

**BUSINESS AND MARKETING PLAN FOR THE WALK N' TEXT MOBILE  
APPLICATION**

by

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## **Abstract**

Mobile Instant Messaging is now witnessing the same explosive growth as Short Message Service did in 2000. Since texting is becoming a common form of communication, walking and texting has resulted in increased risk of associated injuries. The smartphone mobile application, Walk N' Text, was conceived with the idea of mitigating those risks. The intention is to implement distinct functionalities to achieve this goal. Functions such as a transparent background and Augmented Reality will work continuously and cohesively to guide the users to safety. This report explores the challenges the development of such an application will face, begins to create a financial break-even analysis and explores what it would take to market the product. It does so against a background of a business wanting to explore the development of apps without currently having any in-house competencies. It concludes that the market is possibly viable but the sponsor would need to manage two main challenges: managing the development and converting awareness of the problem into an apps purchase.

## **Dedication**

我想要感謝我的父母跟哥哥的支持，跟鼓勵。我還要謝謝我的太太無時無刻的在我身邊激勵我，最後我要謝謝我們的第一個女兒，鄭元晴，時時刻刻的都是我們的開心果..

鄭宇翔

I would like to dedicate this project to my parents and brother for supporting me throughout this program. I would also like to extend a special thank you to my wife, Wai Chi Chan, for always being there for me and to our first beloved child, Valerie Yuan-Ching Cheng, for being the cutest child a parent could ever wish for.

Yu-Hsiang Richard Cheng

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## **Glossary**

AR	Augmented Reality
CDMA	Code Division Multiple Access
CEO	Chief Executive Officer
GED	Google Experience Devices
GSM	Groupe Speciale Mobile
IPRs	Intellectual Property Rights
MIM	Mobile Instant Messaging
MMS	Multimedia Messaging Services
MTS	Mobile Telephone Services
OS	Operating System
RSI	Repetitive Stress Injury
SMS	Short Messaging Services
UI	User Interface

# **1: Background and Introduction**

## **1.1 A problem needing a solution**

In Canada alone, over 18 billion Short Message Service (SMS) messages were sent in the first quarter of 2011, a 10 percent increase over the previous quarter, and Mobile Instant Messaging (MIM) services are on pace for 1.3 billion total subscribers by 2016 (Ng, 2011 & Juniper Research, 2011). Sending SMS/MIM messages while individuals are mobile has resulted in related injuries. The most serious injuries involving texting and walking are: bumping into another person or stationary objects, such as lampposts, tripping on stairs, and getting hit by a car.

This new phenomenon is mainly caused by users not paying attention to what's directly in front of them or to the surrounding environment. The posture of the average user is to hold the mobile device with one hand at a 45-degree angle from the body in front of the chest. This forces the head to tilt downwards to focus on the screen thereby taking the user's concentration off the path ahead. A study done by researchers at New York's Stony Brook University found that the test group had no idea where they were heading while operating their phones (Lowy, 2012). In a separate study, the participants were asked to text while walking a pre-determined route. The results showed a 33 percent increase in trip duration and a 13 percent increase in the distance traveled compared to the control group (Lamberg & Muratori, 2012). The University of Birmingham has done a study that showed that students using smartphones required 20 percent longer travel time to cross the street and were 43 percent more likely to get hit by a moving vehicle. The conclusion from all studies indicated that both activities demand considerable attention and, when done simultaneously, they compete for the user's concentration (Merrill, 2012). Many examples of serious accidents related to the use of smart phones have been reported.

Bonnie Miller of Michigan encountered just such a life-threatening event; she fell into a frigid river while trying to send a text message. By the time she realized what had happened, she was fighting to stay alive in six feet of cold, moving water. Bonnie was lucky because her husband was right on the scene and was able to help her stay afloat with help from another bystander (Spehar, 2012).

Cathy Cruz Marrero became a YouTube sensation unintentionally. Surveillance video from a shopping mall caught her tripping and falling face down into a fountain because she was too engaged in conversation on her cell phone. The video went viral! Even though most people would find the video amusing, more thoughtful viewers would recognize that the possibility of injury from walking and texting is a serious, albeit “first world”, problem.

Evidence suggests that accidents related to walking and texting around growing. In the United States, approximately 1,000 cases of injuries, ranging from chin scrapes to broken bones, were reported in 2008. It is a growing problem; hospitals around the country are reporting a greater number of such accidents year-by-year (Merrill, 2012). Of course, whether the increase in accidents creates a market for a solution is a different matter which is explored in this report. It is probably impossible to stop users from texting and walking at the same time; however the introduction of Walk N’ Text might just be the first step in mitigating the threat.

## **1.2 The Aim**

John Cheng Incorporated, formed in 2008, mainly operates in the import/export industry and has no previous experience in the smartphone industry. The goal of this paper is to present a detailed business plan and recommendations to be used by John Cheng Incorporated for the development and launch of the mobile application, Walk N’ Text. Walk N’ Text is a smartphone application, designed from the ground up, to target injuries resulting from low-stakes multitasking — walking and texting. The overall aim is to increase the public’s awareness of the threat of injury and to promote the product by informing the public about the fundamentals of Walk N’ Text, including how it will help lower the risk for pedestrians.

## **1.3 The Scope**

Given that John Cheng Incorporated has committed to the development of Walk N’ Text, the purpose of this project is to determine the main challenges associated with the development of the application, to determine the key success factors for Walk N’ Text to become commercially viable, and to outline a general marketing strategy for the promotion of the application.

Chapter 1 will include a description of the purpose and scope of this report and a brief overview of MIM services. In subsequent chapters, the following will be accomplished:

- Chapter 2: External Analysis. In this chapter, the report will explore the different platforms on the market, present a competitive analysis, a Porter's five forces analysis, and conclude with an assessment of the risks involved in developing a mobile application.
- Chapter 3: Internal Analysis. This will include an overview of the sponsoring company, a brief description of the product and its special functionalities, and a SWOT analysis.
- Chapter 4: Marketing Strategies. The report will include a market segment overview with a target end users proposal and a marketing strategy based on the 4P analysis: price, product, promotion and place.
- Chapter 5: Revenue Model and Implementations. A break-even calculation is included along with marketing implementation strategies.
- Chapter 6: This chapter provides recommendations and a brief description of identified risks and potential mitigation strategies.
- In addition, a brief overview of the history of the mobile and mobile application industry is presented in Appendix 2.

## **1.4 Mobile Instant Messaging Overview**

Instant Messaging (IM) started in the 1990s. This service is characterized by the delivery of text-based communications in real-time between two individuals or a group of users. It allows the involved users to input text without the typical and noticeable delay between messages associated with SMSs. However, with the rise of SMSs in the year 2000, consumers moved away from strictly desktop-based instant messaging to handheld devices that supported SMSs. Despite its dominance, SMSs had limitations and faults. It was only able to send/receive through 2G networks; consequently, it was highly carrier and signal dependant. As well, the user interface (UI) lacked key functionalities and the cost to send messages overseas could be dramatic. Given the high number of mobile subscribers, MIM quickly became available on all major smartphone platforms, and it was predicted that MIM would "challenge the SMS/text-dominated market in 2011. With a change in consumer behaviour, SMS could start losing ground to MIM" (Johnson, 2011). MIM has several key advantages. It is a location-based service that allows users to communicate in real-time, very similar to regular desktop IM. It also has the ability to deliver messages without carrier dependency, the main cause of the typical delay associated with regular SMSs. In addition, MIM has the capability to send or receive messages to or from overseas without any additional charges. It also has more advanced user functionality. For example, users

can generate a personal list of contacts and can add/delete/block contacts. MIM provides a richer and far more robust multimedia experience than SMS and allows the users to share multi-media content, such as pictures, videos, emoticons and files.

## **1.5 Summary**

The overall MIM industry is expected to continue growth well into 2016. Furthermore, even though the supporting technology has been around for over two decades, this segment is still in its infancy. . In terms of product life cycle, MIM is still in the Growth stage. With more and more MIM users on the horizon, low-stakes multitasking injuries resulting from walking and texting are expected to continue to rise. In the United States, 1,000 incidents, with injuries ranging from scrapes to serious injury and even death, were reported in 2008 and the forecast is for more occurrences as the segment continues to grow. Walk N' Text mobile application is designed specifically to address this niche need.

The sponsor has no on-going marketing strategies specifically designed for Walk N' Text and still needs to determine whether a market exists and how to identify target end users before drafting a specialized marketing plan. In the next chapter, External Analysis, Porter's 5-forces analysis will be applied and all current incumbents and direct substitute products will be examined.

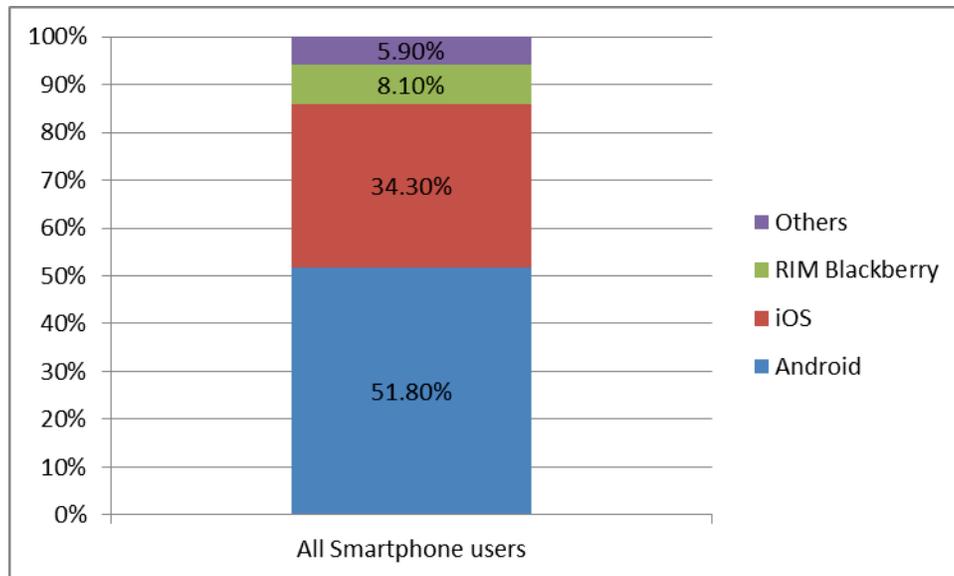
## **2: External Analysis**

### **2.1 Industry Definition**

Walk N' Text will be introduced in the MIM segment of the mobile device and application industry. This chapter will present a focused industry analysis, with special emphasize on the current platforms, competitive incumbents in the MIM segment, and close substitute products available in the marketplace today. As well, Porter's 5 Forces analysis will be used to examine the current MIM segment's power distributions and relationships.

### **2.2 Platforms**

To determine the most advantageous development platforms for Walk N' Text, one must look at the smartphone operating systems (OS) currently available on the market: Android, iOS, BlackBerry, and Windows Phone 7. There are two dominant players; Google's Android has 51.8 percent market share and Apple's iOS has 34.3 percent. Research in Motion's BlackBerry and Windows Phone 7 have 8.1 and 5.9 percent, respectively. Developing the application on Android and iOS platforms, would allow the application to reach approximately 85 percent of the market (Nielsen Mobile Insights, 2012). Google and Apple are fierce competitors and have taken very different approaches to OS development. Apple has taken a locked-down, low fragmentation approach. Google's fully open-sourced, multiple-release approach has overtaken Apple and is gaining ground but it is still too early to say if one platform will ultimately gain market dominance over the other; therefore an application must be developed for both to maximize the potential audience reach.



**Figure 1: Smartphone operating system share distribution**

Source: Nielsen Mobile Insight, 2012

The basis for the decision to exclude other platforms, such as RIM and Windows Phone 7, is clearly evident in Figure 1. Research in Motion has lost ground in the smartphone race, with a mere 8.1 percent of market share, and continues to decline. Windows Phone 7 did not return Microsoft to the market position it once held. However, if Walk N’ Text does gain a large user base, then development for those two platforms will become necessary.

The advantage of selecting the Android OS as one of the main development platforms is very apparent. Its main disadvantage, commonly referred to as “Android fragmentation”, will not be noticeable upfront, but completely ignoring this complicated development challenge could become a failure-deciding factor down the road. Briefly, Android fragmentation is a phenomenon associated with the existence of various revisions of the Android operating system on the market at a same time. Currently, there are 10 revisions of the software and over 4,000+ hardware combinations on the market. Please refer to Appendix 3 for a more detailed explanation of Android fragmentation.

## 2.3 Competitors

To position Walk N’ Text as an instant messaging service is perhaps a risky move because there are many established clients in this segment already, albeit without the additional accident mitigation functionality that will differentiate Walk N’ Text from its competitors.

WhatsApp Messenger by WhatsApp Inc., Skype by Skype, and Viber: Free Calls and Messages by Viber Media Ltd. are the three prominent incumbents in the MIM industry.

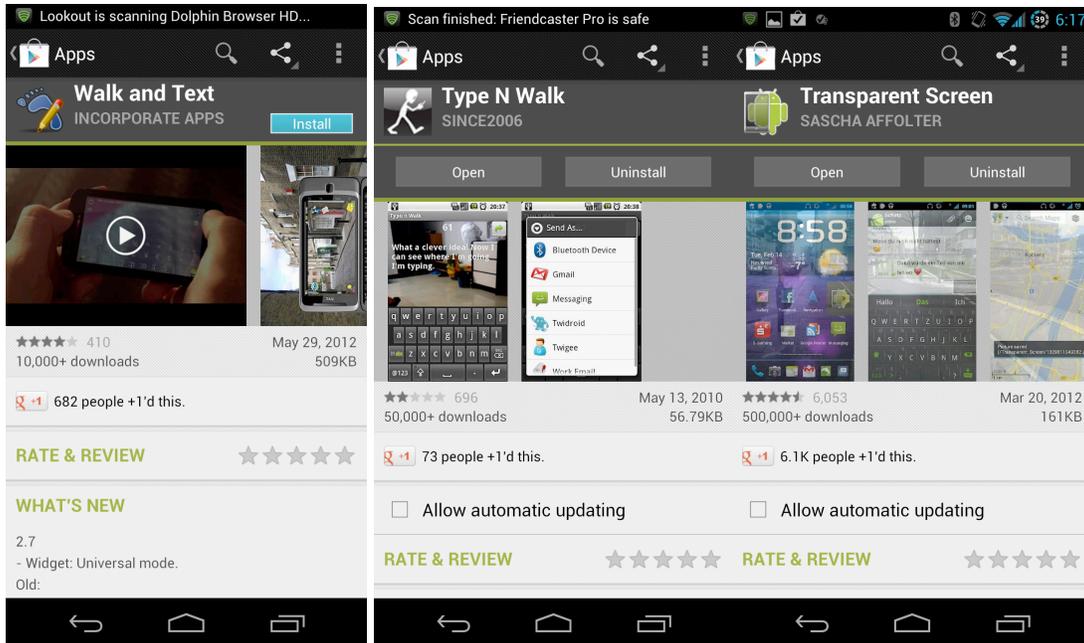
WhatsApp Messenger was the first significant player in the mobile instant messaging segment. Without a doubt, it has the largest active user base of all the MIM clients. The exact numbers are not disclosed, but some estimates say it is somewhere between 30 to 50 million and that the total number of messages sent was approximately 2 billion in February 2012, which is double the number sent in October 2011 (Russell, 2012). Viber Media Ltd., on the other hand, has taken a different route, initially offering voice over data network services. However, in recent years, Viber has started to offer instant messaging capabilities. The third incumbent is Skype, which initially offered voice-over-internet-protocol (VOIP) services. Skype has evolved to include video conferencing and instant messaging functionality. The main difference between Skype and WhatsApp and Viber is that Skype has a desktop client as well, so that users are able to communicate with desktop users as well as smartphone users. The VOIP component has been extended to landlines as well. To date, WhatsApp, Viber and Skype have co-existed and complimented each other. Furthermore, all three services have an installed user base large enough that they are able to leverage growth without much advertising. Word of mouth and “internal” communications with their user base is all they need to start moving a new application, product or service.

