Crowd Control
Business Plan

BowTaps, LLC

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1. Executive Summary

BowTaps is a software development company focused on technological innovation. The company aims to provide mobile solutions that alleviate the stresses of modern life. Through innovation in mobile technology, we can create products that will change the way users go about their daily lives.

Our flagship product is Crowd Control, a mobile application designed to ease the experience of going out. Crowd Control will accomplish this tough integrated group messaging, gps mapping and group status updates.

Currently there is nothing on the market that meets the same criteria that we are implementing. As we will cover, other apps that already exist only implement one key feature of our app, while Crowd Control has the functionality of all its competitors in one place.

Our initial market entry plan is to keep the app free to download in order to lower the barrier of entry for users. Sponsored ads, or "suggestions" will be our primary revenue source. Suggestions are a way to give users ideas of for possible events for their group to attend around them.

Ad space will be sold based on a the population of users in the area. With this being said initially there is not a steady price for ad space and will be calculated based on how the user population grows in the area.

We chose to distribute the app for free to have an easier entry to the market. With Crowd Control being free, it allows for more users to obtain and use the app without having to make an in store purchase. It is possible to increase the price from free to something under $5.00, depending on the growth of the userbase.

In the app market, especially as a start-up company, the entry into the market is crucial. With no other apps to back us with funding, we need to have our user base grow as fast as possible. When the user base is established it will allow us to decide on possible additions to the app, as well as making pricing rates for advertisers easier to calculate.

As our user base dictates our finances, our financial plan is at a minimum, for funding the development and initial launch of Crowd Control. The server we are using allows us to keep a pricing plan that is free for smaller amounts of usage, then increases as our usage increases. Pricing increases as our usage exceeds one million unique server requests per month, which is ideal for development, but must be maintained in release.

As this document is a precursor to the app release, items in this document are subject to change.

2. General Company Description

2.1 Company Summary

BowTaps is a software development company focused on a complete user experience. The company founded the mobile application Crowd Control. As a start-up company we have a close connected group of people that have the shared goals of changing how people use mobile applications for the better

2.2 Mission

Our mission at BowTaps is to develop innovative mobile software applications to provide solutions to inconveniences that trouble the everyday user. With our software we plan on changing the mobile environment by creating applications with easy to use and intuitive interfaces with reliable services for everyday use.

2.3 Objectives

- Generate revenue
- Provide users with value added user-friendly applications

2.4 Keys to Success

- High quality and innovative development skills
- Strategic planning
- Rapidly gaining users and maintaining growth
- Reliable technology

2.5 Company History

Our team consists of five employees made up of undergraduate Computer Science students from the South Dakota School of Mines & Technologies.

Charles Bonn: Charles Bonn founded the idea of a mobile application that would help locate and manage groups of people; this idea grew into Crowd Control. As the CEO and Project Manager, Charles acts as the intermediary between BowTaps and the Community of app development. On the technical side he is working with the server backend and communication of the server and Crowd Control

Johnathan Ackerman: Johnathan is designated as our Quality Assurance specialist. He would be responsible for fact-checking the group's work and ensuring that the project fits within design specifications and complies with coding standards. During development for Crowd Control, he will also contribute as the lead Graphical designer for android and create the android user interface experience.

Daniel Andrus: ▢Our Lead Designer, Daniel, is responsible for creating an adaptive and attractive user experience for Crowd Control. He will also be with collaborating with Evan Hammer and Charles Bonn on product and company branding. As development begins he will be working with the iOS user interface experience.

Evan Hammer: In charge of Sales and Marketing information, Evan keeps track of and coordinates expense and revenue flow related to the company. Evan also provides a unique and useful perspective on our target demographic with his prior job experience. He will work with local businesses and events both to promote our product and to advertise on our platform. As development begins he will be concentration on creating the backend for iOS.

Joseph Mowry: Joseph is in charge of designing the data models supporting Crowd Control. With the database being a key feature he will design and implement key features that will allow Crowd Control to be a versatile and efficient application. As development begins he will be concentrating on the backend of Android development.

