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**Redefining BOP: In Pursuit of Sustainable Opportunity  
at the Base of the Economic Pyramid**

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## **ABSTRACT**

The 2002 publication of “The Fortune at the Bottom of the Pyramid” by Prahalad and Hart posed a proposition to multinational companies (MNCs) stating that huge profits can be made whilst simultaneously eradicating poverty by selling to the poor at the base of the economic pyramid (BOP) which is an untapped market consisting of more than four billion potential customers that earn less than \$2 per day.

Although very few researchers and authors actually dispute the reality of the opportunity presented by the BOP proposition, most are quick to point out discrepancies in some of the arguments, discussions, assumptions and conclusions made from the early publications. Most of these differences of opinion can be clarified by refining the definition of the BOP proposition.

This study reviews previous literature to identify key attributes of BOP before utilising a meta-analysis of 43 cited BOP case studies to identify and describe two distinctly different market segments within BOP. BOP1 was defined as the bottom part of the BOP with a total population 2.8 billion customers earning less than \$2 per day while BOP2 would be the remainder of the BOP market segment.

Finally the BOP1 and the BOP2 segments of BOP are compared and contrasted with a South African case to draw conclusions on BOP in SA and Africa.

## DECLARATION

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.



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13 November 2008

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## 1 PROBLEM DEFINITION

Prahalad and Hart (2002) published an article titled “The Fortune at the Bottom of the Pyramid” that contained the following proposition for multinational companies (MNCs):

- There exists a huge, untapped, consumer market at the bottom of the economic pyramid;
- Companies engaging this market can earn significant profits by selling products and services to the poor;
- This market has a population of more than 4-billion potential consumers;
- Incorporating this market into the formal economy by selling to them will help to eradicate poverty;
- Large MNCs are best suited to engage and lead the commercialisation of this market segment.

This radical, innovative thinking led to the integration of two previously contrasting concepts of commercialisation and poverty eradication. The critics were quick to attack and raised concerns relating to further exploitation of the poor. Opposing authors questioned the long term profitability and sustainability of selling to the poor in a market where it is mostly a struggle for survival.

This research aims to propose a better, more precise, core definition for the Bottom of the Pyramid proposition of Prahalad and Hart (2002). By looking both at previous literature and a South African case, it hopes to eliminate some of the current ambiguity on the subject.

## 1.1 INTRODUCTION

The notion of an economic pyramid is not new as it was first referred to by United States president Franklin D. Roosevelt in his April 7, 1932 “The forgotten man” speech where he referred to “the forgotten man at the bottom of the economic pyramid” (Roosevelt 1932).

The bottom of the global economic pyramid refers to the more than four billion people (more than two thirds of the total world population) with per capita incomes below \$1,500 per annum (purchasing power parity) that lives in poor or extremely poor conditions. Johnson and London (Simanis & Hart 2008b) suggested that the term “base” instead of “bottom” be used because of the negative connotation associated with the latter. The acronym BOP will be used to refer to either of the definitions “Bottom of the Pyramid” or “Base of the Pyramid” and can be used inter-changeably.

The initial approaches of the previous century generally relied on government and various not-for-profit charity organisations to help the poor by providing them with food, clothing, education and medical aid. This is a very noble course and has done a significant amount of good in the world, but it is now evident that this approach is not providing the sustainable solution originally hoped for and will not eradicate poverty – it merely serve the basic needs of the extremely poor.

The World Bank has reported in the Global Poverty Report (2000) that although there was a slight decline in people living in global poverty from 29% in 1987 to

26% in 1998, the total number of people living in poverty remains largely unchanged due to population growth.

The last decade saw the introduction of the new BOP market based strategy. This represents a change in the approach to reach and uplift the poor at the bottom of the pyramid in an attempt to eradicate extreme poverty in a sustainable manner, partly due to the dismal performance of previous efforts and recognition of the potential of a market based strategy.

## **1.2 BOP AS A MARKET OPPORTUNITY**

Prahalad and Hart (2002) created huge interest amongst multinational companies (MNCs) when they published an article called “The Fortune at Bottom of the Pyramid” in 2002. The message to MNC’s is that establishing sustainable, profitable businesses in poor and developing countries pose significant challenges but could yield tremendous opportunity with huge returns if implemented successfully.

