functions and does not consider it as a part of another institution. However, the findings show that the government funding structure did not reflect such a concept:

We currently have some issues with the Ministry of Finance because they consider us as a ministry while we are a university. Policy should be updated to suit institutional needs. (Vice-President, University 1).

The government funding structure considers university as a government institution and gives executive authority in the government a superior role in the education process of decision-making, which limits the university role in practising partnership and mutual support with the government in achieving the national strategic objectives. Government decisions in QNDS 1 and QNDS 2 occurred in one way and led education processes in university. For example, based on the job market demand collected from the local labour market, HR departments and the government ordered the university to close some specialisations, like geography. This interference in university decision-making on the education process hindered full independence in performing university functions and its leading role in national development as indicated by executives at university:

Education institutions should be given trust, freedom of movement and educational process leadership. Someone would say ‘why [allow] students [to study] specialisations like history or geography? They wouldn’t have [job opportunities]’. We as an educational institution should teach students fundamental specialisations that [make] them eligible to work, [whether] they graduate from specialisation[s] like history or others. But for someone to come and say ‘the national strategy doesn’t support history studies’, such interference is unacceptable (Vice-President, University 1).

Moreover, as indicated by the data, the role of university in the QNDS 1 was only a consultative role, which does not reflect partnership and mutual interest in interactions with the government. Thus, the findings in this study show that the government funding structure has an impact on

collaboration between government and university and on practising an entrepreneurial role by university.

The government funding structure also has an impact on the collaboration between the government and civil society associations and hinders the entrepreneurial role, which could be practised by professional body associations for national development. For instance, civil society associations receive funds from the government; however, the data indicates that the funds received are insufficient to pursue the associations' activities. The policy limits the role of civil society associations as a partner with other institutional spheres in mutual support for national development. Leaders in civil society associations requested the government to change and update its policy to support the independent role of the association by including generating funds from practising their career. However, these requests were ignored by the Ministry of Administrative Development, as indicated by a participant:

We wrote a request to approve self-financing methods by applying fees from practising our career. This is not a new mechanism of civil society associations' self-funding, as it is adopted in developed countries. However, it was ignored. We also requested revising the law of civil society associations, as it is useless for national development, and this request was also ignored by the ministry (Chairman, Civil Society Association 2).

These funding constraints limit the activities and interaction of civil society associations with other institutional spheres, as civil society associations became more financially dependent on interaction with other institutional spheres. While other institutional spheres are in a better financial position to require interaction with civil society associations, based on the findings, which does not create the need for collaboration with civil society associations. Thus, collaboration with professional body associations is not financially preferable for other

institutional spheres (i.e. government, education, and industry), especially since policy enforcement to support civil society interaction is absent, as indicated by a participant below:

The civil society associations' law discourages other institutional spheres from engaging us in their projects and from cooperating with us in our projects (Chairman, Civil Society Association 2).

Collaboration among R&D institutions is also affected by the funding structure adopted by government. Findings show that government funding mechanisms do not encourage collaboration across institutional spheres. For instance, R&D funding is not equal in basis across institutions e.g. education and civil society institutions. This is because each has a different funding policy despite the similarity in the functions of R&D. As a result, this difference makes some institutions need to collaborate to maintain R&D funds and to utilise expertise in other institution, while it is not the same for other R&D institutions, which receive higher funds. Thus, the policy and funding structures are not organised to create the need to collaborate in the R&D domain to encourage knowledge spill overs and utilisation for the national workforce development. In other words, R&D institutions that receive high funds would bring highly qualified expatriate researchers and would fund internal projects. Therefore, the decision-makers in these institutions find no reason to create a partnership with other R&D institutions for mutual support, especially because policy enforcement for collaboration in R&D is absent. This has an impact on the national workforce development, especially if national researchers are concentrated in higher percentages in institutions that receive lower R&D funds. This shows a contradictory funding structure with national strategic targets for the workforce development. As a result, this lacks knowledge spill over in R&D for national workforce development and encourages institutions to work in silos rather than to cooperate for national targets, as indicated by a participant:

Different institutions have different policies for financial funding mechanisms, laws and budget although their functions are the same: education and R&D. Therefore, similar education institutions do not think that they are the same. Equality is important to have one system to facilitate collaboration and progress of national strategy outcomes. If another R&D institution has received more than double higher R&D budget than us, why they would need to collaborate with us. Their researchers think that they are better than us, but this is not true, it is about financial funds that can bring the best expats researchers. We have more national workers we should have similar high R&D funds (Vice-President, University 1)

The participants addressed the importance of using conscious funding mechanisms and structures that encourage and recognise collaboration among institutions by promoting values of institutional equality in government funds, especially for creating the need for collaboration in relevant domains for the transition to a KBE.

Thus, data called for a periodic review of the funding policies to reflect institutional roles in a KBE and a scheme of priorities in a shared strategy for the transition to a KBE and the shared vision of collaboration to achieve it. This is to encourage collaboration and practising partnership and mutual support as needs. It suggests greater dependency on interactive financing from cross-institutional spheres of interaction. This was indicated by data below:

The absence of a clear decision tracking and validation system to enforce and support R&D funding doesn't maintain compliance across institutions to national strategic objectives for the transition to a KBE. For instance, R&D budget was the first to be cut when oil prices fell in 2012, another example is that I requested R&D funds from a leading industry company

and it was rejected, but there is no process for me to follow to enforce R&D funding as a priority for national development (Executive Vice-President, Research and Development Division of the Civil Society Institute).

The above highlights how the government funding structure can support the government's role in networking centrality under a shared vision of collaboration for national targets. This is to encourage partnership and mutual support by supply of funding and information under a clear national strategic prioritisation scheme. Moreover, findings emphasised the need for developing an alerted decision-making process with the funding structure, which is based on national prioritisation across the four institutional spheres.

An alerted decision-making system with national prioritisation scheme is required to be integrated across institutions at a national level (CEO, Bank 1).

The purpose is to monitor performance under the transition to a KBE and to ensure policy alignment with strategic priorities.

6.7 Discussion of the Organisational Practices that Facilitate (or Impede) the Transition to a KBE in Qatar

This chapter presents findings from the study defining the six organisational practices that potentially can facilitate (or impede) collective effort across the institutional spheres of government, education, industry, and civil society and professional bodies to develop the Qatari workforce for a KBE. The findings revealed six organisational practices that can facilitate (or impede) the transition of Qatar's economy to a KBE.

First, intra-organisational social capital development in the national strategy interaction can promote trust and associability across institutional spheres toward Qatar's vision for the

transition to a KBE (Ruíz et al., 2010; Zanini and Musante, 2013). This is done by developing a competitive flow of collective expertise in the national strategy for the transition to a KBE (Venkatraman et al., 2002). However, findings show that intra-organisational social capital in the QNDS 1 was not developed for the transition to a KBE, as interaction was randomly set and reflects sector-level strategies in silos by the public sector of the government. Findings show that such organisational social capital in QNDS 1 prioritises a competitive spirit over teamwork values. Moreover, findings emphasised that these values were deep-seated in the work environment as an output from education environment in the classroom as communication adopted teacher-centred approach (Muysken and Nour, 2006; Wiseman and Anderson, 2012).

Second, cross-agency collaboration, which promotes institutional self-dependency and entrepreneurship for interaction and self-organisation can facilitate the transition to a KBE. This is done by considering the learning needs from interaction for developing institutional capability and capacity to learn about the national workforce development for Qatar's KBE while collectively implementing plans under the national strategy (Venkatraman et al., 2002). However, findings revealed that the communicative and administrative capacity in the Qatar public sector impedes the government from playing a networking centrality role in the QNDS 1, especially because of the skills mismatch in the national strategic planning competencies. Moreover, the bureaucratic work environment in the public sector in Qatar results in government-dependent communication, which takes the form of one-way interactions. Thus, the institutional spheres of education, industry, and civil society were not empowered to practice an institutional entrepreneurship role for the transition to a KBE in QNDS development and implementation.

Third, strategy formulation can facilitate the transition to a KBE by developing a shared vision of collaboration (Lundvall and Johnson, 1994) in national strategy implementation plans

(Aguirre-Bastos and Weber, 2018) based on institutional learning demands (World Bank, 2002, 2007a) and can facilitate transition to Qatar's KBE. This is done by developing institutional learning capabilities in relevance to the national workforce. Thus, findings emphasised defining a favourable balance between international standards and the Qatari context for a KBE transition strategy in Qatar. However, findings show that developing implementation plans in the QNDS occurred in silos under each ministry owner in sectoral-level strategies, which does not reflect a shared vision of collaboration across institutional spheres for collective learning.

Fourth, intra-organisational learning can facilitate the transition to a KBE by developing interactions based on developing learning relationships among institutional spheres (Crossan et al., 1999). Thus, learning outputs that serve to achieve the national strategic targets are in favourable balance between international standards and the local context, which is relevant to the transition of Qatar's economy to a KBE. This reflects the institutional learning capacity in the QNDS. Moreover, deploying learning outputs from relationships between institutions into relationship restructuring represents the institutional capability to deploy learning (Lundvall and Johnson, 1994). However, findings show that network restructuring in the QNDS 1 and the QNDS 2 was based on exploitative learning from empirical work in the public sector rather than across the institutional spheres. Thus, networking restructuring in the QNDS 1 and the QNDS 2 reflected a narrow scope of learning in one institutional sphere and at a sector-level implementation of strategy (i.e. in the midterm review). This means that interaction was not developed for the national workforce collective flow for competitive networking in the restructuring, which happened in 2013 and in 2016 for the QNDS. Thus, network restructuring in the Qatari national strategic cycles was found to not reflect collective learning about how to achieve the interaction required for Qatar's KBE attainment.

Fifth, the findings in this study provide insights for developing management of KPIs for the transition to a KBE. This is done to assess intra-organisational learning from the current social

capital developed across institutional spheres. Thus, assessing networking restructuring over the time of the national strategy cycle offered an indicator of intra-organisational learning over social development. This is done to reflect on institutional learning capacity and capability to deploy learning in interactions (Lundvall and Johnson, 1994). Therefore, setting learning targets out of interactions can be seen as a reference for developing KPIs from interactions in the national strategy. Findings also emphasised developing a validation process of national strategic targets at strategy and KPI levels across institutional spheres. This is done to assess policy alignment to transition the strategy at a national level and is vital for reflective KPIs to transition Qatar's economy to a KBE. However, data shows that the KPIs developed for the QNDS 1 were at an operational level rather than a strategic objective level and did not reflect SMART KPIs. Thus, the KPIs in the QNDS 1 were found to not reflect the transition in networking across institutional spheres towards a KBE.

Last, the new role of government funding structure is found in this study. The government funding structure was mostly indicated in literature to support R&D (Benner, 2000) and institutional development for a KBE. However, findings in this study acknowledge further implications within the government funding structure in motivating a self-dependent and entrepreneurial role in interaction across institutional spheres for a KBE. This is for inclusive development in the knowledge spill over and knowledge commercialisation. However, findings revealed that the funding structure in Qatar promotes government-dependency in interactions in the national strategy development across the institutional spheres of government, education, industry, and civil society and professional bodies, which leads to working in silos and thus impedes the transition to a KBE. Therefore, data highlights the importance of an alerted decision-making system for validating the transition to a KBE based on alignment in the funding structure with the national strategy (Galabova, 2012).

The premises offered in this chapter show that interaction across institutional spheres in Qatar to achieve the national strategy reflects interaction in a commodity-based economy in multiple visions of collaboration for workforce development at sectoral strategies. Thus, interaction among institutional spheres in Qatar was found to be irrelevant to the transition to a KBE in developing the national workforce. These findings are discussed further in the following chapter.

Chapter 7 Discussion

This chapter aims to discuss the findings in the light of the literature insights. This chapter consist of three sections. First, an introduction to this chapter and a reminder of the study aim are offered in section 7.1. Second, the discussion on the findings in the study is provided in section 7.2. Third, discussion of the revised model based on the study's findings is provided in section 7.3.

7.1 Introduction

This chapter provides a discussion on the findings explored in this study findings (Chapters 5 and 6), where the research questions 1 and 2 are answered accordingly. Thus, a discussion on the findings is provided in this chapter with highlights on the findings nexus in the literature offered findings. However, prior to the discussion a reminder of this study aim is presented.

This thesis provides insights of how the day-to-day arrangements across institutional spheres in a developing country can facilitate (or impede) the transition from a commodity-based economy to a KBE. The case study of Qatar's strategic foresight for the transition to a KBE was empirically studied to assess the transition of Qatar's economy to a KBE and the organisational practices which facilitate or impede the institutional spheres' collaboration for the country's transition to a KBE. The interaction for the national strategy was empirically studied across the four institutional spheres of government, industry, education, and civil society and professional bodies in Qatar to assess which organisational practices facilitate (or impede) shaping a shared collaboration vision for institutional learning while implementing a national strategy for the transition to a KBE.

The overall aim of this thesis is to assess the transition of a developing country from a commodity-based economy to a KBE and the organisational practices necessary to organise the interaction for collective learning concerning the national strategic foresight. This thesis

argues that developing a shared vision of collaboration to develop institutional capability to learn and deploy learning (Lundvall and Johnson, 1994) in the national strategic foresight can lead to a country's transition from a commodity-based economy to a KBE, and that this can be the basis for organising the transition to KBE in developing countries. Building on discursive practice counts as a meta-theoretical lens in this thesis to reveal the institutional dynamics that shape the evolutionary transition from one institutional learning system to another. Thus, more emphasis was given in this study on the everyday organisational practices in interactions situated across institutional spheres that shape interaction in common understanding, policy and routines in addition to the desire and belief to achieve the national workforce development outcomes (Schatzki, 2005; 2017). This thesis argues that organising interaction practices to achieve these common elements of interactions (i.e. understanding, policy, routines, desire, and belief) reflects a shared vision of collaboration across the institutional spheres. A shared vision of collaboration leads to inclusively developing the capability of institutional spheres to act and learn as one institutional body (Lundvall and Johnson, 1994) from the national strategic foresight implementation (Aguirre-Bastos and Weber, 2018). Thus, institutional capability to learn by doing and interacting to achieve strategic targets is analysed in this thesis to assess the transition to a KBE.

7.2 Discussion of the Findings in the Study

The findings show that interactions between the four institutional spheres do not reflect collective learning for a transition to a KBE. The findings indicate that interaction at an intra-organisational level is relevant to a commodity-based economy rather than to a KBE. The government is dominating the interaction in the Qatar national strategy while other institutional spheres were found disengaged and working in silos to develop their own workforce development strategies (Salmi, 2003; World Bank, 2002, 2007a). The workforce development strategies were formulated based on business or service demands in silos from the national

strategy (World Bank, 2002, 2007a), and learning needs at an intra-organisational level were not recognised in organising the Qatar national strategic foresight. The current state of the transition of Qatar's economy to a KBE is characterised by: (1) an emerging workforce development strategy that is developed in silos at institutional levels and devoid of a shared vision; (2) weak understanding among the various institutions on the relevance of collaboration and collective learning for the transition to a KBE; (3) the absence of a coherent networking strategy pursued by the government to encourage inter- and intra-organisational learning; and (4) frequent changes in institutional structures and priorities. Findings emphasised on developing a shared vision of collaboration across the four institutional spheres for allowing collective learning, entrepreneurship, and inclusive development in achieving the national strategic foresight for the transition to a KBE.

Although the literature emphasised the government's networking centrality role for a KBE (World Bank, 2007a), this role was absent in providing information and policy development to motivate collaboration across institutional spheres during the Qatar national strategy. The government plays a dominant role in pushing academia and industry in Qatar. University is more focused on teaching and academic research, R&D is less recognised as assisting in providing technical support, civil society is almost inactive, and industry provides the driving force for economic development. This interaction model was highlighted by literature as a statist model that does not motivate self-dependency for institutional collaboration, collective learning, nor entrepreneurship under the transition to KBE (Etzkowitz and Leydesdorff, 2000, 1997; Leydesdorff, 2012). This indicates that institutional spheres were disengaged in the Qatar national strategy and a shared vision of collaboration was neglected in achieving the national targets. This is because each institutional sphere is required to play a different role for a KBE rather than the traditional one in a commodity-based economy (Cooper, 2009; Etzkowitz, 1998). However, findings revealed that institutions mostly play a traditional role in Qatar for

achieving the strategic targets of workforce development. This insight was found to be in alignment with findings in studies conducted on national innovation systems in other developing countries, like Malaysia (Sarpong et al., 2017). Findings from these studies confirm the absence of collective entrepreneurship in organisational practices adopted in the developing country and this impeded the transition to KBE. The literature indicates that such a gap is due to the characteristics of the national strategic foresight, which is mostly descriptive and based on ex-post concepts that in turn are based on empirical outputs, while governance is mostly underdeveloped in developing countries (Aguirre-Bastos and Weber, 2018). Literature also emphasised governance and transparency for collective learning and entrepreneurship (Aguirre-Bastos and Weber, 2018; Hervás Soriano and Mulatero, 2010). Thus, empowering institutional spheres for a more self-dependant role is emphasised to demonstrate associability and trust (Etzkowitz, 2003; Ruíz et al., 2010) in achieving the national strategic foresight for the transition to a KBE. Thus, findings in this thesis show that a networking centrality role (World Bank, 2007a) was missing in organising QNDS 1 across the four institutional spheres of government, industry, education, and civil society and professional bodies.

The harmony of institutional spheres in an economy is an important element for building a knowledge base (Leadbeater, 2000, p.231, Bell, 1973). Such harmony is developed from equivalent institutional capability and flexibility in policies to foster interaction across different sets of organisational bodies (Cirillo et al., 2019). However, the findings show that differences between Qatari institutions with administrative and communicative capacities create communication boundaries across institutional spheres. This was found in the distinctive understanding, policy, and routines for resource allocation as well as management practices across institutional spheres to achieve strategic targets. For instance, industry has adopted more advanced management practices than the government for workforce forecasting, management, and development. This creates communication boundaries between upper and middle

management across institutional spheres in terms of establishing common context and language (Ruíz et al., 2010) which impedes collaboration between the government and other institutional spheres. As interaction for the national strategy was developed exclusively among government institutions of ministries, the findings indicated that this exclusive interaction for national strategy relied on similarities in policy, routines, and understanding among the government institutions. However, the findings also indicate that the exclusive interaction contributes to the unachieved targets of the national strategy, especially the national workforce development outcomes. Considering the poor administrative and communication capacity in addition to the low capability of the workforce in the public sector, exclusive interaction in the national strategy impeded learning from other institutional spheres. For example, one of the main objectives in QNDS 1 was developing the workforce in the public sector. However, due to the unavailability of the required workforce in the public sector to do the task, the objective was cancelled. This cancellation was indicated in the midterm review report of QNDS 1, which prevented resource allocation from engaging other institutional spheres in QNDS 1. This problem demonstrates the undeveloped associability and teamwork while implementing strategic plans. The findings therefore revealed that exclusive interaction within the government institutions limited the learning opportunities among institutional spheres to organise interaction in the national strategy i.e. from the best practices. This resulted in the national strategy failing to achieve its desired outcomes.

Moreover, findings show that the visions and strategies of workforce development and its requisite interactions are formed in silos at institutional levels and are unformulated based on a shared vision of collaboration for a transition to a KBE. At the meso level, the findings show distinctive frames of interaction for achieving tasks of QNDS 1, which include distinctive frames of collaboration for sectoral strategies under one objective e.g. human development. This interaction framework reflects distinctive mind sets among institutions' leaders, who

prioritise service or business competitiveness over national competitiveness i.e. networking competitiveness for collective learning at a national level. This prioritisation represents distinctive understanding, policy, and routine for workforce development strategies across the four institutional spheres, which neither reflects a shared strategy for developing a KBE in Qatar nor a shared collaboration vision for achieving it. Thus, the interaction across institutional spheres in Qatar was found to be irrelevant to the desired national outcomes and therefore irrelevant to developing an institutional collective learning system for the transition to a KBE. Findings show that a shared vision of collaboration under a shared strategy for Qatar's KBE is required to develop the relevant interaction for the transition to a KBE (Lundvall and Johnson, 1994). However, learning about this requirement has not been established over the stages of the Qatar national strategic foresight. As mentioned earlier, this is because of the exclusive interaction of the public sector, which already suffers low capabilities and capacities of management and communication (Berrebi et al., 2009). This issue impedes learning across institutional spheres during strategic foresight development and implementation.