3. The Product

3.1 Introduction

Crowd Control is a mobile application designed to "ease the experience of going out." Crowd Control seeks to provide users involved in nightlife events, concerts, festivals, and any other group activities, mobile technology to add value to their overall experience.

3.2 Development Requirements

An important question we need to ask ourselves right away is what type of application we want to develop. The two basics types to choose from are a native version and a cross platform development. The following information pulled directly from uxmag.com will outline the differences, strengths, and drawbacks of both types.

A native app is one that is built for a specific platform, such as iPhone or Android, using their code libraries and accessing their available hardware features (camera, GPS, etc). A cross platform compiler, such as Xamarin, allows for simultaneous development on both platforms but does have its drawbacks.. Let's explore the pros and cons of both approaches.

Native Apps Strengths	Cross Platform Development Strengths
Speed	**Single Solution**
Native apps tend to be faster and more responsive. Because the code that runs the app is stored locally on the phone, there is no time spent waiting for static content (such as images and text) to be downloaded from the web. While dynamic content may still need to be accessed from the web, it's an improvement over the web-based model in which everything needs to be downloaded each time.	The biggest upside to a cross platform development approach is, of course, the biggest downside to a native one. When developing a cross platform you are centralizing your offering. Single-source means that there is a single version of the code base that all users across all platforms access and use.
Local Storage	**Single Code Updates**
Native apps can run asynchronously, meaning dynamic information can be stored locally on the phone temporarily and synced with the central web-based server later. While new technologies and features (such as those in Xamarin) will allow for this to also be done in cross platform environment it is not as reliable as native	With the language being written in a single language allows for faster updates and new features to be added.
Killer Features	**Freedom**
Going with the native app approach gives you access to that platform's hardware features allowing interesting functionalities such as taking photos, accessing GPS information, making phone calls, leveraging near field communication (NFC), etc. Because web-based apps are platform agnostic, they do not have access to the device's hardware features.	Another big upside to the web-based approach is that you are not tied to the rules set forth by the terms and conditions of competing app stores. You are free to offer content and advertising as you see fit.
Native Apps Drawbacks	Cross development Apps Drawbacks
Coding	**Hardware**
The biggest drawback to developing a native app vs. a cross platform one is that a separate code base must be created and maintained for each individual platform. For example, if you decided to initially build an iPhone app, you would have to design, code, and deploy an iOS app to the App Store. If you then decide down the road that you also want an Android version, you will have to redesign the app for the Android device, code and deploy it to the Android app store—likewise for other platforms. From a development perspective, the code bases are two entirely different languages and will have to be completely rewritten simply to mimic the original app's functionality.	With cross platform development does not always properly implement the features of the native language. For the things that require specific native code you have to create translators to go between the cross code and the native code.

Our Decision

Both approaches certainly have their share of benefits as well as drawbacks. A long-term strategy would seem to favor web-based over native apps, but no matter which approach is taken, a well-orchestrated user experience is the best defense in the rapidly evolving world of mobile platforms and devices. We have decided to use the native approach because it allows for a more

natural feel to the native OS of the user and allows to not be reliant on a 3rd party creation software.

3.3 Product Description

Crowd Control is a mobile application, which aims to add value to the overall experience of event goers though group management, integrated group messaging, and gps locations. All of these features will be bundled into a easy to use mobile application that allows for everything your group needs to know to be in one location at all times.

3.3.1 Overview

The application was built to serve three primary aspects of crowd control:
- Event-based group management
- Integrated group chat
- Opt-in periodic location updates
  (Detailed)

3.3.2 Features

Group Management□:

The application will allow users to create temporary groups with known and unknown users. The groups will disband after an event is over, allowing a more dynamic experience.

Group Messaging:

The mobile application will feature an integrated messenger, which removes the need for users to resort to third-party services to communicate with group members. Along with third party messaging apps (ones that are outside of the app) it allows for ease because it eliminates the issues associated with group messaging such as, cross platform messaging, cross carrier messaging, and time stamping issues.

GPS Tracking:

□Many third-party applications use the GPS feature to help track other users. Our GPS tracking is designed with groups and battery life in mind. Our implementation would be less demanding on the users' batteries by only sending location updates at customizable time intervals or when requested. Because the groups are temporary, tracking stops after the group is disbanded.

