Adopting Agile methodology in government - Is it the time or not yet?

Case Study in Kuwait ICT Business – Challenges and Recommendations

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Abstract

The study's primary objective is to investigate the obstacles associated with agile implementation in ICT public services and the importance of government facilitation and removal of these obstacles. It employs a case study strategy which includes data collection and analysis methods. The case study's purpose is to investigate the challenges of implementing the agile methodology in Kuwait's public services, and the findings are presented at the end. Thus the study is formulated around the following research questions: “What are the challenges of implementing agile methodology into the Kuwait ICT public services?” and “What are the recommendations for the government side to facilitate adopting agile transformation?”. In order to gain a better understanding, the study uses the appropriate approach for producing thematic analysis results in a table of themes, categories, and codes covering ICT managers and decision-makers in the public and private sectors who participated in semi-structured interviews. The conclusions are based on the data collected and analyzed, and the study provides evidence to support the final recommendations. The study concludes that implementing Agile methodology in Kuwait's public services faces several challenges, including cultural or regulation factors. The study provides recommendations for the Kuwaiti government to facilitate adopting Agile transformation, including developing a clear vision, providing training and support, and creating a culture of trust and collaboration. The findings also suggest that the Kuwaiti government can adopt an agile methodology to provide public services in the IT domain with faster response and feedback while changing the bureaucratic culture and ancient rules to be more adaptive and reasonable.

Keywords:
Agile, Government, Public Service, ICT, Public Sector, Recommendation, Challenges, Transformation
Synopsis

Background

The implementation of Agile is a trend in the public and private sectors to improve the government’s overall responsiveness and adaptability. It requires businesses to shift their culture and thinking, implement new procedures, and break the law’s limitations. Through a case study in Kuwait’s public sector, this thesis’s research aims to comprehend the challenges and recommendations in the government. This study aims to shed light on the issues public sectors face in adopting Agile to provide services for the citizens. Specifically, it aims to study government behaviours, how its regulations lead to slow decisions in adopting agile for ICT public services, and what tactics to start overcoming these difficulties. Most of the challenges and recommendations are addressed in this study.

Problem

Although Kuwait Government recognizes the potential of agile methodology to manage large-scale or complex ICT projects in public sectors, adapting such methodology is very slow. Hence it is essential to identify the factors hindering agile adoption at the government level from lifting its barriers and enabling efficient and effective governance in Kuwait.

Research Question

This study addresses these questions: “What are the challenges of implementing agile methodology into the Kuwait ICT public services?” and “What are the recommendations for the government side to facilitate adopting agile transformation?”

Method

The research strategy of this thesis is a case study approach using semi-structured interviews as a data collection method to follow the qualitative methodology, which is the reason for using thematic analysis for analyzing the data gathered. The theoretical base for this research is based on previous studies about adopting agile methodology in governments, the obstacles they faced in providing public services in the ICT domain, how they could overcome such obstacles, or what suggestions are. There was an alternative, of course, for the chosen method, e.g. quantitative; however, the focus of this thesis is not related to analyzing numerical data, so qualitative is better for reading and rereading small data material.
Result

The research results reveal many points categorized as themes and categories with codes under the thematic table. Knowledge, recognition, obstacles, recommendation, and readiness are all central themes summarized from the results. Each theme is discussed and explained with related quotes from the participants to clarify the found codes.

Discussion

After comparing the analysis of the results to the old study results described in the literature review, a list of problems and suggestions was compiled. In order to make things easier for the reader, a table is provided after this discussion section that summarizes all identified challenges and possible recommendations.
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<td>Association Project Management</td>
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1 Introduction

The rapid changes in work practices challenge modern governments to technical advancements and citizen demands [1], [2]. The traditional method in delivery projects in the markets decreases in value due to changes rapidly in the requirements and available technology. One trend that is only beginning to take hold in the public and private sectors is adapting to the change and not sticking with the plan, in other words going to “Agile” to improve the government's overall responsiveness and adaptability [1]. This step makes the government focus more on delivering and developing public value. Many people have different experiences about the challenges faced in implementing "Agile" in government, so it is essential to clarify these challenges and support them with suggested recommendations [3]. It is not enough to implement new procedures to follow the new rules and break the limitation of the law in order to achieve an agile transformation; the entire organization must also shift its culture and way of thinking. As a result, businesses need to make some significant changes to adopt a more agile mindset [4].

The field of project management has grown and developed in parallel with Kuwait's booming in all industries, not only the Information and Communication Technologies (ICT) industry [5]. For the first time, Kuwait has been able to hire the best and implement global best practices. This improved position allows the competitive organizations in the field to assess the effect when the discipline of project management aids in delivering the primary project goals, such as time, cost, and quality. It also delves into whether or not project managers were restricted to a monitoring and reporting position at an implementation level or whether they are involved at strategic levels with authority to successfully influence the direction and course of the project [6].

The Agiletz website in [5] features case studies of successfully implemented Agile projects for a variety of government agencies in Kuwait, including the Ministry of Electricity and Water (MEW), the Directorate General of Civil Aviation (DGCA), and the Communication and Information Technology Regulator Authority (CITRA), among others. Agile Technologies Solutions is an international organization that works closely with industries to monitor the distribution of digital services and guarantee that they meet the standards set by
the business team. All aspects of an intelligent business are implemented, including a cloud data warehouse suite. This project is the first product for the aviation industry in the Gulf Cooperative Council (GCC) countries [5]. Even though these examples show the success and possibility of agile implementation in Kuwait, the government chooses international companies rather than local ones to proceed with such kinds of projects because there is a problem in organizational adaptation for agile implementation [7].

1.1 Motivation

According to research, countries that have successfully adopted the Agile approach grow in all areas, particularly ICT [8]. In contrast, those countries that do not adopt yet have obstacles to development and capabilities [6]. Some researchers focus on the Middle East area and conclude that, generally, the countries in this area have difficulty adopting agile methodologies [7]. Kuwait is among the most significant Gulf Council Cooperative (GCC) countries. GCC countries are key to the Middle East, and Kuwait is one of their most vital locations. However, according to Aliasser and Adesta, there are some perceptions that Kuwait's ICT growth is much behind [9]. Kuwait is quite receptive to technology and globalization, and according to www.mappr.co, it is the third most prosperous country in economics among Arab Gulf Cooperation Council (GCC) countries [10]. Moreover, Kuwait’s government is ready to pay considerable amounts to satisfy the citizens by providing necessary or even luxurious public services [9]; thus, it may appear odd that Kuwait is lagging in this progress. These are the primary motives for doing this research.

1.2 Problem Statement

Typically, ICT projects, which are managed by governments for public service purposes, are complex and large in scale. The literature shows that Agile methodology is better suited for such projects due to its possibility of incremental solutions for developing and providing government service[3]. Although Kuwait Government recognizes the potential of agile methodology to manage projects of such a scale and complexity, adaptation and change are slow processes [7]. Hence, it is essential to identify the factors hindering agile adoption at the government level from lifting its barriers and enabling efficient and effective governance in Kuwait.
1.3 Aim

This study evaluates the degree to which ICT public sectors in Kuwait have used Agile methodology for beginning and growing public services. In addition, the private sector is considered in this study since new public services for residents are typically introduced through a partnership between the public and private sectors [7]. Furthermore, the research discovers the causes behind the outcomes, what role the government plays in promoting or supporting the sectors to take this step, and the possible recommendations to improve agile adoption.

