user language dependent messaging app

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# Abstract

This project proposes an android application for improving communication between two individual who speaks different languages.

# Acknowledgement

Contents

[Abstract 2](#_Toc17331842)

[Acknowledgement 3](#_Toc17331843)

[Chapter 1: Introduction 5](#_Toc17331844)

[Problem Statement 5](#_Toc17331845)

[The Proposed Solution 6](#_Toc17331846)

[Development Methodology and Thesis Structure: 6](#_Toc17331847)

[Chapter 2: Literature Review 6](#_Toc17331848)

[Background Research (might move it from here to introduction after literature review) 6](#_Toc17331849)

[1. Bilingual people around the world: 6](#_Toc17331850)

[2. Smartphone users: 7](#_Toc17331851)

[3. Most popular form of communication: 8](#_Toc17331852)

[4. How do bilingual people communicate? 9](#_Toc17331853)

[5. Linguicide: 9](#_Toc17331854)

[References 11](#_Toc17331855)

# Chapter 1: Introduction

In this section we will talk about the Background Research that were implemented while developing this project, the communication gap that is being faced by the people globally, the solution proposed and the overview of the steps taken to tackle the problem.

*Talk about immigration/migration of people, like setting the scene here which will lead to the problems faced.*

Human migration has led to the mixing of people speaking different languages in vast numbers. Be it for professional or personal reasons, it has become very important for people to be able to communicate freely and correctly. Moreover, because of the availability of more advanced and cheap technology, today smartphone has become an integral part of everybody’s life. Hence, this project aims to build a messaging application that provides real-time language translation to the language of the receiver’s choice. For example: if user A has language set as English and user B has language set as French, then when A sends a message to B in English, B receives it in French and vice versa.

This application provides uses for people from all fields, from students to employees. It provides a platform where users can send their messages in their native language and the receiver can receive it in their native language.

## Problem Statement

<https://www.immigroup.com/news/top-10-problems-immigrants>

*One of the main problems faced by international students is properly communicating in group activities. English being the non-native language a number of international students are new learners. Hence, while participating in a conversation where the main language of communication is English, a non-native speaker translates the conversation to their native language in their mind before responding to queries as discussed in the last section. This leads to a lot of information being lost and the communication not being the best.*

*Moreover, the messaging apps most used such as WhatsApp and Messenger do not provide language translation facility. That is whatever language the sender sends the message in; the receiver receives the message in the same language. This leads to a number of misinformation and number of times it’s observed that the non-native speaker prefers not to communicate their ideas rather than translating it to English*. Talk about it but in general migration terms. Try to make it standalone.

*This project contributes towards preserving language by providing people with an alternative to messaging only in English thus, preserving their native language.*

*This project also contributes towards decreasing the cognitive load of non-native speakers.*

*This project bridges the communication gap faced between monolingual people.*

Talk about the lack of quasi-real time translations and how the problem was faced by me in Software Engineering assignment. Cardiff University international student ratio narrowing it down to computer science school

* Define the demand for this app from the above.
* Talk about how sending a message in a different language doesnot get translated to the receiver language.
* How this app tries to lessen the cognitive load used by people communicating in non-native language.

## The Proposed Solution

Talk about the project.

## Development Methodology and Thesis Structure:

* Talk about development process and user feedback taken.
* Outcome expected from the thesis
* And the structure of the thesis

This section is followed by Literature Review chapter where the existing work done in the field of text translation. Then comes the project management and technology used chapter that talks about what technology is used and why its used. Next chapter is the UI chapter which discusses and justifies the decisions made to build the UI. Chapter 5 talks about the final product and the feedback received from the users. Chapter 6 is the conclusion chapter which discusses future improvements, self-reflection and overall conclusion.

# Chapter 2: Literature Review

## Background Research (might move it from here to introduction after literature review)

### Bilingual people around the world:

Multilingualism is the use of two or more languages and Bilingualism is the use of two languages, such as English and Spanish. It has already been established that there are more than 50% of the world’s population that are multilingual. Its present in all continent, countries, classes of people and age groups. In Asia and Africa there are a huge number of bilinguals. In Europe, more than half the population is bilingual, 35% in Canada and about 20% in North America are bilinguals (Grosjean, 2010). Moreover, in some countries such as China and India, there are policies that recognise a number of languages as official or national language. For example, in India the Eight Schedule of the Constitution of India has 22 languages and there are 99 languages that are not included in the Eight Schedule of the Constitution of India (Anon., 2018). The main cause of bilingualism is the movement of people for reasons such as political, social, economic, religious. For instance, students moving in to United Kingdom for education purpose. The total international student in the year 2017-18 was 468,385 with China and India among the top non-EU sending countries and Italy and France as the top most EU sending countries. In the year of 2017-18 Cardiff University had a total of 7,975 international students (Anon., 2019).