4. Market Analysis

The goal of a market analysis is to determine the attractiveness of a market, both now and in the future. Organizations evaluate the future attractiveness of a market by gaining an understanding

of evolving opportunities and threats as they relate to that organization's own strengths and weaknesses. (Wiki)

4.1 Market Segmentation

Market segmentation is a marketing strategy, which involves dividing a broad target market into subsets of consumer, businesses, or countries that have, or are perceived to have, common needs, interests, and priorities, and then designing and implementing strategies to target them. Market segmentation strategies are generally used to identify and further define the target customers, and provide supporting data for marketing plan elements such as positioning to achieve certain marketing plan objectives. (Wiki)

In order to understand a very diverse market, analyzing the demographics of the market is very helpful. The target market for Crowd Control is young adults, between the ages of 21 and 29 years old. The following information will validate the reasoning behind the company's choice of target market.

4.2 Demographics

According to a survey by RJI Mobile in 2014, 53% of smartphone owners are male and 47% of smartphone owners are female. The average age of male smartphone users is 41. 24% of male users are 55+ years old, 35% of male users are 35-54 years old, and 41% of male users are 18-34 years old. The average age of female smartphone users is 42. 25% of female users are 55+ years old, 38% of female users are 35-54 years old, and 38% of female users are 18-34 years old. The following chart breaks down smartphone market share by age, operating system and gender.

According to Google (Appendix XXX), age groups 18-24 and 25-34 tend to notice mobile advertisements more than older age groups, which is good news for our sponsors. The target market fits our app well, due to the likelihood of user interaction with sponsors. In order to stem growth, we need to promote as much interaction between our users and our sponsors as possible.

Our team will be very selective early on when choosing sponsors for our mobile app. In order to make sure the app promotes growth, our team needs to make sure we understand our customer's interests and income so we can't tailor the app to our target market.

According to Pew Research Center in 2015 smartphone ownership is highest among young adults with high income and education levels. In terms of education level: 52% of HS graduates or less own a smartphone, 69% of people who took some colleges course own a smartphone, and 78% of college graduates own a smartphone. It terms of income level: 50% of people that make $30,000 per year or less own a smartphone, 71% of people that make $30,000-$49,999 per year own a smartphone, 72% of people that make $50,000-$74,999 per year own a smartphone, and 84% of people that make $75,000 or more per year own a smartphone.

4.3 Sizing up the Market

The following chart was built to estimate the overall market size of smartphone devices in the United States for 2015 through 2020. According to the United States Census Bureau (Appendix XXX), the United States is projected to have a population size of 321,369,000 by the end of 2015 and population size of 334,503,000 by the end of 2020. The population will continue to increase at a decreasing rate. Considering the given projected population size at the end of 2015 and the given projected population size at the end of 2020, the yearly population percent changes were assumed to be: .82%(2016), .81%(2017), .80%(2018), .80%(2019), and .79%(2020). The previously listed percentages were used to estimate the population size of the United States from 2016 to 2019. According to Statista's projections (Appendix XXX), 70.1% of US citizens will own a smartphone in 2015, 75.3% will own a smartphone in 2016, and 79.7% will own a smartphone in 2017. Considering the users projections from Statista, the following assumptions were calculated to estimate the user percentage change in the US from 2018 to 2020: 3.5%(2018), 2.6%(2019), 1.7%(2020). The previously listed percentages were used to estimate the total percent of smartphone users from 2018 to 2020. By using the all of the previously listed assumptions the following chart was built.