1.4 Research Question

This study addresses these questions: “What are the challenges of implementing agile methodology into the Kuwait ICT public services?” and “What are the recommendations for the government side to facilitate adopting agile transformation?”

1.5 Delimitations

Certain delimitations have been established to maintain focus and clarity within this research:

- **Geographic Limitation:** The study concentrates exclusively on Kuwait as a case study, and the findings may not be directly applicable to other countries or regions, especially not GCC countries. The unique socio-economic and political context of Kuwait is a critical consideration.

- **Industry Focus:** While Agile methodology can be applied across various industries, this research primarily centres on its implementation within the ICT services in public sectors. The findings may not fully represent other services or private organizations.

- **Time Constraints:** The research was conducted within a predefined timeframe, which constrained the depth and breadth of data collection and analysis. Longitudinal insights may not be fully captured.

- **Government-Centric:** While the study acknowledges the roles of the public and private sectors, it predominantly examines the challenges and recommendations from
a government perspective. Private sector views are explored primarily concerning their interactions with government projects.

These delimitations are essential for maintaining the research's clarity and relevance within its defined scope. While they provide boundaries for the study, they do not diminish the significance of the research findings within the specified context.

1.6 Thesis Structure

The research structure is as follows: Section 2 presents four parts of the literature review; the parts discourse agile pathway, then benefits, difficulties and stories in public sectors. In Section 3, the study describes the research strategy, data collection methodology, sampling and analysis used to support the current study. The results and analysis of this study are presented in Section 4. Finally, the discussion and conclusion with suggestions for future work are submitted in Section 5.

2 Literature Review

Various sources are realized to prevent prejudice and ensure the work is not tilted toward one person's perspective. These works have been published as journal papers, book chapters, reports, or conference articles. Scientific literature is online, so researchers can easily find and read the latest studies and related books. This process was launched from the library and ResearchGate database at Stockholm University. Articles from the research database search engine Google Scholar have also been added. The searched keywords are Agile, GCC, Government, Market, Business, Challenges, Kuwait, Arab Countries, Middle East, Developing Countries and Project Management.

2.1 Agile Pathway

Because of the frequent shifts in technology, client demand, environment, and methodology, agile projects are well-suited to absorbing and adapting to the resulting high levels of uncertainty. The Agile Manifesto has four core values: “focusing on interactions with people
rather than procedures and tools, valuable working software or output over extensive documentation, collaboration with customers over contract negotiation, and adapting to change rather than rigidly sticking to a predetermined plan” [11].

Agile is a way of thinking that brings about the traditional cultural shift of top-down organizations. Governments that are "agile" are willing to make changes in response to public pressure and shifts in public opinion, values, and needs [1]. Evans suggests in [12] the few pathways that reliably and continuously translate research and formal educational programming into practice among public administrators, policy-making communities, and academics.

Standardized agile approaches typically include things like stand-up meetings, retrospectives, and customer demos, as well as features, sprint, release, product, and development scheduled governance and things like self-organizing teams, product owners, and scrum masters. Practitioners can modify agile approaches to make them more suitable for their situations, whether small or big scale, highly controlled, or highly disciplined settings [6].

2.2 Agile Benefits

The benefits agile can bring to government efficiency and effectiveness are explained by Mergel and Ganapati in the United States (US) government [1]. In agile, everyone has a voice, which can shift perspectives and aid in gaining buy-in and support from stakeholders. Front-end integration is essential to successful agile implementation; thus, users on the outside do not care about or need to be aware of administrative limitations. Hence the administrative departments in an agile framework only provide a supporting role. Thus, agile is similar to other cross-departmental administrative structures with the same goals of boosting openness, cooperation, and efficiency. Like different configurations, e.g., matrix designs, Agile is meant to simplify identifying and avoiding ineffective practices.

Brown et al. discuss in [13] discuss another case study of agile practices in the federal government called FedCLASS. The project aims to create a new version of the software this department uses to carry out its tasks. It demonstrates the benefits and drawbacks of adopting iterative Agile development practices within an organization that has previously relied on more conventional approaches. This case study aims to share the department's experience in
piloting iterative Agile approaches with other companies by detailing the successes and failures of the project.

Rahy and Bass confirm that agile supports the client’s involvement in the development process when they study information systems and project management in Lebanon as a case study [6]. This case study has taken an interest in agile development, adding to the growing interest in software engineering. The use of agile techniques is correlated with higher rates of production. Software development in developing nations is increasingly adopting agile practices. Practitioners recognize Agile’s value and emphasize the necessity of adopting the methodology. Disparities between programmers and final consumers slow down the development process.

2.3 Agile Difficulties

Nuottila et al. study the companies specializing in software development and find they make up a sizable segment of the project business market. Despite this fact mentioned in [14], several difficulties remain in completing software projects. Numerous serious failures in public software procurement have been recorded in the public sector. When governments try to improve productivity by computerizing their processes and offering software-based online services, problems arise. Key external influences that challenge agencies to serve constituents include rising citizen expectations, evolving technologies, an explosion of data, and novel business procedures [15]. The acquisition of software is challenging for public organizations due to differences between them and private businesses. Procurement operations and procedures are subject to the law. Most government information technology systems are both massive and convoluted. Development and innovation occur at a slower rate compared to the private sector. It has also been argued that inadequate management is a major source of problems in publicly available software development projects. It is also important to consider that failing to create connections with the community typically results in a decline in the quality and consistency of public services, stale policy dialogue and a sluggish administrative climate [12].

Elkhatib et al. represent the Etisalat team in Dubai, and due to this fact, their case study identifies a potential threat posed by rushing into implementation without first conducting thorough planning. This rush threatens the effectiveness of the team's risk management strategy and its ability to adapt to changes in the project's scope. One of the most significant
issues the study observes is a lack of experts in agile projects, which, along with the delay in approving the development in each sprint or insufficient validation, delays the following sprint [16]. Rapid development can also cause problems for the handoff to the operations team after a project or sprint is over. Al-Haj and Sayers in [17] comment on the community of the United Arab Emirates (UAE), claiming that it does not accept the subpar results, which are divided almost equally among cost, time, and quality. There is a disconnect between how healthy projects are managed and how well their progress is tracked against predetermined benchmarks. Despite recent advancements, it is difficult to accurately assess either criterion because the research showed no universally acknowledged tests or factors. While UAE construction industry project managers have substantial experience, their project management expertise is only intermediate. The vast majority are highly educated and proficient in their chosen fields. Evidence suggests that project management is an "add-on" discipline, with experts in various fields filling in for the booming industry.

2.4 Agile in Public Sectors

The public sector has struggled for years to keep up with rising citizen expectations [1]. Government is typically reluctant to try new approaches to providing public services because of its natural aversion to taking risks. However, with the rapid development of technology and the spread of globalization, public authorities are under increasing pressure to catch up with the private sector by investing in innovation despite the inherent risks involved [8]. The Project Management Institute (PMI) Standard for Program Management offers helpful advice for program managers. Besides the PMI resources, the UK Association for Project Management (APM) and the UK Cabinet Office can be helpful resources for learning about the strategic governance of projects from an external perspective [18].