## **2.4 Substitutes**

There are many different mobile applications available from Google Play Store and Apple iOS Store that offer similar functionality as Walk N’ Text. These are described in the next sections, classified by OS.

### **2.4.1 Android**

The three substitutes that run on the Android OS are: Walk and Text by Incorporate Apps, which sell for \$1.99, and Type N Walk by SINCE2006 and Transparent Screen by SONG SIYU, which are both distributed free of charge.



**Figure 2: Play Store screen captures of Walk and Text, Type N Walk, Transparent Screen's main application windows**

Type N Walk has compatibility issues with newer versions of the Android OS. The most recent release of the app was May 13, 2010 and it is now outdated.

The second application, Transparent Screen, also faces compatibility issues with the newest Android OS. However, as a direct competitor with Walk N' Text, it is important to note here that Transparent Screen adds transparency to the entire background rather than just the application window, as shown in Figure 2.

The third potential substitute is Walk and Text by Incorporate Apps. It is the only one in this group of three that is not free; it costs \$1.99. However, all the advertised functions work and it is by far the closest direct substitute for Walk N' Text. In terms of usability, users have complained about not being able to use their preferred on-screen keyboard. In addition, the application does not offer spell check or auto correct. This is a definite drawback because on-screen keyboards are notoriously associated with typing errors and most users will want some spell check functionality.

## 2.4.2 iOS

When searching for substitute applications that run on iOS, the first application to come up is Text N Walk: See As You Type, developed by Brandon Bell. It is a free application and, from the screenshots provided, it seems to be well-integrated with the OS. However, judging

from user reviews, it is apparent that the application uses its own on-screen keyboard and does not have an auto correction function. One reviewer stated that he “is more likely to run into something while trying to use this app.” Furthermore, Text N Walk can only *compose* SMS messages; it cannot send them, thereby forcing the user to switch to their message app to send. The most recent release is dated November 10, 2011, more than six months ago.

Text Vision – Walk and Compose posts Safely, developed by TouchMiPhone, is a possible substitute for Walk N’ Text. An interesting feature of this application is that it is not only able to compose SMS/Email, it is also able to update Facebook and Twitter statuses. It costs \$0.99 and the latest release is dated July 28, 2010. Poor developer support is evident here. The users’ reviews are extremely bad, rating it with 1 star. The comments range from “waste of money” to “not working at all.”

### **2.4.3 Comparison of Potential Substitutes**

A summary of the strengths and weaknesses of potential substitutes for Walk N’ Text are tabulated below.

	Strengths	Weaknesses
Type N Walk	- None	- Compatibility issues - No AR - No developer support
Transparent Screen	- 500,000+ downloads - Works as indicated - Positive user reviews	- Compatibility issues - Turns whole screen to transparent - No AR
Walk and Text	- Works as indicated - Positive user reviews	- Compatibility issues - No AR - No auto-correct - Requires payment upfront
Type N Walk	- None - Social Media statuses	- Compatibility issues - No AR - Cannot send messages directly - No developer support
Text Vision	- None	- Compatibility issues - No AR - No developer support

**Table 1: Summary of advantages and disadvantages of the substitute products**

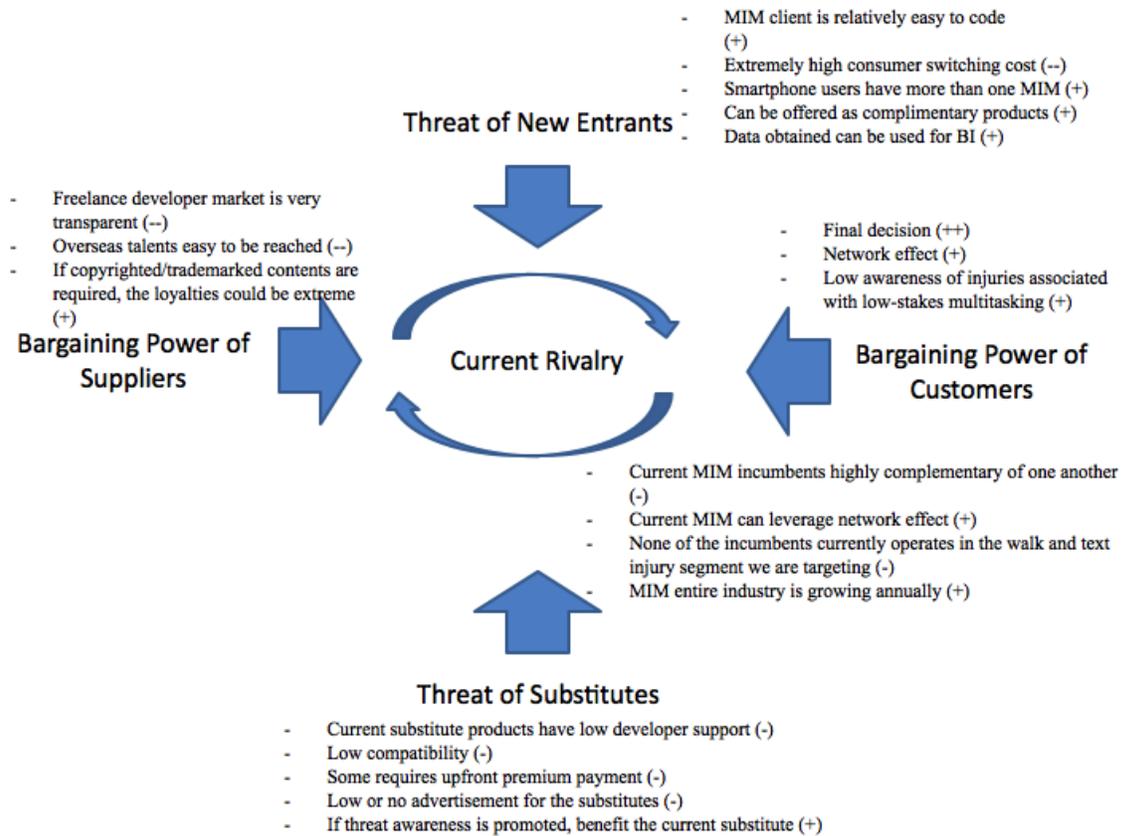
From Table 1, it is clearly evident that all substitutes suffer from compatibility issues; most have low to no developer support, and none offers Augmented Reality, a feature that is included in Walk N’ Text’s development plan. Only two programs, Transparent Screen and Walk and Text, which have regular revision updates, received high user ratings (4/5 stars) and both have extensive developer support. The main weakness of Transparent Screen is that the application makes the entire background transparent, rather than only the application window. For Walk and Text, the main weakness is the lack of an auto-correct function. As well, it is the only one in the group that requires an upfront payment. The other two products, Type N Walk and Text Vision, simply do not work with current operating systems revisions.

From the download figures obtained from the screenshots in Figure 2, it is apparent those applications are able to generate a healthy number of downloads; 50,000+ for Type N Walk, 500,000+ for Transparent Screen, and 10,000+ for Walk and Text, which required a \$1.99 payment upfront. A total of 560,000 downloads indicate a relatively small but nonetheless significant market demand. All three applications appear to be suffering from Android Fragmentation, with Type N Walk being the worst victim. The developer actually abandoned the project in May, 2010. This is very common in the mobile application segment, particularly for an

app developed by an independent developer working alone. Often the developer simply does not have the resources to thoroughly test the application and, when incompatibility complaints start to pile up, he/she is forced to abandon the project even though potential revenue could be enormous. Independent developers are often unable to respond to customer complaints, resolve issues, and revise code to keep up with OS upgrades. For example, in order to cope with compatibility issues, he/she would need to hire a team of developers just to work on these issues and another team to work on bug fixes and code clean ups. An independent developer is definitely at a disadvantage. He/she simply does not have enough time or money. In addition, independents lack the resources to effectively protect their intellectual property. Two of the main reasons for the success of all the blockbuster applications, WhatsApp and Skype for instance, are strong developer support and reliable and adequate financial backing. . For It appears that the developers of Type N Walk and Text Vision, which both run on the iOS platform, were not sufficiently committed or did not have the resources required to make the applications a success and have abandoned the projects.

The above analyses of platforms, incumbents, and close substitutes demonstrate that developing an app is not easy. However, it is clear that, to succeed, any new application in the mobile device segment must be developed on both the Android OS and iOS. As well, while the initial investment to develop for an application is relatively low, which is why there are always new entrants in any segment of the mobile application industry. However, in addition to capturing market share, long-term success depends on availability of resources to maintain and improve the application and deal with emerging OS compatibility issues. The next section will use Porter's five forces analysis to further develop the industry analysis.

## 2.5 Porter's Five Forces



**Figure 3: Porter's Five Forces Analysis**

Source: Porter, 1980

Porter's five forces is a framework for industry analysis and business strategy development analysis developed by Michael E. Porter (Porter, 1980). The next sections examine each of the five forces, competitive rivalry, threat of new entrants, bargaining power of suppliers and customers, and threat of substitutes, and assess how each affects the MIM segment.

### 2.5.1 Competitive Rivalry

- Current MIM incumbents are highly complementary (-)
- Current MIM competitors can leverage network effect (+)
- None of the incumbents currently operates in the walk and text injury segment being targeted (-)

- MIM industry is growing annually (+)

On the basis of the above, the competitive rivalry in the current MIM industry is actually quite low. This assessment is consistent with the competitive analysis presented in Section 2.3, which points out the current three top incumbents coexists with one another. Each of these incumbents has fairly unique functionality and a value added component, which makes it difficult for end users to switch and go elsewhere. As will be established in the next section, there are relatively low barriers to entry for this industry, and consequently there are new entrants all the time; however, as yet none have been able to challenge the incumbents in terms of market share and user base.

The current incumbents do not target the specific segment Walk N' Text will be targeting; therefore, there would be low to no chance of engaging them in a direct competitive mode. However, each of the incumbents has a huge user base and, consequently, is capable of expanding their user base through network effect alone. On the other hand, based on the current rate of 1.35 million new smartphone activations a day (Android + iOS), the MIM industry as a whole is expected to grow well into 2016, which leaves ample room for a new entrant in the market. A main strength of the incumbents is their extremely efficient update process; when an incompatibility is identified, the support team ensures that the problem is resolved in the next update. Nevertheless, even taking the benefit of network effect into consideration, overall competitive rivalry is assessed as low.

### **2.5.2 Threats of New Entrants**

- MIM client is relatively easy to code (+)
- Extremely high consumer switching cost (--)
- Smartphone users have more than one MIM (+)
- Can be offered as complimentary products (+)
- Data obtained can be used for business intelligence (+)

Due to low barriers to entry, new entrants are constantly entering the MIM industry. However, new entrants are not able to secure a large user base due to high switching costs. Despite that fact, some companies offer an IM client as a complimentary product. For example, the Samsung Ch@tOn MIM client comes pre-installed on every Samsung Galaxy S3, an Android smartphone that currently has approximately 10 million users. Even if only a small percentage of all Galaxy S3 owners choose to use Ch@tOn, Samsung could still gather useful business

intelligence information the MIM client. As a complimentary product, with a secondary purpose, the primary goal of new entrants is not necessarily to capture significant market share.

Overall, because of the entrenched position of incumbents, new entrants rarely became a threat. In particular, the market size for walk and text injury prevention applications is not favourable. Consequently, the threat of new entrants is low.

### **2.5.3 Bargaining power of Suppliers**

- Freelance developer market is very transparent (--)
- Overseas talent is easy to reach (--)
- If copyrighted/trademarked content is required, developer loyalty could be significant (+)

The freelance software developer market is very transparent; a simple email inquiry will elicit full disclosure of rates and estimated time of completion (Appendix 1). It is very common to look for software development talent overseas; most commonly in India and China where rates are cheaper compared to North America and Europe.

A potential strength of suppliers relates to intellectual property rights, specifically copyrighted or trademarked content. For example, if it is necessary or highly beneficial for Walk N' Text to copyright the content, the requirements could be a too high for the sponsor to achieve. These requirements could involve an outright rejection, a high one-time payment, and/or ongoing royalty payments. In this case, the sponsor would need to assess the pros/cons and determine if the project outcome is worth the investment or should be terminated.

Overall, the bargaining power of suppliers is low.

### **2.5.4 Bargaining power of Customers**

- Final decision (++)
- Network effect (+)
- Low awareness of injuries associated with low-stakes multitasking (+)

The consumers, in general, have extremely high bargaining power simply because they have the choice to use or not to use a specific MIM client. In addition, with low or no awareness of injuries associated with walking and texting, customers are unlikely to switch MIM clients; this further enhances the power of the consumers.

### **2.5.5 Threat of Substitute Products**

- Current substitute products have low developer support (-)
- Low compatibility (-)
- Some requires upfront premium payment (-)
- Low or no advertising for the substitutes (-)
- Promoting threat awareness would benefit the current substitute (+)

As discussed in Section 2.4, there are many substitute products on the market. To varying degrees, all of the described applications, both Android and iOS, have compatibility issues. Some of the applications require the users to purchase it upfront. This approach has back-fired for a lot of developers because after users discovered that the application was not compatible with their OS they wrote extremely critical product reviews. The substitutes make no effort to promote the risk of injuries from low-stakes multitasking; however, they will benefit if awareness is promoted successfully by other entities. All in all, the threat of substitutes can be considered as low.

## **2.6 Summary of External Analysis**

The information obtained from the external analysis has provided insight into the strengths and advantages of the proposed application relative to potential market volatility. The key factors for success, which are detailed below, are:

- Basic MIM functionalities must be intact,
- Promoting awareness of the threat of injury, and
- A timely and efficient update schedule.

### **2.6.1 Basic MIM functionalities must be intact**

The analysis has indicated that basic instant messaging functionality, such as multimedia capabilities and auto-correcting keyboards, are extremely important. The intention is for Walk N' Text to be distributed as a MIM client with value added components, such as the ability to guide the users away from harmful objects. However, if the basic MIM functionalities are not intact users would definitely not be willing to switch.

### **2.6.2 Promoting awareness**

It might be concluded that the main reasons for the failure of the forerunners of Walk N' Text were that the market was not properly informed about the life threatening risks the public faces every single day and even if informed the customer still did not feel the need to purchase. In addition, the lack of developer support and app incompatibility plagued all of the current substitute products. It is important to ask why developer support was not better and why viral videos of incidents did not help the marketing of such apps. Current consumers have little or no knowledge of the risks associated with low-stakes multitasking and proper marketing is required to raise the awareness of such risks. However, due to incumbents' strong network effect, even once awareness is raised it will still be hard to create a stable user base.

### **2.6.3 Timely and efficient update schedule**

Another potential obstacle that demands close attention is Android Fragmentation, which is a major problem plaguing all Android-based applications. The substitution analysis presented in Section 2.4, clearly indicates that most of the competitor's applications have incompatibility issues, which result in negative end user reviews.

The following chapter will provide detailed information about the project's sponsor, John Cheng Incorporated, and explain the features of the application.