Although the institutional modernisation of public sectors' institutional spheres was indicated in the QNDS 1 document as a requirement for implementing the strategy, partnership and mutual support were neglected in the interaction described in the document. Findings revealed that this was done for three main reasons. First, the funding structure underpinning the institutional relationships across the four institutional spheres in Qatar is not supportive to the institutional self-dependency required for practising a neutral role and partnership in decisions related to QNDS 1. Second, other than government institutions, institutions were engaged in QNDS 1 in a consultative role, which does not reflect using a neutral party for partnership and mutual support, but only for coordination to avoid conflict in implementing the developmental projects of QNDS 1. Third, the low capability and capacity of the public sector in managing

knowledge and information shows inadequacy in terms of playing a networking centrality role to support cross-institutional sphere collaboration for learning about requisite interaction for transitioning to a KBE. Thus, the findings show that strategic alignment with national development targets was missing in organising bottom-up, top-down, and cross-institutional sphere interaction in QNDS 1. For instance, the interaction was only in one way – from the government to other institutional spheres – and interaction was mostly top-down in government ministries. Therefore, interaction was found to be irrelevant to collective learning and entrepreneurship at an intra-organisational level for transitioning to a KBE. Moreover, a favourable balance between the international market demand and the national context was not considered in demand forecasting nor in setting the strategic targets in QNDS 1 (Aguirre-Bastos and Weber, 2018). Thus, the approaches adopted in organising the interaction and setting targets in the Qatar national strategic foresight were found irrelevant to the collective learning for the transition to a KBE.

Literature highlights that the government financing the R&D institutions motivates innovation in other institutional spheres like industry i.e. the private sector (Leyden et al., 1989). However, the findings in this study suggest that financial dependency on the government reduces the opportunities for cross-institutional collaboration and thus inclusive development across the institutional spheres. It also hinders the practice of the role of a neutral party in interactions with the government, which requires self-financing and self-dependency across the institutional spheres (Etzkowitz and Leydesdorff, 1997). Thus, the findings emphasised the importance of using conscious funding mechanisms and structures that encourage and recognise collaboration among institutions by promoting values of institutional equality in government funding. The importance creating a need for collaboration in the R&D domain was highlighted by this thesis for the transition to a KBE and highlights how the government funding structure using government networking centrality can support developing a shared

vision of collaboration for the targets of the national strategic foresight. This is done to motivate relevant interaction in a KBE across the institutional spheres i.e. relevant to learning and entrepreneurship in achieving targets. Thus, this thesis highlights that supporting interactions with funding and information within a clear national prioritisation scheme could enlighten decision-making in a transition to a KBE. For example, the government funding structure considers university as a government institution, which was reflected in the superiority of government decisions in the education function and the interaction of university while implementing the national strategy of workforce development. Moreover, government decisions and communication were one-way for national workforce development, which led to the decisions in the education function under the university. This hinders the practice of institutional entrepreneurship, such as an entrepreneurial university, due to unpractised self-financing and self-dependency in the institutional spheres (Svensson et al., 2012). Thus, the findings of this thesis highlight the relationship between the government funding structure and self-dependency across the institutional spheres to practising partnership, mutual support for institutional learning, and entrepreneurship, which eventually feed in developing intra-organisational and social (Ruíz et al., 2010) learning (Crossan et al., 1999; Škerlavaj et al., 2010) in achieving the national strategy for transition to a KBE.

It was found by this thesis that the government funding structure adopted in Qatar is more relevant to a commodity-based economy rather than a KBE in terms of responding to economic change. For instance, it was found that the funding structure resulting from the 2012 financial crisis in Qatar gave a lower priority to developing the knowledge base in the national workforce. The centralisation of the national workforce management process by the Ministry of Administrative Development was mainly for budget reductions in training and development. Another example is the R&D budget reduction of 2013, during the financial crisis that arose due to the fall in oil prices. This does not reflect a prioritisation strategy for developing the

knowledge base for a transition to a KBE. It shows misalignment in the funding policy to achieve a common national target for the transition to a KBE. For example, during the financial crisis in 2008, Sweden rejected any reductions in funding human development and training and R&D projects due to the priority thereof in their national development vision (Cross et al., 2002). Moreover, poor demand forecasting methods in public sector results in outdated data for the strategy of national workforce development. The forecasting methods are based on current and past demand data as it was based on the local labour market's vacancies in the coming five years from the point of view of HR management. This is considered as an overemphasis of operational needs at an institution level and neglects to consider the accelerated demand change in the international labour market, which is based on technological advancements (Leydesdorff, 2006). Collective learning about the accelerated demand change in the international market and the development of a favourable balance for Qatar was abandoned in the adopted demand forecasting methods for deciding the required flow of expertise to Qatar labour market. Therefore, the adopted priority schemes in decisions for national workforce development were misled by outdated data, including data on funding structures and policies. Outdated funding policies and structures were found unsupportive of collaboration across institutional spheres.

The identified funding distribution among R&D institutions in Qatar was not based on a prioritisation scheme for national workforce development. Motivating collaboration across institutions for R&D was neglected by the funding policy e.g. by conditional funding terms for the prioritisation of national workforce development. For instance, education and R&D institutions received different funds, and their funding policies differ. This affected interaction across institutions in the R&D domain i.e. as institutions receiving sufficient funds are not looking for collaboration with other institutions in R&D projects. Thus, the funding policy can motivate collaboration by allowing the needs to be coordinated i.e. for seeking financial

resources out of collaboration, which could shift dependency from government funds to funds from collaboration. As a result of the prioritised funding proposed in this thesis, engagement of R&D and civil society association could be maintained according to the national strategic foresight to serve collective learning and entrepreneurship for the transition to a KBE. Thus, funding structure could be used to enforce the engagement of R&D institutions, which have a high percentage of the national workforce in R&D collaborative projects. The fostering of teacher-student relationships across institutions is an approach proposed in this thesis (Crossan et al., 1999) to achieve the desired national outcome of workforce development. This could be done to achieve institutional learning across institutional spheres at institutional and functional levels (Leydesdorff, 2006). It requires a level of similarity in policy and routines across the institutions (Crossan et al., 1999) and a centralised performance management system.

The absence of a fully coordinated system in performance management to ensure alignment between strategy and policy (Galabova, 2012; Parker, 2004) in QNDS impacted understanding, policy, and routine development and collaboration across institutional spheres. This absence impeded the development of a shared collaboration vision for institutional learning for QNDS (Schatzki, 2005). It also impacted the belief in and desire for interaction across institutional spheres, which was set at achieving competitiveness at institutional business or service levels rather than for achieving collective learning for collectively achieving national targets. As a result, the experience of QNDS1 did not contribute to inclusive development across institutional spheres or establish a learning system across institutional spheres for the transition to a KBE. The case of Sweden provides a leading example of innovation policies linked to a coordinated system that has access to the performance history of the technology sectors (Parker, 2004). This integration of efforts was emphasised by the fully coordinated system in Sweden in performance management, which allowed the government to play a centralised networking role and facilitate collaboration across the institutional spheres. Another example

is the flow of expertise in Finland, as the leading industry companies lead training and human capital development in the country in order to ensure the development of skills according to international standards (Parker, 2004; Schienstock, 2007). However, learning from success stories for a transition to a KBE was not considered in the development and implementation of QNDS 1, which hindered the adoption of the discursive practice approach for transitioning to a KBE (Phillips et al., 2004; Zilber, 2007).

A shared vision of collaboration to achieve strategic targets has been acknowledged by scholars in developing intra-organisational social capital to communicate, act, and learn in a self-organised institutional learning system (Lundvall and Johnson, 1994; Leydesdorff, 2006). However, this was neglected in the organisation of QNDS 1. For example, changes in interactions over the national strategy cycle did not recognise the development of a shared vision of collaboration for collective learning. Moreover, institutional learning needs about the strategic targets in QNDS 1 were absent, as orientation to QNDS 1 outcomes was not a focus across institutional spheres. Moreover, the relationship structure was not developed for developing learning relationships between institutions in teacher-student relations or R&D engagement (Crossan et al., 1999). Therefore, developing a common understanding of how to achieve national strategy outcomes, e.g. by collaboration for workforce development, was abandoned. In QNDS 1, the relationship structure was instead developed based on authority in the government hierarchy, which acknowledges bureaucracy in the public sector environment in Qatar. This shows the gap in resource allocation and associability development to achieve the national targets (Ruiz et al., 2010). For example, the selection of team members in the national strategy was based on authority more than the knowledge required to do the task. This ignored the required expertise collective flow for interaction competitiveness in achieving strategy outcomes (Venkatraman et al., 2002). Furthermore, common context and language was not developed for collaboration in QNDS 1 to achieve learning outcomes that can feed in

and out of the national strategy exercise. Thus, learning was not situated among stakeholders concerning how to achieve the national workforce development outcome in inclusive development (Aguirre-Bastos and Weber, 2018) across the four institutional spheres in a transition to a KBE (Ruíz et al., 2010). Thus, the identified strategies and visions of interactions to achieve workforce development were formulated for achieving operational competitiveness at the level of institutional needs rather than learning needs at an intra-organisational level (Škerlavaj et al., 2010; Venkatraman et al., 2002). Therefore, the identified interaction does not develop the understanding required for a KBE strategy and relevant collaboration vision concerning the exclusiveness of the national strategy interaction to the government's institutional sphere. This lack demonstrates a distinctive mind set for each institutional sphere in strategy development that was unchanged throughout the national strategy foresight to recognise the necessity of developing a commonality within a shared vision for the transition to a KBE.

Thus, the findings showed that the organisational practices adopted in organising QNDS 1 were irrelevant to the development of a shared vision of interaction for improving the national workforce in readiness for a transition to a KBE. For example, findings show that the change in an organisational structure over the four stages of the national strategy was irrelevant to the development of a common understanding across the institutional spheres about the required collaboration for the transition to a KBE and so was the policy and routine structure in the QNDS 1, as outlined in the state of organised interaction across the institutional spheres in the four stages of QNDS 1 outlined in Chapter 5 and Figure 5.4. This means that developing institutional learning and entrepreneurship (Lundvall and Johnson, 1994) for the transition of Qatar's economy to a KBE was not recognised nor organised in QNDS 1 throughout the four stages. This means that the institutions in Qatar during QNDS 1 were not taught about collective learning. As highlighted earlier, this is because the situated interaction for achieving

the national strategy is exclusive to government institutions, which promotes work in silos in developing strategies for workforce development. Table 7-1 outlines the unrecognised collaboration needs for the transition to a KBE in the QNDS 1 situated interaction for workforce development.

Table 7-1. Recognition of collaboration across institutional spheres in QNDS 1 interaction organised over stages (developed by the researcher).

Organised interaction	Pre 2010 Qatarisation Strategy	QNDS development (2010 - 2013)	1 QNDS stage implementation stage (2013-2016)	1 Post QNDS 1 (post 2016)
Understanding	Unrecognised	Unrecognised	Unrecognised	Unrecognised
Policy	Unrecognised	Unrecognised	Unrecognised	Unrecognised
Routine	Unrecognised	Unrecognised	Unrecognised	Unrecognised

Collaboration was unrecognised for collective learning across the four institutional spheres in QNDS 1 i.e. for developing learning capabilities according to strategic targets. This was not recognised in common understanding, policy, or in routines of situated interaction over the four stages of workforce development. Moreover, findings show that interactions for workforce development across the institutional spheres serve an institutional business or service strategy rather than collective learning needs about workforce development as a national strategy. The interaction for workforce development was based on institutional needs (capabilities for the business of service competitiveness) rather than being organised under a shared vision of collaboration for collective learning about national strategic targets for the transition of Qatar's economy to a KBE.

The interaction organised in the QNDS 1 implementation plans focused on institutional operational needs in achieving national strategic targets. This means that the organised interaction was not based on learning needs at an intra-organisational level for achieving national targets. Thus, there were multiple interaction frames across sectoral strategies in achieving workforce development. For instance, interactions for workforce development under sectoral strategies were formulated in silos from the national workforce strategy. Moreover, interactions for strategies according to the human development objective were found in

multiple strategies of interaction e.g. different stakeholders. Furthermore, workforce strategies across institutional spheres were formulated in silos from the national strategy and serve business and service competitiveness at an institution level. This shows that the understanding, policy, routine, belief in, and desire for interaction were established based on institutional operational needs rather than collective learning needs to achieve national targets at an intra-organisational level.

The organised interaction for developing intra-organisational social capital in QNDS 1 i.e. relationship structure, interactive forces, common context, and language (Ruíz et al., 2010) was based on operational needs. This was noticed in the team member's selections to achieve implementation plans in sectoral strategies. Moreover, cross-agency collaboration for workforce development was also based on institutions' operational needs and was developed in silos from QNDS 1. Organisational learning is limited to the institution level from the perspective of operational experiments i.e. exploitative learning. Thus, findings highlighted duplication of work and repetitive mistakes in the work environment across institutional spheres in Qatar. Moreover, KPIs were developed to assess operational outputs rather than intra-organisational learning outputs. Furthermore, the funding structure was mainly for operational and administrative elements and was developed for project development in QNDS 1. However, the development of funding structure over QNDS cycles was not developed to motivate collaboration for collective learning at an intra-organisational level. Therefore, the interaction identified in QNDS 1 was organised to serve the operational level in the institutional context in terms of achieving QNDS 1 outcomes. Thus, interaction was found to be irrelevant to the achievement of national workforce outcomes based on collective learning needs. Thus, required interactions based on collective learning needs in achieving the goals of QNDS 1 were not established in understanding, policy, and routines across institutional spheres, especially for workforce development (Al-Horr, 2011; Al-Horr and Salih, 2011).

In the light of this finding, Figure 7-1 was developed by the researcher of this thesis to outline interaction's relevance levels to a transition to KBE. The matrix assesses the commonalities of understanding, policy, and routines of interaction across the four institutional spheres to achieve the national targets in Qatar. This is done to enable an assessment of the existence of a shared vision of collaboration for collective learning in achieving the goals of QNDS 1. The focus on organised interaction is outlined in the matrix in the dimensions of understanding, policy, and routines (Schatzki, 2005). The matrix outlines that if interaction is organised based on an institution's operational needs, then this demonstrates interaction that is irrelevant to KBE, while if interaction is organised based on collective learning for national needs, then this demonstrates relevant interaction to KBE. Assessment of the interaction for workforce development in Qatar by means of the proposed matrix in Figure 7-1 shows that interaction across institutional spheres for workforce development is based on institutional operational needs and thus demonstrates irrelevant interaction for the transition to a KBE in Qatar. This is because institutions and institutional spheres work in silos for strategic targets, which does not demonstrate collective learning. For example, the interaction between education and industry for developing a scientific laboratory was based on university demand and strategy. The national strategy and vision were neglected in such collaborative outcomes. Another example is the collaboration between industry and education to develop a tailored training programme for Qatar Rail Company – the Qatar Rail Academy. This collaboration was also driven by demand from Qatar Rail Company and the workforce development strategy of the company. The examples neglect that the shared vision of collaboration for collective learning for national targets. Thus, interaction does not count as collective learning across the four institutional spheres concerning international labour market demand, and it does not count for the Qatari context for the transition to a KBE. The interactions for workforce development in Qatar were

found to be irrelevant to the development of the institutional learning capability concerning Qatar's workforce development in a transition to a KBE, as outlined in Figure 7-1.

Figure 7-1. Relevance of interaction to collective learning across the institutional spheres for a transition to KBE (developed by the researcher based on Schatzki [2005, pp. 471-472]).

Interaction understanding relevancy	Z	N/I/N Moderately relevant	N/N/N Highly relevant	Z
	I	I/I/I (Status of interaction among Qatari institutions) Irrelevant	I/N/I Moderately relevant	I
		I	N	
Interaction policy				
relevancy				
Interaction routines relevancy				

I: Institutional– operation-based outcomes.

N: National –collective learning-based outcomes.

Administrative capability and communication capacity in the public sector are poor; thus, the networking centrality role of government does not reflect a source of support for collaboration across the institutional spheres by knowledge and information management. Thus, the other institutional spheres of education, industry, and civil society and professional bodies were working in silos in developing strategies. Thus, a shared vision of collaboration was not developed for national workforce development. This led to individualistic interactions in the workforce development, which is limited to the institution's business or service competitiveness and in the short term rather than the national competitiveness in the long term of the national strategy implementation. This does not reflect the establishment of intra-organisational learning nor intra-organisational social capital. Consequently, interactions across institutional spheres do not reflect a collective learning system. A strong reliance on external knowledge (Weber, 2013) reduced the engagement of other institutional spheres in the

decision-making process within the national strategy implementation. Thus, the findings show misalignment and duplication in efforts across institutional spheres' strategies with the national strategy. For example, the national strategy of R&D in the civil society institutional sphere is unintegrated in effort and vision, with the national strategy being led by the government. Moreover, prioritisation became a short-term strategy for institutional operations and service competitiveness over the national strategy. This is due to the notion of urgency. Therefore, findings revealed that the adopted strategic patterns in organising Qatar's national strategic foresight are more relevant to developing a competitive strategy in post-industrialist patterns (Venkatraman et al., 2002). This is because implementation plans were based on sectors rather than the intra-organisational level, and the strategies' focus was mainly business and service competitiveness rather than learning relationships (Venkatraman et al., 2002), in reference to Figure 2-8.

Political contingencies play a role in less liberal economies, like Qatar, in impeding institutional interactions for learning (Al-Horr, 2011), which includes continuous re-shuffling and replacement of key personnel in decision-making in QNDS 1 (Al-Horr, 2011). Moreover, skills mismatch and human resource misallocation have impeded interaction competitiveness (Powell and Snellman, 2004; Venkatraman et al., 2002; Weber, 2013). These elements show distinctive patterns of organisational practices in developing countries that could facilitate (or impede) collaboration for KBE competitiveness. This has led to the conclusion that developing countries rely on distinctive patterns in decision-making among the four institutional spheres for achieving a commonality in developing collaboration for a shared vision for collective learning. Political contingency and frequent change in leading positions during the national strategy stages have had negative implications on the implementation of QNDS 1 (Al-Horr, 2011) and thus, on collective learning. Unstable ministerial structures and frequent changes in the personnel in charge of QNDS 1 at the leadership level were key challenges in strategy

implementation. Thus, knowledge accumulation over the different cycles of the QNDS was missing for the establishment of learning over the QNDS 1 cycles i.e. the absence of proper knowledge codification and documentation in the public sector. Moreover, motivating associative governance (Gunasekara, 2006) was missing in the QNDS 1 exercise. Gunasekara (2006) defined associative governance as a networked approach that is based on collaboration, mutual trust, decentralisation of decision-making, and devolution of power. However, low levels of governance in Qatar's public sector negatively impacted the implementation of the national strategy (Aguirre-Bastos and Weber, 2018). Moreover, findings show that a validation process to assess the strategic alignment across the institutional spheres with the national desired outcomes was not set up e.g. to assess strategies across institutional spheres and their alignment with QNDS 1. Therefore, interaction among institutional spheres for workforce development was found to be irrelevant to the transition to a KBE. As a result, institutions work in silos and sometimes with contradictory notions concerning the national strategy of workforce development in QNDS 1. For instance, high salary allowances in jobs for high-school graduates discourages students from completing their studies in university and getting their degrees, which ends up promoting outcomes that are contradictory to the national strategy in terms of increasing the contribution of the national workforce to Qatar's labour market.

The above emphasises the role of institutional entrepreneurs in national strategy interaction in developing countries (Phillips et al., 2004) for the transition to a KBE. Institutional entrepreneurship is a discursive action that demands the entrepreneur's direct involvement in the processes of social construction that underpin institutions (Phillips, et al., 2004). Thus, engagement of institutional entrepreneurs involves enforcing the development of a favourable balance between international demands and the local context in the national strategy and social construction over changes in organisational structure. Thus, this thesis emphasises the role that

could be played by the institutional entrepreneurs engaged in R&D and national strategic foresight to institutionalise learning over national strategic foresight cycles.

The broad ranges of organisational practices identified in this thesis that facilitate (or impede) the transition of Qatar's economy to a KBE were enshrined in the Qatar national strategy. The practices include: (1) intra-organisational social capital development; (2) cross-agency collaboration; (3) strategy formulation; (4) intra-organisational learning; (5) management of KPIs; and (6) government funding structure. The organisational practices found that have potential to facilitate (or impede) the transition of Qatar's economy to a KBE emphasise the alignment of policy and strategy in a collaboration vision. However, exploring the relationships between the identified themes of organisational practices in this thesis can enlighten decision-making for developing a shared vision and strategy of collaboration in the institutional learning system across the four institutional spheres over the national strategy cycles. This is for inclusive development in a transition to a KBE e.g. in national workforce development. The explored relationships among the identified organisational practices in this thesis that could facilitate (or impede) transition to the KBE in a developing country like Qatar are elaborated on in the following context.