Prahalad and Hart argue that MNCs can realise huge profits whilst simultaneously eradicating poverty by focussing their efforts on selling to the poorest of the poor at the bottom or base of the economic pyramid (BOP) which is an untapped market consisting of more than four billion potential customers that earn less than \$2 per day.

There is another school of thought (Crabtree 2007, Karnani 2007, Landrum 2007) that questions the viability of this proposition and proceeds to argue

almost the opposite by stating that there exists huge risks for MNCs to change their marketing focus to an unknown, geographically dispersed market which might actually lead to further exploitation of the already poor if they do indeed succeed.

Karnani (2007) further questions the real size of the BOP market and highlights the cost-quality trade-off when pursuing this market which further emphasises the risk element to MNCs.

There clearly exists a wide range of differing opinions around the BOP proposition but it is only possible to have an effective debate when comparing “apples with apples” and therefore the need for a clear definition of BOP.

It is not clear what the exact definition and characteristics of BOP are. One example from Prahalad and Hart refer to the BOP case of Cemex where their target market is between 50 and 150 pesos (approximately \$5 to \$15) and not the less than \$5 per day BOP market (Crabtree 2007). This is clearly not a true BOP case.

The aim of this research is to attempt to reconcile opposing views by defining the BOP in terms of the dimensions below as well as attempting to anchor the discussion of the SA case along the following dimensions namely:

- BOP market size
- BOP earnings income
- BOP market access and distribution

- BOP enabling technologies
- BOP participants
- Innovation
- Profit and Sustainability

### **1.3 RESEARCH MOTIVATION AND PURPOSE**

The SA case of ITEX that managed to successfully implement a BOP type project that enabled Vmobile (now Celtel), a multinational GSM company to deliver products and services to a BOP population in Nigeria. ITEX developed and implemented a technological solution for airtime distribution that enables any registered airtime reseller to sell airtime to any Celtel subscriber using only his mobile phone. This enables Celtel to deliver electronic products such as electronic airtime vouchers to remote rural communities in a cost-effective manner whilst also creating jobs for more than 180,000 poor people in Nigeria.

This not only resulted in Celtel saving money on distribution costs but helped to create jobs for the poor while ensuring that rural customers pay the same price for airtime than those living in the cities.

The ITEX case study does not fit the classic BOP definition in the sense that although the final product was utilised by a MNC to deliver a service to the poor, it was actually a small private company that realised the opportunity and developed and implemented the solution for a MNC. Moreover the market needs investigating to determine if it truly resides at the base of the pyramid.

The main purpose of this research is to:

- Identify and clearly define the BOP in terms of attributes such as the type of innovation required for success, profitability and sustainability, market segment and size, distribution access and enabling technology;
- Clearly distinguish between implicit and explicit definitions of BOP; and to
- Establish the extent to which a locally developed high-tech solution fits into the BOP definition.

There is a distinct difference in the current explicit BOP definition and the implicit reality of some of the cited case studies. For example an explicit definition would be to refer to BOP “as people over the age of sixteen that earn less than two United States dollars per day” while the implicit definition is contained in the case examples for instance when the actual daily income needed to purchase a given product would be at least \$5. We believe this distinction matters to establish if there is any slippage between the rhetoric contained in the articles and the realities they describe.

#### **1.4 THE RESEARCH PROBLEM**

The World Bank indicated in 2001 that tier four of the world economic pyramid consists of more than four billion people earning less than \$1,500 per annum. Prahalad and Hart (2002) refer to the BOP as those earning less than \$2 per day while alluding to a similar market size of more than 4 billion consumers.

Karnani (2007) argues that the real earnings varies between \$6 and \$16 for the cases referred to by Prahalad and Hart (2002) and goes on to state that the



BOP proposition is inconsistent in its evidence. Gordon (2008) states that there is a vast difference in the standard of living between a person earning less than a dollar a day versus those living on five dollars a day. It is therefore evident that a more precise BOP definition is needed before any sustainable arguments for or against the BOP proposition can be made.

This research will investigate and determine the implicit as well as the explicit definition of BOP and will be restricted to the attributes identified during the initial literature search in the first phase of the research.