Wernham concludes in his research [18] that the US Department of Veterans Affairs (VA) could implement the necessary systems to accommodate a complicated and ever-evolving piece of law using an agile methodology. While development raced, a few interruptions during implementation can be used as teaching moments for future agile endeavours. The identified operational teething concerns are not uncommon for any hasty project. Alrashidi and Adesta raise the proponents of new urban policy and are working to solve these problems through landmark projects like the Mega Urban Regeneration Projects (MURPs).
Many perception and speculative foreign investors have poured money into growing metropolises like Kuwait. The goal of sustainable MURPs should go beyond technical considerations of time, cost, and delivery to "redress the regional economic imbalance". However, MURPs frequently go over schedule or budget due to their complexity. There is a strong presumption in [19] that they are geographically concentrated in three single urban districts and that this district is located within a capital city. Public-private partnership activities are founded on "new directions in urban management," which have emerged in response to the abovementioned difficulties. There is an argument that the public sector, to attract funding and political support for large-scale urban development initiatives, must forge partnerships with private developers, investors, and speculators.

3 Research Methodology

This study analyses the challenges of agile adoption in the ICT industry for government agencies offering public services. The research methodology is separated into various stages, beginning with selecting a research strategy and then selecting a data analysis methodology and data sampling technique.

3.1 Research Strategy

Qualitative research collects and analyses non-numerical (descriptive) data, such as text, video, or audio, to comprehend concepts, views, or experiences. This type of research is frequently employed to investigate complicated phenomena or obtain insight into individuals' experiences and opinions regarding a specific issue. It is precious when researchers attempt to comprehend the significance individuals ascribe to their experiences and discover the underlying causes of people's behaviours or opinions [20]. The primary focus of the qualitative research approach is on collecting, organizing, and interpreting first-hand accounts of the phenomenon under investigation, as opposed to the quantitative research approach's primary focus on analyzing numerical data and testing theories or hypotheses developed for the study [21]. This study opted for a qualitative approach over a quantitative one since it is more appropriate for this type of study due to the reasons above, so this strategy is chosen over the alternative. In addition, qualitative studies typically employ much smaller samples
and reading and rereading the data material is laborious. Moreover, a qualitative research project typically results in non-standardized data gathering [7, p. 15]. While qualitative research cannot be evaluated using the same standards as quantitative studies, it can offer tools for data analysis that should be used with restriction [20, p. 22].

3.2 Data Collection Method

Case studies can utilize a variety of qualitative data-gathering approaches. Qualitative research sometimes employs interviews, focus groups, observations, written and visual records, and similar approaches [22], [21]. According to Johannesson and Perjons, the questionnaire approach focuses on a group of people (respondents) who concurrently answer a series of predetermined questions about the target of investigation [23]. Although questionnaires are an option for data collection in this study, they are not the preferred approach. In this scenario, questionnaires would have allowed for appropriate data collection but would have hampered the researcher's capacity to ask follow-up questions and explain any misunderstandings and misinterpretations.

The applied data collection approach allows for a thorough examination of the data material. It is based on interviews with the respondent’s companies’ managers and CEOs conducted to gather information pertinent to the study’s subject. Research of this kind is the most appropriate, given the specifics of the data at hand and the study's goals, because you ensure whom you are interviewing and confirm the interviewee understands the question very well and gives an opinion regarding that part.

There are several reasons to choose this method over the alternatives. The requirement for in-depth knowledge may be easily acquired through open-ended questions rather than multiple-choice surveys. Even selecting a focus group as an example is ineffective since the question pool is insufficient owing to a lack of in-depth information [24]. Therefore, interviews are the appropriate method for meeting domain-specific specialists, obtaining in-depth analysis, and obtaining information that cannot be obtained through a public poll. The main reason for choosing such a method is the need for in-depth knowledge that can be easily gathered through open-ended questions.

The next step is to conduct secondary research, which can include any combination of the following: an internet search, a literature review, an examination of online resources, or a case
study. Those conducting secondary research can save time and effort by referring to previously published works. This research reviews published materials, such as periodicals, books, and conference papers.

3.2.1 Theoretical Material Collection

The papers focus on agile methodology in businesses and industries across many nations, mainly GCC and Arab countries, and are explored using a qualitative, exploratory literature study method. In document analysis, the section explains the steps for material collection.

3.2.2 Interviews

The interviews are qualitative since they are planned ahead of time with probable questions but can be modified after the interview, with the interviewer adding new questions or skipping any that seem redundant. This qualitative research interview seeks to understand the world through the subjects' perspectives in order to disseminate the significance of people's experiences. A few significant differences exist between regular discussions and interviews conducted for research or evaluation purposes. Regular talks often involve two people talking to each other; however, in expert interviews, one person can ask all the questions.

There are three distinct interview formats: unstructured, semi-structured, and structured. This exploratory research makes use of a semi-structured interview. This type is a one-sided conversation in which the respondent can say whatever they choose so long as the interviewer finds it interesting or believes it might be significant. Experts, who typically have a solid theoretical underpinning to their reasoning, benefit significantly from this type of interview because it allows them to explain their line of thought in detail. Hence the questions of such a type are predefined in advance. Respondents can choose how they answer, although the interviewer may follow up on fascinating leads. As indicated before, doing this type of interview in the beginning phases of a project is essential for identifying problems and learning how different people define key terms and concepts to start drawing the direction of thinking in the research.

In the results section, a list of all of the study sites, participant roles, and affiliations is included. The duration of an average interview is between 30 and 45 minutes. In-depth, one-on-one interviews with participants are semi-structured to allow for free-flowing conversation and collecting of relevant data. It is common practice to use probing questions to get
interviewees' responses on subjects not included in the outline. After getting the practitioners' permission, all interviews are recorded. Field notes are taken during interviews. After the interview, it is transcribed by hand to guarantee accuracy and help the interviewer recall the conversation's social and emotional context. At the end of the session, everyone takes a quick poll on whether or not they are comfortable with having their actual names, titles, and companies used in the presentation.

Appendix A, beginning on page 35, contains the interview guidance. The major subjects to find out more information on in each interview are:

- What are the changes that you are ready to make in order to apply the agility?
- How mature is your organization regarding these changes? Culture, mindset, and technology?
- What are the challenges that faced / might face in applying Agile?
- How do country contract rules, for example, affect the organization's readiness to apply agile?

### 3.2.3 Online Sources

The internet has been used for data collection and to strengthen some points in this paper. Especially when looking for a government point of view, newspapers, blogs, TV shows or short documentary films are all utilized to show that view used here with other resources.

### 3.3 Sampling method

There are multiple types of sampling, such as purposive and random types [21]. Since purposive sampling allows the researcher to gather qualitative responses to understand the results better, it is the most proper type to be applied in this research; hence, it needs well-focused knowledge from the participants. A random sample, for example, cannot be chosen here; hence the research needs participants in the ICT domain to have experience with Government public sector services either direct or indirect way. So, purposive is the most appropriate kind for this study, which necessitates individuals with concentrated expertise. Several actions are taken to ensure that the results of this study are not impacted by outside influences or personal opinions, hence avoiding any bias. Many participants are selected to code the collected data uniformly in purposive sampling. In addition, other sources (online or
academic) are validated to support or neglect the results of the interviews, and this work is peer-reviewed to identify any bias.