## **3: Internal Analysis**

### **3.1 Company Overview**

John Cheng Incorporated was formed in 2008 and mainly operates in the import/export industry. The project's sponsor, John Cheng, is the President and CEO. This company has no previous experience in the mobile market. However, even though Walk N' Text will be its first offering, there are numerous other application projects lined up. The sponsor wishes to use this project as a pilot program to achieve the following:

1. to assess the market segment in which Walk N' Text will be competing and determine the target users for marketing strategy proposals,
2. to better understand the industry and the status of current incumbents/substitutions,
3. to establish a footprint in the mobile application industry that can be used to leverage future projects, and
4. to use this business and marketing plan as a template for future projects.

#### **3.1.1 Financial Objective**

The sponsor is treating this as a pilot project to establish a presence in the mobile application industry; financial considerations are not foremost. That said, no business wants to lose money and a good business plan must analyse what it would take for a new product to be financially successful.

#### **3.1.2 Marketing Objective**

Presently, John Cheng Incorporated does not have a marketing plan to promote Walk N' Text. Furthermore, the immediate objective is extremely simple — to identify the target end users and to have a value generated marketing proposal to successfully promote and sell Walk N' Text. Since the intention is for the application to be listed in the respective platforms' application stores, a communication portal that will allow end users to contact the sponsor easily will be developed.

## **3.2 Product Description**

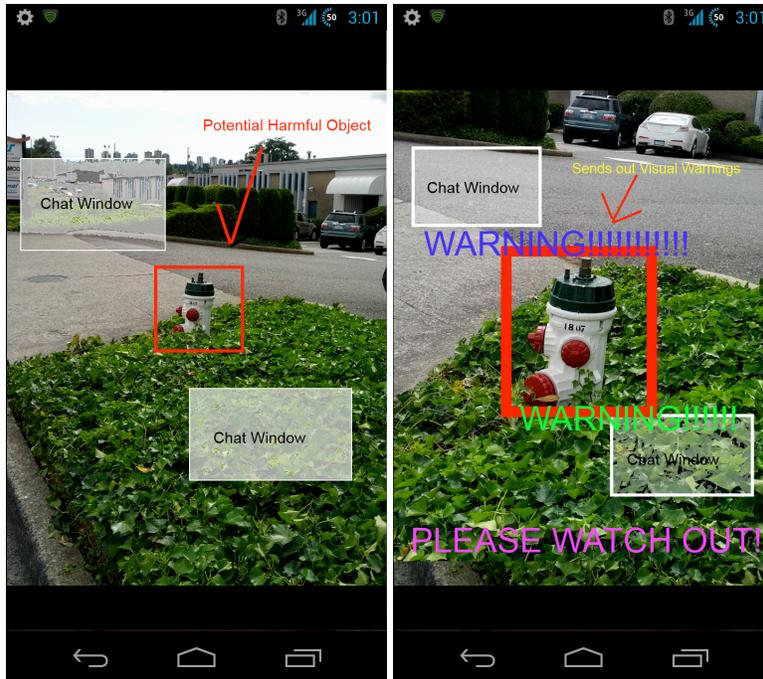
Walk N' Text aims to alter how people interact while walking and texting; it will incorporate many new features designed specifically to help users avoid harm and guide them to safety. A key feature that differentiates this MIM client from competing clients is the ability to promote the product through educating users about the potential risks of walking and texting. Walk N' Text will utilize new software logistics to determine the potential harmful objects in the users' path and to initiate different combinations of visual and audio warnings to alert users to either pay attention or detour from their current path. The application will include the following features and functionalities:

- transparent background with Augmented Reality,
- software logistics able to determine harmful objects on the path ahead, and
- theme-capable.

Each is explained in more detail in the following sections.

### **3.2.1 Transparent background with Augmented Reality**

Walk N' Text will utilize the smartphones' back camera in video mode. Objects in front of the user will be displayed as the background in the application window; that is, the object will be visible behind the text the user is reading or sending. The break-through differentiating feature of this application is the ability to detect potential harmful objects, such as other pedestrians, fire hydrants, sign poles, and warn the user through both visual and audio outputs with the help of Augmented Reality. Augmented Reality “is the interaction of superimposed graphics, audio and other sense enhancements over a real-world environment that's displayed in real-time.” (Cassella, 2009). An original concept sketch of the user interface layout is illustrated in Figure 4.



**Figure 4: Initial concept design sketches of Walk N' Text**

As illustrated, a harmful object, the fire hydrant, was first recognized at a distance. Initially, the system will identify it visually by putting a red square around it. As the user approaches the object, the red square becomes thicker and WARNING signs are flashed on the screen to notify the users.

### **3.2.2 Software logistics**

Specialized, software logistics are required for the entire feature set to work cohesively. The logistics will analyze the images captured from the smartphone's back camera to determine the potential harmful object(s) in the users' path. Once an object has been determined to be potentially harmful, the software will then utilize the application's built in Augment Reality functions to send visual and auditory warnings to the screen.

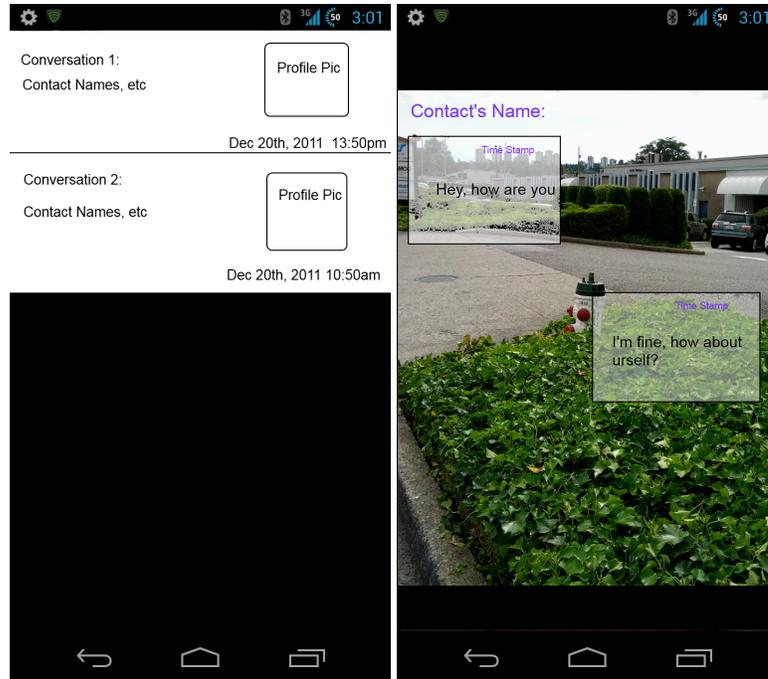
### **3.2.3 Theme-capable**

Another key function is the ability to customize the layout. The theme option will allow the user to customize the layout of the app to suit his/her tastes. A simple example would be the ability to change the font style, the color of the threaded bubbles, the color of the background, etc. The sponsor could also offer the ability to customize the Augmented Reality but the degree of customization will depend on how much the sponsor is willing to invest to develop customization

features or how much information about the application code he is willing to disclose. Themes packages are popular, particularly for Android applications. They are often developed by third parties and sold or distributed freely as adjuncts to an application. To enable the development of third party theme packages, portions of the application code would have to be disclosed. Disclosing too much code incurs an inherent risk in multiple domains. It could trigger intellectual property disputes or encourage development of a competitive product. If the native application includes very limited customization features, customers will be dissatisfied.

### **3.2.4 User Interface**

If an application is competing with comparable, established application, the UI must be familiar as well as effective. Someone who has used a MIM app does not want to face a steep learning curve. Walk N' Text's main screen will have a summary view of all the on-going conversations with details such as the contacts' names, and the time of the last interaction. When a user clicks through from the main screen, the main chat window will be displayed. The chat window will be in a threaded layout, i.e. received messages on the left and sent messages on the right. There will be a time stamp on each message sent and received. The on-screen keyboard is dependent on the user's preference because Walk N' Text will not include a dedicated keyboard. In summary, the user interface will be extremely similar to the look and feel of current MIM clients on the market, but with the added value of unique functionalities that will give Walk N' Text a refreshed look, and perhaps, a competitive advantage.



**Figure 5: Walk N' Text User Interface**

### **3.3 SWOT Analysis**

A SWOT Analysis evaluates advantageous and disadvantageous internal and external factors by comparing strengths and weaknesses and opportunities and threats to determine the possible overall success of products/services. An organization must know the strengths and weaknesses of the products/services it is offering and must adjust and/or alleviate marketing strategies to maximize the strengths and minimize the exposure and perception of weaknesses. Opportunities and threats are revealed through an external analysis of current market conditions to determine whether or not the product can stand out from the crowd and ascertain the uncertainty and volatility of the target market.

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• New target segment, can potentially cater to the target group</li> <li>• John Cheng Incorporated operates in a different industry, goodwill and brand image will not be affected if the application is a failure</li> <li>• Knows the weaknesses of the existing substitutes</li> <li>• The experience obtained can apply to future mobile application project(s)</li> <li>• Has the monetary assets required</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• No previous products, goodwill or experience to leverage</li> <li>• No internal intellectual properties; no industry knowledge</li> <li>• Out-source the development to a freelancer; confidentiality and protection of the vision/code is not guaranteed.</li> <li>• Copyright ownership of the code is questionable</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Addresses a specific need for an emerging threat</li> <li>• MIM growing annually at an astonishing rate, incidences predicted to be hundredfold by 2016.</li> <li>• First-to-market advantage, albeit there are some products on the market already</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• The need to create public awareness of the emerging threats and convert awareness into a need/purchase</li> <li>• Extremely high switching cost for current MIM users</li> <li>• The functions are easy to mimic by competitors</li> </ul>

**Table 2: SWOT Analysis of John Cheng Incorporated and the MIM Industry**

### **3.3.1 Strengths**

The main strength of John Cheng Incorporated is the potential to compensate for the weaknesses evident in substitute products and avoid making the same mistakes again. The sponsor's corporation operates in a totally different field/industry, and its goodwill and brand image will not be affected regardless of the outcome. Walk N' Text is a pilot project. The sponsor had numerous potential mobile application projects lined up and the experience obtained from Walk N' Text can be leveraged.

### **3.3.2 Weaknesses**

John Cheng Incorporated has no previous experience in the mobile application development industry. In addition, development of the application will need to be outsourced to a freelance application developer, which will increase the risks. Issues around confidentiality and ownership of the code need to be addressed before proceeding. Once the application has been

released, the sponsor will need to decide whether or not to hire an in-house technician to provide timely updates/revisions.

### **3.3.3 Opportunities**

The market opportunity is potentially viable; John Cheng Incorporated is addressing a specific need to mitigate a new emerging threat. Furthermore, the MIM industry is expected to grow well into 2016 with a commensurate increase in the number of related injuries. The target market will be segmented to better position the marketing strategies. Those market projections, together with the proper marketing strategies, greatly enhance the possibility of users adopting this application. By entering the market now, John Cheng Incorporated would earn first-to-market advantage in the specific segment Walk N' Text is targeting within the MIM industry.

### **3.3.4 Threats**

The biggest obstacle for John Cheng Incorporated is to create public awareness of the threat Walk N' Text is targeting. The risk of injury while texting and walking has never been properly addressed, promoted or explained through any medium to any audience. The threat inherent in the lack of awareness of the problem, and therefore the value of the application, will be addressed by clearly identifying the target market. Identification of the market will be addressed in more detail in Section 4.1.1. Briefly, the market will be segmented into three main groups: young adults and middle aged adults, and seniors. Marketing strategies will take these groups into consideration to generate buzz through different perspectives.

Another threat is inherent in the fact that application functionalities are very easy to mimic either by new entrants or current incumbents, and users with established MIM clients would face high switching costs to transition to Walk N' Text as their primary MIM client. Switching costs would increase exponentially whenever a current incumbent offered similar functionalities.

## **3.4 Summary of Internal Analysis**

John Cheng Incorporated is definitely a new entrant into the mobile application segment. It has no previous products from which to leverage goodwill and the corporate name. However, these facts will not lessen the sponsor's commitment. There are numerous mobile application projects lined up to follow, and the sponsor wishes to treat Walk N' Text as a pilot project to gain

an understanding of the entire industry, and also to learn the essentials of developing a mobile application.

John Cheng Incorporated is not expecting to generate any revenue from Walk N' Text; the only financial objective is to break-even point on the upfront investment, essentially to recover the development costs. The main objective is to get a foothold in this competitive industry and to build a brand name from which it can leverage future projects.

The SWOT analysis indicates a great opportunity for the corporation to learn and gain experience in this industry. Since the sponsor's corporation has future mobile application projects in mind, the secondary objective is to learn from this experience and to establish and apply best practices in future development projects. The main weakness of the corporation is that it has no in-house expertise and will need to out-source the development. Outsourcing incurs risks. Protecting confidentially and ensuring ownership of the code are grey areas that must be addressed. The sponsor would need an enforceable non-disclosure agreement (NDA) and a project contract that, at minimum, defines the deliverable and establishes fixed dates for milestones, quality standards, and the obligation to correct defects, and clearly specifies who will own the intellectual property rights of the work product.

The MIM industry is growing and the projected number of injury incidences in 2016 is 99,000, which is 100 times greater than the 1,000 cases reported in 2008. Furthermore, by entering the market now, John Cheng Incorporated will gain first-to-market advantage over potential entrants and current substitutes. This report includes an overview of current substitutes, paying particular attention to their deficiencies. The sponsor needs to ensure not to make the same mistakes and should pay particular attention to the importance of providing constant updates/revisions to address all incompatibility issues and bugs. The biggest obstacle to overcome is the public's lack of awareness about the risks of injury from an activity many do every day. Educating the public will create awareness, increase perceived value and lower switching costs.

### **3.5 Internal Competencies vs. External Volatilities**

Based on the internal analysis of John Cheng Incorporated and the external analysis of the MIM industry in general, this section will discuss the internal competencies needed to address external volatilities. The sponsor is extremely committed to making Walk N' Text a reality. The limited financial objective is to recover the upfront development costs. The underlying objective is to gain experience that can be leveraged for future projects. To some extent, the viability of project can be assessed by evaluating overall strategies in terms of internal competencies and

external volatility. The three main areas that could benefit from this type of assessment are examined in the following sections.

### **3.5.1 Deliver a quality application**

The sponsor's corporation has no in-house computer programming expertise and must rely on external/freelance software developer(s) to create the entire application from scratch. There are numerous uncertainties with this route. The most significant are associated with quality control, ownership and protection of intellectual property rights (IPR) and potential disclosure of the code/concept before the application is released. The success of the development phase of the project rests with the developer(s). The application has to work. The developer(s) must be chosen very carefully and be committed to completing the project to specifications. Switching developers is an extremely delicate and risky proposition. The sponsor must carefully review the developer's portfolio and assess his/her previous work to ensure quality and compatibility with various hardware/software combinations. Furthermore, a carefully drafted project contract along with an NDA is also recommended to address IPR concerns.

The product development plan will have four phases: planning to establish high-level system specifications, basic functionality coding, value-added feature coding, and testing. The plan will include progress milestones and deliverable milestones. Testing would occur between each coding phase. Completion of basic functionality coding would be the first deliverable milestone. End users will not consider using the app unless it has basic MIM functionalities. At this stage, the app will be distributed to volunteers (aka family and friends) for thorough testing. Subsequent milestones would add the value added functionalities one at a time; once all the functionalities are incorporated, the sponsor could then initiate a testing program for hardware compatibility for both Android and iOS. The Android OS is particularly problematic. Not developing the application for Android would mean ignoring over 50 percent of the potential market. However, Android Fragmentation issues must be addressed. Although fragmentation does occasionally occur with iOS devices, it is not nearly as problematic. To minimize fragmentation issues, the sponsor/developer must run extensive testing programs on the major blockbuster devices on the market, such as iPhones and the Galaxy S series, to ensure compatibility.