### Smartphone users:

Following is the timeline of smartphone advancements since world’s first smartphone:

* 1992 IBM launched world’s first smartphone, Simon Personal Communicator. It had features such as email, fax, touchscreen and 1 hour of battery life. (Andrew, 2018)
* Next, BlackBerry launched its mobile device with BlackBerry 5810. Its targeted business professionals and gained the smartphone market before Apple launched its smartphone device. (Andrew, 2018)
* Apple launched its first smartphone device with iPhone and it was one of the most advanced smartphones consumers had ever seen. Since its launch, Apple had sold 1.4 million in its first year. (Andrew, 2018)

The present smartphones have faster and more powerful multi-core processor, more memory, HD cameras, longer lasting battery etc. With advanced technology coupled with cheaper rates, the number of smartphone users globally have risen to 3 billion with Asia-Pacific leading. The forecast for the number of active smartphone users is made to be risen to 3.8 billion by 2021. The following graph shows the rise of active smartphone users from 2016 onwards. (Kooistra, 2018)

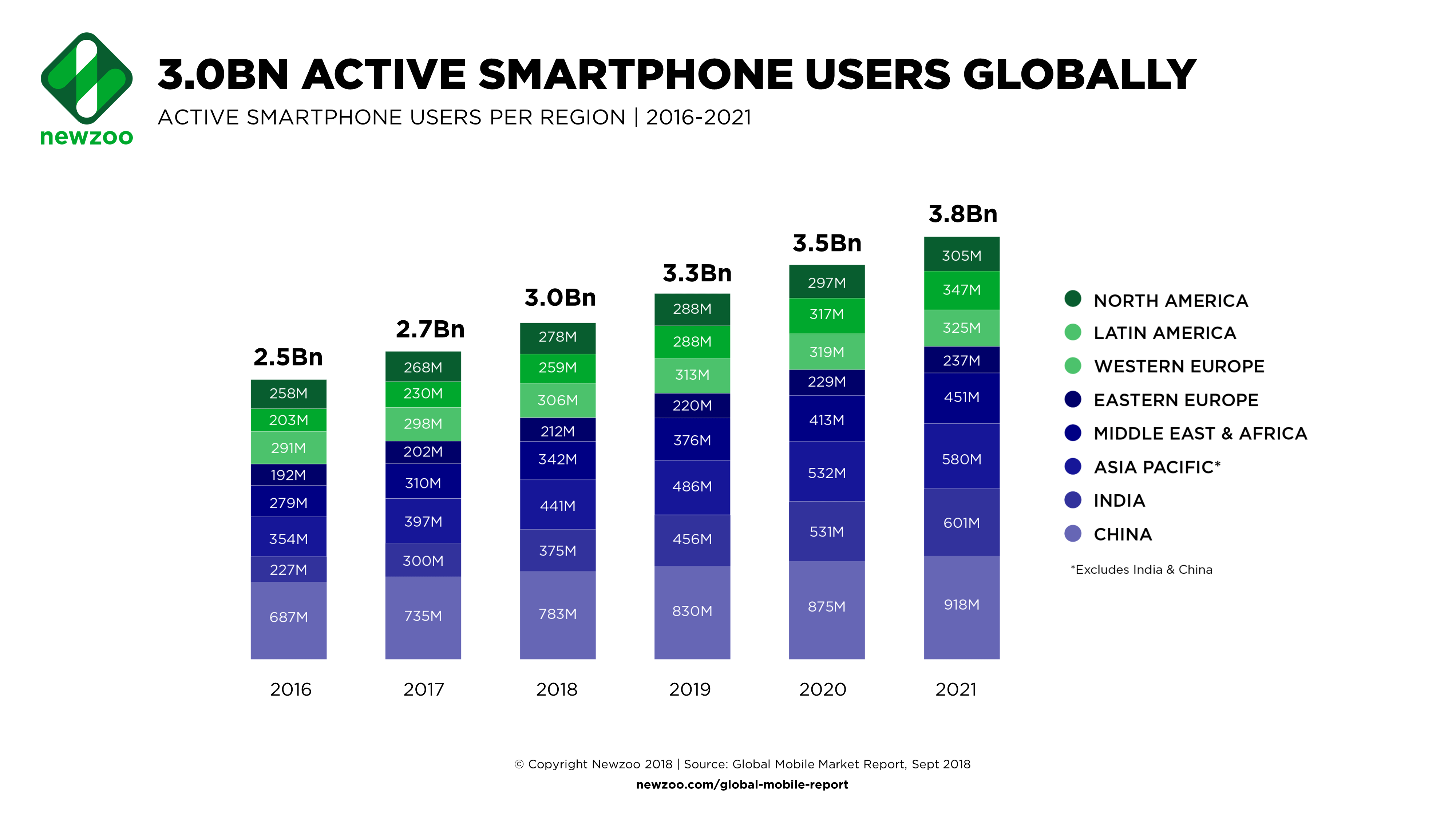


Figure 1: Active smartphone users globally (Kooistra, 2018)

More than 1.5 billion smartphones were sold globally and smartphone penetration rate is higher than 70 in highly populated countries such as India and China. Hence even though there is a stagnation in the smartphone market due to high average Selling Price, it still has a growth potential. (Holst, 2019)

### Most popular form of communication:

According to surveys texting is the most common platform used for communication. In United States 68% of Americans younger than 30 and 47% from age 30-49 use mobile phones for texting (Newport, 2014). Similarly, in the United Kingdom (UK), text messaging has overtaken phone calls as the most common form of communication. 58% of UK adults use text messages at least once a day (Noah, 2012).

Among all numerous numbers of chat apps available the most common ones are (Kim, 2018):

* **WhatsApp**: WhatsApp is the most used messaging app globally. It provides end-end encrypted secure message transmission, voice and video calling. It is used by more than 1.5 billion people worldwide.
* **Facebook Messenger**: Facebook messenger app is used by about 1.3 billion users globally. It is Facebook’s native messaging app.
* **WeChat**: The messaging app market in China is dominated by WeChat. It is used by more than 1 billion users.