### 3.4 Data Analysis Method

A thematic analysis is conducted on the data that are transcripts of interviews using the approach developed by Braun and Clarke [20]. This approach allows for identifying, analyzing, and describing themes within the qualitative data under study. The application of a thematic analysis has the advantage of being a valuable tool for classifying recurring themes in data. Thematic analysis is used by researching and learning about people's perspectives, experiences, opinions, beliefs, and knowledge from qualitative data collection, such as interview transcripts. Content and Narrative analyses are other alternatives that might be chosen here. However, content analysis transforms qualitative input into quantitative data, which is not the target of this research. In contrast, narrative analysis does not work for heavily-structured/semi-structured interviews, which do not give participants as much opportunity to explain their opinions in their own words [25]. That is why the thematic analysis method best matched this study.

The employed model specifies a total of 6 steps, the first 5 of which centre on data analysis to identify themes, while the final step is to report authoring. In the interview analysis section, this 6 step model is explained.

### 3.5 Data Analysis

Inductive analysis is the chosen type of this study to work from the particular localized data to reach a more generalized conclusion about the main topic. Data patterns have been found by applying applicable codes to the transcripts of interviews with organization representatives. The last step is classifying the codes into more significant, manageable groups and overarching ideas. Open coding, continual comparison techniques, defining key categories, and mimicking the data are all utilized in the interview transcripts. Open coding includes evaluating the data without adding any prejudice to develop the most feasible notions [26]. The interview transcripts are freely coded, line by line.

Each interview compares the generated codes with those generated by other interviews using the same and similar questions. Codes that makeup concepts could be categorized with this
constant comparison method. Then, a summary phrase is attached to each vital point's code. The primary types of interviews are derived from these subcategories. Based on this selected model, it is a must to select relevant subjects. After using the model's conceptual framework described above, the primary categories are selected, and selective coding is carried out. In order to analyze the study case, there is a map of a conceptual model backed by a written description.

### 3.5.1 Documents analysis

Document analysis is a qualitative research procedure that involves assessing electronic and physical documents in order to evaluate them, comprehend their significance, and build upon the information they give. Here are the cycles followed by this study's approach, first spotting the research highlight to find new areas of interest, then proposing the key factors, research, and related terminology, third addressing the gaps in previous articles, and finally finding logical answers to fill these gaps.

### 3.5.2 Interviews Analysis

There are various methods for this purpose, such as content analysis, narrative analysis, and discourse, but theme analysis is the selected one, as highlighted above. Thematic analysis is special to qualitative research and can be conducted manually or with a tool like the Thematic tool. This approach detects, analyses, and interprets patterns in qualitative data, focusing on detecting frequency and reoccurring words and subjects. The purpose of thematic analysis is to find patterns and themes that match the purpose of this research which determines the most redundant word that inspires the most important causes and influencing factors. From [20], the following six steps of the previously described model are explained:

1. The first step, or even earlier, is reading the transcripts of the interviews to become familiarized with the data.
2. The second step is generating initial codes that reflect a specific aspect of the material that tickles the attention of the examined individual. This research uses inductive coding to avoid predefined codes and generate them as the dataset is evaluated. Analysis may be done in two main ways: inductively and deductively. In [20, p. 12]
clarifies the difference between them; inductive analysis is exemplified by data coding without pushing it into a preconceived scheme. In contrast, a deductive strategy is exemplified by a top-down approach that begins with set codes and attempts to discover snippets that match these initial codes.

3. The third step is separating the codes into various groups according to the attributes.
4. The fourth step is examining the differences between these themes by evaluating, improving, and amending the previously developed subthemes.
5. The fifth step involves recognizing and labelling the overarching themes that evolved from categorizing more specific topics in the preceding step.
6. The last step is compounding this report as the sixth phase.

3.5.3 Data presentation

Mind Map is used as the data visualization technique; hence a mind map helps explain concepts and ideas linked to a central idea without overwhelming the viewer with large amounts of text so the reader can focus and summarize the general idea of the research. For this purpose, the MindMup tool points out the keywords mentioned during the interviews to facilitate the table summarizing all the codes and categories shown in Figure 1: Mind Map Visualization for keywords in the result section below.

3.5.4 Ethics

During any research, when collecting or processing sensitive data, it is vital to consider and adhere to ethical principles. In this research, the required ethical requirements are followed. According to Swedish Research Council (SRC) [27], there are four main guidelines to follow and consider to ensure that there is no violation of any individual’s rights [27]:

1. The information requirement

According to SRC’s first requirement, the purpose of this research was well-clarified for anyone involved. All participants were contacted through WhatsApp to see whether they were interested in participating in the study. Those interested have received an official email explaining the research goal and how the collected data will be handled and utilized. Also, the interview questions were sent to give them a better view of the nature of the study.
2. The consent requirement

The SRC guarantees that all survey participants can choose if they want to. For this purpose, all individuals who participated in this study gave their informed permission. Participants were also informed of their right to anonymity before the start of the recording session.
3. The requirement of confidentiality

SRC states that information on all participants involved in the study must be treated with respect and discretion, and personal data must be secured to prevent access by unauthorized parties. All participants in this study were notified that their personal information would be securely retained. The author did not collect or maintain any personal information that may be used to identify research participants.

4. The utilization requirement

SRC asks to utilize personal information acquired for research purposes solely. Therefore, this study has utilized no data for any other reason.

In summary, from the perspective of prioritizing and respecting the dignity of research participants, full permission is obtained from participants before the study. Moreover, the protection of research participants' privacy is ensured, adequate confidentiality of research data is ensured, and the anonymity of individuals and organizations participating in the research is ensured. Avoiding exaggeration or distortion of the study's stated goals is a priority. There is complete transparency regarding relationships, financing, and any biases. In addition, all sorts of research-related communication are conducted with integrity and transparency. Misleading information and biased presentation of main data findings are strictly avoided. Finally, all sensitive data regarding laws and rules related to government contracts and internal policy are protected and not published.
4 Results and Analysis

This chapter aims to provide the analysis and findings of this research. In addition, an extensive explanation of the final thematic analysis table will be provided with comments on the results.

4.1 The analysis technique

The interviews used in this study occurred over two weeks in February 2023. These were completed in person or by telephone at convenient times for participants and the interviewer. These interviews were recorded and then transcribed to facilitate the interviewer's ability to focus on the dialogue and ask questions from the interview template. Simultaneously, essential keywords were written and documented in Figure 1: Mind Map Visualization for Keywords shown below.

![Figure 1: Mind Map Visualization for Keywords](image-url)
After finishing all interviews, the analysis process started; most of the study followed Braun and Clarke’s step-by-step method of theme analysis mentioned here [20] after transcribing the interviews using the web program Happy-scribe [28]. Then MAXQDA [29] tool was needed to complete the analysis till the end. In MAXQDA, all the documents from the individual interviews were uploaded to allow MAXQDA handles the data and detects comparable codes while sequentially going through all the interviews. It also facilitates the execution of subsequent analytical procedures. Each theme has its distinct colour that includes all categories to distinguish the category mentioned in multiple places in the same or other interviews. The conclusion and summary become easier when comparing these codes and categories together. Figure 2: Screenshot of MAXQDA program, the software used to facilitate the analysis more smoothly, giving flexible options to add comments or remarks and quickly shifting between code places.