Year	Population	Est. Pop. % Chg.	Est. % of Smart Phone Users	Est. User % Chg.	Estimated Market Size
2015	321369000		70.00%		224958300
2016	323995800	0.82%	75.30%	5.30%	243968837
2017	326622600	0.81%	79.70%	4.40%	260318212
2018	329249400	0.80%	83.20%	3.50%	273935501
2019	331876200	0.80%	85.80%	2.60%	284749780
2020	334503000	0.79%	87.50%	1.70%	292690125

Understanding the overall market size of smartphone devices is very important for strategic planning. The following chart will narrow down the data to fit our target market, 21-29 year olds. According to the Nielson demographic chart (Appendix XXX), 85% of 18-24 year olds own a smartphone and 86.2% of 25-34 year olds own a cell phone. Due to the fact our target market is for 21-29 year olds, based on the data from Nielson, we will assume, conservatively, 85.5% of 21-29 year olds own a cell phone. According to the United States Census Bureau (Appendix XXX), the United States is projected to have a population size of 22,740,000 of 20 to 24 year olds by the end of 2015 and a population size of 22,059,000 of 20 to 24 year olds by the end of 2020. Due to the fact the Census Bureau included 20 year olds in the projections, we will assume if we take each project multiplied by 80% we will have an accurate forecast of 21 to 24 year olds. According to the Census Bureau the United States is projected to have a population size of 22,473,000 of 25 to 29 year olds by the end of 2015 and a population size of 23,722,000 by the end of 2020. We can combine the projections for 21 to 24 years olds and 25 to 29 year olds to form a population projection for 21 to 29 year olds for 2015 and 2020. Considering the projection size of 21 to 29 year olds for 2015 and 2020 the yearly population percent change for the age range was assumed to be: .35%(2016), .35%(2017), .34%(2018), .34%(2019) and

.34%(2020). The previously listed percentages were used to estimate the population size for 21-29 year olds from 2016 to 2019. The percentages were also used to calculate the estimated percentage of 21 to 29 year old smartphone users, starting with the base amount of 85.5%, the percent we assumed above, based on the Neilson demographic chart. This is shown below:

Year	Population	Est. Pop. % Chg.	Est. % of Smart Phone Users	Est. User % Chg.	Estimated Market Size
2015	40665000		85.50%		34768575
2016	40805840	0.35%	85.80%	0.30%	35009828
2017	40946680	0.35%	86.09%	0.30%	35251916
2018	41087520	0.34%	86.39%	0.30%	35494838
2019	41228360	0.34%	86.68%	0.30%	35738594
2020	41369200	0.34%	86.98%	0.30%	35983183

4.4 Assessment of Competition

App Name	Find My Friends	Life360	Facebook	Google Hangouts
Logo				
Description	Find My Friends allows friends to easily share locations with other friends. However, this app also lacks the tools necessary to manage and keep track of groups. Its lack of useful features hinders its market presence.	This app allows its users to add friends to a "circle" which tracks those users' GPS locations. Life 360's groups are permanent and the persistent tracking drains device batteries quickly. While it also includes messaging for users to communicate, this app is not practical for groups of friends that will disband at the end of an event.	The social networking service connects people and allows its users to organize events, as well as message one another. The issue with this is that it does too much and does not focus on group management. Though a user can create and organize an event, it is not possible to track group members while the event is going on.	A general-purpose communication service competes in the sense that it allows its users to send messages to each other. With Hangouts, users may not see a need to use Crowd Control. It does not, however, provide GPS tracking or organization outside of multimedia messaging, requiring users to juggle multiple apps just to keep in touch with their friends.
Developer(s)	Apple Inc.	Life360	Facebook	Google
Initial release	2011	2008	2004	2013
Operating system	iOS 8 and later	iOS, Android, Windows Phone	iOS, Android, Windows Phone	iOS, Android, Windows Phone
Type	Location aware mobile application	Location-based service	Social networking service	Communication software
License	Freeware	Freeware	Freeware	Freeware

4.5 SWOT Analysis

A SWOT Analysis is a useful technique for understanding and identifying the **S**trengths, **W**eaknesses, **O**pportunities and **T**hreats of a business.

SWOT:

Strengths
- Human resources
- Low barriers to entry
- Low startup costs
- Low fixed costs
- Synergy with SDSMT

Weaknesses
- Rapid industry change
- User's cost of switching
- Rivalry among existing competitors
- Shifting threat of new entry
- Shifting threat of substitution
- Generating profit from new innovations
- Evolving industry
- Financial resources
- Physical resources

Opportunities
- Complementary products and services
- Technological innovation
- Capacity
- Forecasted industry growth rate
- Many potential sponsors
- No substitute products right now
- Building alliances
- Technological resources

Threats
- Threat of new entry
- Expected Retaliation from competitors
- New technology
- Radical industry change: from threat of obsolescence

5. Strategy and Implementation Summary

After our product is thoroughly tested, we plan host an early release at an existing local event. This will allow us to promote Crowd Control to a large user base, as well as network with the existing businesses to help bring our users and them together, to benefit both parties.

