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Chapter 3. Research Methodology

The research intends to investigate the trends, processes and the management challenges in Jordanian telecom industry and how they influence embedded innovation and how embedded innovation consequently influences service innovation in the industry. This researcher will mainly explore the perceptions of Jordanian telecom organisations towards embedded innovation. The organisational processes will also be evaluated to determine their influence on the adoption of embedded innovation.

A qualitative approach was most suitable for the study because it involves the collection of detailed descriptions of situations, events and interaction between people ensuring detail and depth in the evaluation (Maxwell, 2012). In addition, qualitative approaches essentially involve the extensive gathering of in-depth information about a small number of people or companies which are difficult to present in the statistical form. In regards to service innovation, an interpretive approach is critical for understanding, explaining and gathering opinions and attitude of people in situations where there are interactions and integration of acts (Sachwald, 2000). The qualitative approach allows achieving a significant understanding and meaning of the questions ‘why’ and ‘how’.

3.1 Research Philosophy

This research has chosen the interpretive research paradigm to provide the philosophical foundation to the underlying research. Under the guidance of interpretive research paradigm, the researcher will be able to gain substantial and in-depth understanding and perception of the telecom professionals on embedded innovation challenges, trends and motives. Moreover, the research has mainly adopted this approach in order to have a great comprehension on the extent embedded innovation can improve telecommunication services in Jordan.

TerreBlanche & Durrheim (1999) have defined research paradigm as a philosophy and comprehensive system of various interconnected research practices that describe the nature of investigation along three important methodological components, i-e., ontology, epistemology, and methodology. It is a reflection of overall research culture comprising beliefs, values and assumptions held by researchers regarding the nature of research (TerreBlanche & Durrheim, 1999). The concept of research paradigm encompasses a framework of understanding, beliefs and perception of various theories entailing methods and philosophies. Hence, according to Johnson and Christensen (2010), the research paradigm will allow the researcher to explain all assumptions built during the course of study. However, it is important to note that researcher's knowledge and thinking about the subject significantly influences the research paradigm with regards to tools and methods deployed in the study. The next section will explain the chosen research paradigm and will provide a detailed justification for it.

Interpretive research paradigm.

This research aims to highlight the challenges being faced by Jordanian telecom organisations and assess their perceptions towards embedded innovation for the accomplishment of business objectives in a highly-saturated market. In doing so the researcher will explore the mechanism and processes to build a system for embedded innovation. Hence, the current research has chosen the qualitative research approach. So, out of two main research paradigms, i-e, positivism and interpretivism, the research paradigm that complements the qualitative study nature is interpretivism. The positivist approach attempts to apply methods and principle of natural science to examine the social behaviour of participants by comprehending and explaining reality (Bates, & Khasawneh, 2004). Positivism heavily relies on scientific principles and method to gain insight and knowledge during the study. It doesn't allow the subjective interpretation of reality and offers results on logical grounds, under restrictive interpretation (Denzin & Lincoln, 2011). On the other hand, interpretivism

attempts to understand social behaviour of participants from the participants stand and interpret the meaning through the participants view the world (Bates, & Khasawneh, 2004). It underpins the belief that reality is socially constructed rather than influenced and determined by external forces. Hence participants' experience and mind-set ought to be understood. For instance, this research study will attempt to understand the perceptions of respondents (in this case, it will be the managerial staff of Jordanian telecom organisations) regarding the embedded innovation. Moreover, the study will investigate the experiences of telecom managers to identify factors that facilitate or hinder the innovation process within the organisation. The approach will enable the researcher to understand how participants make sense of their own experiences and recognise the process of interpretation.

In order to assess the perceptions of telecom professionals regarding embedded innovation in Jordan and investigate the motives, challenges, and processes of embedded innovation in the Jordanian telecoms market, the interpretive approach will guide the researcher to conduct an in-depth investigation, identify explicit as well as implicit factors that shape the perception and affect the motives and base the findings on subjective, yet informed interpretation. Viewpoints of managerial staff of Jordanian telecom organisations will be presented in the form of various themes. An effective compare and contrast of qualitatively generated themes will answer the study's research questions.

Justification for the chosen paradigm

In order to provide the justification for chosen research paradigm, the researcher will compare positivist and interpretive research approaches in the context of underlying research. In the positivism approach, the researcher believes in the use of highly structure empirical testing of hypothesis, facts and statistical analysis to determine relationships between variables. No allowance for human interpretations is given in the positivist approach. Variables must be quantified in a way that they can be statistically observed. If a researcher will choose positivist research paradigm, the quantitative survey will produce limited information and would restrict the researcher's ability to explore and understand the participants' experiences. On the other hand, the interpretive approach will enable the researcher to conduct in-depth interviews to investigate social occurrences like behaviours, experiences, and attitudes (Dawson, 2002; Malterud, 2001).