Once a clearer definition for BOP emerges from this research the case briefly described above will be tested against the attributes of this new BOP definition to establish if it qualifies as a true BOP case.

Thus in addition to finding a more precise definition for the BOP the Nigeria airtime distribution case study of ITEX will be introduced and discussed in the results chapter of this research paper to further highlight possible attributes not highlighted in prior research.

## 2 THEORY AND LITERATURE REVIEW

### 2.1 INTRODUCTION

The literature review is used not only to position the study within the domain of academic research but will also be used as a key source of data. This research uses meta-analysis of prior articles as a means to identify key attributes that will be used to give a better definition to describe the market opportunity at the base of the economic pyramid.

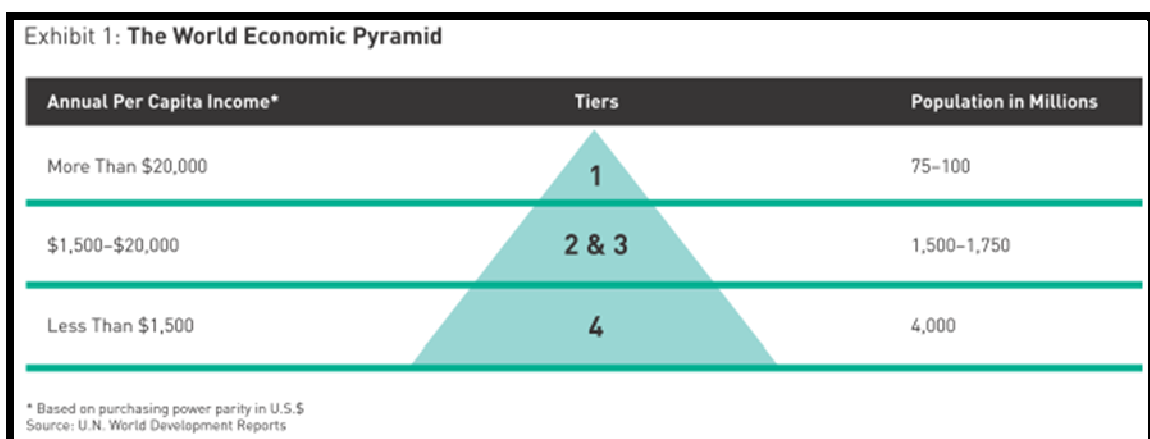
The literature review covers the emergence of the BOP proposition as originally introduced by Prahalad and Hart through the various phases of improvement and refinement that led to the recently introduced BOP protocol second edition (Simanis and Hart 2008) with specific reference and focus on case studies that were successfully implemented at BOP. The BOP protocol second edition (or BOP 2.0 as it is more commonly known) presents a strategic framework that organisations can use to successfully engage the BOP.

A summary of the BOP case studies found from peer reviewed articles, published books, academic publications and academic research citations was compiled in a table that can be found in Appendix 1 with an abbreviated extract of this summary included at the end of this chapter in Table 4. This literature review together with the case study summary helped to identify the key attributes that gave rise to a new BOP definition.

### 2.1.1 The BOP Proposition

“The bottom of the pyramid” (BOP) approach as disseminated by C.K. Prahalad and Stuart & Hart in “The Fortune at the Bottom of the Pyramid” (2002) uses the analogy of a 4-tiered pyramid to represent the global distribution of wealth and the capacity to generate income. At the top of the pyramid (tier 1) are the wealthy, with numerous opportunities for generating high levels of income. Tier 2 and tier 3 represent the economic middle class who consists of poor customers in the developed nations and the rising middle classes in the developing countries.

Tier 4 (the bottom of the pyramid) represents the poorest of the poor that earn less than \$1,500 per annum, based on purchasing power parity in United States dollars. They represent more than more than 4 billion people globally according to the United Nations World Development Reports.



**Figure 1: Prahalad & Hart (2002)**

Most Tier 4 people earn less than \$2 per day, live mostly in the underdeveloped countries where they stay in rural villages and they collectively form the subject matter and focus of the Prahalad and Hart thesis in which the authors argue

that the private sector and specifically large MNCs are central to transforming the poor into “consumers”.

