

Interim Report

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for Market Research

Abstract

The focus of this research is in the area of market research and mobile application technology. It looks into the possibility of integrating these together to support the performance of market research for business, which can be completed at ease by their customers. Such as study is important in order to help develop market research alongside the technology that the businesses and general public are using. This is important because as people use newer technology and expect more for less effort the methods for all services they use need to update themselves to stay useful, this is the same for market research. The findings from this research provide evidence that it is possible to tweak market research techniques that would then allow them to be used in a mobile application. In theory, it is possible to adapt market research techniques to allow mobile applications to support the collection of data from its source.

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Contents

1.0	Introduction	5
2.0	Background	
2.1	What is Market Research?	6
2.2	Why is it Useful for Organisations?	6
3.0	Research and Justification	
3.1	Market Research	
3.1.1	Why Expand the Capabilities of Market Research into Mobile Applications?	7
3.1.2	Market Research Techniques and How They Could be Developed to Work in Mobile Applications	8
3.2	Mobile	
3.2.1	Why Develop A Mobile Application Instead of a Programme for Another Technology Type?	10
3.2.2	Is It Possible To Integrate Other Technologies?	11
3.2.3	What Platform Is Application Being Developing?	12
3.2.4	SWOT Analysis of Using a Market Research Application	14
3.3	Approach and Outsourcing	
3.3.1	A Comparison Of The Different Approaches and My Chosen Approach	16
3.3.2	Outsourcing Management Techniques	19
4.0	Mobile Application Options	
4.1	Similar Applications	20
4.2	Application 1	20
4.3	Application 2	20
4.4	My Chosen Application	21
5.0	Application Requirements	
5.1	Justification	22
5.2	Use Case Diagram of System	23
6.0	Conclusions	24
7.0	Glossary	26
8.0	Bibliography	27

1.0 Introduction

The level of technology has developed rapidly over the past number of years and is now part of everyone's daily lives. However, market research has failed to use this to its advantage, as it does not incorporate technology to target the audience required, at the same rate. There is a significant gap between technology development and market research integration. This is where my dissertation reports, the requirements, design and final prototype will demonstrate how market research could potentially be developed as an application for people to use on their smart phones.

I have proposed this project, as I want to investigate whether market research could make use of the new advance in mobile phone technology. Looking at how it developed to use the internet to collect information, the next step would be to develop into mobile technology, specifically smart phones, as these are used by people on a daily basis. Based on what I want to investigate, I was able to develop a strong aim for my project in the initial report. Within this report I will be trying to prove or disprove this in theory and in my final I will the plan and develop a prototype application to validate this.

"The aim of my project is to uncover if mobile phone applications can be developed to help businesses, with consumers, primarily restaurants, in the collection of market research."

The objectives of the interim report are to:

1. Complete research into market research, mobiles and outsourcing that will then be used to justify my decisions for the application, before week seven;
2. By the end of week seven, have decided on a final idea for the application;
3. And have a complete set of requirements for the application by the end of week eight.

Based on the objectives of this report, the following questions will be answered to ensure that it is viable for market research to develop its collection methods into mobile applications:

1. Is it possible to for mobile applications to be used to collect a range for different types of market research?
2. Can this be completed on mobile applications along, or is a web based research management system needed?
3. How will I carry out the outsourcing?
4. Is there more than one way to integrate market research and mobile technology?
5. What are the requirements for such an application?

I am attempting to prove that this is a viable way of collecting research directly from its source. There is a gap between the technology level the general public are using nowadays, and the level of technology used by organisations to collect market research. Therefore, if my research proves this has the potential to work, I will then demonstrate this through developing a prototype application.

This Interim report will consist of several different chapters, each of which is detailed below:

- Chapter 1: The Background – contains basic definition of market research and its usefulness;
- Chapter 2: Research and Justification;
- Chapter 3: Description of two possible mobile applications based on research;
- Chapter 4: The requirements of the chosen application;
- Chapter 5: My conclusion based on my research and application ideas.

2.0 Background

2.1 *What is Market Research?*

Market research is a systematic and objective collection of data that is then analysed ^[i] to provide the organisation with reliable evidence for management to use, helping to make better and informed decisions. ^[ii] It provides a way of collecting data directly from the respondents in order to investigate and answer questions on human behavior and opinions / thoughts. ^[iii]

Within market research the main activity / objective involved is exploring tactical and strategic options available for management and then making recommendations from here. ^[iv] To do this the researcher needs to gather data from the customer, mainly their opinions on products or services. ^[v] This is called primary market research and relies upon the goodwill of the public to provide the information. Secondary research is another form of market research. It involves the use of reports produced external to the organisation, such as Keynote reports.

For the purpose of my dissertation, I will be focusing on the primary form of market research. My main decision for doing this is that research in the secondary form has already been gathered, analysed and represented in a graphical and written report. Therefore, if I was to choose secondary research, the application would be searching through research reports on market sectors and different organisations, not gathering fresh and up-to-date information about the business completing the research. For example, a restaurant owner may want to see what their customers think about the service and food they provide, primary market research can provide the answers to this with accurate and up-to-date information, but secondary research would only provide reports on the market sector, or if research has been completed before, a report on the restaurant from a number of years ago.