5.1 Market Strategy

As there are many alternatives to our product, our primary mission is to show that Crowd Control can be the all-in-one package that users will need. Since no apps currently encapsulate all the things that our product will, it is important for us to play to our strengths.

We will be working closely with local businesses to help promote events and use those events as opportunities to showcase what our app does and why Crowd Control is their next necessary tool when going to these events.

The Rapid City/Black Hills area is perfect for an initial release, as it has a large tourist influx and hosts many local events in and around the hills. The spaciousness of the area is another opportunity to showcase our GPS location features, and help validate that, if this app is in a larger city, it will scale well.

It is critical to keep the relationship with businesses strong, as this is one of the features that will set us apart from our competitors. Many different services that do focus on event management, don't promote businesses.

5.2 Sales Strategy

Crowd Control's largest barrier to entry (as is with most mobile applications), is the price; our app must remain free to retain the largest amount of users, as most people will not download an app if they have to pay for it beforehand.

Since Crowd Control will be free, revenue will come from the connection we have with businesses and different event coordinators. Our in-app suggestions to the user's (sponsored by businesses) will be the primary source of revenue, as this will connect our users with our sponsors.

5.2.1 Price Setting

Price setting depends on our user base. With locations "sponsoring" add space it depends on how many user are in the area. The more users in the area, the greater the cost.

This area will be more easily understood as Crowd Control grows but with the initial product being free and advertising being dependent on user base in the area, it is hard to predict at the moment.

6. Personnel Summary

6.1 Personnel Plan

As our team consists solely of developers, we are able to evenly split tasks to one another, depending on necessary feature sets and other constraints that may come up in the product's development and testing phases.

In effort to keep investment costs low, each of the five developers in BowTaps has elected to not take a wage that exceeds our revenue flow. This, of course, means that no wages will be taken for the entirety of the product's development and pre-release, and possibly for a time into the full release phase.

7. Sources

(Should site all sources, I attached the website links I used, below is an example of MLA)

Montecuollo, Michael. "Native or Web-Based? Selecting the Right Approach for Your Mobile App." *UX Magazine*. N.p., 29 Jan. 2014. Web. 06 Aug. 2015.