### **3.5.2 Routine updates/revisions**

Once Walk N' Text is officially launched, the sponsor should consider hiring in-house technicians to perform regular maintenance of the application. This includes code cleanups, bug fixes, and revisions to ensure compatibility with new devices and OS upgrades. In-house expertise lowers the risk of code disclosure and, as the sponsor's corporation has numerous mobile application projects in the pipeline, building an internal software development team seems reasonable. To be successful, a dedicated team of developers able to sustain commitment is essential. As described previously, independent developers often do not have the resources necessary to sustain the effort required to maintain an application. The sponsor should ensure that the resources necessary to maintain the application are available. A reliable, dedicated software development team is even more important if the application runs on the Android OS. In order for a mobile application to have a chance at becoming successful, a well-harmonized development team must be realized before maintenance and revision issues arise. In some ways, this is analogous to buying a car: it is easy to purchase a vehicle, but the operating costs are often times difficult to cover.

### **3.5.3 Generating Awareness**

Generating awareness will be an important component of the marketing strategy for Walk N' Text and will be discussed in more detail in Chapter 4. However, here it is important to acknowledge that, generally, it is extremely hard to create awareness of the risks associated with walking and texting because the smartphone users are of the mindset that 'It's never going to happen to me'. Given that the risks are not acknowledged, it would be difficult to persuade end users to switch to Walk N' Text. As well, if the end user is not convinced that the application has a useful purpose, people will be particularly reluctant to switch if they have to pay for the product. However, one of the applications described in the substitution analysis, Walk and Text, required an upfront payment of \$1.99 and still managed an adequate 10,000+ downloads. This is a very good indication, and by offering a free version, a distribution decision that will be discussed in detail in Chapter 4, the potential for end users to choose Walk N' Text as their primary MIM client increases dramatically. However, John Cheng Incorporated will need to proactively invest in generating awareness of the risks. This will incur considerable costs; but luckily John Cheng Incorporated is financial stable and able to afford the investment.

Generating awareness of the possibility of injury from walking and texting is entirely possible. The threat is real. As the use of mobile texting increases, the number of accident will

also increase. The number of incidents is predicted to be 99,000 in the year 2016 alone, up from 1,000 cases in 2008. If this prediction holds, the potential market will grow at a rate of 100-times in a short 8 years. No current incumbents offer functions that specifically address this issue. John Cheng Incorporated, or Walk N' Text, would earn the first-mover advantage in this niche segment. The advantages garnered from first-mover position can be leveraged by increasing awareness of the potential risks inherent in walking and texting.

The next chapter will present an analysis of the market segment. The targeted end users will be identified. As well, a detailed marketing 4Ps analysis will be provided.

## **4: Marketing Strategies**

### **4.1 Market Segment**

With the introduction of 3G networking, the main requirement of persistent Internet connectivity for optimal use of MIM was satisfied. Consequently, MIM began to receive a lot of attention and generated quite a buzz in the marketplace. A recent study done by the Nielsen Company showed that 18 percent of smartphone users had accessed an MIM application and that MIM has more weekly users than game applications, 26 percent and 18 percent, respectively. The survey also indicated that, on average, users spent approximately 18 minutes per day on IM applications, versus 11 minutes on social networking, and 7 minutes on gaming applications (Johnson, 2011).

Based on the research documented by Juniper, MIM users are on pace to surpass 1.3 billion users worldwide by 2016, triple the number in 2010 (Juniper Research, 2011). Furthermore, MIM traffic will increase from 1.6 trillion messages in 2011 to a projected 7.7 trillion messages in 2016, effectively doubling its market share from 17.1 percent to 34.6 percent. In comparison, SMS had 5.9 trillion messages in 2011 and is projected to have 9.4 trillion messages in 2016, with a market share of 64 percent and 42 percent, respectively. The revenue generated from MIM is projected to be \$8.7 billion in the year 2016, compared to \$7.4 billion for regular text messaging services (Gabriel, 2012). There are several factors that will speed up the MIM adoption rate. Young adults are expected to use MIM as a key communication tool, instead of voice and/or SMS. Unlimited message body length and file transfer capabilities are huge advantages over conventional text messaging. Given the advantages of MIM, it is not surprising that we are witnessing the same explosive growth once observed by SMS.

Network carriers, who provide SMSs, are worried that the rise of MIM will threaten their revenue stream. The SMS market has started showing signs of decline. However, the increase use of MIM could actually revive the SMS market. Juniper Research stated MIM would not challenge SMS or replace it as the primary means of text communications (Juniper Research, 2011). Given that the two services are very different in design philosophy and delivery infrastructure, MIM and SMS are actually complementary rather than competing technologies.

It is important to remember that MIM is still in its infant stage. Once mature, it will become more robust and will incorporate more valuable, consumer-focused functionalities. Consumers are spending more and more time using mobile applications and this has motivated, and will continue to motivate, many corporations to deploy app-based marketing strategies and incorporate in-app advertising and marketing messaging to facilitate direct contact with end users.

#### **4.1.1 Targeted end users**

Walk N' Text is an innovative offering in the MIM segment; the innovation lies in the inclusion of AR, which is not yet available in any other MIM client. The application will be developed to address the threats emerging from walking and texting and, therefore, identifying the specific groups of end users that are most likely to benefit from such an application is necessary. On first glance, users, such as Bonnie Miller and Cathy Cruz Marrero, mentioned in Section 1.1, who have already experienced incidents from walking and texting are definite potentials. To estimate the number of incidents that will occur in the year 2016, we divide the number of reported incidents (1,000) in the United States in 2008 by the total number of text messages (95.4 billion) sent in the US United States in 2008 (Troaca, 2008) to arrive at incidents per billion messages:

$$1000 \text{ incidents} / 95.4 \text{ billion messages} = 10.48 \text{ incidents/billion messages.}$$

Given that the estimated number of total messages in 2016 will be 9.4 trillion, then the estimated number of incidents becomes:

$$10.48 \times 9,400 = 98,512, \text{ or roughly } 99,000.$$

Those 99,000 individuals could become potential Walk N' Text customers because they recognize the value of using such an application. This number is an assumption for the calendar year 2016 only; the numbers would be substantially greater if incidences for each year are included. A good way to raise awareness of this issue is to interview the injured individuals, especially those who suffered broken bones and the loss of mobility, about the effect the injuries had on their lives. One might argue that individuals who have experienced an injury would no longer walk and text; however, similar to people who have had a serious car accident and continue to drive, experiencing an accident while walking and texting may not be sufficient to change behaviour. Rather than not driving at all, people who have been involved in an automobile accident will invest in safety options rather than performance options the next time he/she is considering purchasing a car. This exact same analogy can be applied to those 99,000 involved

individuals; they will still walk and text because people don't learn from mistakes. Instead of giving up driving or not walking and texting, humans will look to external sources for comfort and confidence, i.e., use Walk N' Text or drive a safer vehicle.

Another potential group of users is pedestrians who walk and text, with mall shoppers included in the mix. "Phones aren't just distracting the drivers, it makes pedestrians vulnerable as well" (Richtel, 2010). Tiffany Briggs, 25, walked straight into a truck parked in the driveway, simply because she was too distracted while using her phone. This is a growing problem with "lower-stakes multitasking — distracted walking — which combines an electronic device and unseen 'objects' on the road . . . and sometimes a moving car" (Richtel, 2010). Derek Troyer studied emergency room visits compiled by the Consumer Product Safety Commission and found documented cases involving a 16-year-old who suffered a concussion when he walked straight into a telephone pole and a 68-year-old man who fell off a porch and still suffers from dizziness, all from walking and texting at the same time. Furthermore, it was found that young people were injured more often than other age groups. A study focused on those below the age of 30 found that a quarter of the incidents involved people aged 16–20 (Richtel, 2010). While most injuries suffered while shopping are minor, such as bruises and scratches, there is evidence of more serious injuries involving broken bones, head trauma, neck and spinal injuries, and even death. The rate of injury from slips and falls, being hit by shopping carts and parking lots accidents, increases exponentially during heavy shopping seasons, such as Christmas, Black Friday in the U.S., and Boxing Day in Canada (FindLaw, 2008). It is reasonable to assume that injuring from walking and texting would also increase.

In order to better position marketing strategies, pedestrians who walk and text can be divided into three categories: 1) young adults, 2) middle aged adults and 3) seniors.

#### **4.1.2 Young Adults**

Individuals between the ages of 16 and 24 have been categorized as young adults, also known as Generation Y. Gen Yers are usually very tech-savvy; they grew up with computer-based technology and rely on it heavily to accomplish their day-to-day objectives. Young adults are the most active MIM users, with an average of 109.5 text messages per day, or 53% of the daily texts volume (Smith, 2011). A study done by Rogers Innovation Report stated that 94% of the interviewed young adults preferred messaging rather than voice calling to stay connected to their parents or friends (Rogers, 2012). This finding was confirmed by Kane (2012) who reported that Gen Y's preferred communication medium is text messaging. Generation Y is plugged into

the Internet 24/7, mainly through smartphones. They are early technology adopters and are willing to try new functionalities.

#### 4.1.3 Middle Aged Adults

Individuals between the ages of 25 and 54 have been categorized as middle aged adults, also known as Generation X. Middle aged adults also use MIM extensively. Aaron Smith (2011) reports that this group accounts for 40 percent of the daily volume of texts, or 81.7 text messages per day. A more detailed breakdown by age is shown in Table 3.

Age group	Messages per day
25 – 34	41.8
35 – 44	25.9
45 - 54	14
Total	81.7

**Table 3: Messages break down for Middle Aged Adults**

Source: Smith, 2011

Gen Xers were young adults when personal computers were first introduced and are not unfamiliar with PDAs, cellphones, email, etc. This group of users can also be viewed as the early and the late majority. The early majority often only accept technology once it is proven to be effective or through network effect, and generally have above average social status and connections with early adopters, for example, the parents of the teenagers. The late majority approaches innovation with high degree of skepticism, and usually accepts it only after majority of the society has adapted to it. Rogers Innovation Report (Rogers, 2012) also revealed that 82% of parents of 18 to 24 years old selected texting as their favorite smartphone activity, simply because their children used text more than voice. It is safe to assume that if children are using text messaging, parents will eventually use it as well.

#### 4.1.4 Seniors

This group includes individuals 55 and older, also known as the baby boom generation. On average, baby boomers sent 14.5 test messages per day, or 7% of the daily text volume (Smith,

2011). Generally, seniors are not early adopters; they tend to be change-averse. However, seniors are also the most risk-averse. They worry about accidents and injuries and, consequently, could represent a potential target market for Walk N' Text.

## **4.2 Generic Strategies**

Michael E. Porter evaluated the competitive environment and defined three generic strategies to achieve a sustainable competitive advantage: cost leadership, differentiation, and focus. The focus strategy is a unique strategy where the competitive advantage of a firm or product is aimed specifically at a targeted group on either a low cost or a differentiation focus. Based on the previous analysis of the industry environment, which identified the importance of unique functionalities that focus on specific groups of the target segment, the proposed marketing strategy will support the generic differentiation focus strategy.

Walk N' Text is not suitable for a cost leadership generic strategy because cost leadership typically focuses on marketing low cost services to a very broad market. Walk N' Text will be developed from the ground up to meet the needs of a limited group of people, and consequently this generic strategy does not apply. The same reasoning also excludes Walk N' Text from adopting a pure differentiation strategy.

The application will be offered in the MIM sector, specifically targeting high-risk pedestrians. In this context, despite the availability of substitute products current in the marketplace, Walk N' Text will have earned first-to-market advantage. Walk N' Text's main competitive advantage is the implementation of a transparent background with AR. The system will work to guide the user away from potential harm. If the sponsor is able to copyright the code or the idea, this will further protect the product from being mimicked by other parties.

## **4.3 The Marketing Mix**

The marketing strategy will be based on the variables of Price, Promotion, Product, and Placement, also known as the 4Ps of Marketing. In order to draft a marketing strategy based on these variables, the wants and needs of the target market must be taken into consideration. Based on the targeted end users analysis in Section 4.1.1, Walk N' Text should target local mall shoppers and pedestrians. Walk N' Text must also promote awareness of the risk of injuries emerging from walking and texting. These two tasks will be the main focus of the 4Ps analysis (Pratt, 2011).

## **4.4 Price**

The average selling price of applications on all distribution stores is decreasing. This is a direct result of both in-app purchases and banner ad insertions that have become the preferred revenue stream for many developers. Juniper Research found that in-app purchases will reach \$4.6 billion by 2016, compared to \$2.1 billion in 2011 (Hornshaw, 2012; Juniper Research, 2012). In 2011, the revenue from in-app advertising was \$1.7 billion (Social Media Influence, 2012). To determine the right price to charge for the premium version of an application, the product life cycle and the perceived value the application creates must be considered. There are three different combinations of pricing models in the mobile application segments: free/paid, lock/un-lock, and trial/fee.

### **4.4.1 Product Life Cycle**

The four main stages of a product's life cycles are: Introduction, Growth, Maturity and Decline. This applies to both and intangible products. Given that the MIM segment is on an explosive growth curve, it is evident that it is in the growth stage. More customers equal more competitors, and once a concept or feature is proven to be valuable, more and more competitors will start to mimic it and offer similar functionality, as evidenced by the number of MIM clients on the market right now.

### **4.4.2 Perceived Value**

In this context, perceived value can be obtained through a rich feature set and great customer service with frequent updates. The feature set in Walk N' Text can be considered revolutionary, and it is not offered elsewhere in this segment. It is designed specifically for a user group that will appreciate the added value and who will be willing to go the extra mile to implement and utilize it. The only substitute product on the market that offers similar functionality is Walk and Text, and it charges \$1.99 upfront in the Google Play Store. If Walk N' Text charged \$1.99, then the consumers might make a direct comparison and assume similar quality and functionality, which is not a desirable position for Walk N' Text. The perceived value of Walk N' Text should be its unique feature set.

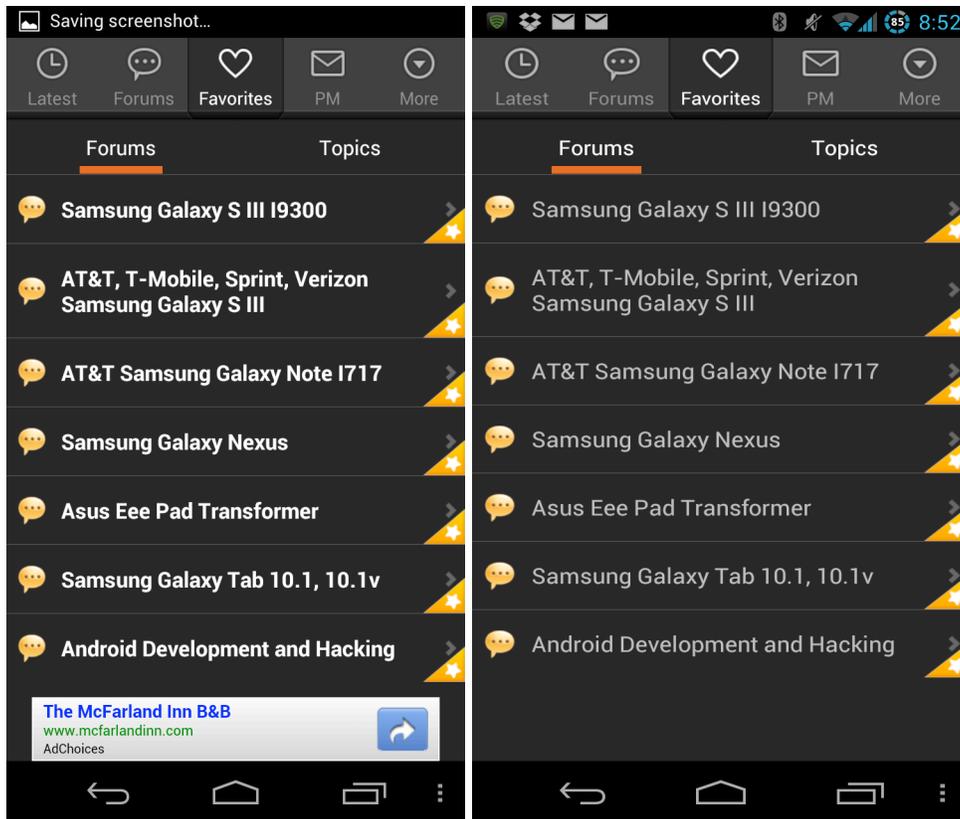
### **4.4.3 Pricing Models**

Walk N' Text could stream revenue through different models because there are various pricing strategies in the mobile application industry: Free/Paid, Lock/Unlock, Trial/Fee. General

descriptions of each are provided below to outline the differences and explain why one model would be more appropriate.