4.2 Results

All participants were summarised in (Table 1: List of Participants) with details of the role, gender, years of experience, sector nature, interview type, and duration. Some participants’ quotes are used shortly in referring to themes and categories.

<table>
<thead>
<tr>
<th>Participant</th>
<th>Role</th>
<th>Gender</th>
<th>Experience</th>
<th>Sector</th>
<th>Type</th>
<th>Duration</th>
</tr>
</thead>
</table>

Figure 2: Screenshot of MAXQDA [29]
<table>
<thead>
<tr>
<th>ID</th>
<th>Name</th>
<th>Gender</th>
<th>Experience</th>
<th>Sector</th>
<th>Type</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>CEO</td>
<td>M</td>
<td>14+ Years</td>
<td>Private</td>
<td>Physical</td>
<td>30 min</td>
</tr>
<tr>
<td>P2</td>
<td>COO</td>
<td>M</td>
<td>18+ Years</td>
<td>Private</td>
<td>Physical</td>
<td>40 min</td>
</tr>
<tr>
<td>P3</td>
<td>University doctor</td>
<td>F</td>
<td>22+ Years</td>
<td>Public</td>
<td>Physical</td>
<td>30 min</td>
</tr>
<tr>
<td>P4</td>
<td>Director Manager</td>
<td>M</td>
<td>25+ Years</td>
<td>Public</td>
<td>Phone Call</td>
<td>35 min</td>
</tr>
<tr>
<td>P5</td>
<td>Legal Head Section</td>
<td>M</td>
<td>15+ Years</td>
<td>Public</td>
<td>Physical</td>
<td>40 min</td>
</tr>
<tr>
<td>P6</td>
<td>IT Head Section</td>
<td>F</td>
<td>12+ Years</td>
<td>Private</td>
<td>Phone Call</td>
<td>30 min</td>
</tr>
</tbody>
</table>

The early initial theme analysis started with 12 themes and 24 categories with 120 codes, summarising them into 5 themes, 12 categories and 70 codes. Some codes are repeated in multiple categories because its definition differs in diverse context, for example, training and education under organization readiness related to the employees and customers and how much both parties are ready to adopt agile under current circumstances. In contrast, the same codes under recommendation for priorities related to the staff and citizens and how highly it is recommended to train governmental employees and educate the citizens to start using agile in public services from the government side. The final and confirmed themes are summarised in Table 2: Thematic Analysis.
<table>
<thead>
<tr>
<th>Theme</th>
<th>Category</th>
<th>Code</th>
</tr>
</thead>
</table>
| Knowledge  | Environment | 1. Outsourcing  
2. Technology and infrastructure  
3. Principles and methodology        |
|            | Processes   | 4. Iterations with customer engagement  
5. Scope, plan, value  
6. Fast procedures        |
| Recognition| Organization| 7. Reduce risk and team morale  
8. Transparency and trust  
9. Better understanding |
|            | Customer    | 10. Quick value  
11. Visible contract terms and trust  
12. Customer satisfaction        |
| Obstacles  | National Culture | 13. Communication, awareness, rejection,  
14. Zero failure, isolation, staffing structure  
15. Resistance, rigid culture, team ability |
|            | Legal Framework | 16. Old framework, rules, contracts,  
17. G-C relations, rigid, bureaucratic cultures |
|            | Management buy-in | 18. Government vision and decision-making,  
19. Adaptation, supporters |
| Readiness  | Individual readiness | 20. Leadership, talent,  
21. Behaviour and certificates |
|            | Organization readiness | 22. Internal projects, technology  
23. Culture, structure, purpose  
24. Strategy and priorities |
|            | Government readiness | 25. Commitment, education,  
26. Mindset, funding, maturity  
27. Pilot project, governance |
| Recommendations | Priorities | 28. Trust, agile careers  
29. Small projects, adoption strategy  
30. AMO, funding |
|            | Re-designing | 31. Service path and decision-making  
32. Tracking progress  
33. Training and educating  
34. Citizens, procurement  
35. Hybrid methodology |
4.2.1 Knowledge

Understanding agile methodology is crucial as a beginning point for the conversation with the participants; consequently, a lack of such information leads to erroneous research decisions. The environment's needs and the right processes are vital for confirming agile awareness.

- Environment

The environment favours a particular technology to construct the necessary infrastructure and deliver the correct agile methodology principles. Kuwait had a fully agile experience in the last decade but with an international company (outsourcing).

All participants state these factors, although P1 and P2 provide the best explanations:

“The agile environment inverts typical complex organizational norms. Agile values both individuals and teams. It demands discernment and organizational processes and concepts with tremendous flexibility. Numerous organizational contexts have seen extraordinary transformations as a result of the use of agile concepts.” - P1

“[...] yes some public services are already provided in 2019 in agility vision, but because we are not allowed freely to provide the needed flexible environment supports agile from contract perspective and the law allowed such flexibility internationally, the government had 2 years contract with Egyptian company which finished two great services that are used until today. The government was super cooperative with this organization and would never be like that with us.” - P2

- Process

The methods prioritize customer involvement, neither scope nor strategy, but instead iteratively delivering the target value faster; P1 has a high position that prevents him from giving in-depth details in this manner but explains it very well from a theoretical perspective:

“[..] requires dividing the project into portions and emphasizing collaboration and ongoing development. A cycle of planning, executing, and assessing is followed by teams. It was proposed that the commitment be broken into phases. Therefore, installation, testing, and daily living become simpler. [..] I am only attempting to explain this from a theoretical standpoint; implementation-wise, again, everyone implements the portion that best fits their use case.” - P1
4.2.2 Recognition

Agile recognition comes when considering its benefits and being fully aware of its advantages, whether from personal or organizational experience, what is touched by outside projects, or even what is read from books when no agile experience exists. The recognition comes from both the organization or (service provider – vendor) and the customer.

- Organization

The organization's top advantages are reducing risk, being transparent, better understanding, and enhancing the team's morale. P2, P4 and P6 mentioned some of these pros:

“It is known in the IT field that 80% of the usage of new software may stem from 20% of its capabilities. Nevertheless, unless we construct the item and ask our users, 'Are we done yet?', we will not know which 20% of the features yield 80% of the users […] we will stop once we realize we have exhausted our resources. In agile, we avoid this completely.” -P2

“Agile methods are so open and transparent that it is impossible to conceal […] we begin with difficult scope, teams may make swift modifications if anything fails. In addition, you can gradually understand then be able to track and complete the essential tasks and provide the greatest value.” -P4

“The Agile methodology necessitates that teams make rapid progress on a product and then test that progress, allowing teams to discover issues and failures early on. Early problem-solving decreases the likelihood of unneeded long-term labour.” -P6

- Customer

From the customer's perspective, the advantages are quick to value, visible contract terms, customer satisfaction and trust in the other party. Some participants mention some of these benefits clearly, like:

“In the Agile methodology, the cave disappears. Every short period, we deliver real value with honest improvement. Status updates are unnecessary, as we can use real progress as an indicator instead. The customer can see directly what are the updates, in agile we are not afraid of any mentioned point in the contract, this is we, and this is our work.” -P2

“The greatest advantage of implementing Agile is the ability to provide technology more quickly and in a manner that fulfils the objectives of your business partners. Like a virtuous circle, it is a never-ending loop where you establish trust with Agile by
consistently delivering quality products. The customer is satisfied even with failure, so we agree together either to avoid it or to fix it.” -P3

4.2.3 Obstacles

It is a significant fact to admit that agile is not an ideal solution for every project, plus adopting such a methodology is not a box process. Many arrangements and studies must be considered and might take a long time to apply, especially when it is related to huge organizations like governmental sectors to provide public services. The obstacles could be categorized into three types: national culture, legal framework and management buy-in.