Prahalad and Hart created a new vision of wealth creation for MNCs that are prepared to focus their attention on the BOP market. The authors argue that MNCs cannot only contribute towards global poverty eradication but can also create employment opportunities in local markets while generating profits for themselves in a multitrillion dollar market segment.

Prahalad (2005) reinforced the BOP proposition by publishing an international best seller labelled “*The Fortune at the Bottom of the Pyramid: Eradicating Poverty Through Profits*” in which he cites additional BOP case studies, mostly focussed around services supplied in the BOP market.

## **2.2 PRE-BOP: GOVERNMENT AID AND CHARITY FOCUS TO THE POOR**

Historically government and the rich at the top of the pyramid have sought to help the poor at the bottom of the pyramid through aid programs and charity donations respectively.

According to Moore (2006) “Money is given to organizations that will do the best job of delivering services and necessities to those in need”. Moore makes it clear that aid has done very little to alleviate poverty but that global aid has however “done a significant amount of good in the world bringing food, portable water, healthcare and education to those at the bottom of the pyramid”.

Easterly (2006) notes that the aid industry based on donations and grants continues to generate disappointing results despite investments of more than \$2.3 billion over the last 60 years.

It is apparent that previous efforts to reduce poverty were not successful and therefore the interest in the BOP proposition as an alternative approach towards poverty eradication.

### **2.3 BOP AS CONSUMERS**

At the turn of the century Prahalad and Hart (2002) brought a new perspective on thinking and interacting with the poor globally. They turn conventional thinking on its head by introducing the BOP concept in which they propose looking at the poorest of the poor not as victims but rather as a huge and profitable consumer market. They emphasise that more than four billion people remained largely excluded from the world economy mainly due to the way traditional business thinks about the poor. By doing this they do not recognise the huge potential at the bottom of the economic pyramid. They propose that companies should change their thinking and find new, innovative ways to sell products and services to this four billion market segment.

Gordon, Dakshinamoorthy & Wang (2006) state that when they are part of the formal economy, consumers receive better prices, expanded product offerings, and improvements in essential services such as health care and education and in 25 percent of the time communities obtain economic benefits as well as a rise in income from these market activities.

Prahalad and Hart (2002) became the concept champions of selling to the poor by coining concepts such as B24B (business-to-4-billion) and “fortune at the bottom of the pyramid”. This led to the publication of a number of business as well as academic articles that helped to change the way business thinks about the BOP which now represents “a vast, unexploited, multi-trillion dollar marketplace” (Boyer 2003).

There is a concern that companies may rush into this ‘new’ market in an attempt to be the first to ‘harvest gold’ instead of building a long term vision of sustainable market development. The goal is better living conditions and a reduction in poverty for the BOP community as well as ongoing profitable business for the company as both parties gain from a long term engagement.

In September 2002 Prahalad published another Harvard Business Review article with the topic “*Serving the World’s Poor, Profitably*”, with Allen Hammond as co-author.

The authors make a disturbing discovery when they compare the cost of goods and services between Dharavi, a shantytown of more than a million people in the heart of Mumbai, India, with the same products and services in Warden Road, an upper-class Mumbai suburb with a “poverty premium” between 20% and 5300% as indicated in the table below.

Cost	Dharavi	Warden Road	Poverty premium
credit (annual interest)	600%–1,000%	12%–18%	53X
municipal-grade water (per cubic meter)	\$1.12	\$0.03	37X
phone call (per minute)	\$0.04–\$0.05	\$0.025	1.8X
diarrhea medication	\$20	\$2	10X
rice (per kilogram)	\$0.28	\$0.24	1.2X

**Table 1: Mumbai Poverty Premium (Prahalad & Hammond 2002)**

These excessive poverty premiums are a clear indication that there is indeed a desperate consumer market at BOP that needs to be incorporated into a larger, more formal economy where free market principles would lead to direct benefits for them. It is also vital to note the consensus that emphasis should be on sustainable market development and not a once off, short term exploitation when one form of market abuse gets replaced by another.

Rangan, Quelch, Herrero and Barton (2007) brought together 32 papers that were presented during the first conference on business approaches to alleviate poverty and they use these cited cases as practical examples for doing business at the BOP.