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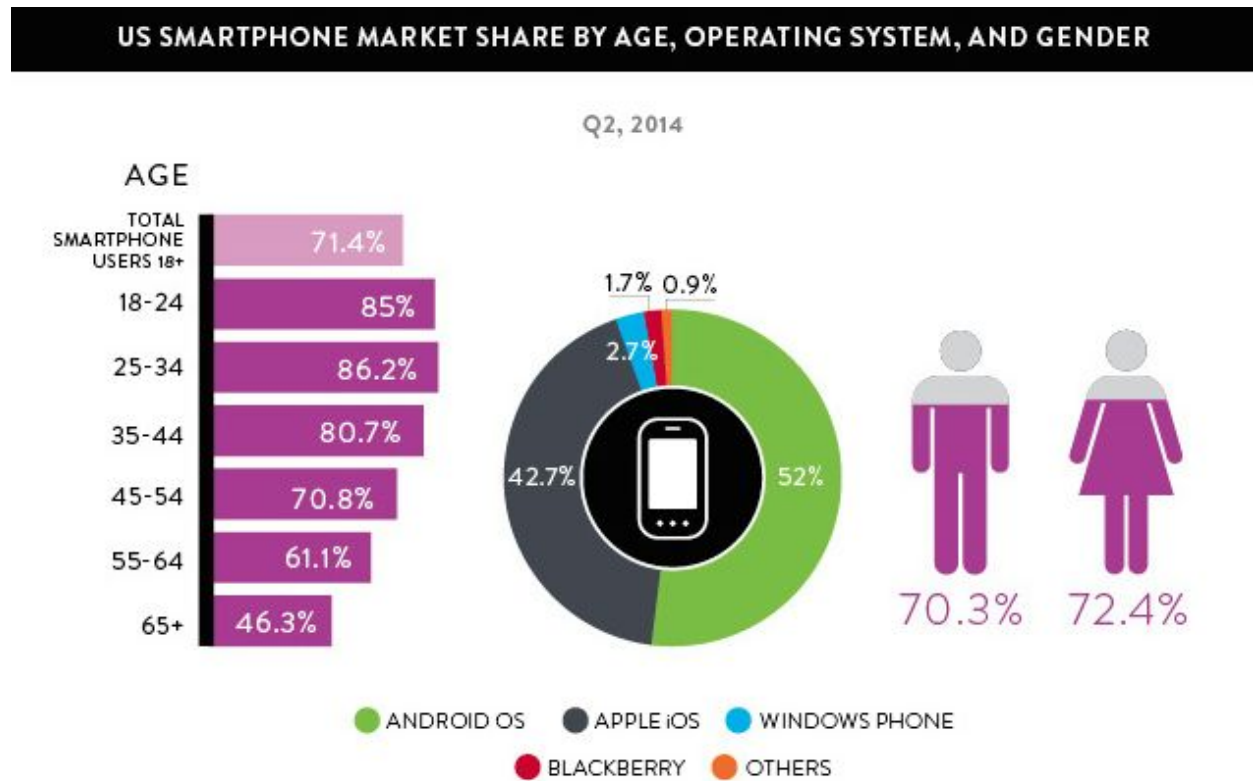
http://www.rjionline.org/research/rji-mobile-media-project

8. Appendix

Table 1

Table 9. Projections of the Population by Sex and Age for the United States: 2015 to 2060										
Sex and age	(Resident population as of July 1. Numbers in thousands)									
	2015	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**	**2055**	**2060**
BOTH SEXES	**321,369**	**334,503**	**347,335**	**359,402**	**370,338**	**380,219**	**389,394**	**398,328**	**407,412**	**416,795**
Under 5 years	19,965	20,568	21,010	21,178	21,268	21,471	21,775	22,147	22,499	22,778
5 to 9 years	20,463	20,274	20,889	21,347	21,529	21,632	21,845	22,158	22,536	22,894
10 to 14 years	20,590	20,735	20,555	21,182	21,650	21,842	21,952	22,171	22,489	22,871
15 to 19 years	21,092	21,048	21,219	21,060	21,706	22,190	22,395	22,516	22,743	23,067
20 to 24 years	22,740	22,059	22,077	22,299	22,183	22,866	23,383	23,615	23,757	23,999
25 to 29 years	22,473	23,722	23,103	23,179	23,450	23,377	24,098	24,646	24,903	25,065
30 to 34 years	21,659	23,168	24,450	23,878	23,995	24,302	24,259	25,004	25,572	25,845
35 to 39 years	20,346	22,060	23,586	24,898	24,360	24,507	24,838	24,813	25,572	26,151
40 to 44 years	20,178	20,568	22,291	23,840	25,176	24,668	24,840	25,190	25,180	25,949
45 to 49 years	20,817	20,204	20,613	22,351	23,919	25,274	24,798	24,995	25,363	25,368
50 to 54 years	22,312	20,638	20,063	20,506	22,257	23,844	25,219	24,781	25,006	25,395
55 to 59 years	21,811	21,879	20,294	19,777	20,260	22,023	23,629	25,023	24,633	24,893
60 to 64 years	19,093	21,141	21,265	19,799	19,351	19,880	21,653	23,275	24,689	24,357
65 to 69 years	16,094	18,194	20,202	20,397	19,071	18,704	19,283	21,054	22,686	24,112
70 to 74 years	11,500	14,882	16,891	18,830	19,091	17,940	17,664	18,294	20,039	21,662
75 to 79 years	8,126	10,112	13,154	15,013	16,819	17,143	16,212	16,042	16,717	18,393
80 to 84 years	5,806	6,527	8,191	10,737	12,343	13,924	14,294	13,634	13,574	14,274
85 to 89 years	3,875	3,964	4,521	5,747	7,622	8,867	10,114	10,492	10,137	10,184
90 to 94 years	1,859	2,024	2,114	2,464	3,192	4,320	5,127	5,951	6,275	6,184
95 to 99 years	498	649	728	782	940	1,254	1,751	2,141	2,550	2,752
100 years and over	72	89	119	138	154	193	267	387	493	604
Median age (years)	37.8	38.5	39.3	40.1	41.0	41.6	42.0	42.4	42.7	43.0

