

# Electronic Payment System Research Report

Prepared by  
**Peacemaker Nana Kwesi Otoo**

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# Executive Summary

## Background

The technology is utilized to create a larger marketing network that can reach a diverse spectrum of customer types, regardless of age or location. However, e-commerce firms' marketing and payment technology offerings are limited to metropolitan areas with greater internet connection. Not if you live in a remote area with limited internet access. As a result, an electronic payment system that addresses both the urban and rural communities is necessary.

## Research Goal

The purpose of this research is to develop a payment system that can reach the entire area of Ghana and most of Ghana where most millenials use the line. SMS Is used in areas not covered by the internet by combining two technologies namely Line API and SMS Gateway.

- Line API is earmarked for marketing and payment of urban areas and SMS Gateway destined for rural communities.
- The end result of this research is the creation of an electronic payment system or e-payment using SMS Gateway and Line API. Where this system can be used by the public to conduct any transaction whether it is payments, purchase of goods, top up balances, and balance transfers.

# Research Questions

## Research Questions

- How efficient and convenient is the current electronic payment to you?
  - Are you able to make transactions anywhere you go?
- Which platform do you prefer the most to do electronic transactions?
  - Web browser?
  - on pc?
  - on mobile?

# Participants

## Recruiting

- 10 participants (randomized via whatsapp)
  - **Instagram:** 10 randomly selected participants will be taken from whatsapp group pages because this is the desired user persona demographic I want to achieve.
  - I want to select users from this particular social media app because:
    - 1) active users on *whatsapp* will be more likely to use an app similar to my *E-payment* interface App, for their transactions.
    - 2) active *WhatsApp* users are the desired user persona.
  - **Selection:** I will randomly select 10 **WhatsApp** users from my WhatsApp contacts of over 1k. I will DM message them:
    - Hello **{name}** ! I'm doing a study on what attracts people to perform transaction on digital platforms. I'd like to ask you a few questions about your social media interests - even if you aren't currently or have never used an E-payment app for your transaction . This brief conversation will take about 15 - 30 mins. If you agree, I would like to offer you a free shoutout on my whatsapp page!

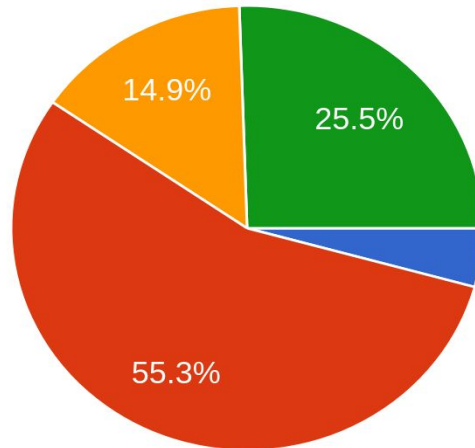
## Participants

- 10 Adults (18 and over)
  - I want to target a wide range of ages, because I would like to build my user persona characteristics, with age being one of the persona indicators.

# Key finding #1

The significant **user needs** found within this study are:

For your on-line banking, which of the following categories best explains your usual situation?  
47 responses

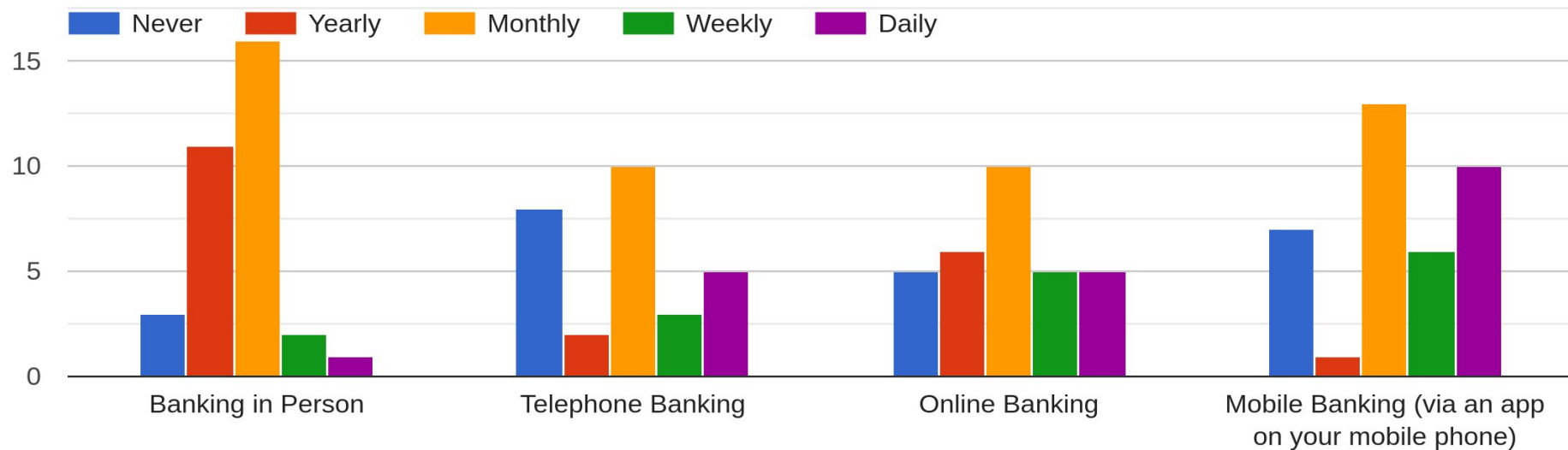


- You use a web browser together with an authentication device (such as a 'secure ID token/calculator')
- You use banking software/app on your PC or mobile phone
- You use a web browser (with a banking login, username and password etc.)
- You don't use on-line banking.

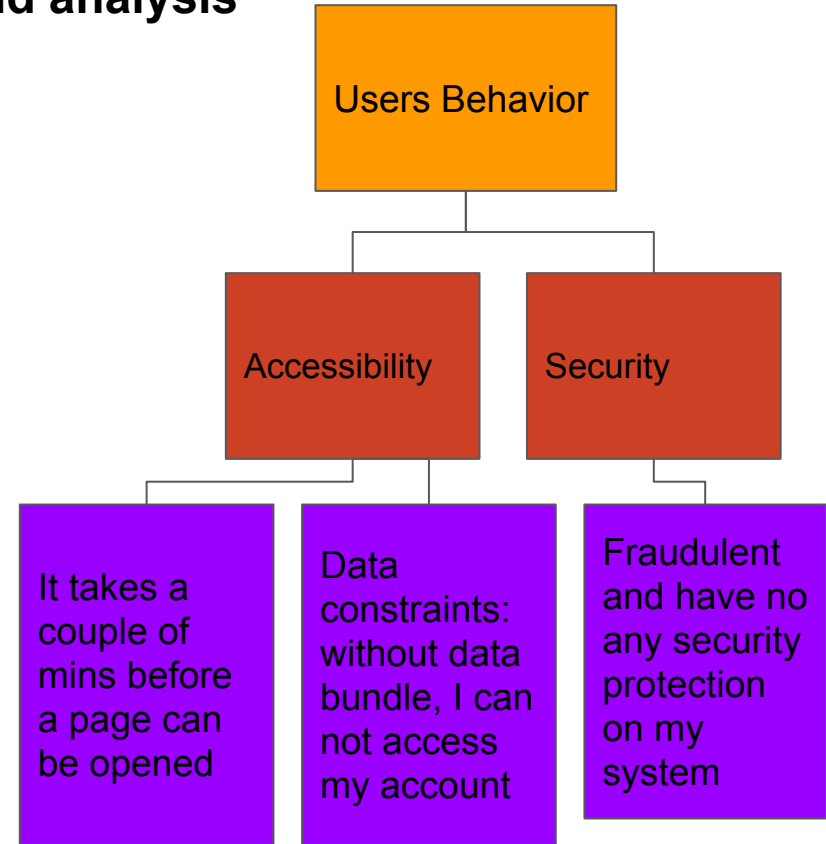
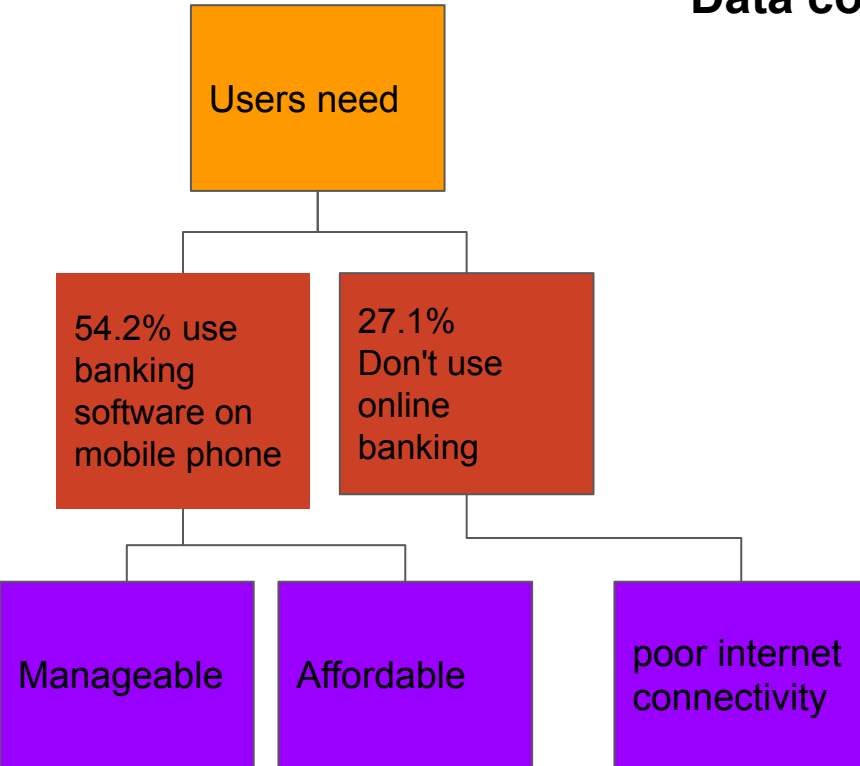
# Key finding #2

The significant **user behaviors** found within this study are:

How do you bank and how often?



## Data collection and analysis



# Recommendations And Suggestions

These findings have helped me re-shape the direction of developing the E-payment mobile app product. These are the new adjustments as follows:

- The mobile app will be a mobile banking app per the users behaviors on how they bank
- The mobile app will have interfaces as compare to the existing platforms
- On 50 questionnaires,  $\frac{1}{3}$  of the sample were leaving in the rural areas hence less use of E-payment because of poor internet connectivities
- Out of 50 respondents, 66% were male who adopt to the e-payment system



# Conclusions

In this article, I proposed an e-payment system that makes use of SMS gateway as well as a line application. People will benefit from this method. The availability of the internet is not the only constraint on transactions.

However, individuals may buy and pay for anything with only a GSM signal they want without having to worry about whether or not there is an internet signal if it does not. The line application has a faster reaction time, according to the response time test. SMS has a faster reaction time.

# Appendix

Google forms [Survey](#)

1. Line.me, “Line Messaging API How It Works”,2018, Available: <https://developers.line.me/en/docs/messaging-api/overview/>. [Accessed 22 – January – 2018]
2. C. Taddia and G. Mazzini, “Architectures for an Efficient SMS Gateway Service”, Proceedings of 23rd International Conference on Software , Telecommunications and Computer Networks (SoftCom), 2015
3. S. Firdaus, “The Development of the Short Messaging Service ( SMS ) Application for the School Usage,” pp. 1382–1386, 2010. I.S. Jacobs and C.P. Bean, “Fine particles, thin films and exchange anisotropy,” in Magnetism, vol. III, G.T. Rado and H. Suhl, Eds. New York: Academic, 1963, pp. 271-350.