2.2 *Why is it Useful for Organisations?*

Market research is very useful for organisations as it provides first hand reliable information in both quantitative and qualitative form. Research, specifically primary research, allows for the organisation to engage with the public and use the data they provide to make better decisions, to not only benefit the business, but also their customers. ^[vi] Businesses and organisations can introduce new products / services or tailor and improve their products or services based on the results to improve customer happiness, and hopefully encourage repeat business.

3.1 Research and Justification – Market Research

In this section I will be addressing all aspects related to market research, for example, why develop market research, allowing information to be collected from mobile applications and justifications on why I am choosing certain collection techniques over others.

3.1.1 *Why Expand the Capabilities of Market Research into Mobile Applications?*

Market research currently operates online using laptops and desktop computer, or by hand. This was acceptable a number of years ago, but now with the wide spread use of smart phones and mobile applications used by the general public, would it not be a viable option to create a mobile application that can be used to gather the same information?

There are one point two billion mobile web users worldwide, which use their mobiles for a range of different activities, which originated from the WWW on a computer. For example, web search, emails, games (apps), looking at news and weather, social networking, banking, creating and developing documents, shopping and watching videos. The modern day smart phone provides the same functionality as a laptop. Mobile web searches have quadrupled in the last year, which is reflective in that one quarter of Americans now only use the Internet on their mobiles. With mobiles being used for such a vast range of activities, it should definitely be able to support business in market research. ^[vii]

In Appendix A you can see a timeline. This represents the correlation between market research developments and technology developments. As you can see from the timeline, up until the 1940s market research was completed with pen and paper, a researcher and interviewee despite the technology for telephone surveys and recorded interviews having been developed almost seventy years previous. The same can be seen when you examine the development of the interactive web in the 1990s and online questionnaires, which were first used in the mid 2000s. The technique was kept the same, but was incorporated with a range of different technologies.

Over the past two or three years a new type of market research has been developed involving social media. Here companies can set up a page on a networking site and allow users to comment on the business and leave feedback. Again it took a number of years to develop market research to include this as these sites began to be used in 2004, but only since 2010 have companies become involved.

The first smart phone was developed in 1992, but market research has not developed into this area fully. This could be down to the fact that the smart phones developed in 1992 up to 2010 were not complex or advanced enough to support such an activity. Since then smart phones have progressed significantly and can now complete most activities that a laptop can complete and so it would be a logical decision for market research to come in the form of applications that the user can download.

Having an application that will allow the user to complete different techniques in market research has its benefits, for example, it is more convenient for the user as they can do it on-the-go and so may be more likely to complete what is being asked as they may forget if they have to wait until they get home. It is more environmentally friendly than people filling in questionnaires or opinion sheets on paper and with mobile technology at its advanced level a wide range of the research techniques should be able to be accommodated.

3.1.2 *Market Research Techniques and How They Could Be Developed to Work in Mobile Applications*

Within the primary research section of market research there are numerous types of collection techniques, some suitable and other unviable. I have taken each technique in turn, explained how it works and from this whether it is suitable for use in a mobile application.

Interviews are a research collection technique, where the interviewee is asked questions face to face by the interviewer. It can be completed in any environment with the aid of samples where appropriate and can be recorded to ensure that all information given is assessed. The questions asked can be tailored to allow different types of information to be gathered, but open questions are most popular using this method as they provide details and opinions that closed questions do not. The questions can then be further developed as the interview progresses in order to ensure that all possible information is collected. ^[viii] This type of market research cannot be used due to the requirement of having to take place face to face. It could not effectively be integrated into a mobile application.

Market research includes surveys as a form of collection. There are three different forms of surveys:

Telephone Surveys	Telephone surveys are usually operated within call centers, involving a caller asking the receiver questions from a survey / questionnaire. It is the most popular method of collecting data in a business-to-business environment. Although, this allows for faster and targeted data collection, there is a small window of opportunity to collect the information as people may be at work, or out during the day. The data collected is not normally as in-depth as that gathered from a face to face interview due to time constraints and people not wanting to participate. ^[ix] From the information above you can see that it would not be possible to use telephone surveys in mobile applications as it involves the use of phone calls being initiated from a call center or the business requiring information. A mobile application would not be feasible or effective.
Email Survey	Surveys can also be completed via email. The survey is contained within the email or as an attachment. This method also allows for other information to be attached, such as, pictures and sound files that could be needed. Email surveys tend to be the most cost and time effective form of collecting market research, yielding the highest response rates. For these reasons email surveys are becoming more popular. However, the downfall is that you have no control over who completes the surveys, so you may find that certain groups have higher numbers of surveys completed, compared to others. Email surveys tend to contain mainly closed questions as there is no person to person interaction to help encourage expression of opinions; due to this the answers are limited to certain options, such as yes / no or the use of the likert scale. ^[x] There is a possibility to develop an application to support this, but I am unsure of whether it will be effective or worthwhile. It is technically possible to complete this, but you would not want the application calling emails as it leaves the email more vulnerable to hacking.