Elements of work ethics, teamwork values, a strong reliance on foreign consultants and disengagement of institutional spheres in developing national strategies are emphasised by the findings in this thesis. This connection reflects the undeveloped intra-organisational social capital across the four institutional spheres to support the collaborative effort for the transition to a KBE (Ruíz et al., 2010). The undefined relational structure, interactive forces, common context, and language among institutional spheres in a structure represent the undeveloped social relations in an organisational body of the national strategic foresight, QNDS 1, for the transition to a Qatari KBE (Ruíz et al., 2010). Moreover, the findings indicate that the distinctive patterns between the local labour market and the international labour market are not

studied to govern a favourable balance of change in the local labour market. Thus, a shared vision and strategy across the institutional spheres was emphasised by the study findings for this purpose. The purpose is to develop the social capital and the learning capabilities among institutions for institutional entrepreneurship in achieving the national strategy outcomes in a favourable balance of international demand and local context. The capability of adopting change in the international market demands and localises it to local market demand (Lane et al., 2006) was absent from Qatar's institutional interactions. Findings concerning adopted learning in the QNDS 1 midterm review show that the capacity in the public sector (Lane et al., 2006) to learn and deploy learning in interactions was not developed (Lundvall and Johnson, 1994). Moreover, the findings emphasised that the absence of associability and teamwork values were deep-seated in the work environment as outcomes of the educational environment in the classroom, since the adopted communication approach is teacher-centred. Despite the current increase in investments in education, there is an alert that the accelerated growth of the school-going population in Qatar is affecting educational outcomes in terms of quality of education, teacher-student ratios, and class-student ratios (Qatari Government, 2015). Moreover, the capacity of private schools is also being stretched as student numbers increase (Qatari Government, 2015). The literature has highlighted that education deficiencies in developing countries affect the institutional development in the long term (Muysken and Nour, 2006; Wiseman and Anderson, 2012). This finding highlights a link between teacher-student relations in the classroom and teacher-student relations among institutions (Lane and Lubatkin, 1998b) for a learning economy. Thus, an alerted decision-making process is necessary for considering the implications of education quality and teacher-student relations in intra-institutional development. This finding also emphasised the alignment with a KBE strategy in a shared policy and mindset of required collaboration, which includes all forms of activities in the country.

Learning from advanced practices in other institutional spheres was neglected in QNDS 1 in organising the national strategic foresight. Although the industry's institutional sphere has leading examples of the strategic foresight's stewardship and management, teacher-student relations (Lane, 2006; Lane and Lubatkin, 1998b) across institutional spheres were neglected in organising QNDS 1. For instance, advanced management practices in workforce development and empowerment are acknowledged in the industry sector in Qatar. However, learning from industry to the public sector is not situated in the interaction for the QNDS 1. For instance, the national workforce development strategy could benefit from the practice of long-term workforce development plans by rotation across divisions within one company. The rotation is among jobs groups, or jobs families as they are known in the energy sector. This practice was inspired by international leading companies and is mainly about identifying job groups based on shared characteristics and descriptions e.g. financial analysis, auditing, engineering, and management. Workers can rotate in different jobs across company branches if the job belongs to the same group. This is done to develop organisational social capital and learning capabilities across company branches. This practice could be developed further to include rotation of the national workforce across institutional spheres under a succession plan. This could develop the national workforce and simultaneously develop intra-organisational social capital and learning capabilities. It also could motivate explorative learning for networking restructuring in terms of achieving the national strategy goals and contribute to the transition to a KBE.

Learning networking reflects the institutional capability to learn and exploit learning in new networking structures to achieve the national strategy goals for collective learning (Lundvall and Johnson, 1994). Networking for collaborative purposes leads to opportunities for developing capabilities for collective learning (James et al., 2011). The 'participation' concept was mainly built on Lave and Wenger's concept of participation, communities of practice, and

situated learning. It suggests that there are two situations of learning. The first starts with the familiarity of the existing work patterns, knowledge, and skills, which increases the capability of participation in a knowledge community of practice for knowledge and skills growth. The second is by means of participation with other participants for generating new ideas from a practice model or building on it to renew and redesign work practices and develop new forms of knowledge and skills required for work (James et al., 2011). Findings highlighted that both situations of learning were missing in the four stages of the QNDS 1. This conclusion indicates that changes in the national strategic foresight in Qatar were based on exploitative learning from past practices and do not represent learning networking changes based on explorative learning required for the relationship structure change across institutional spheres in a transition to a KBE (Crossan et al., 1999; Lane, Peter J, 2006; Lane and Lubatkin, 1998b). It also limits the institutional capability to learn and implement learning in the organised interaction as a desired outcome for the transition to a KBE. Thus, the change in networking in the QNDS 2 was based on the exploitative learning due to the challenges experienced in developing sectoral strategies in QNDS 1. It emphasised that strategic approaches in Qatar are more relevant to a commodity-based economy rather than a KBE. This is because a KBE is in an active mode of self-organised learning from intelligent adjusting and balancing processes (Lundvall and Johnson, 1994), which were missing in QNDS. This shows that the transition to a KBE is not happening in Qatar.

Organisational practices of knowledge production and control have added a co-ordinational dimension to the social system in a KBE (Leydesdorff, 2006, p. 16). The government networking centrality to motivate collaboration is considered prominent (World Bank, 2007a) by funding policies and structures, as well as information and communication support. The government's role is crucial in building cooperation, facilitation, and policy alignment for collaboration and coordination among the different actors in the economy (World Bank,

2007a). The government's role in the transition to a KBE is mainly to provide support for information and coordination with other institutional spheres to lead the national development strategy (World Bank, 2002). However, in Qatar, the government has dominated the formulation of the national strategy, controls QNDS 1, and has subjugated other institutions to mere implementers of government policy, which reflects the government's role in a commodity-based economy rather than a KBE (World Bank, 2002). This is because interaction for strategic targets, including the national workforce development, was a one-way interaction of control. Such an interaction does not motivate collaboration across institutional spheres of education, industry, and civil society and professional bodies to develop a shared vision of collaboration for the national workforce development under the transition strategy to a KBE. Thus, strategies were formulated in silos to develop the national workforce at the institution level. Thus, the situated interaction across institutional spheres does not show cooperation in interactions across institutions (e.g. civil society and professional bodies, schools, university, industry, and government). For example, the interference of government in the education process in university was frequently raised as an issue by the study participants. Therefore, institutions in Qatar are unwilling to be learners and are unable to manage different types of knowledge, which is at the heart of a KBE (Lundvall and Johnson, 1994, p. 27). A high percentage of expatriates in the Qatari labour market is necessary for the economic development and growth in the emerging economy, though it requires effective utilisation of knowledge for developing the national workforce as well. The findings highlighted the importance of governing the contractual term for utilising expatriate knowledge; however, this practice was neglected due to the skills mismatch complexity in Qatar, as management tends to rely more on expatriates for work rather than the national workforce. Therefore, learning governance is demanded at cross-institutional sphere levels to ensure alignment with QNDS 1. Low governance levels in developing countries prevent the successful implementation of a

national strategy (Aguirre-Bastos and Weber, 2018). This requires revisiting the required development of governance across the institutional spheres to develop intra-organisational learning and social capitals.

The findings emphasised the poor administrative and communicative capacities in the public sector as a major reason for failure to organise QNDS 1. It includes knowledge-sharing and codification e.g. developing a national knowledge capital database. Skills mismatch was also highlighted in upper and middle management in the public sector concerning organisation of the national strategy for meeting national strategic outcomes. Thus, managing the national strategy of workforce development was impacted by the management practices in the public sector of Qatar. The disengagement of other institutional spheres also limited access to other institutions' expertise and practices. As a leading example, for instance, findings show that advanced practices in industry were not utilised in QNDS for workforce development and forecasting. This neglects the interaction adopted in the QNDS, which recognises the required networking for learning systems across institutional spheres concerning the national workforce outcomes in teacher-student relations across the institutional spheres (Crossan et al., 1999). The skills mismatch (Powell and Snellman, 2004) was highlighted again in management as a reason for narrowing the interaction of the QNDS to public sector institutions. Findings show that the skill mismatch, consequently, can lead to negative middle management behaviour in decision-making and knowledge-sharing. For example, middle management behaviour of untimely decision-making and avoiding knowledge-seeking from peers can indicate undeveloped teamwork values and a low tolerance for learning from mistakes in a work environment. It indicates an undeveloped organisational social capital, which can lead to communication boundaries that impede collaboration for learning across institutional spheres. It can also be driven from the fear of seeking knowledge and information from other peers and

thereby the avoidance of showing ignorance. Therefore, a clear strategy and vision formulation (i.e. with a clear set of priorities) can develop associability and trust in making timely decisions.

A clear set of priorities is required to provide decision-making alternatives under a shared strategy for a transition to a KBE. The more informative the preferences with historical interactions, the more these preferences can be included in decisions and become organised knowledge (Etzkowitz and Leydesdorff, 1997; Leydesdorff, 2000). Moreover, the communicative competencies of agents and organisations are expected to change in the evolution of social coordination mechanisms as they reflect learning capacities (Etzkowitz and Leydesdorff, 1997; Leydesdorff, 2000). There is a need to enforce the work values of teamwork, mistake tolerance, and lessons learnt in motivating intra-organisational learning in a KBE (Eliasson, 2005; Zanini and Musante, 2013). Although the national workforce development represents a national priority due to its high reliance on expatriates in Qatar, the organisational approach of the QNDS 1 for the national workforce development does not demonstrate institutional capability to explore changes in international market demands; localise it in the local labour market demand; and create new knowledge from it that can extend the national knowledge capital and can be commercialised knowledge (Lane, 2006; Lane and Lubatkin, 1998b). This does not demonstrate the absorptive capacity of institutions engaged in QNDS. Findings show that similarities in policy and regulations were indicated as reasons for limiting the interactions to government institutions. Findings also indicate differences in institutional maturity levels, which created boundaries in using common language and management routines and practices. These boundaries indicate the importance of identifying commonalities and distinctions required in policy and routines across institutional spheres for the required social capital development for a collective learning system e.g. to practice teacher-student relations among institutional spheres. This practice also emphasises the connectivity between the common context and the language in efforts organised under the national strategy

for developing an institutional learning system for a KBE. Thus, the findings highlight that intra-organisational social capital feeds in and is fed by intra-organisational learning capabilities. However, a KBE strategy formulation, a cross-agency collaboration vision, and development of relevant SMART KPIs are the first identifiable steps in a favourable balance between international demands and the Qatari context.

Moreover, findings show that the KPIs were not developed to assess the institutional learning system under the transition to a KBE in the QNDS 1 and the QNDS 2. This is due to the low administrative and communication capacity in the public sector (Leydesdorff, 2006). It highlights the public sector's inadequacy to develop a learning system across the institutional spheres to motivate interactions to explore how to achieve the strategic targets in a favourable balance between the international demands and Qatar's context. Such a learning system should consider the networking relational structure, the forces, and the common context based on learning needs across institutional spheres to achieve the strategic target of national workforce development. Thus, the findings revealed that the networking reorganisation in the QNDS 1 and the QNDS 2 was not based on exploring needs for learning across the four institutional spheres (Crossan et al., 1999) and it was not based on Qatar's knowledge capital and workforce development in a preferable balance i.e. between international market demand and local context. This might be a result of the undeveloped strategy for the transition to a Qatari KBE and the undeveloped shared vision of collaboration towards it. Thus, management of KPIs of validation are required to ensure alignment of top-bottom, bottom-up, and cross-institutional sphere relationships with the national strategic foresight. This alignment would include the aligned knowledge management to ensure the competitive flow of collective expertise (Powell and Snellman, 2004; Venkatraman et al., 2002) to achieve the national targets of Qatar's vision of KBE. Thus, KPIs on the institutional administrative capacity for knowledge codification and dissemination is vital (Powell and Snellman, 2004). However, findings show that knowledge

codification and dissemination were not practised, which shows poor communicative competencies (Leydesdorff, 2006) in the public sector necessary for organising the QNDS.

Thus, findings emphasised common understanding, policy, routines, belief in, and desire to build a shared vision of collaboration to achieve the learning outcomes for national workforce development across the four institutional spheres. It reflects the development of social capital for institutional entrepreneurship in workforce development across institutional spheres. This social capital, which consists of relationship structure, interactive forces, and common context, is established by the shared vision of collaboration and feeds in and is fed by institutional associability and trust from a constructive discourse (i.e. of text and actions) over the cycles of the national strategic foresight. Thus, the learning system developed for institutional entrepreneurship in achieving the national strategy suggests further development in intra-organisational social capital in future cycles of the national strategic foresight to better achieve national workforce development for the international demands and the Qatari context. This learning-based development in social capital is driven more by exploratory learning (such as teacher-student relationships across institutional spheres), R&D, and lessons learnt. Moreover, networking change based on collective learning and established learning in interaction was neglected in the strategy for competitiveness in the QNDS 1. Findings highlighted a tendency of resistance to change for implementing new learning in practice. In the national strategy exercise, the decision-making process relied on already institutionalised learning, while new learning and new learning institutionalisation for networking change was neglected (Crossan et al., 1999). For instance, in the second planning cycle of the QNDS 2, engagement of cross-institutional spheres remained neglected although the ‘lessons learnt’ practice was adopted. However, the ‘lessons learnt’ practice was adopted only by the government. This individuality in decision-making in determining the lessons learnt hinders the process of collective learning. Thus, change in networking for the second planning cycle was negligible for cross-institutional

engagement. Scholars highlighted the importance of lessons learnt from mistakes in KBE (Eliasson, 2005); however, the intra-organisational level was less researched for collective learning (Škerlavaj, Dimovski and Desouza, 2010). Institutionalising new learning in a network needs ‘The Great Destruction’ (Crossan et al., 1999; Schumpeter, 1962). This requires learning networking management and change management as a part of the centralisation role played by the public sector. However, the public sector workforce capability seems to be an obstacle to the transition of Qatar’s economy to a KBE. Findings highlight two reasons for this: one is related to the decision-making process (i.e. practice bundle) and another is related to ICT inclusion in communication for decision-making (i.e. material bundle), while the two bundles are interconnected (Schezki, 2005).

Findings highlight that mistrust and dissimilarities among institutions impedes the engagement of the four institutional spheres in the national strategy and thus a shared vision of collaboration was not developed for the transition to a KBE. Mistrust among the institutional spheres of education, industry, and civil society and professional bodies to practice self-dependency and self-financing resulted in a high dependency on the government. This does not allow the system to freely interact so as to be self-organised for practising partnerships and neutral parties in decision-making for mutual support at an intra-organisational level. This impedes collaboration for collective learning and entrepreneurship while achieving national targets. Literature emphasised trust in developing a KBE, as transparency and governance are demanded in a KBE at an intra-organisational level (Zanini and Musante, 2013). The concept of trust is embedded in intra-organisational social capital, as it has an impact in strengthening interaction, while interaction builds on trust as well (Ruíz et al., 2010). Dissimilarity among institutions impedes engagement in QNDS 1, as only government institutions were invited to develop and implement it. Institutions in the public sector have similar understanding, policy, and routines in resource allocation and management practices for achieving targets. This motivates the

organisers to limit interaction for the national strategic foresight to the government's institutional sphere as it is the first strategic planning exercise experience in the country. This issue highlights that the organisational process for interaction in QNDS was based on the exploitative empirical learning of already institutionalised learning in the government rather than the explorative learning of organising the national strategic foresight from advanced practices across the four institutional spheres and international KBE models represented in Finnish, Denmark, and Swedish success stories of transitions to KBEs. This finding emphasised the importance of engaging R&D and institutional entrepreneurs in organising the national strategic foresight to institutionalise explorative learning in interactions for the transition to a KBE. The common context and language among institutional spheres are missing for a transition to a KBE. Thus, findings show that developing similarities in understanding, policy, and routines in achieving the national targets can help in establishing a shared vision of collaboration for collective institutional learning and entrepreneurship. This is aligned with scholars' emphasis on the similarities among institutions required for building learning relationships, such as teacher-student relations (Lane and Lubatkin, 1998b). This finding is also aligned with dimensions highlighted in literature for developing intra-organisational social capital (i.e. relationship structure, interactive forces, and common context and language)(Ruíz et al., 2010b). It also highlighted the role of discursive practice in establishing a shared vision of collaboration for institutional entrepreneurship in the transition to a KBE (Phillips et al., 2004).

Understanding relationships between the findings' themes can serve the development of KPIs that are relevant to institutional learning systems in line with what was offered as a definition of a KBE by Lundvall and Johnson (1994): 'KBE is defined as a dynamic concept; it involves the capacity to learn and to expand the knowledge base, its domain exceeds the science and technology systems to include the learning implications of the economic and institutional

regimes, the institutional arrangement and organisational practices’ (p. 26). Thus, as mentioned earlier in Chapter 2, this thesis defines a KBE as ‘an economy that is based on dynamic collective learning cycles in a national vision of collaboration, which is fed in (and by) the institutional capability to communicate, learn, and situate learning in organising interactions at an intra-organisational level in order to respond to future demands in national strategic foresight’. Thus, based on the offered definition, it is vital to identify the relevance of institutional interaction for the transition to a KBE through the lens of the discursive practice approach. The findings highlight the deep relations between developing the intra-organisational social capital of collaboration and institutional learning from collaboration according to the time of the national strategic foresight cycles. Therefore, the KPIs suggested by this thesis for increasing institutional responsiveness to achieve the national strategic targets (e.g. national workforce development) for a KBE are:

1. Intra-organisational social capital for learning;
2. Intra-organisational learning for expanding a knowledge base; and
3. Expanding the knowledge base for developing intra-organisational social capital.

Intra-organisational social capital for learning could be assessed by measuring how social capital was developed across the four institutional spheres according to the national strategic foresight for learning about a strategic target’s ‘know what’ and how to achieve it in Qatar’s context e.g. the national workforce development in the context of Qatar. This could be reflected in intra-organisational learning-based social capital; for instance, relationship structures (i.e. teacher-student relations), team member selection (e.g. a competitive flow of collective expertise), and common context and language (e.g. a favourable base that balances international demands with local context).

Intra-organisational learning for expanding the knowledge base could be measured by means of knowledge codification and dissemination of the learning outcomes from interactions

for learning across institutional spheres i.e. learning about the national workforce development target. Thus, developing and updating a centralised knowledge management and database for institutional learning could be assessed under this suggested KPI.

Expanding the knowledge base for developing intra-organisational social capital could be assessed by recognising the learning-based change in developing social capital to better achieve the national strategy's targets. These KPIs could be for the national strategic foresight in one cycle to assess the relevant change in social capital (i.e. relationship structures, interactive forces, and common context and language) (Ruíz et al., 2010b) for situated explorative learning about the national workforce development in Qatar. This could enlighten the process of developing KPIs for assessing institutional interactions and learning with relevance to the transition to a KBE. Moreover, it is important to assess if the target was achieved by collective learning.

Thus, in this thesis, the main KPIs suggested for assessing the transition to a KBE are the capacity to learn, the capacity to expand a knowledge base, and the capacity to deploy learning in interactions (Lundvall and Johnson, 1994). For instance, applying such KPIs to the case of the national strategy in Qatar will show that there was no capacity to learn over the two cycles of the national strategy in QNDS 1 and QNDS 2. This is because in both national strategic cycles, the four institutional spheres of government, industry, education, and civil society and professional bodies were not engaged in networking to learn about the national workforce development in the context of Qatar. This was reflected in the irrelevant social capital formulated in the national strategy for learning across institutional spheres. Thus, relationship structures across institutional spheres in the QNDS were irrelevant to the institutional spheres learning about the national workforce development from each other. Although there are advanced practices adopted in industry, these practices were neglected in the formulated national workforce strategy. Moreover, team member selection (e.g. interactive forces) were

irrelevant to learning about the national workforce development, as team selection was based on authority rather than specialisation. This means that the intra-organisational social capital developed for the QNDS was not learning-based; rather, it was authority-based and thus did not reflect the competitive flow of collective expertise to enrich learning about national workforce development in the country. Moreover, the common context of Qatar's workforce development issue and language was not established in the interactions across the four institutional spheres in the national workforce strategy, as each institution formulated its strategies based on its services or business competitiveness requirements.

These aspects of social capital for the national strategy show irrelevant intra-organisational social capital for learning, which reflects a negligible capacity for collective learning in organising Qatar's national strategy. Furthermore, the absence of knowledge management and a centralised database within the networking centrality role shows negligible intra-organisational learning for expanding the knowledge base across the four institutional spheres about national workforce development. For instance, the classification of information and job descriptions as confidential is not codified in all institutions across the four institutional spheres, including the uncoded available knowledge capital and expertise in Qatar. Thus, it is hard to decide the competitive flow of collective expertise in interactions for achieving the national strategy without a database of knowledge capital and codified learning from previous interactions e.g. teacher-student relations across institutions and lessons learnt in previous cycles of the QNDS. In addition, expanding the knowledge base for developing social capital was neglected in the organised interaction in the QNDS especially for workforce development. This is because knowledge and experiences from previous cycles of the national foresight in the QNDS 1 were not considered in developing the new network for the QNDS 2, e.g. in a shared interaction across the four institutional spheres. Therefore, developing SMART KPIs for learning networking management (Venkatraman et al., 2002) and for learning relationships

across institutional spheres e.g. teacher-student relations across institutions (Crossan et al., 1999) is important for assessing the transition to a KBE. Assessing networking for learning and deployment of learning in social capital can highlight learning performed at an intra-organisational level to a transition to a KBE. Therefore, assessing change in social capital in reference to collective learning and how it feeds in developing social capital at an intra-organisational level can help in analysing transformative learning (Crossan et al., 1999) in a transition to a KBE for a competitive workforce development. Thus, the transition to a KBE in light of the themes found in this thesis and the relations discussed between the themes found for competitive workforce development for a KBE are outlined in Figure 7-2, which shows the findings theme within the shared vision of collaboration for intra-organisational social and learning development over the national strategy cycles. The figure builds on the concepts offered from discursive practice accounts (Phillips et al., 2004) and the evolutionary dynamics for the transition to a KBE (Leydesdorff, 2006).