Table 2:

US SMARTPHONE MARKET SHARE BY AGE, OPERATING SYSTEM, AND GENDER

Q2, 2014

AGE

TOTAL SMARTPHONE USERS 18+	71.4%
18-24	85%
25-34	86.2%
35-44	80.7%
45-54	70.8%
55-64	61.1%
65+	46.3%

1.7% 0.9%
2.7%
42.7%   52%

70.3%   72.4%

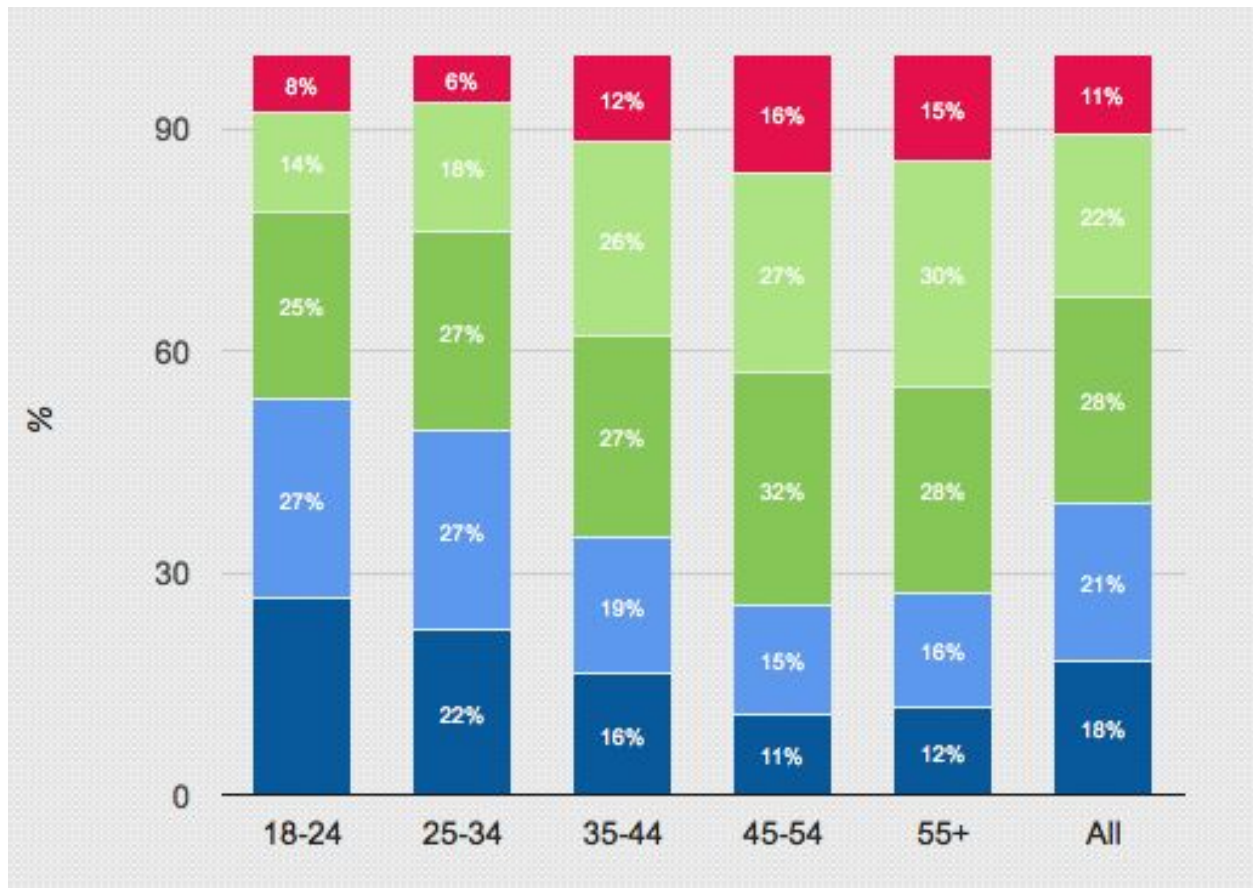● ANDROID OS   ● APPLE iOS   ● WINDOWS PHONE
● BLACKBERRY   ● OTHERS