Following image shows the messaging app most used around the world

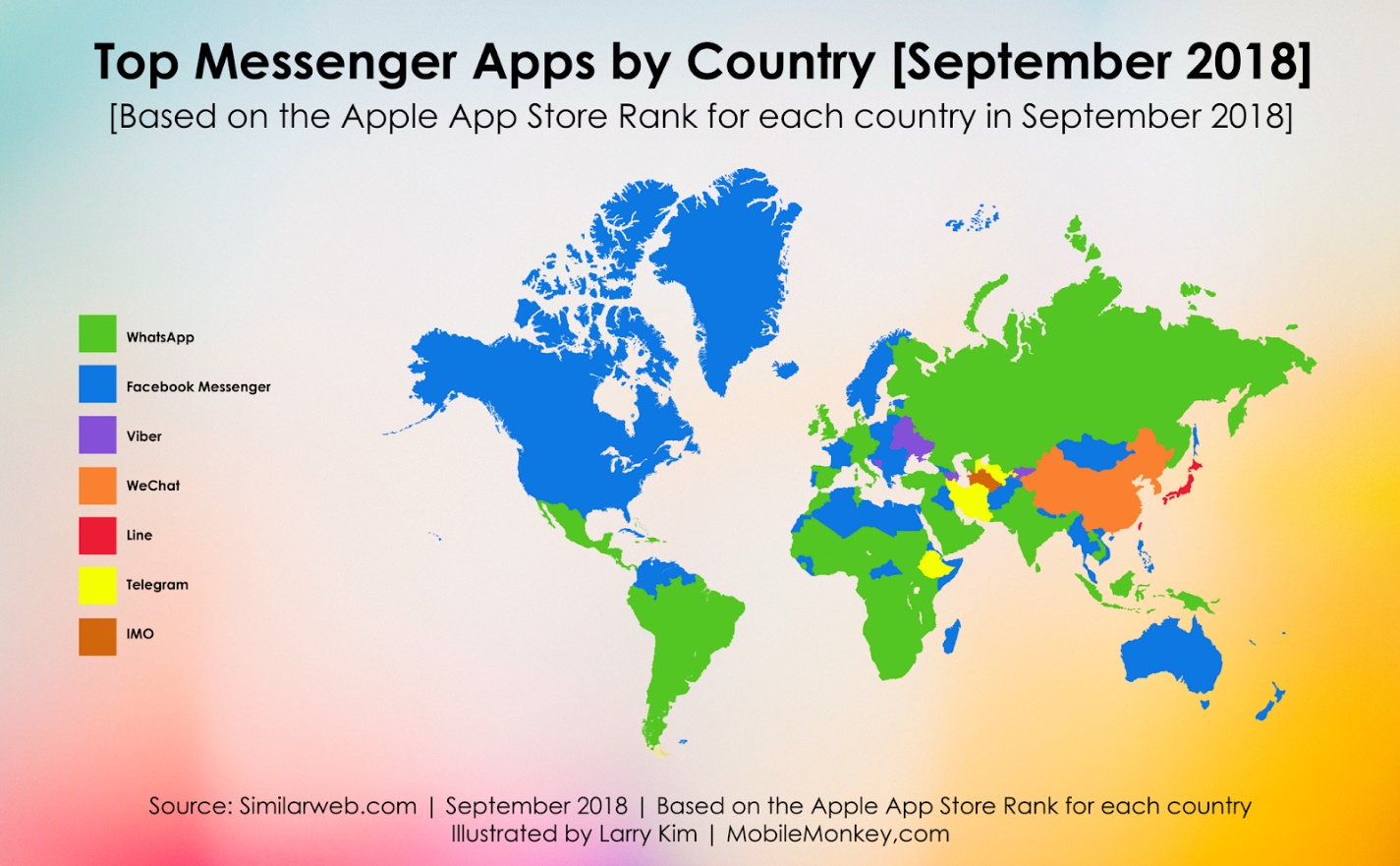


Figure 2: Messaging app most common globally.

### How do bilingual people communicate?

How people communicate non-native language

<https://www.researchgate.net/post/How_does_the_brain_understand_and_interpret_two_different_languages>

### Linguicide:

<https://www.independent.co.uk/news/science/linguicide-the-death-of-language-9188599.html>

* Talk about work done so far regarding translations.

Example:

1. Translation in posts. (how does that happen?)
2. Camera translations
3. Google translation
4. Translations provided in chat platform.

Notes:

1. Talk about FCM integration and data flow there. And the data flow used
2. Talk about why react-native, express, socketio.
3. Talk about why android and not ios
4. Talk about image storage facility
5. Talk about API changeability
6. Talk about nosql
7. Talk about Sprints and version control.
8. Talk about connection to Contacts and using phone number
9. Talk about only showing users whose email is saved

Save languages in DB so that internet connection is not needed to get the languages from Microsoft.

# References

1. Andrew, O., 2018. *The History and Evolution of the Smartphone: 1992-2018.* [Online]   
   Available at: https://www.textrequest.com/blog/history-evolution-smartphone/  
   [Accessed 19 August 2019].
2. Anon., 2018. *Census: More than 19,500 languages spoken in India as mother tongues.* [Online]   
   Available at: https://gulfnews.com/world/asia/india/census-more-than-19500-languages-spoken-in-india-as-mother-tongues-1.2244791#  
   [Accessed 21 08 2019].