The findings from the study suggest that the transition of Qatar's economy to a KBE has been very slow in pace and remains far from achieving its objectives in the future. The interactions among the four institutional spheres of government, industry, education, and members of professional bodies in civil society do not reflect collective learning. Rather, the government has dominated the formulation of the national strategy, controls QNDS 1, and has subjugated the other institutions to the role of mere implementers of government policies. The current state of Qatar's transition to KBE is characterised by:

- (1) An emerging workforce development strategy that is developed in silos at institutional levels and is devoid of a shared vision of a transition to a KBE;
- (2) Weak understanding among the various institutions on the relevance of collaboration and collective learning for a transition to a KBE;

(3) The absence of a coherent networking strategy pursued by government to encourage inter- and intra-organisational learning; and

(4) Frequent changes in institutional structures and priorities.

The study also identifies the broad range of organisational practices of the various institutional spheres that cumulatively facilitate (or impede) Qatar's transition to KBE as enshrined in QNDS 1. The practices include:

(1) Intra-organisational social capital development;

(2) Cross-agency collaboration;

(3) Strategy formulation;

(4) Intra-organisational learning;

(5) Management of KPIs; and

(6) Government funding practices.

The findings in this thesis are distinguished from other studies that apply similar qualitative methods and case study approaches in the triple- or quadruple-helix model. Thus, the outcomes of this thesis provide a coherent framework of (1) the development and institutionalisation of a vision of collaboration to learn by doing (i.e. by implementing the national strategy) and (2) the deployment of learning over time (i.e. over national strategic cycles). Moreover, the outcomes of this thesis represent an analytical scheme of the institutional capability to learn (i.e. about collective learning of the subject: workforce development) and deploy learning (i.e. in developing the process of collective learning on the subject of workforce development). Thus, this thesis provides new insights from the discursive analysis of interactional models of the triple- or quadruple-helix model for institutionalising a shared vision of collaboration for learning that could lead to expanding the knowledge base and learning capability in the economy of a developing country.

Below is a summary of the findings in the literature, and the similarities and differences between the extant literature and this thesis are also justified.

Abdrazak and Saad (2007) examined the role of Malaysian universities and their social relationships with industry and government in light of the statist, *laissez-faire*, and hybrid characters of the triple-helix model. The purpose of their work is to analyse challenges arising in the evolution of the institutional system under the triple-helix model i.e. in the context of the Malaysian socioeconomic environment. They achieved this purpose by using a qualitative case study approach. Semi-structured interviews were employed to collect data. The samples for the interviews were taken from the three spheres of the triple helix: the government (i.e. government ministries and agencies), industries (i.e. managers and executives), and universities (i.e. researchers, deputy vice-chancellors, and staff of research management centres). The findings show that most Malaysian universities are positioned within either the statist or *laissez-faire* triple-helix interactional models. However, the development of a triple-helix system in Malaysia will not emerge for some time. Universities are still struggling to achieve their entrepreneurial role. The government remains in a position of domination over other institutions in an approach that is seen as imposing, dictatorial, and ambiguous. Despite the active role of Malaysian universities with industry, this role does not exceed that of an instructive and ad-hoc consultancy. However, universities are still making efforts to seek partnerships with industry and to commercialise their research, as a satisfactory level of R&D collaboration between university and industry has yet to be achieved and the Malaysian government continues to act as the dominant sphere.

The findings in the study of Abdrazak and Saad (2007) are descriptive, as they are limited to the interactional routines in the Malaysian triple-helix model of government, university, and industry with more of an emphasis on the university role. However, the findings could be seen similar to those of the present study in terms of the roles played by institutional spheres such as the dominant role of government and the limited role of university in teaching, R&D, and ad-hoc consultancy services. However, this representation is limited to the interactional

routines of the triple-helix model, while the institutionalisation of KBE as a strategy in interaction (Lam, 2000; Škerlavaj, Dimovski and Desouza, 2010) is neglected in the findings of Abdrazak and Saad (2007). However, in this present thesis, the findings take a broader view that highlights that KBE strategy is not institutionalised in the interaction for implementing national targets, i.e. workforce development (Andersen and Andersen, 2017), across the four institutional spheres of government, industry, education, and professional bodies in Qatar. The government role was also considered in the study of Abdrazak and Saad (2007) as a dominating role over other institutions. However, unlike the findings of this thesis, the study does not consider a coherent networking strategy pursued by government to encourage inter and intra-organisational learning. This suggests that the findings of this present thesis provide a coherent and integrated view of institutional interaction for transitioning to KBE in a developing country like Qatar as well as a broad range of practices that could facilitate (or impede) transitioning to a KBE in Qatar. This context is beyond what is offered in Abdrazak and Saad's (2007) study findings. This is due to the different scopes of the research and due to difficulties in obtaining data on interaction at an intra-organisational level across the four institutional spheres for assessing the collective learning process (Škerlavaj, Dimovski, and Desouza, 2010).

Abduljawad (2014) attempted to identify challenges in cultivating knowledge in Qatar's triple helix of university, industry, and government. Their focuses on the challenges in university-industry partnership in Qatar. Therefore, they conducted a case study of Qatar using interviews to capture the perspectives of 31 participants from (a) Qatar University, (b) oil and gas companies and (c) government and semi-government institutions in the state of Qatar. Based on the collected data, challenges were identified and grouped into three themes: (1) **strategic direction and planning**: This theme includes a unidirectional approach to innovation, and organisational structure posed the main challenge in cultivating knowledge created from UIG partnerships; (2) **knowledge management**: This theme demonstrated that organisations are

focused on the technical aspects of knowledge management, while the social interaction and knowledge-sharing culture does not receive the same attention from leadership; (3) **UIG performance management**: This theme covers the lack of a measurable approach to performance management. The study found that organisations are not able to measure their performance; therefore, managing and improving collaborations with other actors in the UIG partnership became a challenge. They emphasised this theme as the most critical challenge in implementing the triple-helix model in Qatar as a lack of performance management impedes the implementation of strategies in the organisation.

Abduljawad (2014) focused on the challenges in the university-industry partnership in Qatar. Thus, their study findings are bound together with the single partnership represented between Qatar University and the oil and gas sector. Due to this limitation (Abdulwahed et al., 2013), their findings are undemonstrative to Qatar at a national level. Meanwhile, this present thesis puts equal emphasis on the roles of the four institutional spheres of government, industry, education, and members of civil society in examining and exploring Qatar's transition to a KBE, especially since it examines a transition to a KBE by studying interactions in implementing the national strategy across the four institutional spheres, which is neglected by most studies in the KBE domain (Andersen and Andersen, 2017). Despite the variance in the research scopes, and the limitations of the findings in their study, there are some similarities between the findings of this thesis and those of Abduljawad (2014), but in the interactional routines of interaction across institutional spheres. For instance, interaction between university and industry is described here as a statist model, where the government plays a dominant role over other institutional spheres. However, the study of Abduljawad (2014) neglects to examine the strategy of transitioning to a KBE (Venkatraman et al., 2002) and its institutionalisation (Phillips et al., 2004; Schatzki, 2005; Zilber, 2007) in a shared vision of collaboration for implementing the national strategy (Andersen and Andersen, 2017). The themes explored by

Abduljawad (2014) are captured by the findings in this thesis, specifically the range of organisational practices that could facilitate or impede transition to KBE. For instance, the themes identified in their study (Abduljawad, 2014), strategic direction and planning as well as knowledge management, are also captured in the findings of this thesis in the context of organisational practices, referred to as strategy formation. Another example is that the theme of UIG performance management in their findings (Abduljawad, 2014) is also captured in the findings in this thesis in the organisational practice theme and management of KPIs theme. However, this thesis found further themes that explain the dynamics that facilitate or impede the process of transitioning Qatar's economy to a KBE, which are not exposed by the findings of Abduljawad (2014): intra-organisational social development and intra-organisational learning. Thus, this thesis puts equal emphasis on the role played by the four institutional spheres, while the focus of Abduljawad (2014) is a single partnership in interaction between university and industry. Moreover, the emphasis on the KBE strategy as a collective learning strategy was not recognised in the study of Abduljawad (2014). Studying the intra-organisational learning has not gained much attention by scholars due to the different research scopes and difficulties in obtaining data on interaction at an intra-organisational level across the four institutional spheres for assessing the collective learning process (Škerlavaj, Dimovski, and Desouza, 2010).

Sarpong et al. (2017) aimed to examine how the organisational practices of industry, university, and government facilitate (or impede) transition to a hybrid triple-helix model of innovation in Malaysia, a developing country. Qualitative methods of data collection were adopted to capture the triple helix-related experiences and the knowledge inherited in related interactions, which are important in generating relevant insights into the triple helix of everyday organisational practices. Semi-structured interviews were the main data collection method. Twenty-seven strategic actors were interviewed for data collection. The strategic actors had an average of 10

years of work experience in their strategic position in the institution. Emphasising the day-to-day practices situated by institutional actors, interactions, and collaborative efforts, the findings in their study identified three practice areas: (1) advanced research capabilities and external partnerships; (2) the quantification of scientific knowledge and outputs; and (3) collective entrepreneurship. These practice areas constitutively facilitate (or impede) partnerships and in turn the successful transition to a hybrid triple-helix model. They also highlighted that organising innovation by the three institutional players was influenced by the context of the differential schemata of interpretations in developing countries. Three essential organisational practices were identified to potentially facilitate (or impede) the transition to develop a hybrid triple-helix model of innovation in Malaysia: (1) the proactive development of advanced research capabilities that could lead to the production of advanced technologies; (b) the practice of quantification of scientific knowledge and outputs can facilitate developing innovations, yet this is subject to transmitting its ideals of accountability without uncertainty to others; and (c) collective entrepreneurship – a broader concept that includes the deployment of the institutional spheres’ different visions for working in a collective effort to learn and redirect science and technology research attention to productive and predefined outcomes.

The outcomes of this thesis can be distinguished from the study of Sarpong et al. (2017) in some areas. First, this thesis emphasised the role of members of professional bodies in civil society as a fourth helix in the quadruple-helix model, representing institutional entrepreneurs contributing along with other institutional spheres in the development and institutionalisation of the KBE strategy in the collaborative shared vision in the process of knowledge management for a transition from a commodity-based economy to KBE. On the other hand, the study of Sarpong et al. (2017) focused on the triple-helix model of the industry, university, and government institutional spheres and neglected to include the professional body of civil society in their study. Second, the outcomes in this thesis include themes of intra-organisational

learning and social capital development to facilitate (or impede) a transition to a KBE. This thesis also proposes a method to help practitioners develop professional networking across the four institutional spheres for developing intra-organisational social capital and learning capabilities to expand the knowledge base of an economy. A leading example from oil and gas international companies was deployed in the proposed method of professional networking policy for workforce development in Qatar based on developing intra-organisational social and learning development i.e. job rotations and job families. However, the outcomes of Sarpong et al.'s (2017) study emphasised the innovation process by emphasising the scientific outcomes and technological advancement in a transition to KBE rather than intra-organisational learning and social development. Meanwhile, the literature has highlighted the gap of considering intra-organisational learning in studying innovation as a practice for transition to KBE (Galabova, 2012; Lam, 2000; Škerlavaj, Dimovski and Desouza, 2010). Third, this thesis shows that the KBE strategy is neither developed nor institutionalised in the interaction for achieving national targets. For instance, institutional interaction in Qatar is a static interactional model and is irrelevant to a shared vision of collaboration for a transition to KBE and was found to be more relevant to a commodity-based economy. However, the outcomes in Sarpong et. al., (2017) were limited to highlighting the interactional routines across institutional spheres in Malaysia in triple-helix models and neglect to analyse the interaction understanding and policy in the dimensions of a shared vision of collaboration in practice (Schatzki, 2005), i.e. understanding, policy, and routines. This present thesis developed an analytical scheme to study the historical interaction across the four institutional spheres. This was done to determine the institutionalisation of the KBE strategy as a collective learning process in the interaction for a transition from a commodity-based economy to a KBE. The dimensions of a shared vision of collaboration in practice (Schatzki, 2005) were applied in this thesis to study the institutionalisation of KBE strategy in practising the QNDS cycles. Fourth, this thesis found

the government funding practice as a theme to help in facilitating (or impeding) a transition to a KBE by promoting the collaborative vision across the four institutional spheres. This theme was neglected in Sarpong et al.'s (2017) study. The theme is supported by literature (Benner, 2000); however, this is only in the research funding realm, and it neglects to consider that the funding of collective learning across the four institutional spheres would achieve a transition to a KBE; thus, the scope of government funding found as a practice in this thesis is broader than that of the research funding found by Sarpong et al. (2017). The need for developing national strategic foresight to reflect the concept of KBE has been emphasised by literature (Andersen and Andersen, 2014; 2017); however, the context of KBE as it is addressed in the literature is for scientific and technological outcomes. This thesis has emphasised the importance of developing the feed-in and feed-back processes between social capital and learning capabilities at the intra-organisational level for a transition to KBE. The dynamics of intra-organisational learning and social capital development for transition to KBE were conceptualised by this thesis in the discursive dynamics presented in the work of Phillips et al. (2004). Phillips et al. (2004) offered a discursive understanding of institutions by developing an in-depth understanding of the text's mediating role between discourse and action, which was used in the discussion of the finding in this thesis to provide a coherent framework of quadruple-helix interaction for a transition to KBE in Figure 0-2. This is done to show the dynamics of organising institutional entrepreneurship (Phillips et al., 2004) in practice for a transition to KBE by developing the institutional learning capability to learn and deploy learning for expanding the knowledge base of an economy (Lundvall and Johnson, 1994) in a developing country.

Therefore, this thesis provides a set of recommendations that will help policymakers in a developing country to recognise collective learning in national strategic foresight's

implementation for inclusive development towards a transition from a commodity-based economy to a KBE.

7.3 The Revised Model of Qatar's Transition to KBE

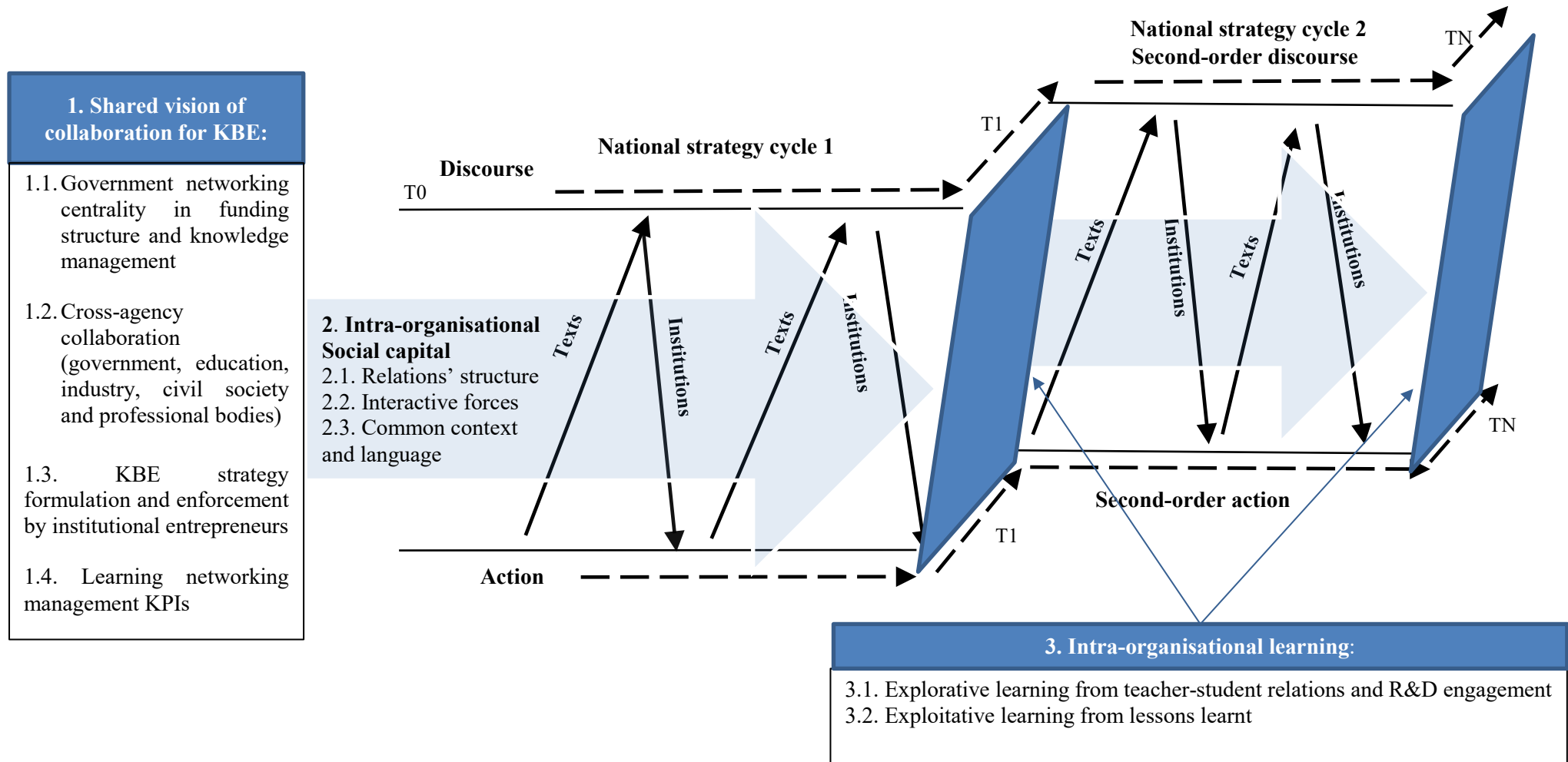
The relationship between action and discourse and KBE co-evolutionary learning dynamics is highlighted in Figure 7-2 based on the findings in this thesis and the insights in literature (Phillips et al., 2004; Leydesdorff, 2006; Schumpeter, 1962). These dynamics show how intra-organisational social capital can feed in and be fed by a learning system across institutions for developing institutional learning, entrepreneurship (Phillips, Lawrence and Hardy, 2004), and inclusive development (Aguirre-Bastos and Weber, 2018) in achieving a national strategy over time. This process visualises the achievement of the national strategic foresight in a transition to a KBE according to three main themes. The first theme is (1) **shared vision of a collaboration for a KBE**, which consists of (1.1) government networking centrality in funding structures and knowledge management; (1.2) cross-agency collaboration among government, industry, education, and civil society and professional bodies; (1.3) KBE strategy formation and enforcement i.e. by institutional entrepreneurs; and (1.4) learning networking management KPIs. The second theme is (2) **intra-organisational social capital** developed over discourse and action over cycles of the national strategic foresight in (2.1) institutional relation structures; (2.2) interactive forces; and (2.3) common context and language. The third theme is (3) **intra-organisational learning**, which consists of (3.1) explorative learning from teacher-student relations between institutions and R&D; and (3.2) exploitative learning from lessons learnt. The comprehensive framework developed in Figure 7-2 highlights the relations among the identified salient organisational practices and their collective implications for a national transition from a commodity-based economy to a KBE. The co-evolutionary dynamics of the learning system are interpreted in the framework by highlighting the relationships between the shared vision of collaboration in social systems by developing discourse and action

over the national strategy cycles. The learning institutionalised in the new cycle of the national strategy's social system for achieving the national strategic foresight thus feeds in the co-evolution of learning and social systems. Thus, it is periodically updates and adjusts as required in such a system of a shared vision of collaboration for a transition to a KBE.