#### **4.4.3.1 Free/Paid**

Application developers can now insert an advertisement banner in their application; this is known as in-app advertising. This generates a constant stream of revenue once customers download and use the app. Many free applications include an advertisement banner. However, free versions are usually accompanied by a paid premium version with the in-app advertisement banner removed, so the end users would have a less intrusive experience. The advertisement banner does not affect functionality and is tolerated by some users; but some simply do not like constantly seeing ads. The free version can also let the users test drive the application, try out the functions, and make sure compatibility is not an issue before deciding to make the purchase.



**Figure 6: The free version with in-app advertisement banner and the paid version without the banner ad**

#### **4.4.3.2 Lock/Un-lock**

Another route is to offer the application free and without ads, but have some key functionalities removed or locked. In order to enable these functions, the user would be required to purchase a separate license application, also known as a key. In this scenario, Walk N' Text's base free app could allow the user to access the transparent background, but if they want to have direct access to AR they would have to purchase a key. The disadvantage of going this route is the inability to generate revenue from the free version, which would be the case with the Free/Paid strategy. Furthermore, it is extremely difficult to decide which function to lock up. A balance point needs to be found before proceeding with the Lock/Un-lock format.

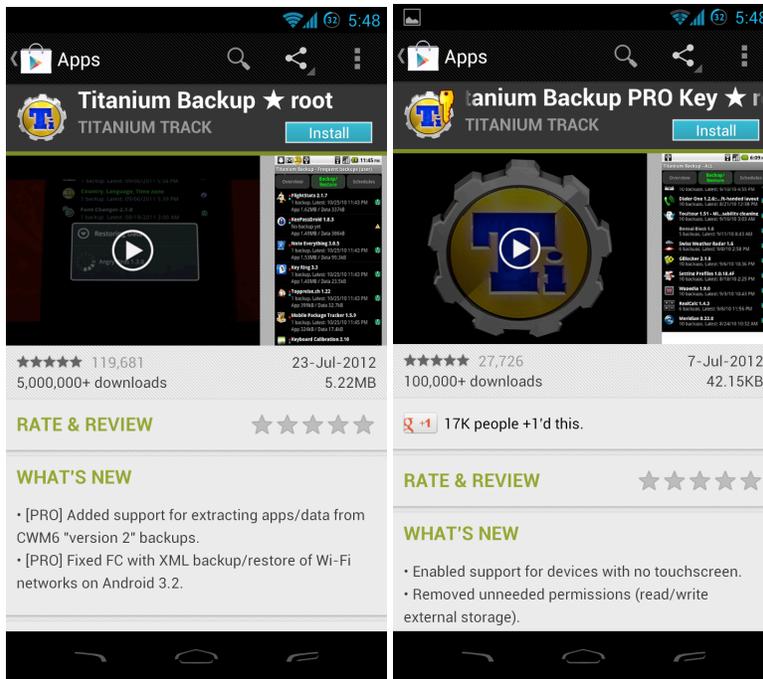


Figure 7: An example of locked free version and paid unlock key

#### 4.4.3.3 Trial/Fee

Another option is to offer the application free of charge for an initial, pre-defined period of time. This period could be 3 months, 6 months, or even a year (WhatsApp’s strategy in the Android platform is first year free). After expiration, the user would be required to pay a membership fee on an annual basis. This is a great pricing strategy. It allows the user to test the app for a period of time before needing to pay; however, this strategy would only be sustainable for an application that already has an installed user base and is able to attract new activations through network effects. As an incentive bonus, if a user is able to recruit new members and/or has a high usage rate, that individual could be eligible for a year’s free membership. This is an appreciation program to ensure constant engagement and commitment from the users.

### 4.5 Product

Walk N’ Text can be categorized as an intangible mobile application service; end users can use the service continuously as long as they have a need for it. It will never deplete, nor will it be terminated. The main areas to focus on in this category are: quality, usability, and communication.

#### **4.5.1 Quality**

Quality is synonymous with stability in this context. The requirement for the application to run on any device is extremely crucial, especially on the Android platform, where device fragmentation has plagued the operating system since its introduction. The ability to run across multiple devices is the key to building a user base. Not everyone carries the same device, and therefore a very robust testing program must be put in place from the beginning of development of the application. With the multitasking nature of the application, testing for out-of-memory crashes must be extensive to avoid any memory related issues. As briefly mentioned in Section 2.4, the current substitute products, including Walk and Text, are all plagued with compatibility issues and lack of developer support. It would not be in the sponsor's best interest to have the app perceived as being of similar value to Walk and Text. Therefore John Cheng Incorporated must ensure satisfaction through customer support and timely release updates to build a large user base and customer loyalty. Quality is particularly important because the perceived need for the product's advanced feature set is not high. Basic MIM functionality has to equal or surpass competitors' products.

#### **4.5.2 Usability**

The application must be easy to use, not just for experienced smartphone users but for new users as well. It would definitely be helpful to setup an introductory tour that would be available when users launch the application for the very first time. The tour would go over the feature sets, the settings menu and explain how to configure the application to suit the users' needs. A great way to design the application is to put on the end users' shoes and think about how they would navigate the application. Given that Walk N' Text is a MIM application, the first screen has to be the conversation thread screen for each individual on-going conversation. Once the user clicks on the thread, it will expand to become a detailed list of all the messages exchanged with that contact.

#### **4.5.3 Communication**

Communication works both ways; the end users can connect with the sponsor to resolve individual issues and report bugs and the sponsor can encourage the end users to write short, informal reviews, or offer ideas for future improvements, etc. Once the sponsor has built a strong relationship with the users, the sponsor can ask users to share information with their peers, or promote the application through their social networks or by word of mouth. Furthermore, Walk

N' Text should setup a social network account on platforms such as Facebook, Twitter, Google+ and LinkedIn. The sponsor can ask users to connect to Walk N' Text for constant information updates about the application and to share reports about accidents/incidents from walking and texting around the globe. Reports explaining how Walk N' Text prevented users from having an accident could also be effectively shared on social media platforms.

#### **4.5.4 Legal Issues**

Even though there are no specific laws or regulations governing mobile application development, with the recent famous lawsuits (Apple vs. HTC and Motorola for instance), it would be irresponsible of the sponsor not to consider the IPRs pertaining to code and content, and data and privacy collection while developing and marketing a mobile application (Srivastava, 2011):

##### **4.5.4.1 Intellectual Property Rights (IPR) in the application software code**

In application software development, if the author is an independent contractor, the IPRs initially belong to the author of the code, or a company, if the author is an employee, depending on a previously establishment agreement between employee and employer. Ownership of these rights could become complicated if the author/developer is an independent contractor or is outsourced from a different company, or if the development proceeds from open-sourced code, or is a joint venture between two parties. To avoid such issues, the sponsor must ensure that 100 percent ownership of the IPR for the code generated by the freelance developer resides with the sponsor. This would be a provision of the employment contract between the developer and the sponsor. Furthermore, a non-disclosure agreement (NDA) must be signed by all parties to ensure the confidentiality of the nature of the application while under development.

If the application was developed through a joint venture, then each company would own the IPR for the code it created. If one of the companies wishes to use all or a portion of the code for different opportunities, then it must account financially for the portion owned by the joint venture partner and either purchase the IPRs upfront or setup royalty payments (Srivastava, 2011).

##### **4.5.4.2 Intellectual Property Rights in the Content**

The Walk N' Text application might need to use or modify previously copyrighted content. The sponsor would need to negotiate with the original author of such content for access

and usage. This could potentially be made available free of charge or involve a one-time payment or ongoing royalty payments. The sponsor should definitely determine what copyrighted content may be required prior to the start of development and obtain all the permissions required.

The application might also inadvertently violate trademark rights. Trademark infringement could occur in a number of ways, such as: 1) the name of the app, 2) the look and feel of the app, and 3) an outright infringement of an existing trademark. As long as the layout of the application does not mimic other apps on the market, then sponsor should not need to worry. Regardless, the sponsor should still search the marketplace for similar apps to ensure no potential trademark issues arise (Srivastava, 2011).

#### **4.5.4.3 Privacy and Data collection**

The public is extremely alert to any forms of breach of privacy and/or data collection without their consent. Apple faced such accusations for its iPhone 4's location-based services that collected users' location data and sent it to a remotely located data centre for commercial purposes. This attracted a great deal of attention throughout the Internet and Apple was forced to turn off the feature via a software update. To avoid such accusations, the sponsor should draft up a terms of use agreement and privacy statement to include: 1) what information is collected, 2) how is it stored, 3) how it is used by the sponsor, 4) whether the information will be shared with third parties, 5) how the user can opt out, and 6) contact information for end users. If the application requires obtaining and sharing user data, then the application would need to have the users' consent before proceeding (Srivastava, 2011).

#### **4.5.4.4 Jurisdiction**

Assuming the sponsor has researched possible infringements, it would still be advisable to consult an attorney or other expert in the field to ensure proper procedures are followed. If the application is to be distributed outside the home country, in this case Canada, then the sponsor would need to consult professionals in those individual countries because regulations, particularly those concerning privacy, will vary among jurisdictions (Srivastava, 2011).

## **4.6 Place**

Place, or in this context the distribution channels, refers to the locations at which the general public will be able to download and/or purchase Walk N' Text. Virtual shelf space should be treated the same as real shelf space and must be designed with caution and forethought. The

sponsor would need to pay extra attention to setting up the application page on the distribution channels to attract more potential clients. Place can also refer to strategic locations where the sponsor can create buzz and promote the product.

#### **4.6.1 Distribution Channels**

Each individual smartphone platform has its own respective application store; this centralized aggregation provides a common point of access for end users and allows applications to be categorized by type. End users simply go to the application store, search, select and download a specific application to suit his/her needs.

##### **4.6.1.1 Android**

**Google Play Store** — the native first-party application distribution centre for Android is Google's Play Store. It comes preinstalled in every Android based device, except Amazon's Kindle Fire. The applications are well sorted into comprehensive categories, which would allow the sponsor to determine which category best suits Walk N' Talk's targeted demographic. Currently, Google is believed to have ~500,000 active Android applications in the Play Store; however, approximately a quarter of those are classified as "low-quality apps" (AppBrain, 2012). Google performs a cleanup once every quarter. The applications that have been reported as malware are taken off the shelf as part of the removal program. An incident in 2011 forced Google to take immediate action; a few applications were collecting users' data without permission and Google had to remove them to avoid further damage (WSBT, 2011).

Google charges a \$25 one time sign-up fee for the right to distribute applications in the Play Store, and it takes 30 percent of the list price for paid applications. Once an app is distributed, Google Application Statistics update daily to give developers an up-to-date status for their application. The update includes details such as the number of downloads, ratings, the device configurations, the region, etc. (Google Play & Sabatini, 2012).

**Amazon App Store** — as mentioned earlier, all Android devices come with Google Play Store preinstalled, except Amazon's Kindle Fire, a hybrid tablet that combines the functionality of a web browser with an e-reader. The Kindle Fire has been extremely successful in the Android tablet market. The Amazon App Store is preinstalled on Kindle Fire and can be installed on other Android devices. Amazon has a tradition of giving away a paid application every day; those applications are selected from the top developers' blockbuster apps, rather than the never-been-heard-of-before applications (Anthony, 2011). This is a marketing strategy to draw the end users

into the App store. Furthermore, Amazon has struck a deal with a few developers to offer time-exclusivity, from two days to several weeks, for a variety of applications; famous applications such as Plants vs. Zombies for Android and the Call of Duty series of games have been available (Price, 2011).

Amazon App Store takes 30 percent of the listed application price and charges \$99 a year to list free applications. Despite the fact that Amazon charges more than Google Play Store upfront, it gives the developers access to the Kindle Fire market, which is approximately 50 percent of the Android tablet market, this equates to 5 million units shipped (Brockmeier, 2012).

#### 4.6.1.2 Apple

**App Store** — iOS only has one active store, Apple’s App Store. There are approximately 650,000 active applications, and Apple charges the developers \$99 a year to list their applications and takes 30 percent of paid premium apps. Apple’s App Store can be accessed from a computer through proprietary iTunes from Windows and/or Mac computers. Apple does a great job identifying low quality applications and rejects them before being listed (Sabatini, 2012).

Mobile applications have seen tremendous growth in terms of developed applications, revenue, and user base. Below is a summary demonstrating the annual revenue generated and growth of mobile applications for each platform:

Store	2009 Revenue (in millions)	2009 Share	2010 Revenue (in millions)	2010 Share	Year-Over-Year Growth
Apple App Store	\$769	92.8%	\$1,782	82.7%	131.9%
Google Android Market	\$11	1.3%	\$102	4.7%	861.5%

**Table 4: The annual revenue of each individual Smartphone platform mobile application store**  
Source: Dilger, 2011

The iOS saw 131.9% growth, from \$769 million in 2009 to \$1.7 billion in 2010; and Android saw 861.5% growth, from \$11 million to \$102 million growth between 2009 and 2010.

#### **4.6.2 Discovery**

Even when an application is listed on a distribution channel, it first needs to be discovered by the public. A great way to help the public to find it is to enter “keywords” when listing the application. The sponsor can provide words that are directly or indirectly related to Walk N’ Text and the distribution channel’s server will generate linkages between the words being searched for by potential users and those provided by Walk N’ Text. Essentially, the key words associated with application are a form of search engine optimization and will increase the likelihood that users will be directed to Walk N’ Text. However, there is always a possibility that users may also be directed to competing apps. The best way to determine what words are most appropriate is to brainstorm all potential combinations of keywords and phrases, and then test them to confirm if any lead to competing apps.

#### **4.6.3 Name**

Determining an application’s name is an extremely important task; the name gives the end users a first impression and a unique name will lead to better discovery. Walk N’ Text may be too similarity to Walk and Text and a less similar name should be considered to avoid future lawsuits/accusations.

##### **4.6.3.1 Icon**

The icon associated with the application must be designed to standout in a sea of applications. At this time, there is no proposed icon for Walk N’ Text.

#### **4.6.4 Screenshots**

Screenshots are required to provide the potential end users with a general idea of the interface, the performance, and the features. The key is to display only the relevant features and nothing else. A simple video that walks users through the entire application layout and demonstrates functions is also applicable in this context.

##### **4.6.4.1 Mobile Booths**

A strategy to gain direct contact with the targeted end users is to setup booths in shopping malls or on high-density streets. The sponsor can answer questions or inquiries directly related to the application and allow the potential users to test it out. Furthermore, this is also a great

opportunity for creating public awareness of the emerging risks associated with walking and texting.