The main justification for choosing the interpretive research paradigm is that it allows the researcher to fully explore the phenomenon and extract in-depth insights without imposing any methodological restriction. The questions of why and how directed to the participants cannot be fully answered through positivist approach due to interpretive restrictions. Hence, the most suitable approach to answer such questions is interpretivism. The phenomenology although time consuming and hectic to analyse compared to positivism is appropriate to this research study which is qualitative in nature (Bogers, 2011). Under the guidance of interpretive research paradigm, the researcher will be able to gain substantial and in-depth understanding and perception of the telecom professionals on embedded innovation challenges, trends and motives. Moreover, the research has mainly adopted this approach in order to have a great comprehension on the extent embedded innovation can improve telecommunication services in Jordan.

Research Approach

In academic research, researchers can choose between two research approaches that is quantitative and qualitative. Qualitative research focuses on feelings, opinions, perceptions and experiences of respondents. Stating differently, this research approach discovers the reality, significance and tenacity (Creswell, 2013). Qualitative research approach is interpretive and emphasises on in-depth comprehension of underlying phenomenon (Saunders et al., 2014). The researcher adopts a qualitative approach when the aim of study is to decode, translate, describe and agree with the meaning rather than frequency of certain naturally occurring phenomena in the social context. In case of current research, the interpretive perspective will explore the embedded innovation influence on telecommunication services and it would be an appropriate approach in which experiences and perceptions of telecom managerial staff could be examined and evaluated. Furthermore, qualitative approach facilitates the researcher to concentrate on understanding what is happening in the context of a specific phenomenon and further enhance interpretation of data. Therefore, to examine the extent to which embedded innovation can improve the telecommunication services in Jordan market; the research will collect the qualitative insights from telecom organisations and the clients using the telecommunication services.

Recognising the diversity of underlying phenomenon, the researcher has decided to adopt the qualitative research technique to extract in-depth and meaningful insights from respondents. Moreover, the successful accomplishment of research objectives requires input from various sources. Hence, the researcher will adopt a multimethod qualitative approach where data will be collected from the ministry of telecoms staff, middle and senior management of telecom companies and Jordanian customers.

Moreover, the researcher will also adopt multiple case-study approaches to conducting an organisation specific in-depth investigation of three telecom organisations selected for the research. An effective comparison and contrast of these organisations will determine their levels of adoption on embedded innovation and how this has influenced their service innovation.

The justification for selecting the multimethod approach is that when different research methods are combined to explore an underlying phenomenon, they generate more reliable and richer results (Mingers, 2001). Single research methods have their drawbacks and advantages but when different research methods are appropriately combined, it enables the researcher to minimise the limitations and maximise the advantages providing results with higher accuracy.

3.2 Stakeholder Analysis

The research mainly investigates the perceptions and motives of telecom professionals regarding embedded innovation and challenges faced by them in its integration. The research assesses “*the extent to which innovation can improve the telecommunication services in the Jordanian market*”. Hence, the target sample (see table 1) was planned to involve the telecom companies who are the core providers of telecommunication service in Jordan. The data will be collected from managerial staff of selected organizations Interviewees included senior managers and chief executives of the telecommunication companies in Jordan. In order to get informed and meaningful insights, the researcher set the criteria of experienced and senior practicing managers in telecommunication services for target audience. The targeted interviews represented all major network telecommunication operators in the Jordan’s market thus providing different opinions and experience related to telecommunication embedded innovation. The entire population was able to be represented by limited number of players

due to the nature of telecommunication industry in Jordan, thus potentially avoiding errors of bias and making the research outcomes more acceptable.

The unit of analysis is considered as the major entities which are being analysed within the study. In the research, the typical unit of analysis is comprised of individuals, social organisation and social groups. Furthermore, this study has also adopted the unit of analysis approach for addressing the trends and challenges about embedded innovation in the Jordanian telecommunication sector.

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3.2.1 Data Collection

The researcher will collect the data from different information sources to validate the research. Semi-structured interviewing approach will be used to collect the data and rationale for choosing semi-structured approach is that it allows the researcher to use the probing technique while maintaining an overall structure. Interviews will be conducted with senior management of each selected organisation. For this purpose, researcher plans to interview branch manager, chief operating officer and chief strategy and business development.

The reason for interviewing these three persons is that they could share important strategic information about how their organisation is integrating the embedded innovation and what is the impact upon overall service innovation. Information from this source will be highly valuable for the execution of this research as it will identify the strategic priorities of organisation with regards to embedded innovation. Each interview will last for 40 to 45 minutes.

As three organisations have been selected, therefore, researcher will conduct nine interviews from three organisations. The researcher will also interview the ministry of telecom representatives and Telecoms director in the ministry of trade. The reason for choosing this information source is that they will offer meaningful insights related to governmental support for information access to laws, employability index, up-to-date vat and tax rate and other procedural factors to sustain in the host nation. After conducting the semi-structured interviews, the researcher will conduct focus-group discussions with the middle and operational management to explore the operational policies for multinational telecoms firms. For this purpose, 3 focus groups will be conducted in each organisation. Each focus group

would last for approximately 1.5 hours. Operational manager, research and development manager, marketing manager, finance manager, customer relationship manager and two existing end users will be included to execute the focus group.