Moreover, a KBE system's retention and reproduction comes from recombining and reproducing the following three functions required for the system's reproduction and retention: (1) the generation of economic wealth and (2) the generation of scientific and technological novelty, while (3) locally controlling the two functions at a system level (Leydesdorff, 2006). First, wealth generation by transaction costs in developing relevant social capital for learning can lead to associability and resource allocation and thus the economic utilisation of knowledge capital. The goal is to reduce the risk of repeating the same mistakes or repetitive and redundant effort. Thus, knowledge management is also required to identify useful and useless knowledge based on the formulated Qatar KBE strategy to serve intra-organisational development in social and learning systems. Furthermore, knowledge commercialisation in teacher-student relations among institutions could be a form of generating wealth from knowledge about relevant practices to the national workforce development. Second, the generation of scientific and technological novelty from learning could be achieved by the engagement of institutional entrepreneurs in R&D and knowledge management. The goals are knowledge codification and dissemination across the institutional spheres in order to feed in and be fed by R&D for expanding the knowledge base. Third, the government locally controls the two functions at a learning system level due to its networking centrality role in knowledge management and funding practices to support the relevant interaction and collaboration under a favourable balance of Qatar's KBE (e.g. international market demands and suitability to local context). Moreover, the dynamics of the entire KBE are driven by (1) frequency of interaction between the main institutional spheres and (2) the two layers of interaction: institutional and functional

layers. This could be the function of the national workforce development across the four institutional spheres in a determined competitive flow of collective expertise for learning and social development. Thus, comparing the national strategic foresight cycles for assessing how learning is employed in and by collaboration could enlighten decision-makers on the performed transition to a KBE. Thus, the findings emphasise an alerted decision-making process and competitive flow of collective expertise e.g. job rotation plans for workforce rotation across the four institutional spheres. This is highlighted by this thesis as a practice to develop social capital and learning capability in intra-organisational workforce development. Thus, intra-organisational development for a transition to KBE is highlighted in Figure 7-2.

Figure 7-2. Intra-organisational development for transition to KBE: a shared vision of collaboration over national strategy cycles for developing social and learning systems across institutional spheres (developed by the researcher).



The findings in this thesis were represented in the concepts of the relationships between action and discourse and KBE evolutionary dynamics (Phillips et al., 2004; Leydesdorff, 2006; Schumpeter, 1962) in the developed framework in Figure 7-2. The framework shows that defining a vision of collaboration for the transition to a KBE (Venkatraman et al., 2002) is a vital step for developing co-evolutionary dynamics in institutional social and learning systems at an intra-organisational level. Based on the highlights concerning the identified themes and their relation to developing a shared vision of collaboration in this thesis, the following themes were emphasised for organising a shared vision of collaboration for a KBE: (1) the government networking centrality role in funding and knowledge management to motivate collaboration and stimulate learning; (2) cross-agency collaboration, which includes collaboration among government, education, industry, and civil society and professional bodies for inclusive decision-making on the learning needs for strategic targets e.g. national workforce development; (3) the formation of a KBE strategy for Qatar with a preferable balance between international and national demands; thus, the engagement of R&D and institutional entrepreneurs is emphasised in this thesis for motivating learning and deployment of learning in the social capital of networking; and (4) the management of KPIs with relevance to learning networking. These four sub-themes are necessary for developing a shared vision of collaboration for a transition to a KBE.

However, the dynamics of the transition to a KBE are mainly in a discursive practice approach between learning and learning institutionalisation in social capital development at an intra-organisational level of networking. Thus, networking centrality for motivating learning and learning institutionalisation is essential in the transition to a KBE. This highlights the government's role in motivating collaboration for learning by enforcing relevant funding practices and knowledge management. This is done to ensure that explorative learning is

deployed in networking social capital to achieve the national strategic targets e.g. workforce development. Therefore, teacher-student relations among institutions and engagement of R&D and institutional entrepreneurs are highlighted as organisational practices for deploying explorative learning in networking social construction (Phillips et al., 2004) at the intra-organisational level. Moreover, exploitative learning from knowledge codification (Powell and Snellman, 2004) of lessons learnt and knowledge capital is another form of learning at an intra-organisational level that can be deployed in social capital. However, for the transition to a KBE, the learning process must be led by exploitative learning (Crossan et al., 1999), which requires 'The Great Destruction' (Schumpeter, 1962) in social capital for learning at an intra-organisational level. This requirement emphasises the need for developing an alerted decision-making system to feed in and be fed by knowledge management for knowledge dissemination (Powell and Snellman, 2004) under social and learning development at an intra-organisational level for a KBE.

Fast learners have become the winners in KBEs as individuals, institutions, and nations (David and Foray, 2002b; Lundvall and Johnson, 1994; Thurow, 1999). Thus, to develop constructive discourse between the strategic foresight and collective learning systems at a national level is important for engaging R&D in fostering learning networking by establishing explorative learning in the common language used in the discourse across the institutional spheres (Phillips et al., 2004). Thus, it is important to engage institutional entrepreneurs and R&D in learning networking over the national strategy cycles (Phillips et al., 2004). This is because institutional entrepreneurs can refer to strategies to establish explorative learning in a common language concerning discourse over the national strategy interaction (Garud et al., 2007; Phillips et al., 2004). This is to enforce change in intra-organisational social capital for learning needs and thus to transition from a commodity-based economy to a KBE. This process involves identifying the national strategic foresight aims, criteria, and relevant participants in light of

the need for a developing country context, or in other words, a reasoning approach (Andersen and Andersen, 2014; 2017). This is done to enforce social construction for intra-organisational social capital development under a shared vision of collaboration for a KBE. Therefore, inclusive networking applied based on a shared vision of collaboration across institutional spheres would serve inclusive development at an economic and social basis and thereafter strengthen the collective learning system (Andersen and Andersen, 2014; 2017; Lundvall et al., 2002).

Chapter 8 Conclusion

This chapter aims to summarise and conclude this thesis. This chapter consists of five sections. First, the thesis overview is provided in section 8.1. Second, the contribution of the study to literature is highlighted in section 8.2. Third, the implications for theory are emphasised in section 8.3. Fourth, implications for policy development are highlighted in section 8.4. Finally, the research limitations and directions for future research are highlighted in section 8.5.

8.1 Thesis Overview

This research aims to explore Qatar's transition from commodity-based economy to a KBE. A qualitative case study approach is employed in this study to examine the organisational practices that could facilitate (or impede) transition to KBE using semi-structured interviews with 53 executives embedded in the four institutional spheres of government, industry, education, and civil society and professional bodies. This was done to expose to the experience and knowledge in implementing national strategic foresight, national strategy, and exploring the collective learning across institutions from interacting to achieve the national target like the development of a national workforce.

This thesis provides insights of how the day-to-day arrangements across institutional spheres in a developing country can facilitate (or impede) the transition from a commodity-based economy to a KBE. The case study of Qatar's strategic foresight for the transition to a KBE was empirically studied to assess the transition of Qatar's economy to a KBE and the organisational practices that facilitate or impede the institutional spheres' collaboration for the country's transition to a KBE. The interaction for the national strategy was empirically studied across the four institutional spheres of government, industry, education, and civil society and professional bodies in Qatar to assess which organisational practices facilitate (or impede)

shaping a shared collaboration vision for institutional learning while implementing a national strategy for the transition to a KBE.

The overall aim of this thesis has been to assess the transition of a developing economy from a commodity-based economy to a KBE and the organisational practices necessary to organise the interaction for collective learning for the national strategic foresight. This thesis has argued that developing a shared vision of collaboration to develop the institutional capability to learn and deploy learning (Lundvall and Johnson, 1994) in the national strategic foresight can lead to an economy's transition from a commodity-based economy to a KBE and that this can be the basis for organising the transition to a KBE in developing countries. Building on discursive practice counts as a meta-theoretical lens in this thesis for revealing the institutional dynamics that shape the evolutionary transition from one institutional learning system to another. Thus, more emphasis was given in this study to the everyday organisational practices in interactions situated across institutional spheres that shape interaction in common understanding, policy, and routines in addition to the desire and belief to achieve the national workforce development outcomes (Schatzki, 2005; 2017). This thesis argues that organising interaction practices to achieve these common elements of interactions (i.e. understanding, policy, routines, desire, and belief) reflects a shared vision of collaboration across the institutional spheres. A shared vision of collaboration leads to inclusively developing the capability of institutional spheres to act and learn as one institutional body (Lundvall and Johnson, 1994) from the national strategic foresight implementation (Aguirre-Bastos and Weber, 2018). Thus, institutional capability to learn by doing and interacting to achieve strategic targets is analysed has been analysed in this thesis to assess the transition to a KBE.

To the best of the researcher's knowledge, this study is one of the first studies that examines and studies data on a change in developing a shared vision of collaboration for a transition to a KBE at an intra-organisational level. Most studies focus on the transition to a KBE as an

innovative system of scientific and technological advancement rather than an innovative learning system (Lam, 2000). Moreover, the literature gap found in this study occurs in three main areas. First, the national innovation system is exclusively addressed in the literature at a macro level in stating the institutional learning in its intuitive terms; however, the learning process in KBE is neglected at an intra-organisational level. Second, less attention was given to expressing the collective learning process in KBE dynamics for the transition from a commodity-based economy to a KBE. Third, the literature attends less to the provision of an agreed framework for the transition to a KBE as a collective learning system, which could guide the national strategic foresight. Scholars emphasised the institutional capability to learn and exploit learning in the transition to a KBE (Lundvall and Johnson, 1994). However, this concept is not particularly related to the national strategic foresight (Lam, 2000) nor is it focused on inclusive learning capabilities development (Andersen and Andersen, 2017; Aguirre-Bastos and Weber, 2018) across the four institutional spheres. It was found in the case study of the Qatar national strategic foresight that intra-organisational learning was neglected in developing a national workforce across the institutional spheres. The need to learn and implement learning for required interactions for the national workforce inclusive development was abandoned in organising Qatar's national strategy.

8.2 Contribution of the Study

This thesis contributes to knowledge in six main areas.

First, the thesis proposed a quadruple-helix model of four institutional spheres: government, industry, education, and members of professional body in civil society. Literature in the KBE domain mostly focuses on the triple-helix model of government, university, and industry (Abdrazak and Saad, 2007; Abduljawad, 2014; Sarpong et al., 2017), while studies employing the quadruple helix model emphasise societies or communities as a fourth helix (Galvão et al., 2017; Kolehmainen et al., 2016; Yun and Liu, 2019). The demonstration of an education

system as a helix in this thesis provides a broader view of actors within this institutional sphere, which contribute to the learning practice at an intra-organisational level. An example of actors in the education institutional sphere in addition to university are training and development institutions and schools. The university role, though, is acknowledged as a lead in the education institutional sphere in this thesis (Etzkowitz, 1998). This is because the education culture in the entire education system in a country influences the learning practice at an intra-organisational level and thus the development of a KBE (Tuijnman, 2003; Muysken and Nour, 2006). Therefore, alerted decision-making for developing education policies to promote intra-organisational learning strategy is demanded for a transition to KBE. Moreover, members of professional bodies in civil society have been considered in this thesis as a fourth helix to provide the precise demonstration of entrepreneurial actors in societies or communities.

Second, the employment of discursive analysis in this thesis assists in exploring the organisational practices for collective learning at an intra-organisational level. Institutionalising learning entrepreneurship in discursive action across institutional spheres (Phillips et al., 2004) can assist in expanding the knowledge base of an economy (Leydesdorff, 2006; Lundvall and Johnson, 1994; Schumpeter, 1962). The literature emphasises organising a collective effort by discursive dynamics for institutionalising entrepreneurship for KBE development (Lundvall and Johnson, 1994; Phillips et al., 2004; Sarpong et al., 2017) as well as the role of discursive analysis for understanding the meaning of entrepreneurial action (Phillips et al., 2004). However, literature in the realm of institutional theory remains incoherent in these studies' discursive analyses in that it is detached from organisational practices that constitute the institutionalisation of entrepreneurial action (Phillips et al., 2004). In this thesis, employing the discursive analysis in the establishment of a shared vision of collaboration strategy (Schatzki, 2005) helps in exploring the organisational practices that can facilitate (or impede) transition to KBE. It also helps in providing a coherent framework of

discursive practices that can constitute the institutionalisation of entrepreneurship in an interaction strategy for expanding the knowledge base and institutional learning capability in an economy. Therefore, the conceptual model proposed in this thesis provides a framework to guide the implementation of national strategic foresight by alert decision-making in developing a relevant collaboration strategy to govern collective learning for a transition to KBE. This means that different to other studies in literature that address transition to KBE with a focus on scientific outcomes and technological advancement, this thesis has demonstrated a transition to KBE within the collective intra-organisational learning domain across the four institutional spheres as an outcome from interaction strategy to achieve national strategic foresight.

Third, the model developed in this thesis shows an interaction strategy in KBE (i.e. feed-in and feed-back in practice) organised for collective learning process, which can help in alert decision-making on the transition from a commodity-based economy to a KBE. Most studies that address a transition to a KBE in the triple- or quadruple-helix models (Abduljawad, 2014; García-Terán and Skoglund, 2019; Leydesdorff and Strand, 2013; Sarpong et al., 2017; Yun and Liu, 2019) neglect the demonstration of interaction strategy in a commodity-based economy compared to KBE to determine the transition to a KBE. Due to the overemphasis of scientific outcomes and technological advancement in developing KBE in literature and the challenging data collection process, the interaction strategy for collective learning gained less attention in the context of a transition to a KBE (Lam, 2000; Škerlavaj, Dimovski and Desouza, 2010). Moreover, the national strategic foresight in developing countries is characterised as descriptive and based on ex-post concepts (Andersen and Andersen, 2017). Interaction strategy at a national level is abandoned in the literature, addressing a transition to KBE in the intra-organisational learning domain (Galabova, 2012; Lam, 2000; Lundvall and Johnson, 1994).

Fourth, this thesis examines the transition to a KBE by discursively analysing collaboration in light of the necessary alignment in interaction routines for governing collective learning policy

(Galabova, 2012; World Bank, 2002). Therefore, an analytical scheme and matrix have been developed in this thesis to analyse the relevance of interaction routines and policy to govern collective learning in a KBE (Venkatraman et al., 2002; World Bank, 2002). Learning at a self-focused institutional level (or an institutional sphere level) was included to enrich the analysis with another parameter from commodity-based economy interaction (Venkatraman et al., 2002). This provides a comparative representation of interaction strategy for the alert decision-making process in assessing the level of transition to KBE at a national level, which is mostly neglected in the literature. Thus, this thesis has provided an analytical scheme for determining the relevance of interaction strategy to collective learning governance policies as it is in a KBE compared to self-learning focused policies as it is in a commodity-based economy. This provides an insight concerning whether collaboration is organised as a knowledge-based action or a commodity-based action.

Fifth, moreover, the comparative analysis developed in this thesis helps in observing the awareness or understanding of a transition's dynamics and requirements while interacting for achieving national targets. This means that including the time aspect of the national strategy stages and cycles serves the discursive analysis in this thesis to investigate the change in institutionalising a shared vision of collaboration by time among actors' institutional spheres, which can indicate institutional learning capabilities by time to learn and deploy learning concerning the achievement of the national target of a transition to KBE. The analysis by time has also helped the researcher explore the organisational practices that may facilitate (or impede) a transition to a KBE.

Sixth, developing a shared vision of collaboration has been emphasised by the literature for collective entrepreneurship in a KBE (Leydesdorff, 2006; Sarpong et al., 2017); however, the literature neglects to provide identification of a shared vision's dimensions in collaboration for governing collective learning. This thesis contributes to the relevant literature by deploying

practice theory (Schatzki, 2005) for identifying the dimensions of a shared vision in collaboration, i.e. understanding, policy, and routines of interaction strategy, to achieve a transition to KBE in a developing country i.e. Qatar.

These six areas of contribution to knowledge distinguish this thesis from other studies deploying the triple-helix model in case studies (Abduljawad, 2014; Abdulwahed et al., 2013; Cheol et al., 2012; Faghih and Sarfaraz, 2014; Kolehmainen et al., 2016; Pin and Chun-hua, 2010; Pinto, 2017; Sarpong et al., 2017) that were found to be descriptive in explaining the interaction among institutional spheres based on triple-helix interactional models without analysing the dimensions of a shared vision in collaboration nor the relevance of interaction to collective intra-organisational learning in KBE versus organisational self-learning in a commodity-based economy. Moreover, the focus of the literature is considered narrow in scope in terms of studying the knowledge transfer process (Pin and Chun-hua, 2010; Pinto, 2017) or the university's role in development (Abdrazak and Saad, 2007; Benner, 2000; Cheol et al., 2012; Gunasekara, 2006), which does not provide a broader view of inclusive development in national strategic foresight (Andersen and Andersen, 2017). Moreover, the studies mostly rely on secondary data sources for quantitative measures and ex-post concepts e.g. documents and reports (Cheol et al., 2012; Kolehmainen et al., 2016; Pin and Chun-hua, 2010). Meanwhile, this thesis helps by providing a coherent framework of developing a shared vision of a collaboration strategy across the four institutional spheres for intra-organisational learning, and it uses a qualitative case study to expose the knowledge and experience of actors in the different stages of the national strategy implementation to discursively analyse the quadruple-helix model in a developing country for a transition to KBE: the case of Qatar.

Three stages of interactional levels among the institutional spheres were recognised in the co-evolutionary model of helices for a transition to KBE dynamics interaction (Etzkowitz et al., 2007a).

The studies that address developing countries in the GCC as case studies (Cheol et al., 2012; Faghih and Sarfaraz, 2014), such as case studies of Saudi Arabia or Qatar, have also been found to be descriptive and based on secondary sources (e.g. documents and reports) for describing the status of interactions between government, industry, and university. These studies employ quantitative approaches in studying the triple-helix model of the relevant country. For example, communication among the institutional spheres of government, industry, and university have been demonstrated in the triple-helix model by highlighting the different stages of interactional levels organised among institutional spheres in the co-evolutionary model of helices for a transition to KBE i.e. statist, *laissez-faire*, and hybrid triple-helix models of institutional collaboration towards a KBE dynamic interaction (see section 2.5). Leydesdorff (2006) also used the case study of Germany for analysing the interaction between university, government, and industry in the triple-helix model and relied on quantitative measures from secondary data e.g. reports and documents. This means that the intra-organisational learning and social capital development in the historical interaction across the institutional spheres were neglected in examining and explaining the transition process to KBE. Literature, though, has highlighted the need for implementing qualitative methods in exploring a transition to KBE (Powell and Snellman, 2004; Sharma et al., 2013) to capture the experience and knowledge of the actors concerning interaction (Abdrazak and Saad, 2007; Sarpong et al., 2017). Literature also calls for demonstrating the innovation system of national strategic foresight (Andersen and Andersen, 2014, 2017) from the collective learning perspective (Galabova, 2012; Lam, 2000), rather than focusing only on scientific and technological advancements. Although, there are some studies that rely on primary data sources (they use the qualitative method) for analysing the relationships across institutions in the triple-helix model of university, government, and industry in developing countries, such as Malaysia (Abdrazak and Saad, 2007; Sarpong et al., 2017) or Qatar (Abduljawad, 2014). However, these studies neglect the role of professional

bodies in civil society as a fourth helix. Moreover, these studies focused on a transition to a hybrid triple-helix model (Sarpong et al., 2017) or on the role of university in development (Abdrazak and Saad, 2007). Another problem with these studies is that they highlight challenges in cultivating knowledge in partnerships across the main players' institutional spheres (Abduljawad, 2014).

Studies using the quadruple-helix model emphasise the society or communities' role in addition to the other three helices: university, industry, and government (Galvão et al., 2017; Kolehmainen et al., 2016; Yun and Liu, 2019). However, this representation was found to be imprecise in recognising actors in the transition to KBE. The education system is considered a dynamic institutional sphere for knowledge production and includes actors/institutions other than university, such as professional training and development institutions and schools. Meanwhile, university is still viewed as a leading institution in the education system as an institutional sphere. However, this should not exclude other actors/institutions from the learning system in a country (Hodgson, 2001; Lucas, 1988). Moreover, societies or communities as a fourth helix in the literature (Galvão et al., 2017; Kolehmainen et al., 2016; Yun and Liu, 2019) are a broad category of actors in the process of transition to a KBE. Members of professional bodies in civil society in this thesis have been presented as a fourth helix to identify actors/institutions in civil society. This makes this thesis unique in scope in four main areas: (1) it analyses the intra-organisational learning for transition from a commodity-based economy to a KBE; (2) it emphasises the shared vision of a collaboration strategy across institutional spheres; (3) it adds the role of professional bodies in civil society as a fourth helix in addition to the other three institutional spheres, as a clear interpretation of actors in societies or communities, unlike other studies; and (4) it recognises actors within the institutional sphere of education while recognising the leading role of university.