3. Anon., 2019. *International student statistics: UK higher education.* [Online]   
   Available at: https://www.ukcisa.org.uk/Research--Policy/Statistics/International-student-statistics-UK-higher-education  
   [Accessed 21 08 2019].
4. Grosjean, F., 2010. *Bilingualism's Best Kept Secret.* [Online]   
   Available at: https://www.psychologytoday.com/us/blog/life-bilingual/201011/bilingualisms-best-kept-secret  
   [Accessed 21 08 2019].
5. Holst, A., 2019. *Number of smartphone users worldwide from 2016 to 2021 (in billions).* [Online]   
   Available at: https://www.statista.com/statistics/330695/number-of-smartphone-users-worldwide/  
   [Accessed 20 August 2019].
6. Kim, L., 2018. *The Top 7 Messenger Apps in the World.* [Online]   
   Available at: https://www.inc.com/larry-kim/the-top-7-messenger-apps-in-world.html  
   [Accessed 21 08 2019].
7. Kooistra, J., 2018. *Newzoo’s 2018 Global Mobile Market Report: Insights into the World’s 3 Billion Smartphone Users.* [Online]   
   Available at: https://newzoo.com/insights/articles/newzoos-2018-global-mobile-market-report-insights-into-the-worlds-3-billion-smartphone-users/  
   [Accessed 19 August 2019].
8. Newport, F., 2014. *The New Era of Communication Among Americans.* [Online]   
   Available at: https://news.gallup.com/poll/179288/new-era-communication-americans.aspx  
   [Accessed 21 08 2019].
9. Noah, S., 2012. *Texting overtakes talking as most popular form of communication in UK.* [Online]   
   Available at: https://www.independent.co.uk/news/uk/home-news/texting-overtakes-talking-as-most-popular-form-of-communication-in-uk-7956016.html  
   [Accessed 21 08 2019].