Internet Survey	The last type of survey and most rapidly growing kind are internet surveys. These are based on the internet and can be accessed by the user through a link in an email, or creating an account and receiving invitations if you are suitable. Internet surveys can reach a large, worldwide, audience, which can help businesses gain an insight into different opinions and cultures. The creator of the survey can restrict users to only complete the survey once, helping to reduce bias results and they can contain both open and closed questions; although closed questions are more popular. Internet surveys tend to gather brief opinionated statements and yes / no or likert scale answers. ^[xi] There is definitely potential for using internet surveys in a mobile application, as the survey can be called from the internet through the use of a QR code then completed and submitted using the application.
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Overall I feel that surveys can be completed using mobile applications, but I think that they could be created using a web based research management system and then completed using the mobile application, before being submitted. This would allow benefit for the user completing the questionnaire on their mobile, the most handy and rapidly growing technology, whilst the business can use the web based management system to create, edit and analyse the data collected.

Focus group forums are classified as a form of market research as businesses can set up group discussions in a set environment or an online forum to analyse discussions between people relating to the set topic. Ideas are developed by the discussion and multiple opinions expressed, both of which provide lots of information for the business to analyse before benefiting from its value. ^[xii] An online group forum could work well in a mobile application as people can read other comments and post their opinions on the go. This type of market research could definitely be developed so that mobile applications can deliver discussions and collect opinions.

The last and freshest type of market research comes in the form of social media research. This involves a business creating a profile on Facebook / Twitter for the users to like, post and tweet their comments and opinions. In particular Facebook where users can further discuss and debate with other users, similar to a focus group forum, but there are no set topics. This type of research attracts people with an interest to interact and comment / tweet through a method they are familiar with and use on a daily basis. Social media research would definitely work well within a mobile application, and could prove quite effective. This is definitely a growing trend, with businesses using social media and so it would be beneficial for the researchers within them to have an application that can collect and present the data.

As you can see there are a number of possible mobile applications, which could be developed to facilitate market research and this is supported by the results of the SWOT. More on this can be seen in further sections in this report.

3.2 Research and Justification – Mobile

This section will show the justifications and reasoning for my technology choices. For example, can we integrate two different technologies, and to what platform I will be using. There is also a SWOT analysis of the possible strengths, weaknesses, opportunities and threats of a business using such an application.

3.2.1 *Why Develop A Mobile Application Instead of a Programme for Another Technology Type?*

There are many different portable devices that I could have developed an application for. These include devices such as, mobiles, laptops, and tablets. There are a number of reasons for choosing a mobile application over an application for the other options.

The current trend of market research is to complete online surveys, forums and social media research via laptops and desktop computers. I feel that market researchers have fully exploited the internet via laptops and computers; to develop and add in other types of research techniques for collecting data, could saturate an already competitive market, with many companies offering services for online surveys and to gather and analyse social media data their clients need.

Tablets, such as the Apple iPad, are experiencing rapid growth ^[xiii] which is predicted to continue expanding in the future. This is a viable way of expanding of market research collection techniques due to its expanding clientele based, large screen and the application feature. On the other hand, people are not likely to carry their tablet around with them as it is larger than the average pocket size, and I feel it is important that people can give opinions on the go. Users are more likely to use and keep it in their business place, take it to and from university or keep it at home. For example, a restaurant may want feedback and if a tablet application were developed then the customer would have to wait until they get home to give feedback, whereas with a mobile application they could do it there and then. For this reason I am not opting for a tablet application, but think that in the future this is definitely an area to explore further into.

The last option was to develop a mobile application, which can be used by the user on the go. They could download a centralized app and from here complete the relevant questionnaire, or could complete a collection technique through scanning a QR code and opting for what they want to do. By completing the collection on the mobile you would be providing the user with an easy, familiar and handier way to give feedback and recommendations to different businesses; in turn this should encourage feedback as a reduced amount of effort and time is needed.

Based on the options above, the best opportunity in the current environment is provided by a mobile application. This is mainly due to the fact that the majority of people have a smart phone, in comparison to the expensive tablets, creating a larger target audience and suitable features to create an innovative and effective market research application.

3.2.2 *Is It Possible To Integrate Other Technologies?*

All of my research to date has proven that developing market research in mobile applications is viable and could prove effective. But we also have to consider if a mobile app could provide all the benefits, or does their need to be other technology integrated. I have found that the following two options are viable for development based on my research and the current levels of technology:

- A mobile application with a web-based management system;
- Or a mobile application without any other technology support.

Producing a mobile application with a web-based management system would have a number of benefits, for the business completing the research. Basically, the business manager could create an account then create questionnaires or opt into other research methods through providing the details needed. From here they could then provide a QR code and place it on a feedback sheet or menu for the user to scan. This could then open the application, which would be used to collect the data from the user and send it off to the business account for analysis. By completing a system similar to this, the business would be able to easily transfer the results from their account to presentations and other reports. It would also be beneficial as they can view results on a larger screen and easily transfer them, without having to use email, uploading or downloading. An example of this would be Run Keeper. It uses the web management system to store the previous routes run, the results and to complete calculations, such as calories burnt. The application part then records your route whilst you run, along with the speed and elevation above ground level. Both technologies work together to provide a service that is effective and widely used by twelve million people. ^[xiv] It also has additional feature so can now be used for walking, running, cycling, and hiking through using GPS.