The book called “Business Solutions for the Global Poor” (Rangan *et al* 2007) is a collection of sixteen successful BOP case studies from eleven different countries and examines the characteristics, buying preferences and the habits of the poor as consumers in fast-moving consumer goods such as Unilever in India, microfinance services by ICICI in India, housing solutions by CEMEX in

Mexico, retailing by Casas Bahia in Brazil, personal computing products and solutions by AMD, Intel and Microsoft as well as health services by Aravind and Narayana Hrudayalaya in India.

These BOP cases all approached the poor as consumers of products and services across the various business sectors. These case studies are included in the meta-analysis of this study.

### **2.3.1 BOP Consumer Services**

Markson and Hokenson (2003) have documented the successful ICICI banking BOP case in India and comments that “Banking with the poor has undergone a paradigm shift. It is no longer viewed as a mere social obligation. It is financially viable as well”. ICICI has demonstrated how to successfully engage the poor to access a 400 million customer market segment in financial services by using business process innovation and exploiting new technology.

Gordon (2008) listed the Aravind Eye Care and Jaipur foot cases from the classical BOP case studies as successful BOP projects delivering services to the BOP in the health sector.

It is clear from the early BOP projects that medical services and financial services, or micro-lending to be more precise, are examples of successful service delivery to the poorest of the poor. More recent BOP projects such as e-Choupal and eGovernance have been made possible through process or



product innovation in combination with new technology capabilities that enable delivery of services at a fraction of the original cost.

### **2.3.2 BOP Consumer Products**

Gary Moore (2006) states that even the poorest of the poor still spend money and they spend it on the same kinds of things as wealthy people do, they just spend it differently. “They cannot buy quantity, and they cannot buy luxury, and they cannot buy convenience, but the poor are as interested in quality goods, access to credit, and the lure of brand names as wealthier consumers”. He reiterates that the BOP is a huge consumer market with an aggregate gross domestic product of over \$12.5 trillion.

It is important to note that the poor have the same aspirations towards branded consumer products and are just as vulnerable to brand advertising as their wealthier counterparts, but they lack the funds to buy in bulk as well as the space to store huge quantities. Selling to them in smaller, more affordable quantities proved to be successful as seen from the HLL soap and HLL salt cases (Gordon 2008).

Karnani (2006) observes that most BOP cases that followed a strategy of selling in smaller quantities were not profitable and found both Coca-Cola and HLL became profitable only after they decided to compete on differentiation rather than on price. He argues that the HLL salt product, Annapurna, sells at a price premium of 275% which is still too expensive for most of the BOP market.

It is important to consider the balance between long term, sustainable business development and profitability in relation to poverty eradication. There needs to be ongoing, mutual benefit for both the MNC and the BOP consumer to ensure sustainability.

### ***2.3.3 Refining the BOP Perspective***

Jaiswal (2007) acknowledges and recognises the BOP consumer approach as an emerging business concept and the potential impact it can have on the billions of poor people in the world, however, he offers an alternative perspective as an improvement on the current BOP proposition.

Jaiswal presents a framework that promotes selective consumption by the poor to avoid “undesirable inclusion” (marketing and selling of products that are not likely to improve their wellbeing) and avoiding “undesirable exclusion” (not offering products that are likely to enhance their wellbeing). This raises the question of who is the best suited BOP player amongst government, MNCs, local companies, NGOs or Public Private Partnerships to ensure the best application of these ideas.

More importantly Khosla (2007) argues that current BOP strategies are not even asking the right questions. “People need houses, food, water, clothing and energy. They need cooking appliances, water pumps, agricultural implements, ovens, refrigeration ... and frankly, I don’t think any of these theories are addressing these issues”. The BOP proposition implies a responsibility towards the BOP market by seeking to meet basic needs as well as eradicating poverty.

In summary it is evident that there exists a real consumer market with real consumer needs amongst the poor at the bottom of the economic pyramid. These consumers are not only in need of the essential services such as health care and education but who also aspires to consume reliable, branded products and services that can be delivered to them affordably through new technology that enables product or process innovation or a combination of both.

It is also important to note that the Prahalad BOP proposition includes the notion of rapid poverty eradication as he considers the interests of two parties namely the organisation delivering the service or selling the product as well as the BOP consumer. Clearly, a valid BOP definition should consider including aspects such as mutual benefit and sustainability to ensure that unwanted projects aimed at exploitation of the poor are not confused with legitimate BOP projects.

#### **2.4 CRITICISING THE BOP CONSUMER PROPOSITION**

While most researchers are publishing papers in support of the BOP proposition Landrum (2007) states: "There have been a few challenges to the assumptions and suggestions put forth in *The Fortune at the Bottom of the Pyramid*. To date there are a small but growing number of academic critiques of this work".

Although very few actually dispute the reality of the opportunity presented by the BOP proposition, most are quick to point out discrepancies in some of the arguments, discussions, assumptions and conclusions made from the early

publications. Most of these differences of opinion can be clarified by refining the definition of the BOP proposition such as defining the market scope in terms of customers and competitors as emphasised by Bang and Joshi (2008).

Some of the more relevant, apposing articles are discussed in the next paragraphs.

#### ***2.4.1 Poverty Reduction and Sustainability***

Crabtree (2007) states that Prahalad's thesis is vague and needs to be reformulated as "The eradication of deprivation requires more than self-interested firms". He argues that the eradication of income poverty is the wrong approach where a need for quality of living is of much greater importance, although more difficult to measure.

The author re-evaluates the 12 major BOP case studies of Prahalad using the fundamental capabilities approach which was inspired by the works of the 1998 economics Nobel prize winner Amartya Sen (1999). Sen identifies the following three capabilities: to be an individual; to participate in communities and to live sustainably as the basic fundamental capabilities which are essential for human flourishing.

Company /Organisation	Activity	Main Actor(s)	Start date	Sustainability	Income Poverty Reduction	Location	Other benefits
ICICI + Self Help Groups	Micro-Finance	Govt. ICICI SHGs	2003	Unproven	Not demonstrated	India	Self esteem
Aravind Eye Care (self-financing)	Eye care	Aravind	1976	Proven	Not demonstrated	India	Health care provision
E+Co (NGO) Tecnosol (Private sector)	Sustainable energy	E+Co	2003	Unproven	Poor but not BOP oriented	USA + Nicaragua	Sustainable Energy
EID Parry	Agriculture	EID Parry	2001	Unproven	Not demonstrated	India	Education
Casas Bahia	Retail Savings book for the low paid	Casas Bahia	Not stated	Proven	None Not BOP	Brazil	Shopping opportunities to those on a minimum wage
ITC	Computer kiosks in rural areas	ITC		Unproven	Not demonstrated	India	e-governance social activities
Jaipur foot (Trust)	Artificial limbs	Jaipur Foot	1968	Proven	Indirect	India	Health Self esteem
Voxiva Inc.	Infectious disease alert system	Voxiva	2002-2002	Unproven	Indirect	Peru	Better health
Andhra Pradesh Local government	E-governance	Local Government		Unproven	None	Andhra Pradesh (India)	Transparent government
HLL	Iodized salt	Government HLL	1997	Unproven	Indirect	India	Health - Less Iodine Deficiency disorder
Cemex	Cement	Cemex		Unproven	Not absolute BOP oriented	Mexico	Housing
HLL	Soap	HLL Local government		Unproven	Indirect	India	Health

**Table 2: The Prahalad Case Study Findings of Crabtree (2007)**

Crabtree (2007) finds the presented evidence for the BOP proposition inconclusive as may be seen in the result table above where he claims that only three cases (ICICI, EID Parry and ITC) can be directly related to increasing income and therefore alleviating poverty as Prahalad claims. However, he does acknowledge that there are other benefits such as education, healthcare provision, self esteem improvement and sustainable energy provision.

In addition, Karnani (2006) and Walsh, Kress and Beyerchen (2005) argue that consumer protection in developing economies is inadequate and, as a result, leaves room for consumer exploitation. This confirms that more emphasis should be placed on the recognition of sustainability and poverty reduction as key attributes of the BOP definition.

### **2.4.2 BOP Participants**

BOP participants are the organisations that pursue opportunities in the BOP market and also referred to as BOP players, actors or initiators. They are most often presumed to be MNCs but could also be government (GOV), Non-Government Organisation or Not-For-Profit-Company (NGO) or local private companies (LPC) which mainly consist of entrepreneurial ventures.