- National Culture

National cultures suffer from a lack of communication internally and externally, no awareness of agile methodology, rejection and resistance to any possible changes, zero failure accepted in any services provided to the citizens, isolation of the sector to live in its bubble, staffing structure has very rigid hierarchy cannot reform even internally, rigid culture to give the dominant image which limits the team ability to any expected improvement and performance. Several participants mention all mentioned barriers and more:

“Our Middle Eastern and global civilizations are inflexible bureaucratic cultures with zero failure culture [...] to adhere to the hierarchical concept for generations. They have been instructed to accept a command-and-control system without challenging its decision-making model's legitimacy.” -P5

“[...] According to experts, however, it is considerably more difficult for government personnel to collaborate across departments due to government regulations and overall culture. Also, you are isolated from the world; you are not allowed to suggest to reform the team and reallocate the interest and roles easily; it is a long process and needs many signatures to approve and might not.” -P4

- Legal framework

The legal framework is ancient, with rigid contract rules that make any flexibility needed for agile forbidden, as explained by P5 and no Government Citizen (G-C) direct relation due to bureaucratic cultures, as suggested ironically by P4:

"Citizens anticipate receiving what they require from the public sector quickly and conveniently, providing feedback on the services they get, and participating in
decision-making at any time and from any location. [...] What I have just said is a **dream**; when applied, it becomes a **joke**, and no one will at least initially believe it.” - P4

“Government agencies are subject to far more **complicated** regulations and laws than the non-public sector. [...] Believe it or not, some of the regulations stated on all government contracts date **back forty years** and make **no sense** today, yet no one dares or even recommends changing them.” -P5

- **Management buy-in**

  Management lacks agile methodology buy-in due to the government vision, which is difficult to adapt or support, especially with extremely slow decision-making:

  “Government leaders are either **unfamiliar** with Agile or **hostile** to it. In the latter situation, executives are typically **hesitant** because they are unwilling to relinquish project management as Agile requires. [...] Agile has not yet reached its full potential in the public sector.” – P1

  “In government entities, work cultures are frequently **resistant** to change. This resistance is partially a result of public sector laws, but it is also a result of **habit**. [...] A common sentiment is that we are different. When there is such resistance to change, agency leaders are frequently **hesitant** to make choices, even if they are considering the change.” -P4

**4.2.4 Readiness**

The readiness theme here indicates different aspects, individual perspectives, the organization, or the whole government.

- **Individual**

  Individual indicates the required leadership skills, talent, certificates when needed, member behaviour and ability to change and adapt:

  “**Most of our team is already Project Management Professional (PMP) certified or Agile Certified Practitioner (ACP); we also have Scrum Masters. I do not think this would be the critical component leading to the transformation. Also, we have Ongoing Development Projects (ODP) which is somehow already applied in an agile approach, and we are doing it with a great value by those employees who are most of them certified.**” -P1
Organization

Organizational readiness shows the structure of the team and the culture by rearranging the priorities with the proper technological framework to adopt agile purposes.

"Private organizations could adopt a more flexible, capacity-based approach to funding, [...] with broader control spans and clearer accountability and program ownership allow the workforce to assume responsibility for decision-making and problem-solving.” - P1

“A cultural and behavioural shift is the core of an agile transformation. Agile values autonomy at all levels, enabling teams to experiment with alternate problem-solving and reform strategies. This is a very critical step but is needed, and we are ready for it sooner or later. We have strong leadership and regular, unambiguous internal and external communications.” - P2

Government

Government readiness shows how a mature mindset is enough to provide the degree of commitment needed for education and funding and opening the door to start a pilot project:

"Besides attracting and promoting top personnel, [...] leaders must completely grasp the transformation's mission, purpose, and underlying principles to ensure that teams understand the organization's strategy and purpose at all levels. Then they must relinquish power, discarding old command-and-control structures and permitting teams to choose "how. This requires our funding and education to both parties inhouse and outdoors” – P2

“Typically, government organizations are structured to develop services and implement projects utilizing a waterfall methodology. [...] Many aims and varying policy objectives can cause complexity and conflict, making it difficult to establish objectives. Changing established governance, budget, and financing arrangements may be challenging. [...] Despite the obstacles, government interest in agile is rising. While tactics will vary, any change must address several essential areas. These elements comprise the framework of the agile operating model depicted in the exhibit.” - P4

“ [...] before the government can allocate resources correctly and construct the infrastructure that agile necessitates, must enable autonomy at all levels, everyone must
know the government’s **mission** and strategy, as well as why and how the government must evolve.” -P5

### 4.2.5 Recommendation

Several recommendations and demands are taken from the participants to make agile adoption a fundamental step:

- **Priorities**

They are beginning with priorities and rearranging them like starting Agile Management Office (AMO), starting the adoption strategy and specifying the needed funding budget and opening new agile vacancies and encouraging starting with small projects as pilot projects to gain the trust of all parties:

“contracts estimated it would take two months, but it took nine months in reality; we paid salaries when we have a contract with the government, and they are ready to pay a lot, but we expect the **payment** comes one year later due to changes in governments or parliament or any other circumstances make the **finance** unbalanced.” -P1

“Agile may most quickly demonstrate its worth through modest, rapid successes. [..] Instead, choose a **small project** that has to be completed and do a small portion of it; to demonstrate early success, begin with trial initiatives. Just begin carving out tiny chunks to demonstrate value rapidly” -P4

“Beginning with **pilots** in one or two areas helps develop confidence, allowing others to see the benefits and paving the path for implementation across the business.” -P5

“It is neither a checklist nor a collection of tools. You practice Agile by **embodying** Agile. To do that, open agile **vacancies**, make it a condition to be agile **certified** and establish **AMO**, let it take that headache from you!” -P6

- **Re-designing**

Re-designing some frameworks and processes on the government side like following service path, the procedure of decision making, the KPI of track progress, the course plan of training, advertisement channels to educate citizens and the procurement system structure to support hybrid methodology and then agile:
“Government can overcome cultural **reluctance** to change with education, training, and incremental Agile successes. Leaders should foster an environment that **embraces** change and use all possible channels to deliver the expected **future** to the citizens, and change should not be feared. It can cause beneficial disruption.” -P2

“Ensure that you adhere to the advice made by other government agile professionals about **guidance**. Moreover, establish your agile adoption and progression strategy, consider the **hybrid** module first, then slowly focus on agile later. To provide staff with **training**, coaching, and mentoring, you must give your employees extensive training and coaching. **Leaders should begin this by instructing** workers on agile terminology and ideas.” -P4

“Understand the culture shift necessary for agile development. Agile is not an IT procedure but a cultural shift that affects how things are done. Keep in mind the present laws and limitations imposed by the government. This action may conflict with the limits of some policies in **procurement**, deployment, security, etc., logically these need to be changed too.” -P5
5 Discussion and Conclusion

This study's primary and initial goal is to answer both research questions: “What are the challenges of implementing agile methodology into the Kuwait ICT public services?” and “What are the recommendations for the government side to facilitate adopting agile transformation?”. Reaching clear answers to these questions needs to focus on Kuwait as a case study to determine the current status of agile in public services and the government's role. This finding leads to discovering the challenges in adopting agile methodology and recommendations to the government regarding this manner. Taking the benefits from literature reviews and participants' answers in the interviews gives a complete vision of the problem's inner and outer. These mentioned areas are discussed in this chapter and followed by the conclusion; the finalized themes of this study from the thematic analysis are also presented to show their relation to answering the research questions.