We could also produce a stand-alone mobile application that would evolve the business creating an account and user using the same mobile application to complete the method of research specified. A QR code could be scanned to open the correct part of the application for the user to complete and then they submit what they have completed. The advantage to a stand-alone application is that the business does not need to have access to a computer to create, edit or delete parts of their market research methods. But on the other hand they can only view it on a small screen and have to go through a process to transfer results, due to the current level of technology not being fully effective in using word processors or creating presentations. This will inevitably be improved over time, but currently only tablets, laptops and desktop PCs can fully use these effectively. For example, Wind-Up-Knight is a stand-alone gaming mobile application.

Looking at the options, I feel that creating a web-based management system mobile application would serve best for a market research application. However, I can also see the benefits of having a stand-alone application. Both options could be used, and until I have decided on an idea I will be unable to define which approach I will take. This will be further addressed and confirmed in chapters three and four.

3.2.3 What Platform Is Application Being Developing?

There are a number of different mobile platforms that could be used to develop and support a market research mobile application. I found there was five main options, each of which I have researched to develop my knowledge, to help me make an informed decision based on facts.

The table below displays statistics on each of the platforms, which will help me to conclude the best platform option for the market research application.

	iOS	Android	Symbian	Blackberry	Windows
% App Market Share [xv]	31%	44%	NA	NA	NA
Number of Apps	500,000 [xvi]	300,000 [xvii]	110,000 [xviii]	99,500 [xix]	100,000 [xx]
Number of Shipments [xxi]	93.1 million	237.7 million	80.1 million	51.4 million	6.8 million
Market Share [xxii]	19.1%	48.8%	16.4%	10.5%	1.4%
Annual Growth [xxiii]	96%	244%	-29.1%	5%	-43.3%

From the comparison table above you can see that the strongest platform in Android with more than two and a half times more shipments in 2011, than the second most popular platform, iOS. The Android platform also holds the biggest market share by a margin of 13%. Both of these will allow the market research application to reach the largest amount of users within one platform, before deciding if the application was successful enough to be deployed onto other platforms. Although the Play Store where the applications are purchased and downloaded from has significantly less applications than the App Store used by iOS; but this could be used to our advance as there would be less applications to compete with for the users attention and so ours should not get lost amongst the thousands, which is more likely to happen with the 500,000 applications in the App Store.

At the other end of the scale was Windows, which came out bottom of the top five platforms used, with only 1.4% of the market consumed by Windows phones. This can also be seen in the 43.3% reduction in growth and two hundred and thirty point nine million less shipments than the market leader, Android. However, Nokia are changing their Symbian platform to Windows and so these results will change once this is complete. Despite this I don't not feel that it will make enough of a different and Windows will still lag behind it competitors. As a result I do not feel that Windows is the best platform for me to develop the market research application on as it will only reach a small fraction of the market, which has shown continual decline in the past few years.

Based on the comparison table above, it is clear that Android will allow the market research application to reach the largest and most rapidly growing user base. This will give the application the best chance of success and a large base of diverse clientele to test against before deploying the application into other popular platforms.

If the application were successful I would then start to think about deploying it into the iOS platform, as it is the second most popular. With the application operating in Android and iOS it would be available for 75% of the smartphone market to access and use. This will be beneficial for the businesses using the application as they can reach a vast audience. For example, if a restaurant were to start collecting market research through our mobile application, they can be sure that most of their clients (in theory 75%) will be able to access the application to give feedback.

3.2.4 *SWOT Analysis of Using a Market Research Application*

A SWOT analysis provides a way of understanding the strengths, weaknesses, opportunities and threats; from which threats and weaknesses can be managed and opportunities and strengths can be implemented and worked on. It allows businesses to review the position and direction they are taking, in terms of services and products. A SWOT analysis can be applied to and carried out on anything, from business and strategic planning to markets, products and research. By providing data for different areas it allows businesses to take a proactive approach to opportunities and problems.

[xxiv] I have decided to use a SWOT analysis to find out the strengths, weaknesses, opportunities and threats of users and businesses using a market research mobile application.

A PESTLE is a market analysis solution. It allows business to approach market analysis in a structured way through looking at the political, ethical, social, technological, legal and environmental issues that could affect them. PESTLE allows you to gather detailed and important information about the external environment, but lacks the structure to do the same for the internal environment. In my opinion, and in this case, I felt it was important to look at both the internal and external factors meaning that PESTLE was unsuitable on its own. I chose not to complete this with a SWOT analysis as I felt that the contents of the PESTLE could be contained within the SWOT, leaving it superfluous.