Crabtree (2007) concludes that two of Prahalad's most significant BOP cases, namely Aravind Eye Care and Jaipur foot, are non-private and non-profit institutions. He thus argues that a fundamental capabilities approach is the correct measure for successful BOP projects as he did find the Prahalad cases to contribute significantly in this area. A deliberate consideration needs to be given for the type of BOP participant in this market segment as Crabtree (2007) clearly indicates that it is not necessarily an MNC-only market.

According to Christensen and Hart (2001) most of the disruptive technology opportunities will be seized by entrepreneurs, but they encourage MNCs to find new innovations in emerging economies through disruptive innovations that should be pursued independently from their globally managed, mainstream businesses. Entrepreneurial companies are generally small and can quickly adapt to snatch a market opportunity but lack the implementation capacity of a large MNC and could therefore look for ways of engaging MNCs that will lead to mutually beneficial relationships.

### 2.4.3 The BOP Market Size

Prahalad creates confusion himself by using different earnings income metrics when referring to the BOP market as can be seen in figure 2 below. Note that the BOP (tier 4) is now defined as all people earning less than \$2,000 per annum or almost \$6 per day PPP with the population size still 4 billion people. This is a significant 33% higher value in earnings income than the original BOP article that was published earlier the same year.

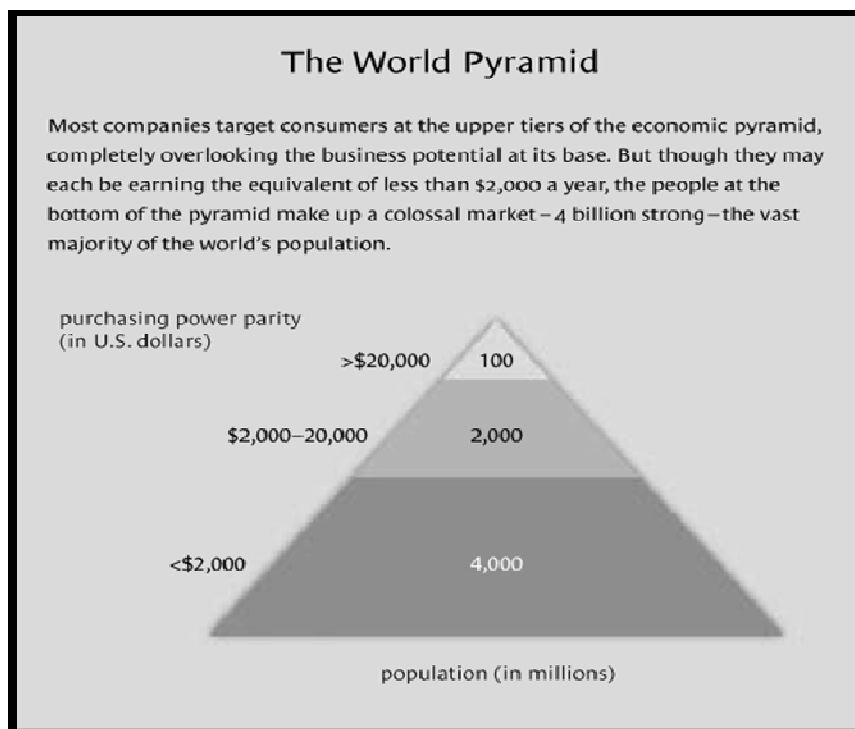


Figure 2: Prahalad & Hammond (2002)

Crabtree (2007) and various other authors dispute the actual BOP earnings income and the associated market population size as well as the total market segment value with values ranging between \$0.3 trillion (Karnani 2006) and \$13 trillion (Prahalad 2002) measured in US dollars.

Aneel Karnani, an associate professor at the University of Michigan does not agree that is the right strategy to target this segment of the population which, by definition, include the poorest of the poor.

The titles of Karnani's publications labelled "Misfortune at the Bottom of the Pyramid" (Karnani 2006) and "The Mirage of Marketing to the Bottom of the Pyramid" (Karnani 2007) clearly reflect his strong concern about turning the poorest of the poor into consumers. He argues that the actual size of the consumer market at the bottom of the pyramid is drastically smaller (in population numbers and monetary value) than what Prahalad and Hart originally indicated.