8.3 Implications for Theory

This thesis contributes to knowledge in four main areas. First, this study has offered a comprehensive framework that highlights the relationships among the salient organisational practices identified and their implications for a national transition from a commodity-based economy to a KBE. The framework highlights collective learning in the national strategic foresight cycles based on intra-organisational learning and social development. Thus, the relationships between action and discourse and KBE evolutionary dynamics in learning networking were emphasised in the developed framework (Phillips et al., 2004; Leydesdorff, 2006; Schumpeter, 1962). Second, in emphasising the relevance of organisational practices for the transition to a KBE, this thesis contributes to the new turn to practices in theorising social life and the making of national innovation systems. This was done by assessing collective efforts under a shared vision of collaboration for national outcomes as a demonstration of collective learning, and thus, the transition to a KBE. Third, the study identified the dimensions of a shared vision that are necessary to support collaboration across the four institutional spheres for the transition to a KBE and proposed an analytical scheme to ‘unpack’ intra-organisational learning to support a KBE. The study identified the dimensions of a shared vision for collaboration across the four institutional spheres for the transition to a KBE: understanding, policy, routine structure, and belief and desire patterns. Based on these identified dimensions, this thesis acknowledged institutional entrepreneurs’ engagement for enforcing a collaboration vision for a KBE in intra-organisational social development. Thus, it is important to develop a constructive discourse between the national strategic foresight and the transition to a KBE by developing a shared vision of collaboration. Moreover, the model provided ontological schemes and the potential foundation for empirical studies of the proposed links among the elements of the shared vision of interaction (i.e. common understanding, policy, routines, belief, and desire), intra-organisational social development

(i.e. relationship structure, interactive forces, common language, and context), and intra-organisational learning (i.e. explorative and exploitative learning) in the transition to a KBE. Thus, this study offers an analytical scheme to recognise intra-organisational learning by the change identified in intra-organisational social capital i.e. relational structure, interactive forces, common context, and language in the transition to a KBE.

8.4 Implications for Policy Development

This study offers recommendations for policymakers in the public sector of government, or any sector that can play a networking centrality role in the national strategic foresight for the transition to a KBE. The findings provided insights on organising the transition to a KBE by developing institutional capability to learn about collective learning over the national strategic foresight cycles. This can be done by developing the institutional capability to learn about relevant collaboration for national targets in a transition to a KBE. Thus, this thesis recommends developing common understanding, policy, and routines that are aligned with strategic targets. For example, concerning the national workforce development, this thesis recommends developing common understanding, policy, and routines across HR functions in the four institutional spheres to support national workforce development e.g. job groups for workforce rotation across institutional spheres and teacher-student relations across institutional spheres. The goal is to share HR management and forecasting practices; promote engagement of institutional entrepreneurs; and R&D, which would encourage developing similarities in policy and routines and in turn for developing social capital across the four institutional spheres, since this is necessary for developing the teacher-student relationship between agents and institutional spheres like industry and the public sector (Lane and Lubatkin, 1998b). Moreover, it is recommended that developing competitive KBEs should learn from exploring the best practices from successful stories (Zilber, 2007) from leading examples like Finland, Sweden, and Denmark (Parker, 2004).

Moreover, this thesis has highlighted the relationship between the government funding structure and self-dependency across institutional spheres for motivating partnerships, mutual support, and institutional entrepreneurship, which feeds in intra-organisational learning for the transition to a KBE. These relationships were not researched much by extant studies, which mostly highlighted a positive relationship (Leyden, Link and Bozeman, 1989); however, in this thesis, both negative and positive impacts of the government funding structure were highlighted for developing self-dependency across institutional spheres. The goal is to support practising a natural partnership in the national strategic foresight collective decision-making for mutual benefits at a national level. Moreover, this thesis has also highlighted the student-teacher relationship among institutional spheres for a transition to a KBE. Highlights of the impact of the education system in intra-organisational social capital of teamwork and associability values are also provided in this thesis for policy development. This was done by emphasising the adoption of a learner-centred rather than a teacher-centred teaching approach in the classroom. Thus, this thesis recommends learning governance policy development for alignment in policy and minds among the four institutional spheres in a transition to a KBE.

Moreover, this thesis recommends the development of the national knowledge database that could support a networking centrality role and provided information and knowledge support for collaboration across the four institutional spheres. These recommendations can serve the development of an alerted decision-making system for implementing a KBE strategy and a collaboration vision under the aligned common understanding, policies, and routines. Thus, a fully coordinated performance management system is recommended in this thesis e.g. Finland and Sweden are leading examples of fully coordinated performance management systems.

This thesis allows KPI managers to analyse the evolutionary dynamics between institutional learning and social systems. In addition, it has highlighted the relationship between the government funding structure and motivating collaboration for practising self-dependency

across institutional spheres. Another management practice recommended in this thesis concerning the government networking centrality role is national knowledge management for knowledge capital codification and dissemination. Thus, public sector management could be enlightened by the insights offered in this thesis in terms of developing KPI managers to assess day-to-day interaction arrangements with relevance to the country's transition to a KBE.

8.5 Research Limitations and Directions for Future Research

This thesis has provided insights on how day-to-day arrangements can contribute to a country's transition to a KBE in terms of developing discursive intra-organisational social and learning systems according to the national strategic foresight. However, this thesis is like other research and has some limitations, which must be noted for future research. Some of the limitations were indicated earlier in section 4.4.2.3 in more detail. These are highlighted again in this section for the benefit of future research.

First, this research conducted the literature review in English and excluded literature in other languages. Second, the qualitative data collection was limited to interviews and documentation sources and did not include other soft qualitative data collection techniques; for example, video recording or focus groups. Although the multiple qualitative techniques of interviews, videos, and observational data are vital for capturing the actors doing activities and saying things in order to draw on practice theory for data collection (Rasche and Chia, 2009), limiting the data collection in this study to interviews and documentation was due to the sensitivity of executive-level workers in the sample. Moreover, the research was done in the post-implementation stage of Qatar's national strategy, so it was too late to include other qualitative data collection techniques like video recording or focus groups. Another reason for this limitation is that the purpose of the data collection was to examine the shared vision of collaboration across institutional spheres for the transition to a KBE in national workforce development. This makes

interviews a sufficient technique for exploring the established shared vision of collaboration according to the interviewees.

Third, the lost trace of engaged and knowledgeable personnel in the Qatar national strategy foresight exercise was due to the high frequency of unplanned organisational restructuring during the eight years of the QNDS framework. Thus, personnel who were knowledgeable and engaged in the process and who participated in this study were limited in number. This was due to job moves and organisational restructuring, especially because empirical data collection was pursued in the post-implementation stage of the first cycle of QNDS, as outlined in Figure 4-1. For example, the midterm review of QNDS 1 was conducted in 2014 after organisational restructuring in the government public sector in 2013. Thus, most executive team members who were active at the QNDS 1 development stage are no longer active due to institutional restructuring and employee turnover. This has limited the researcher's access to knowledgeable personnel in the data collection stage. Furthermore, the trade embargo on Qatar by its neighbouring countries on 5 June 2017 limited timely access to the data.

Fourth, most of the interviews were conducted in Arabic, which required a great deal of time and effort to prudently translate the interviews into English without missing the meanings intended by the interviewees, and it required dealing with rich Arabic words (Al-Amer et al., 2016; Croot et al., 2011; Freeman, 1987; Im et al., 2016). Therefore, the researcher did the thematic analysis in Arabic and then translated it into English (Al-Amer et al., 2016; Croot et al., 2011; Freeman, 1987; Im et al., 2016)). Furthermore, the large sample number – 53 interviewees – represented a challenge during the transcription process. Moreover, to overcome the cross-language research challenges in interpreting the data, assistance was obtained from an international translation company located in Qatar to assess the interpretation of the data and cultural metaphors in the interview transcriptions with the researcher's involvement for internal validation checks (Al-Amer et al., 2016; Croot et al., 2011). The

reason for choosing a translation company located in Qatar was that there would be a sufficient level of familiarity with the Arabic cultural idioms used within a Qatari context. The researcher's involvement in the translation process of the transcriptions was important, since data interpretation depends on the researcher's interpretation skills, even in single-language research (Croot et al., 2011).

Fifth, upper management has a considerable influence on strategic organisational change processes (Daft and Weick, 1984; Isabella et al., 2014; Kiesler and Sproull, 1982). Thus, participants were initially selected based on the upper and middle management positions they held, which related directly or indirectly to the different stages of QNDS 1. Thus, the sample selection criteria focused on executives in the upper and middle management levels only; therefore, including agent levels in data collection for determining the organisational practices that facilitate collaboration across the four institutional spheres would be an area for future research to consider in data collection. Moreover, the size of the sample, 53 in-depth semi-structured interviews, enriched the research with a massive amount of data; however, the data analysis was a challenge and consumed the researcher's time and efforts. Therefore, the researcher analysed interviews from highly engaged interviewees and then less or disengaged interviewees in the QNDS exercise. A smaller, more focused sample is recommended for future research.

Furthermore, the data was collected for a single in-depth case study analysis of Qatar. A single case study is a challenge for in-depth analysis (Yin, 2018). Thus, for future research, multiple case studies could provide a comparative view of how organisational practices vary across the case studies (Yin, 2018). To overcome this challenge, the conducted analysis compared the four stages of QNDS 1 to recognise the establishment of a shared vision of collaboration according to time.

Finally, the relationship between the factors of common belief, common desire, and organisational practices from the empirical framework in this study represents an area for further exploration across the four institutional spheres. Multi-case studies could also be an area for future research in addressing such relationships for the transition to a KBE. Moreover, another area of exploration that might be considered by future research is how agents perceive collaboration across the four institutional spheres for the national workforce development and how this view impacts the communication system at agent levels within an institutional sphere i.e. impacts on a desire to collaborate at a single institutional sphere, at both collaboration levels in the institutional sphere and across the four institutional spheres.

References

- Abdrazak, A. and Saad, M. (2007), "The role of universities in the evolution of the Triple Helix culture of innovation network: The case of Malaysia", *International Journal of Technology Management and Sustainable Development*, Vol. 6 No. 3, pp. 211–225.
- Abduljawad, H. (2014), *Challenges in Cultivating Knowledge in University-Industry-Government Partnerships — Qatar as a Case Study*, *The Muslim World - Hartford Seminary*, available at: <https://doi.org/10.1111/muwo.12080>.
- Abdulwahed, M., Pokharel, S., Balid, W. and Hasna, M. (2013), "Systemic Framework of Competencies of 21st Century Technical and Engineering Human Resource A Development Case for a Knowledge Based Economy in Qatar", *2013 IEEE GCC Conference and Exhibition, November 17-20, Doha, Qatar*, pp. 413–418.
- Adler, P.S. (2001), "Market , Hierarchy , and Trust : The Knowledge Economy and the Future of Capitalism", *Organization Science*, Vol. 12 No. 2, pp. 215–234.
- Aguirre-Bastos, C. and Weber, M.K. (2018), "Foresight for shaping national innovation systems in developing economies", *Technological Forecasting and Social Change*, Elsevier, Vol. 128 No. October 2015, pp. 186–196.
- Al-Amer, R., Ramjan, L., Glew, P., Darwish, M. and Salamonson, Y. (2016), "Language translation challenges with Arabic speakers participating in qualitative research studies", *International Journal of Nursing Studies*, Elsevier Ltd, Vol. 54, pp. 150–157.
- Al-Horr, K. (2011), "Political Contingency and the Implementation of Qatarization", *Studies in Business and Economics*, No. 1984, pp. 39–56.
- Al-Horr, K. and Salih, A.H. (2011), "Convergence or Diversity in National Recruitment and Selection Practices: A Case Study of the State of Qatar", *The Journal of Business Diversity*, Vol. 11 No. 1, pp. 47–55.
- Andersen, A.D. and Andersen, P.D. (2014), "Innovation system foresight", *Technological Forecasting and Social Change*, Elsevier Inc., Vol. 88, pp. 276–286.
- Andersen, A.D. and Andersen, P.D. (2017), "Foresighting for inclusive development", *Technological Forecasting and Social Change*, Elsevier Inc., Vol. 119, pp. 227–236.
- Anderson, E.S. (1994), *Evolutionary Economics: Post-Schumpeterian Contributions*, Pinter, London.
- Anderson, M.K., Alnaimi, T.N. and Alhajri, S.H. (2010), "National student research fairs as evidence for progress in Qatar ' s Education for a New Era", *Improving Schools*, Vol. 13 No. 3, pp. 235–248.
- Archibugi, D. and Lundavall, B.-A. (2001), *The Globalizing Learning Economy*, Oxford University Press, Oxford.

- Asheim, B.T. (2000), "Interactive learning and localised knowledge in globalising learning economies", *GeoJournal*, Vol. 49, pp. 345–352.
- Basit, T.N. (2003), "Manual or electronic? The role of coding in qualitative data analysis", *Educational Research*, Vol. 45 No. 2, pp. 143–154.
- Bell, D. (1973), *The Coming of Post-Industrial Society: A Venture in Social Forecasting*, Harmondsworth (etc.): Penguin, 1976.
- Benner, M. (2000), "Institutionalizing the triple helix: research funding and norms in the academic system", pp. 291–301.
- Benner, M. (2003a), "The Scandinavian Challenge: The Future of Advanced Welfare States in the Knowledge Economy", *Acta Sociologica*, Vol. 46 No. 2, pp. 132–149.
- Benner, M. (2003b), "The Future of Advanced Welfare States in the Knowledge Economy", *Acta Sociologica*, Vol. 46 No. 2, pp. 132–149.
- Berrebi, C., Martorell, F., Tanner, J.C., Berrebi, C., Martorell, F. and Tanner, J.C. (2009), "Qatar's Labor Markets at a Crucial Crossroad", *Middle East Journal*, Vol. 63 No. 3, pp. 421–442.
- Blaikie, N. (2000), *Designing Social Research*, Polity Press, Cambridge.
- Boisot, M. (1998), *Knowledge Assets: Securing Competitive Advantage in the Information Economy*, Oxford University Press, Oxford.
- Bowen, G.A. (2008), "Naturalistic inquiry and the saturation concept: A research note", *Qualitative Research*, Vol. 8 No. 1, pp. 137–152.
- Bradford, N. (2016), "Ideas and Collaborative Governance", *Urban Affairs Review*, Vol. 52 No. 5, pp. 659–684.
- Brinkley, I. (2006), *Defining the Knowledge Economy: Knowledge Economy Programme Report*, The Work Foundation, available at: http://www.theworkfoundation.com/assets/docs/publications/65_defining_knowledge_economy.pdf http://www.theworkfoundation.com/DownloadPublication/Report/65_65_defining_knowledge_economy.pdf.
- Bunglawala, Z. (2011), "Nurturing a Knowledge Economy in Qatar", *Brookings Doha Center Publications*, No. September.
- Burian, R.M. (1997), "Exploratory experimentation and the role of histochemical techniques in the work of Jean Brachet, 1938-1952.", *History and Philosophy of the Life Sciences*, Vol. 19 No. 1, pp. 27–45.
- Cagnin, C. (2011), "Aspects to consider when designing foresight processes", *Foresight International Seminar: From Theory to Practice*.

- Cagnin, C., Amanatidou, E. and Keenan, M. (2012), "Orienting European innovation systems towards grand challenges and the roles that FTA can play", *Science and Public Policy*, Vol. 39 No. 2, pp. 140–152.
- Castells, Manuel. (1996), *The Raise of Network Society*, Cambridge, Mass.; Oxford : Blackwell Publishers, 1996.
- Cheol, J., Soo, S., Lee, J. and Kim, Y. (2012), "Knowledge-based innovation and collaboration : a triple-helix approach in Saudi Arabia", *Scientometrics*, Vol. 90, pp. 311–326.
- CIA Factbook. (2017), "*Qatar*" *Retreved Report from [Https://Www.Cia.Gov](https://www.cia.gov)*.
- Cirillo, V., Martinelli, A., Nuvolari, A. and Tranchero, M. (2019), "Only one way to skin a cat? Heterogeneity and equifinality in European national innovation systems", *Research Policy*, Elsevier, Vol. 48 No. 4, pp. 905–922.
- Contractor J., F. and Lorange, P. (2002), "The growth of alliances in the knowledge based economy", *International Business Review*, Vol. 11, pp. 485–502.
- Cooke, P. (2001), "Regional innovation systems, clusters, and the knowledge economy", *Industrial and Corporate Change*, Vol. 10 No. 4, pp. 945–974.
- Cooke, P. and Schwartz, D. (2008), "Regional knowledge economies: An EU-UK and Israel perspective", *Tijdschrift Voor Economische En Sociale Geografie*, Vol. 99 No. 2, pp. 178–192.
- Cooper, D. (2009), "University-Civil Society (U-CS) research relationships : The importance of a ' fourth helix ' alongside the ' triple helix ' of University-Industry- Government (U-I-G) relations", *South African Review of Sociology*, Vol. 40 No. 2, pp. 153–180.
- Corley, K.G. and Gioia, D. a. (2004), "Identity Ambiguity and Change in the Wake of a Corporate Spin-off", *Administrative Science Quarterly*, Vol. 49 No. 2, pp. 173–208.
- Croot, E.J., Lees, J. and Grant, G. (2011), "Evaluating standards in cross-language research: A critique of Squires' criteria", *International Journal of Nursing Studies*, Elsevier Ltd, Vol. 48 No. 8, pp. 1002–1011.
- Cross, R., Borgatti, S. and Parker, A. (2002), "Making Invisible Work Visible: usin social network analysyssis to support stratgic collaboraion", *California Management Review*, Vol. 44 No. 2, pp. 25–47.
- Crossan, M.M., Lane, H.W. and White, R.E. (1999), "An Organizational Learning Framework : From Intuition to Institution", *The Academy of Management Review*, Vol. 24 No. 3, pp. 522–537.
- Crotty, M. (1989), *The Foundations of Social Research.*, Sage, London.
- Daft, R.L. and Weick, K.E. (1984), "Toward a Model of Organizations as Interpretation

- Systems”, *Academy of Management Review*, Vol. 9 No. 2, pp. 284–295.
- Dang, D. and Umemoto, K. (2009), “Modeling the development toward the knowledge economy: a national capability approach”, *Journal of Knowledge Management Education + Training Iss Management Decision*, Vol. 13 No. 18, pp. 359–372.
- David, P. and Foray, D. (2002a), “An Introduction to the Economy of Alaska”.
- David, P. and Foray, D. (2002b), “An Introduction to the Economy of the Knowledge Society”, *UNESCO 2002*.
- Dosi, G. (1982), “Technological paradigms and technological trajectories”, *Research Policy*, No. 11, pp. 147–162.
- Eliasson, G. (1988), “Technological competition and trade in the experimentally organised economy”, *Industrial Institute for Economic and Social Research*, No. no.32, available at: IUI.
- Eliasson, G. (1991), “Modeling the experimentally organized economy: Complex dynamics in an empirical micro-macro model of endogenous economic growth*”, *Journal of Economic Behavior and Organization*, Vol. 16, pp. 153–182.
- Eliasson, G. (2005), “The nature of economic change and management in a new knowledge based information economy”, *Information Economics and Policy*, Vol. 17 No. 4, pp. 428–456.
- Eliasson, G. and Eliasson, A. (1996), “The biotechnological competence bloc”, *Revue d’économie Industrielle*, Vol. 78 No. 4e, pp. 7–26.
- Etzkowitz, H. (1998), “The norms of entrepreneurial science: cognitive effects of the new university–industry linkages”, *Research Policy*, Vol. 27 No. 8, pp. 823–833.
- Etzkowitz, H. (2003), “Innovation in innovation: the Triple Helix of university, industry, government relations”, *Studies of Science Etudes Sur La Science*, Vol. 42 No. 3, pp. 293–337.
- Etzkowitz, H. (2013), “Anatomy of the entrepreneurial university”, *Social Science Information*, Vol. 52 No. 3, pp. 486–511.
- Etzkowitz, H., Dzisah, J., Ranga, M. and Zhou, C. (2007a), “The triple helix model of innovation”, *Tech Monitor*, pp. 14–23.
- Etzkowitz, H., Dzisah, J., Ranga, M. and Zhou, C. (2007b), “The triple helix model of innovation”, *Tech Monitor*, pp. 14–23.
- Etzkowitz, H. and Leydesdorff, L. (2000), “The dynamics of innovation: from National Systems and ‘Mode 2’ to a Triple Helix of university–industry–government relations”, *Research Policy*, Vol. 29 No. 2, pp. 109–123.