Porters Five Forces is a framework for industry analysis and business strategy development. It uses the five forces to determine the competitive intensity and attractiveness of the market. Using this for my application would be unsuitable because it is based around competitors, customers and suppliers, which the market research application does not have.

A SWOT analysis of users and businesses using a market research mobile application.

Strengths	Weaknesses
<ul style="list-style-type: none"> - Users will be using technology that they use in their everyday lives so should be simple for them to complete the research. - Can be completed on the go. - Is quick and easy to complete. - Is easy to develop as I have an experienced developer and there are numerous resources available to help. - Through using an application a faster and easier way of accessing the market and user is available. - Has the potential to create substantial revenue through selling the application or using advertising. - Has the edge on other similar applications and through getting it to the market quickly we could place well within the market. 	<ul style="list-style-type: none"> - Security problems with applications as over 90% of most popular applications have been hacked. ^[xxv] - The application will need a Wi-Fi or 3G connections that are not available in some areas and other where the signal is weak. - Someone could fill in the method multiple times making results bias / unreliable. - The Android platform has a large amount of different phones, each with their own settings and dimensions. Need to make sure the application can adjust to meet needs.
Opportunities	Threats
<ul style="list-style-type: none"> - Could produce an easy to use application with help hints throughout to help the businesses to create methods. - Currently no other mobile application that support the collection of market research. - The smart phone market and mobile application market are both rapidly growing. - Can include advertising to create revenue. - There is the option of expanding into different platforms, if the application is successful. This will provide a large audience for business to target. - Could also expand to include iPads and other tablets, as this will only involve a small amount of code editing. - The fragmented market means lower entry barriers allowing for easy entry of the application and also provides a second advantage, as the application is different from potential competitors. 	<ul style="list-style-type: none"> - The business may struggle with creating methods. - There is a fragmented market, so the application needs to be designed and marketed appropriately. - There is a lack of focus on a single platform and so multiple applications will have to be developed. - The selling price of applications is decreasing and so could affect revenue if I chose to include a purchase price. - Tablet growth is rapid and there is evidence that a small number of people are starting to use them as mobile phones. - The app market is very competitive with hundred of thousands of applications.

3.3 Research and Justification – Approach and Outsourcing

In this section I will be addressing and justifying the approach I plan to take and the outsourcing management techniques I will be using to monitor progress.

3.3.1 A Comparison Of The Different Approaches and My Chosen Approach

There are three possible approaches I could take for the development of the market research application. In the table below you will see that I have gathered all the information needed to make an informed decision on which option is best; this will then be stated and justified in the next subsection – My Chosen Approach.

	Waterfall Model [xxvixxxvii]	Agile – SCRUM [xxviii xxix xxx]	Hybrid [xxxi]
Brief Description	The waterfall model provides a linear and sequential way on developing software. This enforces the rule that the next section cannot be started until the previous one has been completed and changed is frowned upon unless absolutely necessary.	Agile Scrum provides an iterative and incremental approach to software development. It focuses on the project management side and is best for projects where it is difficult to plan ahead.	The hybrid development approach was developed by combining SCRUM and RUP features; with four major phases are described below.
Process of Development	The waterfall model consists five stages: requirements analysis and specification, system design, implementation and unit testing, integrating and system test and operation and maintenance. A graphical form of the process can be seen in Appendix B.	Within the development team you have the product owner, development team and the scrum master. All of these people then work through the following rotational process of sprint planning meetings, daily scrum meetings, sprint reviews, sprint reviews, retrospectives and artifacts, with the help of the product backlog and sprint backlog. A graphical form of the process can be seen in Appendix C.	The four main phases within each sprints are: business modeling, analysis / design, implementation / testing and deployment / configuration. Before these occur the product backlog, burndown chart and sprint planning meeting need to be carried out. After the sprint there is then a sprint review meeting where the client can see the product. A graphical form of the process can be seen in Appendix D.

<p>Advantages</p>	<ul style="list-style-type: none"> - Simple to understand and implement; - Allows for progress to be measured throughout the project; - Encourages documentation of the project; - Easy to manage due to rigidity of the model; 	<ul style="list-style-type: none"> - Easier to implement changes; - Can show the client a working prototype at each of the end of sprint meetings; - Saves time and money; - Continuous feedback from users; - Can measure individual productivity in daily meetings; - Easily develop a quality product in the scheduled time; 	<ul style="list-style-type: none"> - Can manage dynamic projects with a high level of uncertainty; - Take preventative actions for project risks; - Continuous reviews; - Can be adjusted to different types and sizes of projects; - Change is embraced; - Quick response and resolution to risks; - Design completed upfront and then can be edited within the iterations; - Ensures continuous improvement takes place; - Clients and stakeholders constantly involved;
<p>Disadvantages</p>	<ul style="list-style-type: none"> - Project are not normally straight forward or sequential; - It may not be possible to create a full set of requirements at the start; - There is no working prototype until later in the project to show the client; - A lot of wasted time whilst developer wait on others to finish dependent tasks; - Is difficult to go back and change something; - High amount of risk and uncertainty; 	<ul style="list-style-type: none"> - Scope problems can occur if there is no end date as the client will keep demanding new functionality; - Works best with fast moving projects and small teams; - Teams needs to be experienced in using the methodology; - Project will be hugely affected if a team member leaves during development; 	<ul style="list-style-type: none"> - Needs stakeholder mapping; - Needs a PM that enforces and manages process effectively;

From my research displayed in the previous table I have decided to adopt a hybrid development approach. There are two main reasons for this: 1. It will allow me to fully develop the front and back end upfront, before outsourcing; and 2. I will be able to see a working prototype from which I can specify any changes I feel necessary. The waterfall model was too rigid for my project and would make any changes needed difficult to complete. This left the decision of taking an Agile Scrum approach, or a Hybrid approach.