#### **4.6.4.2 Community Centers/Libraries**

It is possible to host free sit-in seminars at local community centres or libraries. This gives the sponsor an opportunity to interact with potential users and allow them to try out the application on-site.

### **4.7 Promotion**

There are many ways to promote a mobile application efficiently and effectively. Promotions must be focused on the targeted end users and be crafted such that those users will extract the highest perceived value from the application.

#### **4.7.1 Communities**

There are many developers' forums on the Internet, and all of them can be reached easily and have no requirements for signing up. If someone representing Walk N' Text becomes very involved in a forum, it is possible that other users will promote Walk N' Text, particularly if they need the unique service and are satisfied with the application. Participants in these forums offer honest feedback and might suggest improvements and complementary functionalities.

#### **4.7.2 Social Media**

Walk N' Text definitely needs to setup a social media account on social networking sites, such as Twitter, Google+, LinkedIn, and Facebook. Facebook may be particularly effective as it is possible to set up a fan page for a product. Social media is a very powerful channel to create awareness; essentially it is the "word-of-mouth" promotion channel in the 21<sup>st</sup> century.

#### **4.7.3 Promos and Giveaways**

Providing free promo codes or offering the premium free application for a limited time is a strategy to build a user base quickly; however, if this is overdone, then the discount becomes expected and difficult to retract.

#### **4.7.4 Mobile App Review Sites**

Asking for a professional review is always a great route to create awareness. However, this might not be ideal for every developer. The sponsor should attempt to develop relationships with credible reviewers prior to the release of the app. Once the app is released, the sponsor will be able to contact these reviewers directly. Initially, small sites are preferable because they are more likely to review the app and may have fans that are more in line with the targeted end users. The bigger review sites might also pick up a review of the app from the smaller sites, which is a win-win for both the sponsor and the smaller sites.

#### **4.7.5 Department Stores**

Another great potential for product exposure is to partner with local department stores to offer cross promotion between each other's product. The sponsor would need to target the stores with the heaviest traffic for least one of the targeted groups.

### **4.8 Summary for Marketing Strategies**

From the above analysis, it is clear that Walk N' Text and John Cheng Incorporated should position itself with the differentiated focus marketing strategy. The product is not suitable for cost leadership because the targeted end users belong to a niche segment of a large industry. Walk N' Text was conceived to mitigate the injuries associated with walking and texting. Gen Yers are definitely the most obvious group of users to target. Young adults are very tech savvy and are early technology adopters. Securing this group as customers will automatically attract middle aged adults through network effect because young adults prefers texting as their main method of communication and parents want to stay connected to their children. Seniors would require a more specific approach as they are change-averse and, therefore, slow to adopt new technology.

The market segment and the end users were identified in order to draft a marketing strategy using the 4Ps of marketing — Product, Price, Promotion, and Place. The sponsor should be particularly concerned about the potential for IPR infringements during the development of the application. Furthermore, the sponsor should consider renaming the application because the current title is too similar to Walk and Text, a direct substitute. The 4Ps analysis also provided detailed descriptions of different revenue models, pricing strategies, and distribution channels within the mobile application industry. The analysis strongly suggests that Walk N' Text should have a free in-app banner version and a premium paid version. Walk N' Text should not consider in-app purchase because that model is more suited for game applications. The next step is to

decide the pricing strategy for the paid premium version. Given the closest substitute's price is \$1.99, it will be in the sponsor's best interest to charge more than the substitute to differentiate the perceived quality of Walk N' Text.

In the next chapter, the estimated development cost of Walk N' Text, the break-even analysis for the proposed revenue model, and implementation strategies will be presented.

## **5: Revenue Models and Implementation**

### **5.1 Implementation**

The proposed implementation plan is based on the marketing strategy and the external and internal analyses related to the industry segment in which Walk N' Text will compete. The main focus, indeed challenge, is to generate awareness about low-stakes multitasking injuries. The main objective is to focus on local markets, such as shopping malls, and high-density pedestrian areas in the Greater Vancouver region, such as Robson Street in downtown Vancouver. The long-term objective is to expand the potential market into United States and across Canada.

Given the nature of the mobile application industry, the following implementation steps will emphasize online marketing. However, other marketing avenues are considered. The sponsor's only financial objective is to recover the software development cost; therefore the marketing costs should be as economical as possible. In addition, the marketing strategies for mobile applications usually involve online media, which often do not require much, if any, upfront costs. (Minkstein, 2011):

### **5.2 Generic Strategies**

This section considers generic strategies, which do not target specific user groups, that will raise awareness of Walk N' Text and the risks associated with walking and texting.

#### **5.2.1 Alpha- Beta- Testing programs**

The development of Walk N' Text will undoubtedly be extremely difficult. The application would need to incorporate a transparent background, setup the logic to determine harmful objects and display those objects to the users through AR. To make things more complicated, Android fragmentation further increases the difficulty of development. A thorough test program must be completed to ensure bug-free and high compatibility among different devices. A one-stone-two-birds approach to this is to utilize online smartphone forums, such as xda-developers, Engadgets and GSMarena, to ask for volunteers. The signup would be limited to different hardware configurations of the devices, and each volunteer would need to sign a non-

disclosure agreement before formally being accepted as a tester. Once the program is completed, hopefully the volunteers would have had a great experience and be able to promote the application to their peers.

### **5.2.2 Social Media**

**Twitter and Google+** —Twitter and Goggle+ are free and they can also give the users direct exposure to the people who matter within the target industry. Setting up an account using the name of the app and an associated Twitter handle, e.g., @WalkNText, to promote the product to Twitter users would be ideal. Since all tweets are discoverable by all users through hashtags, this is a great way to generate some publicity. One way to approach this is to find the twitter account of people who suffered an injury while walking and talking or texting and ask them to promote the application.

### **5.2.3 Video**

Making a video is a great way to create public awareness. First of all, the video should re-enact different scenarios illustrating how a pedestrian could get hurt from walking and texting at the same time. Then the scenarios could be re-enacted using Walk N' Text to illustrate how it can help divert the users away from harm. This video could be a low-cost production that could be posted freely on media such as YouTube. It could also be shared through the Twitter and Facebook. Although it is important that production costs be relatively low, to create value and incentive, it would be in the sponsor's best interest to make a quality video to showcase all the potential upsides for pedestrians. Furthermore, the sponsor will have an option to showcase the video on the application page in the Play Store or App Store. Finally, it is extremely important to select the appropriate search keywords so the video can be located easily on the web.

### **5.2.4 Create a website/blog**

There are many sites on the internet that allow a person to create and host a website for free. The sponsor should create a webpage for Walk N' Text. This will be a central ground news aggregation site for all the users to share experiences and comment on Walk N' Text. Furthermore, it gives the user a direct portal to communicate with the sponsor about incompatibility issues and or problems/concerns that have emerged while accessing or using the application. The current substitutes have low or no developer support. Providing an interactive website that facilitates user input would signal that John Cheng Incorporated is dedicated,

customer focused, and here to stay. The sponsor can also share the news of new incidents and describe the injuries that individual suffered as a way to create awareness.

### **5.2.5 Giveaways**

A free give away is a great way to promote the application. The sponsor could setup a QR code at the entrance of local shopping malls and give passers-by an opportunity to scan the code, download the application free of charge, and try it out immediately. If they like it, they could be prompted to go to the website to write a review or rate it on the application store.

At the iOS App Store, Apple allows 50 free app promotional codes with each new application update that is accepted — definitely a great opportunity worth taking advantage of.

Walk N' Text should connect with local radio stations that offer free promotional sessions. For example, Virgin 95.3 has a special contest every Thursday morning on the Nat & Drew show. They each do a completely free one minute commercial for a Vancouver start-up. This is a great opportunity to create awareness, generate publicity, and connect to radio listeners.

### **5.2.6 Mobile App Review Sites**

Mobile App Review websites are a great place to gain exposure. The sponsor should send reviewers a copy of the application, stating its purpose and key functionalities, and ask them to test its advertised capabilities. Often, if the application does what it supposed to do, it will receive a good rating. The sponsor might want to start with the small reviewer sites, such as smartphone App Review and Tech Hackz, before contacting the big review sites, such as Gizmodo, etc.

### **5.2.7 Hit the street**

Another great way to promote the application is to hit the street. In addition to promoting the product, this will also generate awareness of the potential for injuries from low-stakes multitasking. A booth with a few smartphones preloaded with Walk N' Text could be setup in a high traffic area. Pedestrians could be asked to try out the app. Robson Street in downtown Vancouver would be a great location.

## **5.3 Specific Strategies**

In section 4.1.1, targeted end users were segmented into four main groups: previously injured, young adults, middle Aged adults, and seniors. Below are a set of specific strategies that are uniquely designed to target those groups to generate buzz and promote the application.

### **5.3.1 Previously Injured**

This is the hardest group of users to target because it is difficult to find out who has been injured from walking and texting. However, offering a free version and a premium version, gives the application a better chance to be noticed by those injured individuals. Appropriate keywords likely to be used by previously injured people need to be selected to ensure that Walk N' Text is at the top of the list when those individuals search the web for reviews of applications that mitigate the risk of texting and walking. A great user review is also crucial. . Offering a free version gives the individual an opportunity to test out the application before making a decision to purchase. The videos and screenshot accompanying placement in the app stores should provide a sense of the look and feel of the application. As long as Walk N' Text performs as promised, previously injured individual will definitely appreciate the added value this application provides.

#### **5.3.1.1 Spokespeople**

The sponsor should be in contact with the previously injured individuals like Bonnie Miller and Cathy Cruz Marrero and ask them to become a spokesperson or an ambassador for the application. They could talk about their own encounters and how dreadful the entire experience was. Furthermore, they can create public awareness about the downsides of walking and texting and describe how Walk N' Text will help the pedestrians stay away from harm.

### **5.3.2 Young Adults**

As described in Section 4.1.2, young adults, Gen Yers between 16 and 24 years of age, are extremely tech savvy. They are almost all very familiar with smartphones and computers. They are early adopters of technology and represent the main target group. Walk N' Text must capture this market segment to become a commercial success.

#### **5.3.2.1 In-App Advertising**

Prior to the development of the application, the sponsor should determine the kind of apps the targeted audiences use. The sponsor could undertake a survey or rely on demographic

information available on the internet to make this determination. If possible, the sponsor could establish a partnership with those developers to exchange in-app banners to cross-promote applications. This is a win-win situation for both parties.

### **5.3.2.2 Department Stores**

The sponsor could also approach local department stores. An ideal situation would be to have a partnership with a store that targets males and a partnership with a store that targets females; for example, EB Games or Futureshop/BestBuy for males and Sephora or Aritzia for the females. The use of in-store promotional flyers would be appropriate. They could be placed in a stand near the door or, ideally, given to the customer along with the receipt for their purchase. The latter is the preferred delivery mechanism because it ensures that every customer who makes a purchase will receive a flyer. The flyer should focus on the next generation of MIM functionalities and emphasize the possibility of preventing a serious injury. It should also focus on the theme-capability of the application. The ability to customize an application through the use of theme packages is very popular with young adults. The stores could be encouraged to participate by offering discounts that can be redeemed after an established period of active application running time; for example, \$5 off for every 50 hours. This would encourage Walk N' Text users to return to the store.

### **5.3.3 Middle Aged Adults**

As yet, no marketing strategy has been identified that appeals directly to this specific group of users. However, if the young adult market can be captured, it is reasonable to expect that their parents will also be willing to try Walk N' Text. Text messaging is the preferred communication media for young adults and parents want to be able to communicate with their children. If they need an MIM client, they are likely to use the one their children use.

### **5.3.4 Seniors**

Seniors, in general, are more risk averse than the other targeted groups. They tend to be worried about accidents and injuries. To appeal to this group, the marketing campaign should include visits to the local senior centres and clubs to conduct free seminars and hands-on demonstrations using actual obstacles. Seniors tend to be influenced by facts and figures. A flyer that documents the number of people who have been seriously injured while walking and texting could persuade seniors to try the application. Seniors may be interested in recent investigations

undertaken by cognitive psychologists and neurologists on inattention blindness. Inattention blindness refers to a phenomenon that occurs when people are multitasking, i.e., walking and texting. Essentially it means that a person may have been an object with their eyes but fail to consciously recognize its existence (Richtel 2010). Walk N' Talk's Augmented Reality features, both visual and audible warnings, compensate for inattention blindness and may well appeal to seniors. The flyer could also include a "discount coupon code" for Walk N' Talk that could be applied to the purchase price. Perhaps more than other groups, seniors value and rely on recommendations from their peers. If even a small portion of the senior's market could be captured, the application would benefit from word-of-mouth referrals.

### **5.3.5 Conclusion for Implementations**

The main objective is to promote the application to the young adults through strategic marketing to entice them to switch to Walk N' Text. Adoption by young adults will engage middle-aged adults through a network effect, i.e., parents to connect with their child(s). Detailed information about the potential danger of texting and walking will appeal to seniors.

## **5.4 Budgeting**

### **5.4.1 Development Cost**

In order to develop Walk N' Text, the sponsor would need to outsource the coding to a professional mobile application developer because the corporation currently does not have an in-house expertise. John Cheng has made some inquiries and requested a quote for an approximate cost. Luckily, he has successfully located a developer who has provided a reasonable quote (see Appendix 1). The estimate is for 66 hours development time at \$75/hour for instant messaging without multimedia support; adding multimedia messaging support would require an additional 12 hours. Total cost was estimated to be \$5850. However, 78 hours to code an application from scratch seems optimistic. In order to mitigate potential under-budget problems, the calculations presented below will be based on 133 hours of development time, bringing the initial development cost to an even \$10,000 per platform; \$20,000 for both Android and iOS.

### **5.4.2 Marketing Costs**

There are numerous costs associated with the marketing strategies presented in Section 5.1. The details of these costs are presented in the following sections.

### 5.4.2.1 Mobile booths

To receive the highest reach for the dollars invested, it would be best to setup the booth on the densest pedestrian sidewalks in the city. In the city of Vancouver, without a doubt that is Robson Street. Alternatively, to specifically target the young adults group, the booths can be installed at universities and colleges.

The booth itself will be relatively cost effective. There will be a total of four booths; two on each side at both ends of the street. A table from IKEA costs approximately \$150 after tax. Each booth will need two staff who would be paid \$10.25 per hour. The work shift would be from 9 am to 12 pm. In addition, four devices, two Android and two iOS would be needed at each booths to allow the public to try the application. The current bulk price of an iPhone 4S is \$616.00, and the Samsung Galaxy SIII is priced at \$672.00.

The costs associated with the mobile booths strategy are tabulated below.

Items	Cost
4x IKEA Tables	\$600
2 Staff x 4 booths @ \$10.25/hr for 10 hours	\$820
8x Galaxy S3 + 8x Apple iPhone 4S	\$10,304
Total	\$11,724

**Table 5: Cost break down for Mobile Booth strategy**

The initial total investment for the mobile booth strategy is approximately \$12,000.

### 5.4.2.2 Promotional Flyers

Once the sponsor had decided on the content of the flyers, they can be sent to a professional print service. UPrinting.com allows clients to create an order on the website directly. The cost of 4,000 flyers would be approximately \$175.65 (UPrinting, 2012).

### 5.4.2.3 Department stores partnerships

Unfortunately, there are no data available on the estimated cost of securing a partnership with the local department stores. Store managers would only give the possibility serious consideration once the application is launched and all the paper work is ready. An estimate of \$25,000 per department store to secure a partnership signing offer will be used; assuming starting with two department stores, i.e. FutureShop/BestBuy and Sephora, the initial investment would be \$50,000.

