

Preliminary Investigations into the Business Ecosystem in Rural South Africa: An e-Business Perspective

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EXTENDED ABSTRACT

Abstract - The current expansion of mobile technologies penetration and usage in emerging regions represent an opportunity for leveraging ICT applications adoption by rural communities. Businesses nowadays utilise this opportunity to implement m-commerce to communicate with customers directly via mobile devices, regardless of time and location. Despite the availability of mobile connectivity and a relatively high penetration of mobile devices in rural South Africa, the use of mobile phones is merely for voice-communication purpose. M-commerce applications can help small scale enterprises operating in rural areas to conduct business efficiently and cost-effectively by cutting transaction costs through the use of mobile data communication. We hereby represent the ecosystem of small businesses in rural South Africa with associated challenges and demonstrate how those challenges can be addressed by exploiting capabilities offered by mobile data communication. This helps suggest an m-commerce solution for rural areas currently being investigated.

Keywords-m-commerce, rural business ecosystem, small scale retailers

I. INTRODUCTION

Small scale retailers operating in rural areas of emerging economies face a number challenges as compared to their urban counterparts. Specific challenges that rural small scale retailers face include: shortage of trading stock, competition, expensive transport costs to suppliers and lack of proper business training. These problems are prevalent in rural areas because of the environment in which the small scale retailers operate in that, it is characterised by inadequate infrastructure such as poor roads, unreliable electricity and low sources of income. Research, however, indicates that small scale enterprises provide a number of benefits to emerging economies, for example, they provide employment and contribute positively to socio-economic development. In the case of South Africa, it is estimated that the small scale retailers cover almost 2.7% of the retail trade, with a total sales force amounting to R7.4 billion in 2000.

Despite existing environmental challenges in rural areas, mobile data communications are available with a relatively widely spread network coverage in most South African rural areas. However, the

use of mobile phones in those areas is mainly for voice and short message service (SMS) communication. The foregoing suggests that, mobile Information and Communication Technology (ICT) solutions can help overcome some challenges faced by rural small scale retailers when conducting business.

This paper gives an overview of the business ecosystem in rural South Africa, its associated challenges and proposes an m-commerce solution to help improve the effectiveness and cut transaction costs for rural small scale retailers. The paper focuses on the small scale retailers operating in the Kgautswane community of the Limpopo province in South Africa.

II. THE BUSINESS ECOSYSTEM IN RURAL SOUTH AFRICA-THE CASE OF KGAUTSWANE

The Kgautswane community is made up of a series of 20 villages with a population of about 120, 000 people. There are a number of economic activities that take place in the area, with a high density of small scale retailing. In the area, there is one small scale retailer for every 500 metres. Unlike most other rural areas in South Africa, subsistence farming is almost non-existence in Kgautswane because of erratic rainfall. This forces the community to depend on small scale retailers for food supply and other basic commodities. The community is serviced by a well-established and active multipurpose community centre (MPCC). The MPCC provides postal, library and policing services. The area is also equipped with a reliable mobile data communication system. Although fixed communication (telephone lines) are virtually non-existent, the majority of the population have mobile phones or access to a handset used for making and receiving calls.

In effect, small scale retailers who are the main microeconomic actors in the business ecosystem, fulfil a vital role in supplying the Kgautswane community with basic needs and commodities. The geographical area of Kgautswane is fairly large with some 130 Small traders in the entire area. 50% of the small scale retailers in Kgautswane have been operating their shops for over 10 years with about 67% over the age of 36 years. Their businesses are their main source of income and can be described as anything from a shop run in a room, where customers stand outside and purchase basic groceries over a counter, to a less common and more sophisticated grocery shop. They generally lack basic business knowledge including accounting and procurement as they do not understand terms such as profit margins, turnover, stock management etc.

Limited stock control and formal book keeping is undertaken and if done it is usually paper based.

Typically, they buy stock in small quantities due to an extremely limited financial liquidity and as a result, buy stock in exceptionally quick cycles so as to try and meet the high demand of their under-served customers. Stock purchases are done on average four times per month. The retailers get most of their stock from the nearby trading centre called Burgersfort using either their own transport or the public transport. The process is however costly and time consuming for example they experience, amongst other, poor infrastructure, expensive transport, delays and accidents, cases of theft and/or loss of stock, high stock price fluctuations, limited range of stock from suppliers.

There are a number of micro financing actors that serve the Kgautswane community from the nearest town (Burgersfort), and the surrounding areas, such as, banks, retailers and cash lenders, and non-governmental organisations (NGO). About 50% of the small scale retailers in Kgautswane get loans from other micro financing institutions other than banks. The most commonly used micro financing models by small scale retailers in Kgautswane include the commercial institutions like small enterprise foundation (SEF) and self-help groups commonly known as stokvels. Both of these are formed by a group of people who contribute a certain amount of money every month to a central fund and the loans are rotated to the members.

The Kgautswane community is also equipped with well established business intermediary partners. They act as service providers to small scale retailers in the community and further provide knowledge based services such procurement, transport and logistics services as well as assisting in the start-up and mentoring of the small business.

III. E-BUSINESS IN RURAL SOUTH AFRICA

Existing e-business models in South Africa offer limited support for rural small scale retailers. For example, as a subset of e-business, e-commerce transactions require buyers to make payments electronically, using for example credit cards, which are a means not utilised by rural small scale retailers in South Africa. E-commerce however offers a myriad of benefits to businesses. In South Africa, the most common form of e-commerce is mobile banking; however, the 2006 mobility report indicates that small scale retailers struggle to embrace mobile technologies and m-commerce, a trend that worsens in rural South Africa.

With small scale retailers in rural South Africa, facing a number of challenges and being isolated from main markets, utilising the availability of reliable wireless and mobile communication system, an m-commerce solution seems viable to alleviating some of the identified challenges. For example in the context of Kgautswane, it could, amongst others, enable easy access to product information and comparison between different suppliers, flexibility in conducting purchasing stock anytime and anywhere; and low pressures in terms of reduced travel times and associated costs.

IV. AN M-COMMERCE SOLUTION FOR RURAL SMALL SCALE RETAILERS

Taking advantage of the high usage of mobile phones in the Kgautswane community, we propose a mobile e-procurement system for small scale retailers aimed at extending the utilisation of the available and reliable data communication opportunities on mobile phones to facilitate collaborative procurement of goods. The basic functionalities of the proposed system include: shop registration, stock ordering, transport and logistics, delivery, invoicing, and order tracking, as well as a basic cash flow management. The system will enable the receiving of real-time orders from different retailers and the orders will further be channelled to suppliers for invoicing and delivery. As the area has poor infrastructure, suppliers will use GPS coordinates, captured during the shop registration process, to deliver goods.

The proposed system will consist of the following components:

- An *ordering module* which is a web interface application running on a mobile phone with a product catalogue that will enable the users (small scale retailers) to place orders directly using their mobile phones. Other functionalities include viewing of products, orders, invoices, checking account balances and total costs of the purchased goods, as well tracking of real-time delivery information ;
- An *intermediary module* that will act as the intermediary between the supplier and the retailer. Managed by an intermediary, the server will enable the aggregation of orders from various retailers and send them to the supplier;
- A *supplier module* that will enable the supplier to manage the orders received and facilitate interaction with the retailer;
- A *transport and logistics module* that will enable, using GPS coordinates, the transport and delivery of stock from the supplier to the small scale retailers; and
- An *e-wallet module* that will enable the payment of stock by for small scale retailers

The system has three environments as follows:

- The *user environment*: this provides an interaction interface for three main users of the system namely: the small scale retailers', intermediary partners and suppliers;
- The *application environment*: this consists of a SOA-based implementation of the systems modules; and
- The *hosted backend environment*: this consists of backend servers hosted which will provide database storage for catalogues, user profiles, and business rules.

V. CONCLUSION

Given the role rural small scale retailers play in providing communities with basic commodities, employment and source of income, efficiency and cost-effectiveness are two factors that can help the small scale retailers serve the communities better and contribute positively to socio-economic development. The mobile e-procurement solution discussed in this paper will help rural small scale retailers to conduct business efficiently and cost-effectively. The solution presented will assist in cutting costs and risks associated with the current procurement process in the rural Kgautswane community, which does not take advantage of mobile ICT capabilities.