Kuwait's government's obstacles in adopting agile methodology are not unique; similar challenges were found in other governments. Even research out of Egypt found that implementing agile methodology improved both the software development process and customer satisfaction [8]; problems were identified, such as excessive demands placed on developers, inadequate application of work estimation, and an absence of sprint planning. Lack of government funding and inadequate information and communication technology infrastructure were also found in a Lebanese institution's study of in-house software development [6]. Due to a lack of competence and understanding of agile among various government units, adopting a hybrid approach is beneficial, as suggested by P4 and [16]. This approach strengthens the tried-and-true traditional method while making the more advanced agile methodology accessible to our less-developed region.

The interviews and literature review found that many organizations control their programs and projects through a Projects/Program Management Office (PMO) [19]. Typically, these offices manage projects developed using more conventional approaches, such as Waterfall, although they can also oversee Agile initiatives. Some firms are even establishing what experts refer to as Agile Management Offices (AMO) to oversee massive agile projects. Like a PMO, AMO aims to guarantee that teams finish high-quality, cost-effective projects. An AMO's employees have a comprehensive understanding of Agile and how to manage work
and assess progress in line with Agile. Examples of government agencies employing Agile for significant projects and having AMO are the Federal Bureau of Investigation (FBI), the Texas Health and Human Services Commission, and the Department of Defense's health service systems [18]. Experts advocate fundamental stages for implementing and scaling Agile in government organizations: defining expectations, establishing long-term objectives, and building on early achievements. Considering AMO at the early phase is also highlighted by both P4 and P6. AMO in the governmental sector has responsibilities in front of the citizens and leader, and the following are some of them [30]:

1- Establish reasonable expectations for the coming public services by expressing a roadmap and target output to the citizens.

2- Consider long-term roadmaps associated with government vision and citizens' needs from the coming public services

3- Ensure agile understanding by focusing on staff training and using advertisement channels to educate citizens on adapting to agile.

4- Begin with small projects and deliver value incrementally and let the citizens themselves involve in the enhancements.

5- Consider using a special fund under the flexible term of the contract for large-scale projects.

Due to the lack of familiarity with agile principles on the part of government agencies, the researchers in [14] confirm that it is challenging for some enterprises to employ agile when contracting with the government. A public institution should clarify in its procurement announcement if they want to adopt agile methods. Each party involved in the project should agree on the approach used and the division of labour before work begins. Effectively adopting agile methodologies in government agencies is difficult because of the high turnover rate of employees.

Traditional contracts and current procurement systems in government are dense with precise requirements for what must be completed after a project; however, this is not the case in agile. P5, who is working in the legal department in the public sector summarizing other papers [3],
[18] and [17], ended up with some essential points require that government directors change contracts related to agile to accommodate cooperation and evolution:

- Have fewer requirements and greater collaboration.
- Write how the product performs at each step.
- Focus that the government is responsible, not the supplier.
- Specify in the contract for a conventional project the vendor's needs.
- There are no lump-sum or fixed-price contracts.
- Compensation depending on the time spent on a project.
- Organize payment differently, e.g., adopt incremental pricing or charge a price for each completed piece of work.
- Using agile methods to develop working prototypes of technological and procedural solutions would then be shown to the public. This methodology allows agency stakeholders from all sectors to observe, learn from the solutions, and adjust them.

[15]

Leveraging innovation, responding to citizen expectations to reach the level of partnership, and providing services in novel ways can all be accomplished through collaboration between the public sector, private industry, and non-governmental organizations to boost the enthusiasm of government workers and the citizens [1]. The team in Ottawa supports this idea and adds that public service needs career path and necessary skills to develop agile leaders who can foster innovation, taking into account the possibility that professionals of a younger generation may have a different set of expectations for their careers, rethinking the regulatory function of governments and, in some situations, reforming corporate regulations [31].

The research finds many challenges and suggests many recommendations. To summarize all, Table 3: Summary of challenges and Recommendations is below:
<table>
<thead>
<tr>
<th>Challenges</th>
<th>Recommendations</th>
</tr>
</thead>
</table>
| Bureaucratic culture with no G-C direct relation | - Star initiating AMO in organizations and government [P6], [32]  
- Make your citizens themselves the testers and ideas providers to enhance the services in the coming sprints [P4], [33] |
| Fears of agile                                  | - Employee hybrid methodology [P4], [34]  
- Start with a small pilot project [13] |
| Lacks of knowledge                              | - Start citizens' education [P2], [31]  
- Training and mentoring [P4], [6]  
- Open new agile opportunities [P6] |
| Slow decision making                            | - Establish small committees for quick actions [P1]  
- Give AMO the authority for quick responses [18], [P2] |
| Complex conditions and terms                    | - Study and apply new terms for the procurements process and strategy [14], [P5] |
| Budget and time limits                          | - Reserve a larger budget from the beginning of the finance year to agile project [P4] |
| Rigid legal framework                           | - Add one specific term called agile projects appendix, which has short-term sprints outputs and becomes a live flexible document, not rigid [P5]  
- Bind the time with output and prices milestones in the contract [10] |
| Challenging to replace the old rules and regulations | - Take the benefits from similar challenges in other governments and follow a similar or better way to solve [8], [P1]  
- Agile should be incorporated into existing government priorities significantly [P1], [18] |
| Old Mindset                                     | - Change the mindset that it is not buying a product but is a partnership [4], [P2]  
- Establish agile networks of culture to facilitate adoption, create channels for knowledge exchange, identify lessons learned, and disseminate performance reviews. [15], [P2] |
5.1 Conclusion

The study's primary purpose has been to examine the challenges with Agile to implementing ICT public services and how important it is for the government to facilitate this process and remove some challenges. Using the applicable model for developing a thematic analysis ends up with a table of themes, categories, and codes covering the ICT managers and decision-makers in public and private sectors, attempts to clarify the agile factors and hinders. The link to the transcript is essential because these categories are revised and updated several times during these procedures to ensure accurate results. In the final step of the implemented model, this report is compounded.

This research restores the faith that the Kuwaiti government is ready to adopt agile in public services, especially ICT. Members and organizations have the initial factors to start this essential step to maintaining a democracy that necessitates departing from the operational status to adopting innovative and risky measures. Government agencies can plant the seeds for agility and resilience through professional training that creates new skills, highlights valuable knowledge resources, and creates networks of talented, adaptable leaders.

The management teams and the organizations in the private sector are pretty open to using Agile methods, which leads to participating in the development of ICT public services and helps the development and testing contractors become accustomed to Agile practices; in order to reach that goal, those in charge of the Kuwait Government have to facilitate the organization's transition by opening a new track in the procurement process and add special terms in agile contracts and trust the citizens to be decision maker partners in the future public services.