- Etzkowitz, H. and Leydesdorff, L. (eds. . (1997), *Universities in the Global Economy: A Triple Helix of University-Industry-Government Relations*, Cassell Academic, London.
- Etzkowitz, H., Webster, A., Gebhardt, C. and Terra, B.R.C. (2000), “The future of the university and the university of the future: evolution of ivory tower to entrepreneurial paradigm”, *Research Policy*, Vol. 29 No. 2, pp. 313–330.
- Faghih, N. and Sarfaraz, L. (2014), “Dynamics of innovation in Qatar and its transition to knowledge-based economy: Relative strengths and weaknesses”, *Qscience Connect a Qatar Foundation Academic Journal*.
- Ferkiss, V. (1979), “Daniel Bell’s concept of post-industrial society: theory, myth and ideology”, *The Political Science Reviewer*, Georgetown University, New York.
- Florida, R.L. (2002), *The Rise of the Creative Class*, Basic Books, New York.
- Foss, N.J. (2007), “The Emerging Knowledge Governance Approach: Challenges and Characteristics”, *Organization*, Vol. 14 No. 1, pp. 29–52.
- Freeman, C., Clark, J. and Soete, L. (1982), *Unemployment and Technical Innovation*, Pinter, Londonr.
- Freeman, D.L. (1987), “Foreign Language Instruction: A National Agenda - Recent Innovations in Language Teaching Methodology”, *Annals of American Academy of Political and Social Science*, Vol. 490, pp. 51–69.
- Galabova, L.P. (2012), “Developing a knowledge-based economy through innovation policy: The cases of bulgaria, finland and scotland”, *Science and Public Policy*, Vol. 39 No. 6, pp. 802–814.
- Galvão, A., Mascarenhas, C., Gouveia Rodrigues, R., Marques, C. and Leal, C. (2017), “A quadruple helix model of entrepreneurship, innovation and stages of economic development”, *Review of International Business and Strategy*, Vol. 27 No. 2, pp. 261–282.
- García-Terán, J. and Skoglund, A. (2019), “A Processual Approach for the Quadruple Helix Model: the Case of a Regional Project in Uppsala”, *Journal of the Knowledge Economy*, Journal of the Knowledge Economy, Vol. 10 No. 3, pp. 1272–1296.
- Garud, R., Hardy, C. and Maguire, S. (2007), “Institutional Entrepreneurship as Embedded Agency: An Introduction to the Special Issue”, *Organization Studies*, Vol. 28 No. 7, pp. 957–969.
- General Co-operation Organisation For Economic. (1996), “The knowledge-based economy”, *General Distribution Ocde*, Vol. 102 No. 96, p. 115.
- Gioia, D.A. and Chittipeddi, K. (1991), “Sensemaking and Sensegiving in Strategic Change Initiation”, *Strategim Management Journal*, Vol. 12 No. 6, pp. 433–448.

- Gioia, D.A. and Pitre, E. (1990), "Multiparadigm perspectives on theory building", *Academy of Management Review*, Vol. 15 No. 4, pp. 584–602.
- Glaser, B.G. and Strauss, A.L. (1967), *The Discovery of Grounded Theory: Strategies for Qualitative Research*, Aldine, New York.
- Government Qatar. (2018), *Qatar National Development Strategy 2018 - 2022*, Doha.
- Gunasekara, C. (2006), "Universities and associative regional governance: Australian evidence in non-core metropolitan regions", *Regional Studies*, Vol. 40 No. 7, pp. 727–741.
- Harvey, C. (2005), "Thinking about Doctoral Research in Business and Management."
- Heale, R. and Forbes, D. (2013), "Understanding triangulation in research", *Evid Based Nurs*, Vol. 16 No. 4, p. 98.
- Hervás Soriano, F. and Mulatero, F. (2010), "Knowledge Policy in the EU: From the Lisbon Strategy to Europe 2020", *Journal of the Knowledge Economy*, Vol. 1 No. 4, pp. 289–302.
- Hodgson, G.M. (2000), "What is the essence of institutional economics".
- Hodgson, G.M. (2001), "Frontiers of Institutional Economics", *New Political Economy*, Vol. 6 No. 2, pp. 245–253.
- Huberman, A.M. and Miles, M.B. (1994), *Data Management and Analysis Methods*.
- Huberman, A.M. and Miles, M.B. (1998), *Data Management and Analysis Methods. Collecting and Interpreting Qualitative Materials*, NK Denzin and YS Lincoln.
- Ibrahim, I. and Harrigan, F. (2012), "Review article Qatar ' s economy : Past , present and future", *Qscience Connect a Qatar Foundation Academic Journal* Qatar Foundation Academic Journal, pp. 1–24.
- Im, E.O., Kim, S., Tsai, H.M., Nishigaki, M., Yeo, S.A., Chee, W., Chee, E., et al. (2016), "Practical issues in multi-lingual research", *International Journal of Nursing Studies*, Elsevier Ltd, Vol. 54, pp. 141–149.
- Isabella, L., Gioia, D.A., Price, K.N., Hamilton, A.L., Thomas, J.B., Suddaby, R., Interviewing, Q., et al. (2014), "Evolving Interpretations as a Change Unfolds : How Managers Construe Key Organizational Events", *The Academy of Management Journal*, Vol. 55 No. 1, pp. 1–43.
- James, L., Guile, D. and Unwin, L. (2011), "From learning for the knowledge-based economy to learning for growth: re-examining clusters, innovation and qualifications.", the Centre for Learning and Life Chances in Knowledge Economies and Societies.
- Jebb, A.T., Parrigon, S. and Woo, S.E. (2017), "Exploratory data analysis as a foundation of inductive research", *Human Resource Management Review*, Elsevier Inc., Vol. 27 No. 2,

pp. 265–276.

- Jick, T.D.. (1979), “Mixing Qualitative and Quantitative Methods : Triangulation in Action”, *Administrative Science Quarterly*, Vol. 24 No. 4, pp. 602–611.
- Jones-Evans, D. and Klofsten, M. (1997), “Universities and local economic development: The case of Linköping”, *European Planning Studies*, No. April 2015, pp. 37–41.
- Kiesler, S. and Sproull, L. (1982), “Managerial Response to Changing Environments : Perspectives on Problem Sensing from Social Cognition”, *Administrative Science Quarterly*, Vol. 27 No. 4, pp. 548–570.
- Kolehmainen, J., Irvine, J., Stewart, L., Karacsonyi, Z., Szabó, T., Alarinta, J. and Norberg, A. (2016), “Quadruple Helix, Innovation and the Knowledge-Based Development: Lessons from Remote, Rural and Less-Favoured Regions”, *J Knowl Econ*, Vol. 7 No. 1, pp. 23–42.
- Kronfol, Z., Ghuloum, S. and Weber, A. (2013), “Country in focus : Qatar”, *Asian Journal of Psychiatry*, Elsevier B.V., Vol. 6 No. 3, pp. 275–277.
- Kuhn, T.S. (1979), *Metaphor in Science*.
- Lam, A. (2000), “Tacit Knowledge, Organizational Learnig and Societal Institutions: An Integrated Framework”, *Organization Studies*, Vol. 21 No. 3, pp. 487–513.
- Lane, Peter J, B.R.K. (2006), “the Reification of Absorptive Capacity: a Critical Review and Rejuvenation of the Construct”, *Academy of Management Review*, Vol. 31 No. 4, pp. 833–863.
- Lane, P.J. and Lubatkin, M. (1998a), “Relative Absorptive Capacity and Interorganizational Learning”, *Strategic Management Journal*, Vol. 19 No. 5, pp. 461–477.
- Lane, P.J. and Lubatkin, M. (1998b), “Relative Absorptive Capacity and Interorganizational Learning”, *Strategic Managment Jornal*, Vol. 19 No. 5, pp. 461–477.
- Leadbeater, C. (1999), “Measuring and reporting intellectual capital : Experience , issues , and prospects”, *International Symposium*, Amsterdam, pp. 1–34.
- Leadbeater, C. (2000), *Living on Thin Air: The New Economy*.
- Leyden, D.P., Link, A.N. and Bozeman, B. (1989), “The effects of governmental financing on firms’ R&D activities: a theoretical and empirical investigation”, *Technovation*, Vol. 9 No. 7, pp. 561–575.
- Leydesdorff, L. (2000), “The triple helix: an evolutionary model of innovations”, *Research Policy*, Vol. 29 No. 2, pp. 243–255.
- Leydesdorff, L. (2006), *The Knowledge-Based Economy: Modeled, Measured, Simulated*, Universal Publishers, Boca Raton.

- Leydesdorff, L. (2010), "The knowledge-based economy and the triple helix model", *Annual Review of Information Science and Technology*, Vol. 44 No. 1, pp. 365–417.
- Leydesdorff, L. (2012), "The Triple Helix, Quadruple Helix, ..., and an N-Tuple of Helices: Explanatory Models for Analyzing the Knowledge-Based Economy?", *Journal of the Knowledge Economy*, Vol. 3 No. 1, pp. 25–35.
- Leydesdorff, L. and Strand, O. (2013), "The Swedish System of Innovation: Regional Synergies in a Knowledge-Based Economy", *Journal of the American Society for Informantion Science and Technology*, Vol. 64 No. 9, pp. 1890–1902.
- Lincoln, Y. and Guba, E. (1985), *Naturalistic Inquiry*, Sage publications, California.
- Locke, K. (1996), "The Discovery of Grounded Research", *Journal of Management Inquiry*, Vol. 5 No. 3, pp. 239–245.
- Lucas, R.E. (1988), "On the mechanics of economic development", *Journal of Monetary Economics*, Vol. 22 No. 1, pp. 3–42.
- Lundvall, Bengt-Åke. (1995), *National Systems of Innovation: Towards a Theory of Innovation and Interactive Learning*, Pinter, London.
- Lundvall, B.-Å. and Johnson, B. (1994), "The Learning Economy", *Industry and Innovation*, Vol. 1 No. 2, pp. 23–42.
- Lundvall, B.-Å., Johnson, B., Andersen, E.S. and Dalum, B. (2002), "National systems of production, innovation and competence building", *Research Policy*, Vol. 31 No. 2, pp. 213–231.
- Van Maanen, J. (1979), "Reclaiming Qualitative Methods for Organizational Research: A Preface", *Administrative Science Quarterly*, Vol. 24 No. 4, pp. 520–526.
- Madgett, P., Belanger, C. and Mount, J. (2005), "Clusters, innovation and tertiary education", *Tertiary Education and Management*, Vol. 11 No. 4, pp. 337–354.
- Maguire, S. and Hardy, C. (2006), "The Emergence of New Global Institutions: A Discursive Perspective", *Organization Studies*, Vol. 27 No. 1, pp. 7–29.
- Metcalf, S.J. and Ramlogan, R. (2005), "Limits to the economy of knowledge and knowledge of the economy", *Futures*, Vol. 37 No. 7, pp. 655–674.
- Miles, M.B., Huberman, A. and Saldana, J. (2007), *Qualitative Data Analysis: An Expanded Sourcebook*, Sage Publications.
- Muysken, J. and Nour, S. (2006), "Deficiencies in education and poor prospects for economic growth in the Gulf countries: The case of the UAE", *Journal of Development Studies*, Vol. 42 No. 6, pp. 957–980.
- Nelson, R.R. (1993), *National Innovation Systems: A Comparative Analysis*, Oxford., Oxford

- University Press, New York.
- Nelson, R.R. and Winter, S.G. (1982), *An Evolutionary Theory of Economic Change*, Harvard University Press., Cambridge, MA.
- Nelson, R.R. and Winter, S.G. (1995), “Evolutionary Theorizing in Economics”, *Journal of Economic Perspectives*, Vol. 16 No. 2, pp. 23–46.
- OECD. (1996), *The Knowledge-Based Economy*, OECD, Vol. 102, Paris, available at: <http://www.oecd.org/dataoecd/51/8/1913021.pdf>.
- OECD. (2001), “Lifelong Learning for All policy directions”, *OECD*, pp. 1–34.
- OECD. (2010), *Recognizing Non-Formal and Informal Learning Outcomes, Policies and Practices*.
- Önnerfors, A. (2007), “From scientific apprentice to multi-skilled knowledge worker: Changes in Ph.D education in the Nordic-Baltic Area”, *European Journal of Education*, Vol. 42 No. 3, pp. 321–333.
- Padgett, D. (1998), *Qualitative Methods in Social Work Research: Challenges and Rewards*, edited by Thousand Oaks, Sage Publications.
- Parker, R. (2004), “Explaining variations in the knowledge economy in three small wealthy countries”, *Technology Analysis and Strategic Management*, Vol. 16 No. 3, pp. 343–366.
- Parsons, T. (1951), *The Social System*, Glencoe, 111.: Free Press.
- Phillips, N., Lawrence, T.B. and Hardy, C. (2004), “Discourse and Institutions”, *The Academy of Management Review*, Vol. 29 No. 4, pp. 635–652.
- Pin, Z. and Chun-hua, L. (2010), “Knowledge Transfer in the Framework of Triple Helix Model: A Case of Sweden”, *2010 International Conference on E-Business and E-Government*, pp. 1185–1188.
- Pinto, H. (2017), “Connecting the Triple Helix space: actor-network creation and institutionalisation of knowledge transfer offices”, *Triple Helix*, Triple Helix, Vol. 4 No. 1, pp. 1–23.
- Powell, W. and Snellman, K. (2004), “The knowledge economy”, *Annual Review of Sociology*, Vol. 30 No. 2004, pp. 199–220.
- Puri, Y.R. and Suchon, K. (1997), “High technology competition : The role of higher education and research infrastructure”, *Advances in Competitiveness Research*, Vol. 5 No. 1, pp. 64–83.
- Qatar Government. (2004), *The Permanent Constitution of the State of Qatar*.
- Qatar Government. (2007), *Turning Qatar into a Competitive Knowledge- Based Economy*

Knowledge Economy Assessment of Qatar, Knowledge Creation Diffusion Utilization.

- Qatar Government. (2008), “Qatar National Vision 2030”.
- Qatar Government. (2011), “Qatar National Development Strategy 2011~2016”.
- Qatar Government. (2014a), *Qatar National Strategy Midterm Reveiw Report: Labour Market Sector - National Workforce Development Strategy*.
- Qatar Government. (2014b), *National Development Planning and Implementation: Human Development, Sustainable Development and National Well-Being*, New York.
- Qatar Government. (2015), *Realising Qatar National Vision 2030 The Right to Development, Qatar’s Fourth Human Development Report*.
- Qatar Government. (2017), *Qatar Labor Force Sample Survey 2016*, Doha.
- Qatar Legal Portal ALMEEZAN. (2011), *Emiri Resolution No. 35 of 2012 Issuing the Personnel Affairs Bylaw of the Administrative Control and Transparency Authority (ACTA)*, p. 11.
- Qatar petroleum. (2015), “Information on Scholarship from the company website <https://www.qp.com.qa/en/Careers/Scholarship/Pages>”.
- Rasche, A. and Chia, R. (2009), “Researching strategy practices: A genealogical social theory perspective”, *Organization Studies*, Vol. 30 No. 7, pp. 713–734.
- RasGas. (2014), “Information on Scholarship and Training from the Company website <http://www.rasgas.com/Qatarization/Scholarships.ht>”.
- Romer, P. (1986), “Increasing returns and long-run growth”, *Journal of Political Economy*, No. 94, pp. 1002–1037.
- Ruíz, P., Martínez, R. and Rodrigo, J. (2010), “Intra-organizational social capital in business organizations: A theoretical model with a focus on servant leadership as antecedent”, *Ramon Llull Journal of Applied Ethics*, No. 1, pp. 43–59.
- Salmi, J. (2003), “Constructing Knowledge Societies: New Challenges for Tertiary Education”, *Higher Education in Europe*, Vol. 28 No. 1, pp. 65–69.
- Sam, C. and Sijde, P. Van Der. (2014), “Understanding the concept of the entrepreneurial university from the perspective of higher education models”, *High Educ*, Vol. 68, pp. 891–908.
- Sarpong, D., AbdRazak, A., Alexander, E. and Meissner, D. (2017), “Organizing practices of university, industry and government that facilitate (or impede) the transition to a hybrid triple helix model of innovation”, *Technological Forecasting and Social Change*, Elsevier Inc., Vol. 123, pp. 142–152.

- Saunders, M., Lewis, P. and Thornhill, A. (2016), *Research Methods for Business Students*, Sixth., Pearson Education Limited, England.
- Schatzki, T., Cetina, K. and Savigny, E. (2001), *The Practice Turn in Contemporary Theory*, Routledge, New York.
- Schatzki, T.R. (2005), “Peripheral Vision: The Sites of Organizations”, *Organization Studies*, Vol. 26 No. 3, pp. 465–484.
- Schickore, J. (2016), “‘Exploratory experimentation’ as a probe into the relation between historiography and philosophy of science”, *Studies in History and Philosophy of Science Part A*, Elsevier Ltd, Vol. 55, pp. 20–26.
- Schienstock, G. (2007), “From Path Dependency to Path Creation: Finland on its Way to the Knowledge-Based Economy”, *Current Sociology*, Vol. 55 No. 1, pp. 92–109.
- Schumpeter, J.A. (1962), *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle*, Cambridge (Mass.): Harvard University Press, 1962.
- Shaban, R. (2009), “Book review: Robert K. Yin. Case Study Research: Design and Methods, Fourth Edition, Applied Social Research Methods, , Volume 5, Sage Publications Incorporated (2008). 240 pages, Paperback, RRP AU\$ 65.00, ISBN: 9781412960991”, *Australasian Emergency Nursing Journal*, Vol. 12 No. 2, pp. 59–60.
- Sharma, R.S., Noorjahan, M.I., Iqbal, A. and Victoriano, M.M. (2013), “On the use of benchmarking and good practices for knowledge management for development”, *Knowledge Management Research & Practice*, Nature Publishing Group, Vol. 11 No. 4, pp. 346–360.
- Shove, E. (2012), “The shadowy side of innovation: unmaking and sustainability”, *Technology Analysis and Strategic Management*, Vol. 24 No. 4, pp. 363–375.
- Škerlavaj, M., Dimovski, V. and Desouza, K.C. (2010), “Patterns and structures of intra-organizational learning networks within a knowledge-intensive organization”, *Journal of Information Technology*, Vol. 25 No. 2, pp. 189–204.
- Škerlavaj, M., Dimovski, V., Mrvar, A. and Pahor, M. (2010), “Intra-organizational learning networks within knowledge-intensive learning environments”, *Interactive Learning Environments*, Vol. 18 No. 1, pp. 39–63.
- Sun, P.Y.T. and Anderson, M.H. (2012), “The combined influence of top and middle management leadership styles on absorptive capacity”, *Management Learning*, Vol. 43 No. 1, pp. 25–51.
- Svensson, P., Klofsten, M. and Etzkowitz, H. (2012), “An Entrepreneurial University Strategy for Renewing a Declining Industrial City: The Norrköping Way”, *European Planning Studies*, Vol. 20 No. 4, pp. 505–525.

- Thurow, L.C. (1999), "Building wealth", *The Atlantic Monthly*, pp. 57–69.
- Tuijnman, A.C. (2003), "A 'Nordic model' of adult education: What might be its defining parameters?", *International Journal of Educational Research*, Vol. 39 No. 3, pp. 283–291.
- Venkatraman, C.N., Subramaniam, M., Pettigrew, A., Thomas, H. and Whittington, R. (2002), "Theorizing the Future of Strategy: Questions for Shaping Strategy Research in the Knowledge Economy", *Handbook of Strategy and Management*, Sage publications Ltd, London, pp. 461–474.
- Webb, E. and Weick, K.E. (1979), "Unobtrusive Measures in Organizational Theory: A Reminder", *Administrative Science Quarterly*, Vol. 24 No. 4, pp. 650–659.
- Weber, A. (2011a), "What is a Knowledge Economy?: Oil-rich Nations Post-oil", *The International Journal of Science in Society*, Vol. 2 No. 2, p. ISSN 1836-6236.
- Weber, A.S. (2011b), "The role of education in knowledge economies in developing countries", *Procedia - Social and Behavioral Sciences*, Elsevier B.V., Vol. 15, pp. 2589–2594.
- Weber, A.S. (2013), "Youth Unemployment and Sustainable Development: Case Study of Qatar", *Revista de Asistența Socială*, No. 1, pp. 47–58.
- Wiseman, A.W. and Anderson, E. (2012), "ICT-integrated education and national innovation systems in the Gulf Cooperation Council (GCC) countries", *Computers and Education*, Elsevier Ltd, Vol. 59 No. 2, pp. 607–618.
- Wolfe, D.A. and Gertler, M.S. (2004), "Clusters from the inside and out: local dynamics and global linkages", *Urban Studies*, Vol. 41 No. 5/6, pp. 1071–1093.
- World Bank. (2002), *Constructing Knowledge Societies: New Challenges for Tertiary Education Education Group*, Washington, DC.
- World Bank. (2006), *A Knowledge Economy Assessment of Qatar*.
- World Bank. (2007a), *Building Knowledge Economies: Advanced Strategies for Development*, The International Bank for Reconstruction and Development / The World Bank, Washington, D.C.
- World Bank. (2007b), "Defining a Small Economy".
- Yates, L. and Young, M. (2010), "Globalisation, knowledge and the curriculum", *European Journal of Education*, Vol. 45 No. 1, pp. 4–10.
- Yin, R. (1994), *Case Study Research: Design and Methods*, 2nd ed., Sage publications, available at: AC.
- Yin, R. (2018), *Case Study Research and Applications*, Sixth., SAGE, Los Angeles.