As the application development is being outsourced, as it is important that I was able to complete the requirements and both front and back designs upfront. This was my main reason for choosing a hybrid over scrum approach, but not the only reason. Other such reasons for choosing hybrid include:

- Is flexible, but not too flexible as has change controls;
- There is no pair programming;
- There is a working prototype at the end of the first iteration;
- I can manage the developer without having to complete multiple roles.

A scrum approach would be suitable but I wanted more control and to develop designs upfront and therefore it is not the best method to use as I would have to modify the process to suit the project. If I was developing the application myself then an agile scrum approach would have been the best option, but for outsourcing I need to ensure the developer can see the system as a whole and a hybrid approach is the best available to do this.

For the purpose of my project the requirements will be developed upfront and from here, before the start of each iteration, a medium fidelity prototype and test cases will be developed. The full hybrid approach, shown in Appendix D, will be adopted.

3.3.2 Outsourcing Management Techniques

Outsourcing is the process of transferring work that could be completed within the company at a cost or lower quality, to an external company who is better suited to the job. [xxxii] For example, small and medium sized businesses may outsource their accounting instead of employing someone to do it for them and other companies, such as O2 may outsource software development for the same reason.

I have decided to outsource the development of my market research application, as I will receive more benefits compared to if I was to complete the application development myself and I do not have the skills required to implement the requirements. Some of these benefits can be seen below:

- The final product will be of a much higher quality as an experienced android developer is completing the implementation.
- The development of the application will take significantly shorter with an experienced android developer.
- It will allow me to develop management skills and spend the time needed to develop designs and test cases for the next iteration.

How Will I Manage Outsourcing Risks?

By outsourcing my application I am open to a number of risks. To reduce the risks or rule them out completely I have decided to take the following approach:

- A contract will be developed containing details on the ownership of the application idea, contents, development documents and code; a maximum completion date, other details of the outsourcing such as developer obligations and payments. This will then be signed by both of us before the outsourcing begins. By completing the contract I am ensuring that I have full legal ownership of the application, which has been verbally agreed already so has only to be confirmed in writing.
- I have also put in place a back-up developer who will take over the implementation of the application if the primary developer is unable to do so due to work or personal problems. The secondary developer will also be used if I feel the primary developer is not producing the work to a satisfactory stand or on time.
- I have planned to have meetings per each iteration, one at the start and one at the end. On top of these checkpoint reports are to be submitted on the weeks we do not have meetings, providing me with information on what has been done, evidence to prove this and if any problems have arisen.
- Contingency development time has been set aside to be used if issues come up during the implementation that take time to overcome. This means that if the development overruns it will not negatively affect the rest of my activities and final report.
- The Copyright, Design and Patents Act 1988 will also help provide additional protection on top of the contract to protect me from the developer taking my idea and designs. With the contract covering all aspects of the application and act covering the idea and design I feel that I am fully covered for the duration of my individual final year project.

With the information above I feel it is appropriate to outsource the implementation of the application using a hybrid approach. It will provide myself, my hypothesis and the application the best chance of being completed to a high quality and with me having full control.

4.0 Mobile Application Options

Now that I have completed my research into market research, mobile applications and approaches and justified each of my choices I will now develop two possible mobile applications for market research. This section of the report will also look into and describe similar application on the Android platform and details on the application I have chosen to develop.

4.1 Similar Applications

From looking at a range of different companies websites and browsing through the Play Store I was able to find a number of applications for businesses, particularly restaurants. The majority of these applications were offering their customer deals, menus, games and purchasing options; they did not include any forms of market research. Some examples of these are:

- Starbucks: can purchase drinks, top up cards and look at menu;
- Frankie and Benny's: can look up menus, restaurant locations;
- Gourmet Burger Bar: restaurant locator, challenges and menus.

However, there were a small number of applications that offered some form of market research, but did not exclusively exist for this purpose. These included:

- Urbanspoon: users are allowed to write a comment about the restaurant and give it a rating;
- The Nando's App: lets the users provide comments about the restaurants;
- ThumbSpeak: the users download the application and select a category, for example, restaurants and then select the company they want to provide feedback on via a questionnaire.

Overall, there are a few applications that provide market research in some form, alongside other features such as locators and challenges. The applications that provide market research specifically all involve the user searching of the company they want to provide feedback on. This is not the best way as without a reward the user is unlikely to spend the time searching. Now that I have seen what is currently available to users, I will develop a number of application ideas myself.