The cost of offering the end users a \$5 coupon a usage will be included in the revenue calculation presented in Section 5.5.

### 5.4.2.4 Community Centres

It would be necessary to book a room in advance to conduct a demonstration for seniors or parents. The rental rate, as shown on the Creekside Community Centre's website, is \$39.20 per hour for a 650 square foot multipurpose 1 room with a capacity of approximately 70 individuals. Four staff should be on-site for the two hours demonstration. The costs are presented in Table 6.

Items	Costs
4 Staffs x \$10.25/hr for 2 hours	\$82.00
Room Rental	\$78.40
Refreshments	\$50.00
Total	\$210.40 + tax = \$235.65 per session

**Table 6: Cost break down for Community Center room rental**

The total cost would be between \$235.65 and \$250 per session. Not all centres have the same rental rate. Initially, it would be ideal to setup one session at few different community centers to broaden the reach. Assuming four sessions at four different locations for the initial month, then the cost becomes  $4 \times \$250 = \$1,000$ .

## 5.5 Revenue Stream Estimations

The analysis presented in Chapter 4 strongly indicates that Walk N' Text's best strategy is to offer a free and a paid version in parallel; the free version would have an in-app

advertisement banner and the paid version would not. The exact dollar amount to charge for the paid version truly depends on the nature of the application. Application stores charge 30 percent of the sale price per download. Assuming a \$2.99 sale price, Walk N' Text would net \$2.09 per download. Revenue can also be generated from banner ads. The rate an advertiser pays depends on variables such as the conversion rate, the Customer Lifetime Value (CLV), effective cost per thousand impressions (eCPM), fill rate, and the network reach. The most prominent variable is the number of impressions, or eCPM, the app can generate. To have a better estimate of the impression count, one must make assumptions about market adaptation. In this instance with Walk N' Text, it is probably more appropriate for the sponsor to be pessimistic rather than optimistic.

### 5.5.1 General/Average scenario

The average successful user conversion rate in the mobile application industry is assumed to be 10 percent, and assuming the initial population reach is 10,000 smartphone users:

$$10,000 \times 0.90 = 9,000 \text{ non-converted smartphone users}$$

Now assume that those 9,000 individuals installed, tested, and deleted Walk N' Text because it was simply not their cup of tea. Further, assume they each spent approximately 10 minutes testing the application. A banner ad needs to be displayed for a minimum of 30 seconds to qualify as an "impression", a potential of two impressions per minute.

$$9,000 \times 10 \text{ minutes} \times 2 \text{ impressions/min} = 180,000 \text{ impressions.}$$

Next we need to determine the estimated eCPM; \$2 is the industry average and therefore it will be used for the following calculation:

$$180,000 / 1000 \text{ (eCPM is in 1000s)} \times \$2 \text{ eCPM} = \$360$$

For the 9,000 individuals that tried the app for 10 minutes each and never touch it again, the sponsor would earn \$360.

Now change the focus back to the 1,000 converted individuals, i.e., those who decided to use Walk N' Text on a regular basis. Let's assume that each user uses Walk N' Text for 20 minutes a day for a minimum of 1 month.

$$30 \text{ days} \times 20 \text{ minutes/day} = 600 \text{ minutes.}$$

If each user is able to generate 600 minutes of impressions over one month, this equates to:

600 minutes x 2 impressions/minute = 1,200 impressions.

1,200 impressions / 1000 x \$2 eCPM = \$2.40 per customer

Since there are 1,000 converted customers:

1,000 x \$2.40 = \$2,400 total.

The converted and non-converted ad revenue would be:

\$2,400 + \$360 = \$2,760 total ad from 10,000 initial reach, or \$0.28 per download.

In order to have a proper estimate, one needs to determine the ratio between free/paid. This is extremely difficult to estimate accurately because it is impossible to predict how the public would react to Walk N' Text on its initial launch and there is no disclosed data elsewhere. For the purpose of this calculation, the ratio will be assumed to be 20:1, i.e., for every 21 downloads, 20 would be free, and one would be a paid version.

The sponsor registered the corporation prior to conceiving of Walk N' Text. Therefore the legal registration fees can be waived as costs and should not be part of the budgeting calculation. Therefore, the upfront investment would be the development and the marketing costs:

Development Costs		\$20,000
Marketing Costs		\$63,175.65
Mobile Booths	\$12,000	
Promotional Flyers	\$175.65	
Department Store Partnerships	\$50,000	
Community Centers Rentals	\$1,000	
Total		\$83,175.65

**Table 7: Total estimated upfront investment cost breakdown**

The total estimated cost is \$83,175.65. It should be noted that this development cost is based on a quote from only one developer.

In order to cover the initial \$83,175.65 upfront investment, Walk N' Text would need to generate a total of 224,500 total downloads, 213,275 of those would be free and 11,225 would be paid premium, which equates to revenue of:

$$213,275 \times \$0.28 + 11,225 \times \$2.09 = \$59,717 + \$23,460.25 = \$83,177.25$$

In the opposite scenario, where no one paid for the premium version, then the sponsor would need to distribute 297,056 free copies of Walk N' Text.

$$\$83,175.65 / \$0.28 = 297,055.89$$

On the other hand, consider the scenario where all downloads are free, and all users were converted:  $\$83,175.65 / \$2.4 = 34,657$  downloads.

For completeness, three more sub-scenarios are included to cover all possibilities and also to give the sponsor a broader idea of what to expect.

#### **5.5.2 Free downloads only, 0 conversion**

Consider the scenario where all downloads are free, but none of the users are converted. Based on the calculation above, the sponsor would have earned \$360 from non-converted downloads from a population of 10,000;  $\$360 / 10,000 = \$0.036$  per download. Therefore, to break even, downloads need to exceed  $\$83,175.65 / \$0.036 = 2,310,435$  copies. Generating 2.3 million downloads without anyone converted to use the application on a full time basis is a very unlikely scenario.

#### **5.5.3 All premium version**

Last but not least, consider the best-case scenario where all initial distributed copies are the paid version:  $\$83,175.65 / \$2.09 = 39,797$  copies.

#### **5.5.4 Coupon scenario**

This scenario calculates the impact on revenue from offering a coupon for a department store whenever a user reached a milestone usage. A user would receive a \$5 off coupon for every 50 hours of active application running time based on the free application.

$$50 \text{ hours} \times 60 \text{ min/hr} = 3,000 \text{ minutes}$$

$$3,000 \text{ minutes} \times 2 \text{ impressions/minute} = 6,000 \text{ impressions}$$

$$6,000 \text{ impressions} / 1000 \times \$2 \text{ eCPM} = \$12 \text{ per customer}$$

\$12 revenue per customer after 50 hours of usage - \$5 coupon = \$7 end revenue

By offering a \$5 off coupon for every 50 hours of usages, the sponsor would still be able to ramp in \$7 worth of revenue. The application would be able to break even at  $\$83,175.65 / \$7 = 11,883$  copies.

### **5.5.5 Conclusion of Revenue Stream**

The application requires a large upfront cash investment, \$83,175.65, with the majority being spent on marketing strategies because the application would need high profile promotion to become a commercial success. An interesting fact was that the copies required to break even for free downloads, 100% conversion, 34,657, is less than all paid premium versions, 39,797. This is because with the in-app banner, the application would constantly be generating revenues rather than the onetime payment. Because of this, it might be the sponsor's best interest to push the free version, i.e., offer more coupons for department stores based on application usages, rather than push the paid version.

## **5.6 Summary of Financial Models and Implementations**

The estimated development cost is \$10,000 per platform, which includes additional cushioning added to the original quoted price. The estimated initial market cost is \$63,175.65. The total upfront investment is \$83,175.65. Given that application stores usually charge 30 percent of the listed price per download and the recommended list price for Walk N' Text is \$2.99, the sponsor would earn \$2.09 pure revenue for each paid application. A detailed calculation for the potential profit earned from in-app advertisement banners was done, and various break-even scenarios have been included:

- Assumed 20:1 ratio of free:paid, the download required was 224,500 with revenue of \$83,177.25.
- All free downloads, 10% conversion rate: 297,056 copies
- All free downloads, 100% conversion rate: 34,657 copies
- All free downloads, 0% conversion rate: 2,310,435 copies
- All paid version, 39,797 copies

It definitely will not be easy to market and sell Walk N' Text. The worst case scenario requires 2.3 million free copies to be downloaded to reach the breakeven point. The best case

scenario requires 34,657 downloads of the free version with 100% conversion to the paid version. Even though this is hard, it is not all impossible, and given the nature of the mobile application industry, as long as the functionality can grab attention and generate buzz, Walk N' Talk can become successful. The implementation steps provided above are the most effective strategies to build publicity for Walk N' Text. These strategies also have the added value of raising awareness about injuries associated with walking and texting.

The concluding chapter presents recommendations gleaned from the analyses performed: SWOT, Porter's Five Forces and Generic Strategies, and the 4Ps of Marketing.

## **6: Recommendations, Risks & Mitigations**

### **6.1 Recommendations for Walk N' Text**

It is evident that the MIM segment is in the growth stage of its product life cycle. It is expected that 9.4 trillion messages will be sent in 2016. This is estimated to bring \$8.7 billion in revenue. Furthermore, the number of reported injuries from low-stakes multitasking incidents is calculated to be 99,000 cases in the year 2016, approximately a hundredfold increase compared to the 1,000 cases in 2008. The analyses performed to develop this business plan indicate that the primary targeted end users are young adults. Secondary targeted end users are middle aged adults and seniors. The marketing strategies focus on young adults and seniors, because they are the groups most likely to generate buzz for Walk N' Text's ground breaking technology. New technology appeals to young adults and the accident prevention functionalities will appeal to risk averse seniors.

The competitive analysis and an assessment of various revenue models were used to determine the correct price point for Walk N' Text. Since the only close substitute charges \$1.99 for the application, if the sponsor matched the price, then users might perceive Walk N' Text as being the same quality as the substitute, which is not the best strategy. Therefore, given the additional complexity of the Walk N' Text application, the proposed price would be \$2.99. This price point differentiates the product and allows the sponsor to be more flexible in offering discounts or sale promotions. A combination revenue model of free/paid would be ideal for Walk N' Text. The users have the option to download the free version to test the application before deciding to purchase the premium product. The difference between the two versions is the inclusion of in-app advertisement banners in the free version. This option will generate continuous and sustainable revenue throughout the life of the application. If the users are able to extract value from the application, then those individuals will be more willing to purchase it. They might also promote the application through their social media circles, which is another great way to thank the sponsor for a good app.

Before initiating the development of Walk N' Text, the sponsor would need to research the current applications in the market to ensure no possible infringements could emerge in the future. After researching this possible problem independently, a law professional should be

consulted for a second opinion. If there are possible infringements, then the sponsor needs to consult with the owners of the IPRs and obtain permissions/clearances before proceeding with Walk N' Text. In this context, the sponsor might want to change the name of the application to avoid potential infringement on the current substitute's name, "Walk and Text". The initial developer will be a freelancer. John Cheng Incorporated would need to draft a comprehensive work product contract to ensure 100 percent ownership of the IPRs and a non-disclosure agreement to protect the application's source code. Once the application is distributed, it may be in the corporation's best interest to hire at least one programmer to maintain the application. This would ensure the completeness of the application and assist in preventing information being disclosed to outside parties.

The main platforms for development are Android and iOS, given those two command 85 to 90 percent of the total smartphone market. The main distribution channel for Android should be Google Play Store, because it is preloaded onto every Android smartphone; the Amazon Kindle is a tablet, therefore it is not taken into consideration here. For iOS, since the only application store is Apple's App Store, it will be the recommended channel. A definite point to watch out for is the Android Fragmentation problem. The sponsor must be proactive in setting up alpha- and beta- testing programs to ensure the best compatibility across the devices and for software revisions. The analysis of substitute products indicated that all current direct substitutes have incompatibility issues, and unsatisfied end users are the result.

From the analysis performed, it is evident that Walk N' Text should be positioned with differentiated focus generic strategies because the target segment is a very limited group. Walk N' Text does not want to broaden the target segment to avoid hostile reactions from the current incumbents.

With an estimated \$83,175.65 upfront investment, split between development (\$20,000) and marketing (\$63,175.65), it is evident there is a risk of not able to recover the financial investment. However, the experience gained, network connections made, and the goodwill garnered for the company are valuable intangible assets that will support the mobile app projects the corporation has lined up for the future.

## **6.2 Risks & Mitigation**

As with any type of project, there will definitely be a number of risks associated with the development, launch, and promotion of Walk N' Text. This section identifies these risks and provides corresponding mitigation.

### **6.2.1 Schedule Risk**

Walk N' Text will implement a combination of extremely difficult functionalities. If the project development schedule is estimated inaccurately, the entire project will be delayed. This risk becomes greater with freelance software developers because of the inability of the sponsor to track the progress on a timely basis. If the sponsor started to advertise Walk N' Text to online communities but was unable to deliver within the promised time frame, this would generate negative publicity for the application.

#### **Mitigation - Control**

Request weekly or even daily status updates from the developer. If no status email is received, the sponsor should contact the developer directly. Only when the application has reached a certain milestone will the sponsor start advertising Walk N' Text to online communities and setup alpha-beta testing signup programs.

### **6.2.2 Budget Risk**

Under-budgeting or cost overruns is a very common risk associated with all projects.

#### **Mitigation - Control**

While performing an analysis for the break-even calculation, the developer's estimated costs have been increased by 71 percent. However, the sponsor should be in touch with the developer on a regular basis to determine the progress of the development, as in Section 6.2.1.

### **6.2.3 Operational Risk**

Weather conditions, might prove to be a risk in that there would be fewer pedestrians during rainy/snowy conditions, which would make a "hit the street" campaign ineffective.

#### **Mitigation – Control**

Periodically confirm the weather with a weather forecast network. If the weather is rain/snow, the sponsor should move the promotion to a shopping mall or closed arena.

### **6.2.4 Technical Risks**

Android fragmentation will contribute to the technical risks. The rapid release schedule for the operating system has created incompatibility between software revisions.

Although the transparent background is relatively easy to implement, there are significant technical challenges with the software logistics and AR to be used by Walk N' Text. The technology could still be too immature to be implemented, and/or the smartphone hardware may not be able to execute all the required processes to give a smooth UI experience.

#### **Mitigation – Control & Transfer**

To avoid problems arising from the Android fragmentation, the sponsor would need to initiate a test program before a new software revision is released. The same is true for iOS releases.

As for the insufficient hardware capabilities, the sponsor would need to check with the developer to assess the likelihood of the project's success. If it is determined to be impossible with current generation hardware, then the sponsor should defer development.

#### **6.2.5 Market Risk**

As mentioned in Section 6.3, Limitations, it is impossible to predict how the market will react to Windows Phone 8, or any new platforms or devices. Furthermore, it is not known how the incumbents would react to the introduction of Walk N' Text. If they respond by offering similar functionalities, then Walk N' Text would have a hard time competing with them.

#### **Mitigation – Acceptance**

The sponsor has no control over the overall market development, and therefore the only mitigation step is to accept the risk that every mobile application developer faces for all applications.

#### **6.2.6 Function Mimics**

If the functionality proves to be effective, new entrants will offer similar functionalities and current MIM incumbents might also offer it once Walk N' Text's market share reaches a competitive level.

#### **Mitigation – Acceptance**

Unfortunately, there are no official laws governing the functions in a mobile application; however, the sponsor could ask the developers of the other application for permission to examine the source code for the specialized functionality. This keeps the disclosed information to a

minimum and allows the sponsor to determine if the Walk N' Talk's code has infringed on Walk N' Text code.