The reason for selecting focus groups is related to the fact that it will help the researcher in investigation complex behaviour of the participants. Moreover, the selection of focus group will help in getting key information from the participants of the research and further help in discovering about the different set of people think and feel about recent trends and challenges which are the part of telecommunication industry of Jordan. In addition to the above statement, the focus groups help the researcher in obtaining detailed information about the group's perception and opinions regarding the Jordanian telecommunication industry and how the companies are performing. Moreover, the key information will be derived from the research participants who will help in providing a broader range of insights about the feelings related to trends and challenges associated with the telecommunication industry of Jordan.

The reason for including these individuals is that they will jointly offer a holistic view by sharing important information related to various business aspects. For instance, finance manager will be able to discuss resource constraints and costs associated with embedded innovation that make the integration process challenging, marketing manager will be able to discuss the marketing related issues that hinder the embedded innovation, research and development manager might share important knowledge that could be used to facilitate the integration of embedded innovation within the organisation. Lastly, knowledge from customers is always considered a valuable resource for organisations. End users can offer useful insights to their organisations for enhancing the innovation process.

3.2.2 Sampling Technique

The researcher has selected the non-probability sampling to draw the required number of respondents. The Purposive sampling is a form of non-probability sampling and also is called judgement sampling, where individuals are selected with a specific purpose in mind. Purposive sampling technique allows the researcher to draw respondents with specific characteristics and also it's the most practical approach for exploratory studies (Saunders,

Lewis & Thornhill, 2012). Purposive Sampling was utilised to select participants, in this case, interviewees would be selected based on their managerial position and experience with the organisation. Similarly, government officials would be selected based on their representative position, more specifically innovation managers participants will reflect the other side of embedded innovation. However in this case the sample was relatively large and the interviewees were selected on most informative basis. Research & Development (R&D) Manager's and senior management level staff were chosen based on their highly knowledge of the innovation, years of experience, nationality and the sources of their innovative activity. Senior managers were interviewed in Zain mobile company and R&D make up a significant ratio of the entire sample. The participants have a good understanding of the organisation practices, process of innovation, innovation implementations. R&D managers are responsible for the service innovation development. The researcher set the criteria that only senior experienced managers that are directly involved in the key strategic and operational activities will be interviewed. In underlying case, the researcher intends to explore the insights from management, customers and policy makers. For the pilot study, the researcher only considered the management of Jordanian telecom organisations. The purposive sampling allowed the researcher to collect data from senior manager working in the research and development. The senior innovation operational manager, and telecom company manager who can offer the useful insights in this regard. The researcher selected Zain mobile telecom out of three Zain, Orange and Umnia. Zain was selected for being the first and leading in Jordan, after specifying the criteria, the study used the quota sampling technique to select the final sample size for this research. The researcher set following criteria to set the quota: firstly, the manager would have spent at least 10 years in the telecom industry and secondly, the manager will be native Jordanian as she/he will have greater understanding of the local Jordanian telecom market and latest information about the innovation exchange issues being faced by the Jordanian firms (Mason, 2010). With the help of purposive sampling technique, the researcher identified that on average there were 37 managers in three organisations that filled the pre-set criteria of relevant experience and seniority. To conduct the pilot study, the researcher further refined this size by employing the quota sampling technique as the sample is very large. The native Jordanian telecom managers working in the R&D department with ten years of industry experience brought the sample size down to three out of five managers, the researcher conducted the pilot study interviews with only 3 managers from Zain. Accessing participants needed a lot of effort, the researcher had travelled to Jordan and conducted the snowball sampling first and proved to be ineffective at the start of the study as

none of the participant referred to specific departments or firm. The researcher used various techniques to gain access to the sample such as personal connections and previous colleagues who are involved in innovation and proved the most fruitful. The pilot consisted 3 managers 1 – on 1 with the research & development, innovation operational manager and division head. Before the start of the interview the researcher introduced himself and explained the purpose of the interview and explained the term imbedded innovation. The following table provide participants analysis

Interviews Participant table:

Organisation	Participants Names	Years of Experience	P o s i t i o n	J u s t i f i c a t i o n
Zain Telecom	G e o r g e H a n a	1 6	TelecomManager	<i>Useful insights and deep understanding of internal & external management challenges.</i>
Zain Telecom	S a m i Q a w a r	1 1	Operational Manager	highly knowledge of the innovation
Zain Telecom	S a r a h A b d u	10/6 months	R & D	Service innovation development

Semi-structured interviewing technique was adopted to extract the important insights. Next section will explain the key interview findings obtained during the interview: