

# **Mobile Banking in Developing Countries Secure Framework for Delivery of SMS-banking Services.**

## **MASTER THESIS**

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### **ABSTRACT**

The cost of delivering financial services in both developing and developed countries has always been an aspect of concern to financial institutions. Financial institutions incur exorbitant operating costs in the course of providing services to their clients. These costs definitely in the end trickle down to the bank client and translate into a draw back to the number of clients an institution attracts. On top of this the inconvenience to the client in terms of time delays and access is also a fundamental issue. While developed countries have a developed Internet infrastructure that has expedited development and pervasiveness of electronic banking services, developing countries have low access to the Internet. Take for example in Uganda internet connectivity is at level 1.5 given a scale of 0 to 4 according to Minges et al (2001) [18]. Thus with the diffusion of mobile telephony taking the case of Uganda cellular subscribers have increased from 3000 in 1996 to over 2.3 million by 2006. Today researchers are working at developing more low cost and secure mobile banking services to suit developing countries. This has led to the development of short messaging service (SMS) as a mobile banking conduit by banking institutions take for example the centenary Bank in Uganda. SMS is considered a globally accepted wireless service initially adopted and developed for use in the GSM system. It enables transmission of alphanumeric messages between mobile subscribers and external systems. However questions about data confidentiality, user authentication and data integrity arise. In this thesis we investigate, analyse and propose a prototype implementation that takes into account these security issues. Hence we present a secure model for SMS mobile banking services tailored to suit mobile cellular phone users. We give conclusions about application of SMS banking services in developing countries and future trends.