### **6.3 Limitations of the analysis**

The strategies and analyses in this report have the following 11 identified limitations: 1) the MIM segment volatility is extremely high; disruptive technologies and products may render the analyses inaccurate, 2) the MIM segment does not represent the entire mobile application industry, 3) the reported 99,000 injuries in the year 2016 is a rough estimate only, 4) the reported incidences does not factor in non-reported incidences, therefore the actual number could be greater than 1,000 in 2008, 5) the 20:1 of free:paid ratio is a conservative guess; no data is disclosed anywhere, 6) the proposed marketing strategies are designed with cost-effectiveness in mind, given the situation for John Cheng Incorporated and Walk N' Text, 7) the Smartphone platforms market share could change with the introduction of Windows Phone 8 in the fall of 2012, 8) the strategies only focus on smartphones and do not include tablets, 9) the conversion rate used for revenue calculation is a rough estimate, 10) the development cost came from one developer's quote; even though additional cushion has added, the actual cost could be greater to an unknown extent, and 11) the sponsor has the freedom to determine the final selling price of the application.

## **7: Conclusion**

From the analyses reported in this paper, it appears this market segment is potentially viable; the main targeted end users can be classified into three groups: young adults, middle aged adults and seniors. Few substitutes offer similar functionality as Walk N' Text and operate in the same market segment. John Cheng Incorporated, however, has two main issues it must address in order to make Walk N' Text a reality and successful: 1) developer competence and management resulting in a good product, and 2) public awareness management that converts into purchasing behaviour.

### **7.1 Developer management**

John Cheng Incorporated will have to outsource the application coding to a freelance developer. The risks involved in this approach are: 1) IPR ownership and infringement, 2) idea disclosure, 3) status updates, and 4) quality of the application. The sponsor must assume all of these risks and include all the mitigation steps when drafting the project contract. The contract must state that IPRs will be owned by the funding sponsor, John Cheng Incorporated. The developer must be willing to sign an enforceable NDA to prevent possible leaks of the idea(s) to other parties. The developer must provide a weekly status update to ensure constant progress and minimize the possibility of scheduling issues. Finally, the developer payments should be tied to milestones to ensure the quality of the application. It is recommended that the developer be located close to the sponsor's location, rather than in Europe or Asia. Proximity would enable the development of a personal relationship and make tracking progress easier. Time differences can complicate developer management and there may be language barriers with out of country developers.

### **7.2 Awareness Management**

Awareness management is by far is the biggest obstacle for John Cheng Incorporated and the Walk N' Text application. In part, this is due to high switching costs. Without an established user base, Walk N' Text would not become a commercial success. Offering a free version would lower switching costs give them an incentive to test drive the application. However, in order to

build and sustain a user base the public's awareness of the risks inherent in walking and texting must be increased.

One thousand incidents were reported in 2008 and it is projected that there will be 99,000 incidents in 2016. The sponsor should start by approaching people who have been injured when walking and texting because they will see the added value of Walk N' Text, and they will also feel a sense of urgency to communicate the risks to others. Previously injured individuals could be asked to speak at local community events, to become the administrator of a Walk N' Text website/social media account, or to become an online ambassador and promote awareness through various online media.

There are various other opportunities to promote awareness. A "morning drive" show on Virgin 95.3, a local radio station, offers free advertising for local start-ups and the sponsor should specifically ask that the primary objective of the ad be two promote awareness of the inherent risks as well as how Walk N' Text can mitigate the risks. Mobile application reviewers should be asked to take the same approach. Interested pedestrians who stop at the mobile booths could be ask to complete a short survey that asks if they have had any "near-miss" moments while walking and texting. Those who choose to complete the survey would have to give permission for the results to be published; the data could be used to promote awareness.

Walk N' Text might not generate significant revenue. In the worst case scenario, the revenue might not cover the upfront investment. Nonetheless, it will be a valuable experience. John Cheng Incorporated will gain experience in application development, network building, and marketing strategies; most importantly John Cheng Incorporated will have established a foothold in the rapidly growing mobile application segment.

## **Appendices**

## Appendix 1: Email copy of the freelance developer pricing inquiry

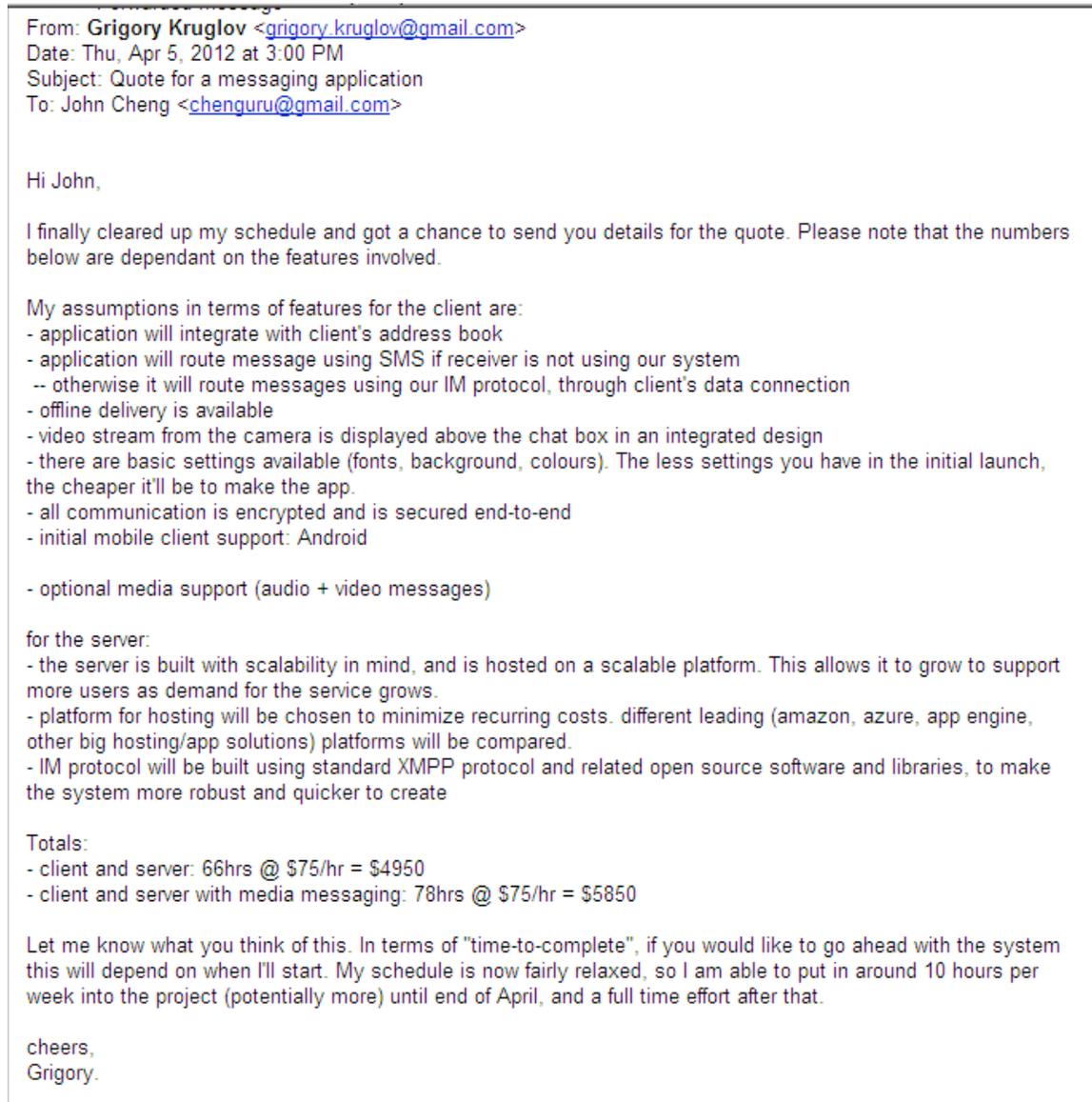


Figure 8: A scan of the freelance developer's emailed estimate

## **Appendix 2: The history of the Mobile and Smartphone Industry**

### **Appendix 2a: The History of the Mobile Industry**

Mobile phones have definitely come a long way since their initial incarnation. The idea of a mobile phone was to provide people with the ability to stay in touch with one another at any time from almost any location, where signal allows.

In the 1930s, US citizens were connected by radio wave, but the service was extremely expensive; it cost \$7 per minute, or \$92.50 in today's dollars. On July 28, 1945, the United States' Federal Communications Commission, the FCC, outlined a two-way radio transmission service through the use of the 460 MHz band (Farley, 2004 & Kumar, 2005). A year later, the first mobile telephone call was made in St. Louis, Missouri over the Mobile Telephone Service (MTS) network. Bell Labs spent ten years developing the MTS network. Surprisingly, the technology was still available in 2005, but was limited to rural and wilderness areas of the world. In the United States, MTS was first commercialized by AT&T in 1947. There were only three channels available and an operator was required to send and receive calls. AT&T charged consumers \$176 a month for the service and it cost \$4 per call in today's dollars. With luxury comes convenience and, despite the high cost, waiting lists developed immediately in all twenty-five cities in which MTS has chosen to launch the service (Farley, 2005). By 1948, AT&T had 5,000 subscribers placing 30,000 calls a week but growth was hampered by the limitation of the infrastructure. In the following years, the FCC assigned more bands for mobile telephony use, but the demand was still far greater than the supply.

On April 3, 1973 the world witnessed the first major disruption to the industry with the introduction of a handheld mobile device by Martin Cooper of the Motorola Corporation. The prototype was a brick, literally; it weighed in at 2.5 pounds and measured 9 inches long, 5 inches deep and 1.75 inches wide. It offered talk time of approximately 30 minutes and required 10 hours to fully re-charge the battery (Farley, 2004 & Kumar, 2005). The introduction of this handset completely changed the stakeholders' perspective and budgets for R&D were approved on a first come first served basis. Technology advanced at an astonishing rate and in 1975 AT&T

officially launched the first-generation (1G) cellular network in the United States.

On November 3, 1989, Qualcomm, a very famous mobile System-on-Chip semiconductor company, successfully demonstrated a Code Division Multiple Access (CDMA) cellular system, and United States officially entered the realm of 2G cellular infrastructure. A second 2G standard, *Groupe Speciale Mobile* (GSM) named after the study group that created the standard, emerged in Europe in 1982. Both standards described full digital transmission protocols rather than the aging analog protocol. The mobile handsets made revolutionary progress during this timeframe as well, moving away from the so-called ‘brick’ phones towards tiny 100–200g ‘candy-bar’ devices.

SMS was introduced in conjunction with the 2G network. It was a disruptive technology with disruptive functionality and became the preferred communication medium of the early 21st century.

As Internet wired homes gained in number, and transmission rates increased and services became more affordable, the mobile industry’s top players anticipated the need and demand for accessing data from mobile devices. The 2G infrastructure was not up to the job. The maximum theoretical speed is 384 Kbits/s, and the entire industry began research for the next-gen infrastructure, also known as 3G. A key characteristic of 3G is the use of packet switching rather than circuit switching. It offered a maximum speed of 42 Mbits/s, or 109x the speed of the 2G network. The two dominant designs are W-CDMA, an evolution of the GSM network, and CDMA2000 1xEV-DO, an evolution of the CDMA network. The growth of 3G was astonishing. By the end of 2007, there were approximately 3 billion 3G mobile subscribers, with a few metropolitan cities reaching greater than 100 percent penetration.

## **Appendix 2b: The History of the Smartphone Industry**

The most prominent feature of a smartphone is the ability for users to install/uninstall application(s) at will. The Symbian OS, the dominant operating system in almost all NOKIA phones released since 2000, was considered to be the first major player in this industry.

In addition to Symbian, other competitive smartphone platforms entered the market at approximately the same time: Palm, Windows, and Blackberry. Those operating systems were designed to accommodate use by business professionals and ultimately failed dramatically, with RIM as the most recent victim.

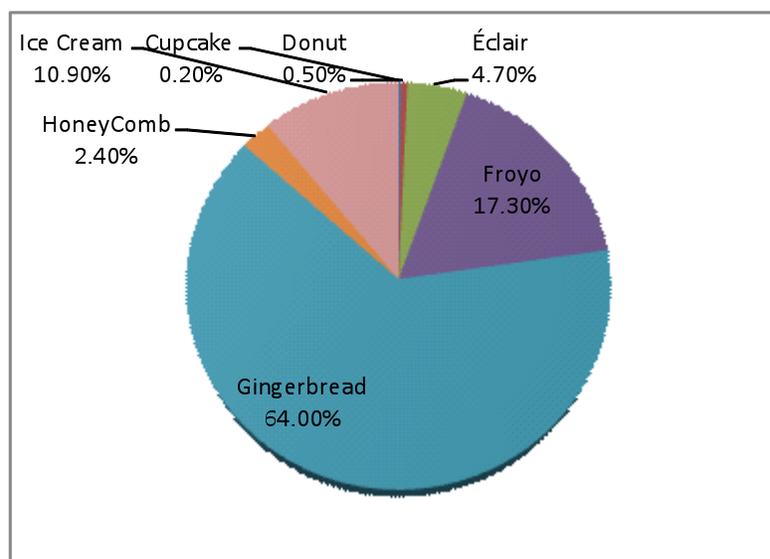
Fast-forward to January 9<sup>th</sup> 2007, when Steve Jobs of Apple Inc. publicly announced the first generation iPhone. It was a massive disruption to the smartphone industry. Steve Jobs believed that the market and the consumers were ready to make the transition to touch screen user inputs. NOKIA's Symbian OS had definitely been a disruption to the entire mobile industry, and a first for the smartphone OS. However, it was not the dominant design, and despite the touch screen being tried on various platforms, the market was simply not ready. Apple's iOS, or iPhone, could be considered the second disruption to the industry and evidently the market was ready for it.

Google, on the other hand, foresaw the development of the mobile advertisement market and, to further expand its core business into the new industry, it purchased a mobile operating system, Android Inc. In 2005, Google Android initiated and led the Open Handset Alliance; a consortium of 86 hardware, software, and telecommunication companies devoted to advancing the open standard for mobile computing devices. Google also decided to release the Android OS as fully open-sourced and created the Android Open Source Project under the Apache License. The decision to go full open-source was not as disruptive to the market as the iOS, but it certainly could become the dominant design of the future

The smartphone industry experienced tremendous growth in 2010. Globally, 1.4 billion handsets were sold; 19 percent were smartphones. In 2011, the smartphone contribution rose to 31 percent, and global handset shipments grew incrementally to 1.6 billion devices (Epstein, 2012 & Cooper, 2012).

## Appendix 3: Android Fragmentation

Google usually follows a predictable release pattern for their Android OS: a new version is released around the Christmas season and a minor revision/update is released each year in the summer. However, only the Nexus brand of devices, also known as the Google Experience Devices (GED), would be the first in line to receive the update. Other device manufacturers, such as HTC, Samsung, etc., receive the source code and make modifications to include their own feature sets. This is the famous “Android fragmentation”, which is illustrated in Figure 11 below (Kovach, 2012).



**Figure 9: The distribution of different Android OS revisions on the market today**

Source: Kovach, 2012

Including the first two, Astro and Bender, which no longer command significant market share, there are 10 different versions of the Android OS on the market: Cupcake, Donut, Éclair, Froyo, Gingerbread, Honeycomb, Ice Cream Sandwich and Jelly Bean. There are also 4,000+ hardware combinations. Developers would need a very robust testing program to avoid compatibility issues down the road.

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