- Yun, J.H.J. and Liu, Z. (2019), “Micro- and macro-dynamics of open innovation with a Quadruple-Helix model”, *Sustainability (Switzerland)*, Vol. 11 No. 12, pp. 1–17.
- Zanini, M.T. and Musante, M. (2013), “Trust in the knowledge economy”, *Journal of Business & Industrial Marketing*, Vol. 28 No. 6, pp. 487–493.
- Zhang, B. (2017), “News: Qatar Airways is once again the best airline in the world”, *Business Insider UK*.
- Zilber, T.B. (2007), “Stories and the Discursive Dynamics of Institutional Entrepreneurship: The Case of Israeli High-tech after the Bubble”, *Organization Studies*, Vol. 28 No. 7, pp. 1035–1054.

Appendix

i. Appendix A: ETHICAL APPROVAL FORM



College of Business, Arts and Social Sciences Research Ethics Committee
Brunel University London
Kingston Lane
Uxbridge
UB8 3PH
United Kingdom

www.brunel.ac.uk

12 June 2017

LETTER OF APPROVAL

Applicant: Mrs Sara Al-Maadeed

Project Title: On the Transition to a Competitive Knowledge-based Economy: The Case of Qatar

Reference: 6630-LR-Jun/2017- 7400-5

Dear Mrs Sara Al-Maadeed

The Research Ethics Committee has considered the above application recently submitted by you.

The Chair, acting under delegated authority has agreed that there is no objection on ethical grounds to the proposed study. Approval is given on the understanding that the conditions of approval set out below are followed:

- The agreed protocol must be followed. Any changes to the protocol will require prior approval from the Committee by way of an application for an amendment.

Please note that:

- Research Participant Information Sheets and (where relevant) flyers, posters, and consent forms should include a clear statement that research ethics approval has been obtained from the relevant Research Ethics Committee.
- The Research Participant Information Sheets should include a clear statement that queries should be directed, in the first instance, to the Supervisor (where relevant), or the researcher. Complaints, on the other hand, should be directed, in the first instance, to the Chair of the relevant Research Ethics Committee.
- Approval to proceed with the study is granted subject to receipt by the Committee of satisfactory responses to any conditions that may appear above, in addition to any subsequent changes to the protocol.
- The Research Ethics Committee reserves the right to sample and review documentation, including raw data, relevant to the study.
- You may not undertake any research activity if you are not a registered student of Brunel University or if you cease to become registered, including abeyance or temporary withdrawal. As a deregistered student you would not be insured to undertake research activity. Research activity includes the recruitment of participants, undertaking consent procedures and collection of data. Breach of this requirement constitutes research misconduct and is a disciplinary offence.

A handwritten signature in black ink, appearing to read 'J. Knowles', written over a horizontal line.

Professor James Knowles

Chair

College of Business, Arts and Social Sciences Research Ethics Committee
Brunel University London

ii. **Appendix B: INFORMATION SHEET AND CONSENT FORM**



B.1.Participant Information Sheet

Study Title:

On the Transition to a Competitive Knowledge-based Economy: the case of Qatar.

Invitation paragraph:

You are being invited to take part in a PhD research project. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like to have more information. Take time to decide whether or not you wish to take part. Thank you for reading.

What is the purpose of the study?

My name is Sara Al-Maadeed and I am a PhD student at Brunel University. The aim of this study project is to explore the organizing practices that facilitate (or impede) institutional collaboration for transition to a Knowledge-based Economy.

Why have I been chosen?

You were selected with other thirty-nine participants who work for institutions involved in interactions for transition to knowledge-based economy.

Do I have to take part?

As participation is entirely voluntary, it is up to you to decide whether or not to take part. If

you decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time and without giving a reason.

What will happen to me if I take part?

You are invited to participate in this project by answering interviews' questions that will take two hours' duration. During the interview, you are expected to provide your own views on the related matters to organizing practices that could facilitate (or impede) institutional collaboration for transition to a knowledge-based economy in Qatar. The project duration is 11 months, and the interviews are planned to be a singly interview for each participant. However, there might be a need to do more than one interview with you, hence please remember that it is totally up to you to withdraw at any time from the project without giving any reasons.

What do I have to do?

There is no any restriction required from participants to take part in this study.

What are the possible disadvantages and risks of taking part?

Your participation does not involve any kind of risks, or costs.

What are the possible benefits of taking part?

Your participation does not involve any kind of benefits other than providing a source for knowledge production to Research Community.

What if something goes wrong?

If something goes wrong and you wish to complain you should contact the Chair of the CBASS Research Ethics Committee, email cbassethics@brunel.ac.uk.

Will my taking part in this study be kept confidential?

All information which is collected about you during the course of the research will be kept strictly confidential. Any information about you will have your name and address removed so that you cannot be identified from it.

What will happen to the results of the research study?

The answers will be audio recorded, transcribed and saved in the researcher's personal device and will not be revealed to others and will be destroyed by the researcher at the end of the project for confidentiality. You will not be identified at any occasions, reports or publications.

Who is organizing and funding the research?

The research project is funded by a scholarship program from Qatar University.

What are the indemnity arrangements?

The study has no any effect on health-related insurance of participants.

Who has reviewed the study?

The research project has been reviewed by the supervisor Dr. David Sarpong and by the CBASS Research Ethics Committee at Brunel University. Prior to conducting this research, a research ethics approval has been obtained from the Research Ethics Committee (REC) at Brunel University.

Research Integrity

Brunel provides appropriate insurance cover for research which has received ethical approval. Brunel University is committed to compliance with the Universities UK [Research Integrity Concordat](#). You are entitled to expect the highest level of integrity from the researcher during the course of this research. Further information can be found on the Brunel University London [research integrity webpage](#).

Contact for Further Information and Complaints

Dr. David Sarpong, email: david.sarpong@brunel.ac.uk.

Your contribution to this project is very important.

Thank you.

Sara Al Maadeed

Email: sara.al-maadeed@brunel.ac.uk

B.2. PARTICIPANTS CONSENT FORM



Participants Consent Form

Dear Participant, please ensure completing the whole of this sheet by yourself:

	YES	NO
Have you read the Research Participant Information Sheet?	<input type="checkbox"/>	<input type="checkbox"/>
Have you had an opportunity to ask questions and discuss this study?	<input type="checkbox"/>	<input type="checkbox"/>
Have you received satisfactory answers to all your questions?	<input type="checkbox"/>	<input type="checkbox"/>
Who have you spoken to?		
Do you understand that you will not be referred to by name in any report concerning the study?	<input type="checkbox"/>	<input type="checkbox"/>
Do you understand that you are free to withdraw from the study	<input type="checkbox"/>	<input type="checkbox"/>
• Up to 3 months from the date of consent.	<input type="checkbox"/>	<input type="checkbox"/>
• without having to give a reason for withdrawing?	<input type="checkbox"/>	<input type="checkbox"/>
• (remove if not relevant/adapt if necessary) without affecting your future care?	<input type="checkbox"/>	<input type="checkbox"/>
(Where relevant) I agree to my interview being recorded.	<input type="checkbox"/>	<input type="checkbox"/>
(Where relevant) I agree to the use of non-attributable direct quotes when the study is written up or published.	<input type="checkbox"/>	<input type="checkbox"/>
Do you agree to take part in this study?	<input type="checkbox"/>	<input type="checkbox"/>

Signature of Research Participant

Name in capitals:

Date:

8.7.3. Appendix C: Representative supporting data to each 2nd order theme

2 nd Order Themes	Representative 1 st Order Data
a. visions of interaction for workforce development are formed in silos at institutional sphere (or institution) level.	<p>-“Interaction among institutions is mainly driven by institution’s strategy and initiative for workforce development and Qatarization”</p> <p>-“The strategy process owned by the government and it was given to the ministries, and the system work in silos thus there is not collaboration among institutions”</p> <p>- “the organizer ministry of national strategy asked each ministry to do their strategy based on what they are doing and then they gather them and call them the state strategy, this is not a state strategy, the intersections among institutions to deliver the objectives is the strategy and not to work in isolation”</p> <p>-“In midterm review 2014, it was noticed that every ministry provide different format in reporting progress ...the organizer ministry did not provide a standard format or communicated the required performance reporting mechanisms”</p> <p>-“The organizational structure in ministries does not support cooperation, we have silos system and everything is through the minister.”</p> <p>-“There is no policy that organize institutional interaction in Qatar for Qatarization strategy or workforce development at national level”</p> <p>--“Civil society is not active in Qatar and national strategy is led by government institutions”</p> <p>-“civil society is inactive in Qatar, and civil society associations activities are limited by associations’ law”</p>
b. Undeveloped understanding of requisite networking for KBE	<p>-“I do not know what Qatar KBE means in QNV 2030, it is not clearly defined and institutional interaction to achieve KBE is not defined either by national vision by government”</p> <p>-“The participation of each institution was not identified for implementing strategies and ownership was for more than one ministry for sectoral strategies. Ownership should be centralised, and this wasn’t happening”</p> <p>-“I met with high level management they asked me about the strategy what is it about, and why we have a national strategy”</p> <p>-“The communication of national strategy outcomes wasn’t clear for the participants in a documented roadmap for example to guide in implementation”</p>

- “The setups of work environment, welfare and reward system are not linked to international labour market requirement, thus the local labour market mostly exaggerates the value of workforce in which doesn’t reflect the real value of the workforce in international labour market”

--“it is wrong to consider it as a separate system it's at the end: an ecosystem that is coherent system. Elements of civil society as non-governmental organizations have an important role and reflect the vision of civil society.

-“Team selection criteria in QNDS1 development stage was based on authority not specialization, thus you can see most of the members hold high executive positions but not necessarily have the required experience of strategic planning or the subject matter.

-“There wasn’t enough orientation of QNDS1 at initial stage and there are difference in institutions from maturity aspects. Maturity is unequal across Institutions and bodies.”

-“The institutional interaction are not organized, it was not based on a specific organization, it was based on initiatives because the institution which is leading the national planning process, they have incapable workforce or management problem”

-“The failure of the strategy 1 was due to the weakness in public sector which was assigned to lead the strategy. Strategy 2 expected to face the same challenge”

--“The maturity level and work environment in public sector of government do not accept the experience of strategic planning because communication system is still depending on printed paper while electronic correspondence like email is not considered as an official communication practice, every communication requires approval from the top of hierarchy in ministries”

-“I notice that for strategic projects I decide the stakeholders list from my own experience, I always ask other seniors if they think that I need to include other institutions in the interaction list for strategic ICT projects in Qatar. I would think that a database that identifies institutional interaction for strategic projects would help in this”

c. Absence of networking centrality role by government:

--“in QNDS1, we had a problem of poor coordination between the agencies and lack of major or central planning in the ministries.

-“The institutional interaction are not organized, it was not based on a specific organization, it was based on initiatives because always the people or the institution which manage the planning process, have weak capabilities or management problem, the process is not simple 176 projects that are large projects with large budgets and there was no coordination with the ministry of finance which is the manager of financial resources for these projects, we have a problem in the governmental sector we say for governmental institutions to

implement projects, and the ministry of finance says develop your budget based on items, but our projects are not at that level, it is whole projects so it doesn't work "

--"Poor communication system in public sector that uses hard form of correspondence and bureaucratic organizational structure does not help institutional interaction nor worker development"

-We perform a career supervision fair and governmental scholarship because we want to identify the job market requirements and to direct students in the right way. First, the state demands for data about specializations and vacancies from HR direction in different institutions. This to avoid the situation where the person randomly study a specialization that has no demand in Qatar local labor market. We build our focused objectives based on our demands which we define from the beginning for directed manpower"

-“The workforce development process is inefficient due to centralization in one ministry. For example, in recruitment process, if we agreed with an applicant after interview on a job offer, he might wait for very long time. This is due to workload in the ministry that has a centralised role of human resource management in public sector. Most applicants accepted another job offers from other employers at that long time of waiting.

- Some administrative jobs don't require a specialized qualification such as the HR, the public relations, as any specialization can work in those jobs. But now those jobs became a science and eventually require a degree from universities. We build and concentrate our objective on our demands which we define from the start to direct the manpower."

-“Workforce strategic planning is not an adopted function in public sector institutions. HR management in government ministries consists of very basic function like training and recruitment and promotion. This is because the manager of HR department mostly is unspecialized in related field to HR and workforce development."

- "other institutional spheres' role was only to avoid conflict in implementing related projects to QNDS1 that was led by government"

-“The performance assessment system in ministries has many shortages. It is only annual, covers only basic aspects related to work compliance in attendance and discipline. While work performance and ethics isn't reflected in performance system of ministries. Thus I tend to create our performance assessment report internally in our division."

-“Participants in QNDS1 haven't been invited to work on the linking mechanisms of their strategy to the vision to achieve part of the vision in the coming 5 years."

	<p>- “There was lack of agreed unified documentation forms across institutions to document the project progress at the implementation phase”</p> <p>-“R&D strategy was missing in QNDS thus we developed national research and development strategy. “</p>
d. Irrelevant change in networking structure to develop collaboration for KBE	<p>-“Although the networking structure changed for QNDS2, it is mainly represents interaction within government ministerial body. Thus no change made on interaction across institutional spheres, it remained the same. Same participants which had consultative role in QNDS1 have the same role in QNDS2. It is not interactive role, this means that they do what the organizer ministry of national strategy asked them to do, so it’s not a really interaction”</p> <p>-“I think priority was not for human development strategy at the ministerial restructuring in 2013, it was financial crisis requirements, which was a wise decision as a response to the crisis”</p> <p>-“The main reason for establishing a ministry for centralized human development process in public sector is for training budget cut to respond to financial crisis in 2012 e.i. when oil prices fall.”</p>
e. Cross-agencies collaboration	<p>-“We have not been invited to any meeting related to national strategy, and out activities are limited by the law of civil society”</p> <p>-“The interaction for QNDS1 is for only government institutions, other institutions from private banking sector or civil society do not represents an independent role as they’ve been funded or owned by shares by government, thus you can find civil society is not really active in Qatar.”</p> <p>-“we invited stakeholders ministries to participate in our strategy and they were uncooperative. Some ministries directly apologies due to workload and insufficient workforce capacity, and some ministries sent inadequate representatives in terms of knowledge and expertise required to participate in our strategy projects.”</p> <p>-“The strategy process owned by the government and it was given to the ministries, and the system work in silos thus there is not collaboration among institutions”</p>
f. Strategy formation	<p>-“A unified vision for human development was absent at objective levels in QNDS1. Because a strategy unify goal, but at the same time mechanism to build human capability to achieve goals should be identified by strategy and this was absent at objective level.”</p> <p>-“Do we develop education institutions in a required approach for transition to KBE? Or just for preparing future employees for other institutions in Qatar? This question should be asked to ensure that we are ready for KBE. KBE should not be a concept that we say it and we are happy with it, then we reach 2030 and 2050 and we are</p>

	<p>turning at the same circle. Frankly if I ask: are we prepared to KBE in 2030? I don't think we are ready. The logic and facts show that we are not eligible to be KBE in 2030."</p> <p>-“We are missing a real and strong strategy that participate in building KBE. A strategy that is formulated by natives. Foreigners would have the best expertise, but it doesn't necessarily suite our national needs”</p>
g. Intra-organizational learning	<p>-“No change made on interaction across institutional spheres, it remained the same. Same participants which had consultative role in QNDS1 have the same role in QNDS2. It is not interactive role, this means that they do what MOP asked them to do, so it's not a really interaction”</p> <p>-“Other than ministries, most of the institutions participated in QNDS played only a consultative role e.i. in QNDS1 and QNDS2. Participated institutions in consultative role they do not act as a neutral party because they receive funds from government or been owned by government in a form of majority of shares e.i. even if they represent private sector. Thus, what we have is not a true civil society in Qatar, because civil society needs to generate its financial resources from society not from government. To avoid being biased to government institutions.”</p> <p>-“Documentation and codification of knowledge was absent during the development stage of QNDS1. Thus, after organizational restructuring it was hard for the new team members to engage in QNDS1 process. While engagement of old members was neglected in implementation phase”</p> <p>There is no information confidentiality classification in most institutions, this classification would assist participants in interaction to identify what information to share in interaction”</p> <p>-“I was wondering that my knowledge and C.V have not been documented in any database for future needs by government. Many qualified national workers been retired as a result of new ministerial restructuring without utilization in another field”</p>
h. Management KPIs	<p>-“SMART KPIs was missing in QNDS1”</p> <p>-“Because of Qatarization strategy you take out the highly qualified expats and bring Qataris so this affects the work”</p> <p>-“Do we develop education institutions in a required approach for transition to KBE? Or just for preparing future employees for other institutions in Qatar? This question should be asked to ensure that we are ready for KBE.</p> <p>-“objective were sat higher than the capabilities level in QNDS1”.</p> <p>-“the higher level objectives were missing in QNDS1”</p>

-“KBE was not clearly defined by government, what interaction model across institutions is required for transition to KBE. It was not clearly defined. What worries me the most is that we always relay in generalities in defining targets? Thus, target would be considered achieved while it wasn’t truly achieved. This is wrong”

-- I think the issue is in assessing the size of coming advancement in five years we always struggle we don’t get good numbers.

-“High salaries in public sector for workers with high school qualification motivate them to discontinue their studies. Eventually, many high school graduates don’t want to continue their studies to get a degree from university.

--“Strategic planning of workforce is not an adopted HR function in public sector institutions. HR management in government ministries focuses on very basic functions like training and recruitment and promotion. This is because the manager of HR department mostly is unspecialized in related field to HR and workforce development.”

--“Team selection criteria in QNDS1 development stage was based on authority not specialization, thus you can see most of the members hold high executive positions but not necessarily have the required experience of strategic planning or the subject matter.

-“Without a proper plan for knowledge transfer supported by contractual terms with expats, immediate replacement under Qatarization strategy is a knowledge loss”

i. Funding Structure

-“The interaction for QNDS1 is for only government institutions, other institutions from private banking sector or civil society do not represents an independent role as they’ve been funded or owned by shares by government, thus you can find civil society is not really active in Qatar.”

-“Limited view by leaders in public sector institutions, they do not understand the importance of R&D for developing KBE. Therefore, you can find that R&D funding was the first element under budget cut during the financial crisis.”

-“Government funds for R&D are unequal among institutional spheres. This doesn’t promote collaboration and makes institutions which receive higher funds too independent to seek collaboration in R&D. they have sufficient funds to do it alone.”

- “The absence of developed link between implementation plans of national strategy and state budget was an issue in QNDS1 implementation”

-“We have currently some issues with ministry of finance because they consider us as ministry while we are university. Policy should be updated to suit institutions’ needs.”

j. Development of intra-organizational social capital	<p>-“we invited stakeholders ministries to participate in our strategy and they were uncooperative. Some ministries directly apologies due to workload and insufficient workforce capacity, and some ministries sent inadequate representatives in terms of required knowledge and expertise to participate in our strategy projects.”</p> <p>- “Education institutions should be given trust, freedom of movement, and educational process leadership.”</p> <p>-“QNDS1 has many shortages one of them is that to some extent the communication is weak, because we do not believe in communication we believe in orders, not in teamwork, some people thinks the planning is socialism and they do not want socialism, and they do not want external interference”</p> <p>-“World Bank was primarily involved in formulating national vision and strategy, thus at implementation stage it was difficult to be implemented due to the disengagement in developing QNDS by native workforce and workforce capability level is low in public sector. Thus, one of the indicated challenges in midterm review was that strategic objectives were sat higher that the available workforce capabilities in public sector”</p> <p>-“The required public sector for strategy implementation is written in strategy 1. It calls for assessing the required public sector performance, it requires transparency, efficiency, accountability, and the links to people needs. These all should be appended. Now who would assess it, I suggested that it could not be assessed by the sector itself, it should be by a neutral party”</p> <p>- The behavior of individuality decision making which sometimes the position allows the person to do so as a manager or minister. This behavior could affect the integrated system. Thus, the main decisions should be reassessed and should not allow individuality in decision making. Moreover, consultative approach should be followed in decision making across more than one institution in which grants achieving the main objectives”</p> <p>-“In work environment in public sector, the emphasis on related work values to teamwork is missing. Instead there is competition among ministries in performing strategic objectives. Teamwork value isn’t assessed in performance management system in public sector. Thus, considering the situated level of interaction, it is too early to think about across institutional spheres collaboration in interaction for national strategy.”</p> <p>-“Work ethics are missing in public sector work environment”</p> <p>-“it is wrong to consider it as a separate system it's at the end: an ecosystem that is coherent system. Elements of civil society as non-governmental organizations have an important role and reflect the vision of civil society.</p> <p>-“the communication is weak, because we do not believe in communication we believe in orders, not in teamwork, some people thinks the planning is socialism and they do not want socialism, and they do not want external interference”</p>
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- “The emphasis on work values related to teamwork is missing in the work environment of the public sector. Instead there is competition spirit in performing the work. Teamwork was not a practice since schooldays, teaching in classroom was in one-way approach from teacher to students and students’ desks were separated”

.....THE END OF THIS THESIS.....