4.2 Application 1

My first idea for an application was to offer a questionnaire service. Unlike my competitors where the users has to search of the questionnaire, the users of this application will only have to scan a QR code and the questionnaire they are looking for will downloads automatically as the business owner / manager will have created the questionnaire using a web based management system. The QR code can then be stored on the menu or a leaflet, depending on the businesses preferences.

4.3 Application 2

For the second application I thought basing it on a forum would be good. Again a web based management system would be used to create the forum and a QR code for the user to scan. The appropriate screen would be displayed and the user could write a comment. There would then be an option before submitting asking the user is they wanted notifications of other comments (to enable a discussion). This is a viable option but feel that application one would provide better data.

4.4 *My Chosen Application*

I have decided not to go with either of the previous application ideas, although both are good options which will provide data about the business, I feel, after looking at competitors, that it would be better to offer a range of market research collection methods as a way of differentiating from competitors.

The application that is going to be designed and developed will offer the users a chance to opt into a number of different methods, including: questionnaire, comment bank and social media collection. The business will provide the information and questions needed and create a QR code, from here the users will scan the code downloading the application displaying the different options to them. They can select any method, and go back to other methods after completing the previous, but before exiting the application. This application will provide the users with quick and easy to access feedback methods, of which they can chose, their most preferred method of collection.

The requirements for this application can be seen in the next section: Application Requirements.

5.0 Application Requirements

5.1 *Justification*

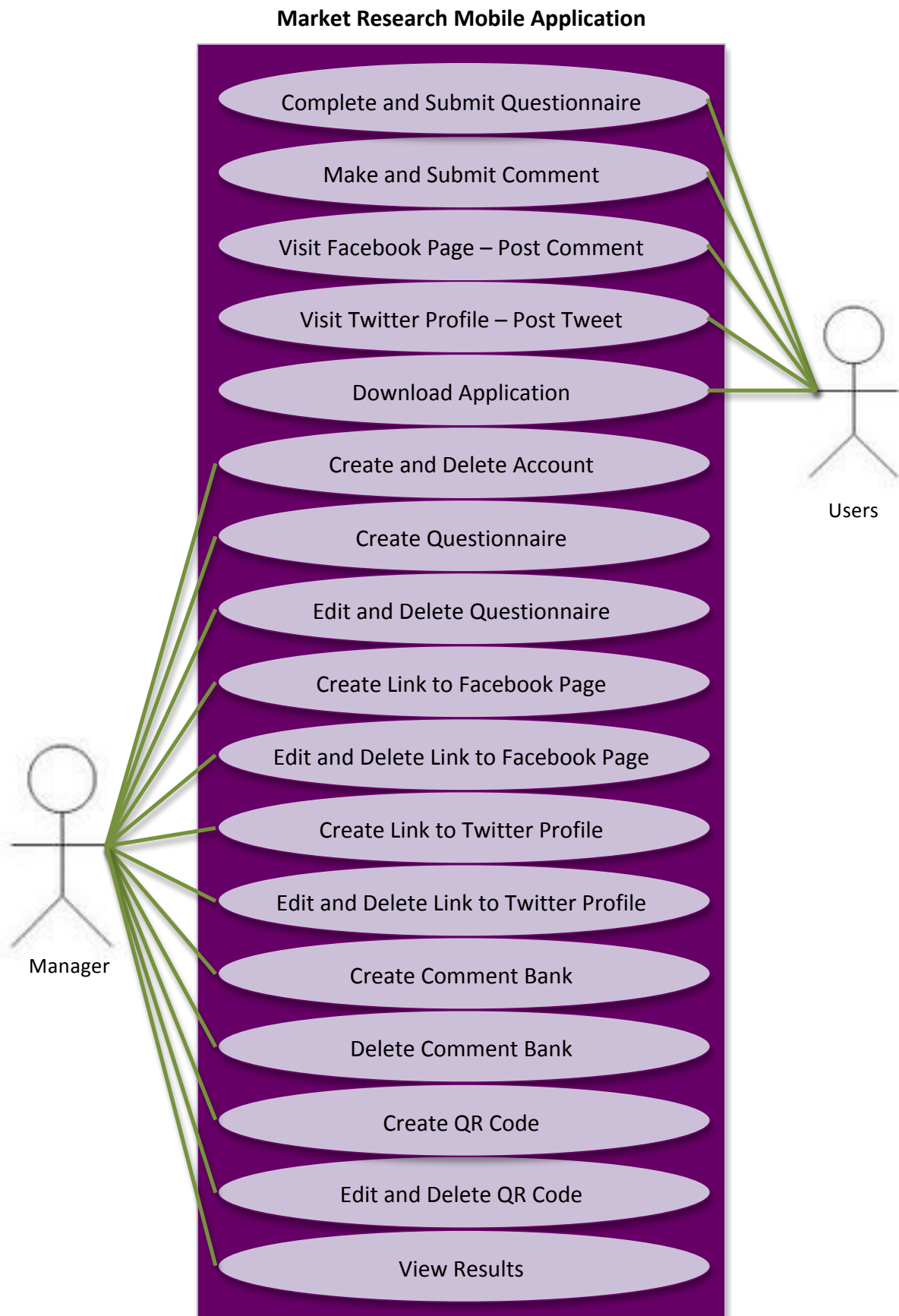
A use case diagram and descriptions have been chosen to derive and represent the functional requirements of the application. These two methods, which complement each other, have been chosen for a number of reasons, including:

- I did not want the developer to be overloaded with three or four techniques showing the requirements as this could lead to confusion. Therefore, opting for a use case diagram to present the requirements and using the use case descriptions to further elaborate on these.
- Use case models and descriptions display the requirements in an easy to read and understand format and my developer is experienced in using these from projects he has completed in work.
- Provides a black box view from the users perspective. This helps ensure the developer can see what the end users needs to get from the system, and to help prevent him from developing requirements he feels are necessary.
- They define the functional requirements of the system, without needing support from other techniques.
- Use cases provide a method for validating the coverage of users requirements.
- Through using screen prototypes for design and use cases for requirements, an orthogonal view of functional requirements can be cross verified.
- Impact analysis can be performed on any functional requirement change requests as use cases trace naturally through the analysis and design models. These provide documentation for implementation of each functional requirement in the code.
- As use cases define procedures a system uses, they can then be used as a basis for system level tests. From them a series of scenarios can be produced in order to fully test that a use case / screen does all it should.

Before the developer starts the development he will receive these methods with the results specified in the Requirements Specification (seen in Appendix E). Although not included in this report, design prototypes for the front and back end and testing cases will also be made available and given to the developer.

Please consult Appendix E for the results of my gathering methods and to see any assumptions made and constraint that apply to the system.

5.2 Use Case Diagram of System



6.0 Conclusion

As a result of my research above, about the possibility of developing a market research mobile application, I was able to come to the conclusion that it is possible in theory. I approached this task by firstly completing research into the issue to help ensure I knew everything I needed. From here I addressed the issue of why market research should adopt a mobile application approach and how the different techniques could be used. The results of this showed me that some techniques, such as surveys, would work as an application, but others, such as interviews, would not work. I also found from creating Appendix A that market research develops at a much slower rate, compared to technology. This could help explain why mobile application collection methods have not been exploited to date.

Following the information I discovered about market research, I looked into the mobile side, specifically looking into why a mobile application, if multiple technologies could be involved and the possible platforms it could be developed in. based on research it was determined that different technologies could be used together to optimize a system. I was also able to conclude that the android platform was the optimum one to build the application on.

Once I knew that these could be integrated I started to look at the approach that would be best, keeping in mind that I was outsourcing the implementation phase. Based on the needs of the system and myself, it was clear a hybrid approach needed to be used so I can develop requirements and designs upfront, but still have the freedom and flexibility of an agile approach.

After completion of my research and justification section and before deciding on an application idea, I looked to see if there were any similar applications on the market. There were some applications that could be considered as market research one, but they were not similar to mine as the user had to be proactive to provide the feedback using these. They should not involve significant competition, but needs to be kept in mind. Once these were identified I developed an application idea that I felt would suit businesses and users better and following this developed a full set of requirements.

In theory I was able to prove my aim, but this needs to be taken further to prove it can work in practice. I was also able to achieve each of my three objectives for the interim report through following my time plan strictly and asking and answering the following questions:

- Is it possible for mobile applications to be used to collect a range of different types of market research?
- Can this be completed on mobile applications alone, or is a web based management system needed?
- How will I carry out the outsourcing?
- Is there more than one way to integrate market research and mobile technology?
- What are the requirements for such as application?

Although you cannot see that the time constraint were met, you can see that all the work within the objectives has been completed.

Now that my research has been concluded, I will be able to start on the design and development of the application, based on the requirements in Appendix E. This will involve me managing the outsourcing, completing prototype designs and test cases, and having fortnightly meetings with the developer. Once this is completed I then plan to interview a number of users of the system to see what they think and to ask if they would use it.

For further details of the work I am to complete and the internal personal deadlines please consult my updated time plan, which can be seen in Appendix F. The new updated version also contains details of the different iterations, and what is expected to be completed. This has only changed slightly from the original, as I was able to prove in theory that a market research application is viable.

7.0 Glossary

Agile Scrum: a project development approach.

Contract: a written agreement.

Copyright, Design and Patents Act 1988: an act of parliament to protect creators against work being taken / copied.

Hybrid: a project development approach.

Market Research: process and methods of gathering data that can then be used as a base for decision making.

Outsourcing: work that is being developed externally to the business.

PESTLE: a method for reviewing macro environment.

Porters Five Forces: a framework for industry analysis and business strategy development.

QR Code: a matrix barcode.

Smart Phone: a phone that provides more advanced computing and connectivity, compared to standard phones.

SWOT: an analysis method providing a framework to look at for the internal and external factors.

Tablet: a computer that is contained within a flat touch screen.

Waterfall Model: a project development approach.

Web-Based Management System: an Internet system that allows the user to manage data and other activities.

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