During Q2, 2014, 52% of U.S. smartphone owners used a handset that runs on the Android operating system.
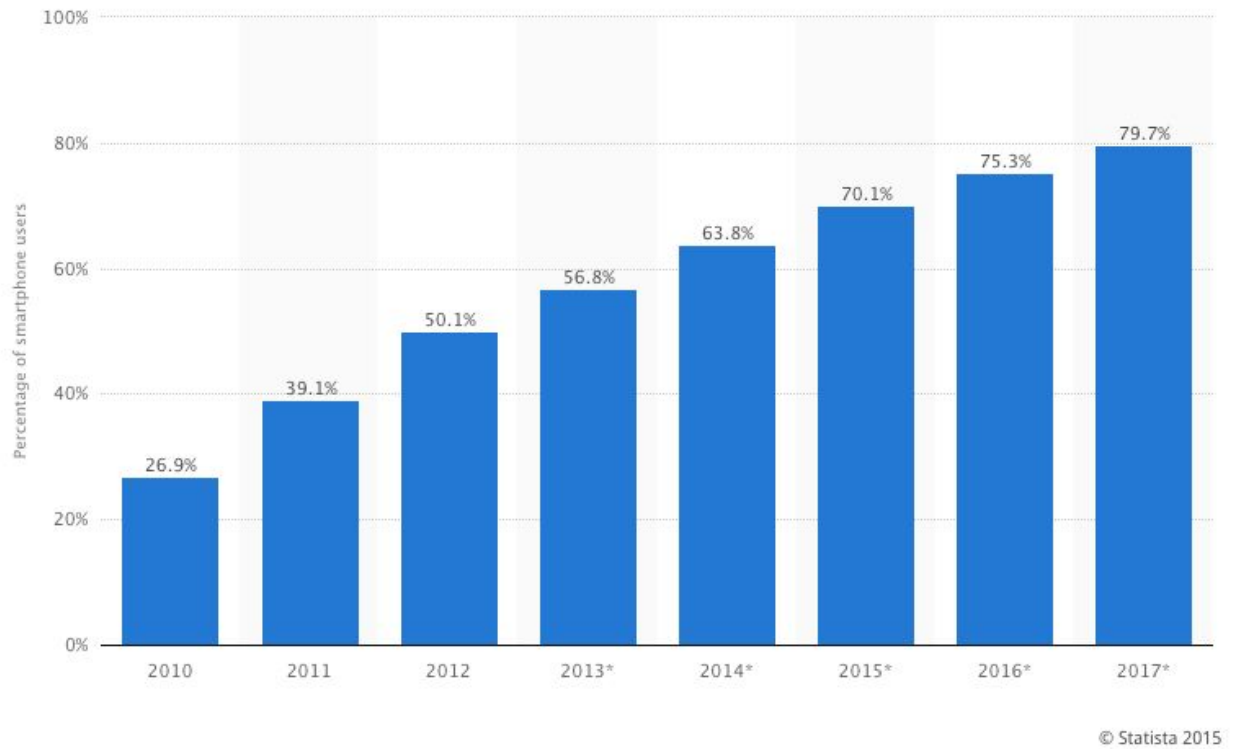
Source: Nielsen

Table 3:

(Our Mobile Planet, Google 2015)

Table 4:

As of 2015, Android's App Store is the largest app store and users are able to choose between more than 1.6 million apps. Apple's App Store is the second-largest app store with more than 1.5 million available apps. (Statista 2015)