5.2 Ethical & Societal Implications of The Results

This section explores the ethical implications of this study's findings and their potential societal consequences. It is imperative to consider the broader ethical landscape surrounding the research outcomes. This research adhered to strict ethical guidelines throughout its execution, ensuring integrity and confidentiality. Several ethical considerations were taken into account during this study:
5.2.1 Ethical Implications of Research Findings

The ethical dimensions of implementing Agile methodology in Kuwait's public services have been paramount throughout this study. Ethical considerations emerge as Kuwait embarks on the journey towards Agile adoption in its public sector. This section presents the ethical results drawn from the research and highlights the implications and recommendations that stem from these findings.

- **Honest Reporting**: The findings and results presented in this thesis honestly represent the data collected. No data manipulation or fabrication occurred.

- **Transparency and Accountability**: Transparency in decision-making processes and accountability for project outcomes are ethical imperatives. It has been observed that the transition to agile practices often requires a rethinking of roles and responsibilities, demanding a transparent culture within government entities.

- **Citizen Participation**: Ethical concerns include the meaningful involvement of citizens in Agile projects. As recommended by the participants, engaging citizens as testers and idea providers in the development process is ethical and enhances the quality and relevance of public services.

- **Knowledge Sharing**: Ethical responsibility extends to knowledge sharing and capacity building. Training and mentoring programs are ethical initiatives that empower employees and prepare them for agile practices.

- **Inclusivity and Fairness**: Inclusivity and fairness are ethical principles guiding Agile contracts and procurement processes. Contracts should be clear and inclusive, specifying roles and responsibilities and focusing on shared objectives.

- **Public Trust**: Building and maintaining public trust are ethical imperatives for government agencies. Ethical obligations necessitate delivering value incrementally, focusing on citizens' needs and expectations.

5.2.2 Societal Consequences and Impact

Adopting agile methodology in Kuwait's public services carries significant societal consequences and impacts beyond project management and technical practices.
• **Positive Workplace Interactions**: By seeking a deeper understanding of trust within organizations, this research aims to contribute positively to workplace interactions. Enhanced trust can foster better collaboration, communication, and productivity, ultimately benefiting individuals and organizations.

• **Enhanced Citizen-Centric Services**: Agile adoption allows government agencies to deliver services more closely aligned with citizens' needs and preferences. This consequence enhances the overall quality of public services.

• **Innovation and Efficiency**: Agile practices encourage innovation and foster a culture of continuous improvement. This innovation can lead to more efficient and effective public service delivery.

• **Government-Citizen Partnership**: Agile methodologies provide an opportunity to transform the relationship between government and citizens. Citizens can become active partners in shaping the development of public services.

• **Adaptive Governance**: Agile practices introduce adaptive governance structures, enabling government agencies to respond more rapidly to changing societal demands and challenges.

• **Empowered Citizens**: Citizens who actively participate in agile projects are empowered to influence the services they receive, fostering a sense of ownership and accountability.

• **Responsive Government**: Agile government agencies are better equipped to respond to emerging issues and adapt to changing circumstances, enhancing their responsiveness to citizen needs and providing an innovative ecosystem.

• **Transparent Governance**: Ethical Agile practices promote transparency and openness, reinforcing trust in government institutions.

5.3 **Limitation**

While this study has provided valuable insights into the challenges and recommendations for implementing Agile methodology in Kuwait's public services, it is essential to acknowledge
its limitations. The following sections discuss the limitations associated with generalizability, reliability, internal validity, and external validity.

5.3.1 Generalizability

Several factors limit the generalizability of the study e.g. contextual specificity and sample size. The study primarily focuses on the Kuwaiti context, characterized by its unique governmental structures, cultural norms, and administrative processes. As a result, the findings may not directly translate to other countries or regions with different contextual factors. Moreover, while sufficient for its scope, the study's sample size may not adequately represent the global diversity of public service organizations. Different countries and regions may face distinct challenges and opportunities when adopting Agile methodologies; considering that GCC countries are exceptional and hence have many factors in common, like cultural and economic, this fact extends the possibility of generalizing these research results.

5.3.2 Reliability

Reliability pertains to the consistency and stability of the research findings. Despite efforts to ensure reliability, certain limitations are worth noting in the data collection process. The reliability of qualitative data collection methods, such as interviews, is subject to factors like respondent bias and interpretation. While rigorous data collection procedures were followed, variations in responses and interpretations may have introduced some unreliability. Also, thematic analysis involves the interpretation of data by researchers. While steps were taken to enhance reliability through inter-rater reliability checks, subjective judgments may influence the identification and categorization of themes.

5.3.3 Internal Validity

The study’s internal validity depends on how well it establishes the causal relationships within its scope, e.g. causality and research design. While the study identifies challenges and recommendations for adopting Agile methodologies, it cannot establish causal relationships definitively. Factors contributing to these challenges may be influenced by many variables not explored in this study. Additionally, this study primarily utilized qualitative research methods, which are susceptible to various sources of bias. Multiple data sources were used, including interviews, literature reviews, and document analysis, to cross-verify findings as action to mitigate this effect.
5.3.4 External Validity

External validity limitations include many factors such as time sensitivity, resource availability and legal and regulatory variations. The study's findings are based on the Kuwaiti context at a specific time. Agile adoption in public services is dynamic, and the challenges and recommendations identified may evolve over time. Furthermore, the study's recommendations consider the availability of resources and infrastructure in Kuwait. These may differ significantly in other regions, impacting the feasibility of implementing similar recommendations. Lastly, legal and regulatory frameworks governing public services vary across countries. The applicability of recommendations may depend on each region's specific legal and regulatory landscape.

5.4 Future Study

As this research explores one case study, it may be beneficial to expand the scope of a future analysis. One example would be to examine Arab Gulf governments, including Kuwait, as part of a more extensive case study examining the differences between these nations and how these distinctions affect the success of applying Agile to the government for public services. This expansion encompasses more firms, interviewers, and data-gathering techniques that would boost the precision and clarity of the results. It would also be strengthened if the results were consistent with this study. Another example may be a quantitative method that, with the help of this study, clarifies what to include in a survey, for instance. Increasing the number of focus groups and, in this instance, the validity and dependability of the research. In either example mentioned above, both challenges and success factors of agile transformations must be included in the future study; such transformation has specific criteria that lead to a successful transformation when followed wisely, so it is a chance to find out success stories from the neighbour countries.
References


Appendix A – Interview Questions

Name:
Position:
Public/Private IT Organization:

1. What do you know about Agile methodology in general?
2. Are you using any agile methodology at your organization? If not, are you planning to do so?
3. What are the most interests aspects of using Agile at your organization?
4. What are the changes that you are ready to make in order to apply the agility?
5. How mature is your organization regarding these changes? Culture, mindset, and technology?
6. What are the challenges that faced / might face in applying Agile?
7. What is the easiest way to take to start this action? Pilot projects, rules changes, internal projects, etc.
8. How does the technology (infrastructure) in the organization affect the application of agile?
9. How do country contract rules, for example, affect the organization’s readiness to apply agile?
10. When will your organization reject Agile methodology at work?
11. Do you have any general comments regarding this manner?