The major reasons for these discrepancies and differences of opinion relate to the following factors:

- There is very little global data relating to actual income per capita – the World Bank report are generally being accepted as the most reliable authority on this but even their data are only update every few years.
- The use of PPP (purchasing power parity) in international dollars rather than Unites States dollars are being used as a better way of comparing 'apples with apples'. A loaf of bread should cost the same across the world when bought in international PPP dollars, but the rapid changing inflations and fluctuations in exchange rates makes this seemingly simple model unreliable. This is especially the case when data starts aging as is the current case with values still reflecting 2002 data.



- Sometimes the stated dollar values would refer to earnings income per capita (or per person) while other times it would refer to earnings income per household without a regard for the difference in meaning. The non-recognition of this important distinction creates more confusion.

It is evident that there does exist valid criticism against the BOP proposition relating to reduction of poverty, sustainability of some cited case studies. Probably the most contentious arguments relate to the BOP market size and collective market value. Once again this emphasise the need for research that refines the BOP definition.

## **2.5 BOP AS PRODUCERS**

Jaiswal (2007) emphasises the need to strengthen the role of the poor as producers to enable sustainability and address poverty alleviation and discusses two rural Indian cases namely:

1. Amul, started in 1946, provides income for rural dwellers as they collect 6.5 million litres of milk from 2.6 million farmers daily and convert it into value-added milk products where it is sold through the Gujarat Cooperative Milk Marketing Federation.
2. Shri Mahila Griha Udyog Lijjad Papad is an organisation founded in Mumbai in 1959 that specialises in the manufacturing of papad (an Indian ethnic product made of flour and spices). This initiative consists mostly of women at the BOP. Through a concept of collective ownership, it employs more than 40,000 women and generates more than US\$ 75

million and it has enabled many women to earn economic independence and raised their families' living standards.

The author also argues a case for investment in basic education as the lack thereof will lead to further impoverishment.

Vives, Ferroni and Malkin (2007) state that rural producers have limited access to financial markets, skilled labour and technology that may lead to serious productivity constraints. By incorporating local producers into the BOP model, participating organisations eliminate this problem as well as building a sustainable solution that should also contribute towards poverty alleviation.

In summary to create long term, sustainable BOP markets, participating organisations should focus on establishing local partnerships by incorporating local communities into the global economy by educating them and help to develop them into effective producers.

## **2.6 NEXT GENERATION BOP STRATEGY (BOP AS BUSINESS PARTNERS)**

The BOP Protocol Project was launched in 2003 as a partnership among various universities and institutions.

The Protocol Project emerged from the BOP Learning Lab<sup>TM</sup>, a consortium of companies, NGOs and academics sharing knowledge and experiences about the opportunities and challenges that confront companies (in particular, multinational corporations) attempting to serve the BOP market.

Simanis and Hart (2008b) describe the BOP Protocol as the co-venturing process in which a company together with a BOP community conceives, launches, and evolves a new business that serves that same community.

### **2.6.1 The BOP Protocol**

According to Simanis and Hart the initial BOP protocol framework was developed during 2004 and consist of three phases of:

1. “Opening UP” during which a company will “immerse” in the community to explore and understand the needs and capabilities of the local community while at the same time establishing mutual trust.
2. “Building the Ecosystem” in phase II will establish a formalised project team to develop the initial brand position and product offering.
3. “Enterprise Creation” during phase III will evolve the business model and build the market base through small-scale tests and community action learning.

Table 3 below depicts the differences between the original BOP thinking and the current “next generation” BOP strategy.

<b>Next Generation BoP Strategy</b>	
<b>BoP 1.0</b>	<b>BoP 2.0</b>
<ul style="list-style-type: none"> <li>• BoP as consumer</li> <li>• Deep listening</li> <li>• Reduce price points</li> <li>• Redesign packaging, extend distribution</li> <li>• Arm's length relationships mediated by NGOs</li> </ul>	<ul style="list-style-type: none"> <li>• BoP as business partner</li> <li>• Deep dialogue</li> <li>• Expand imagination</li> <li>• Marry capabilities, build shared commitment</li> <li>• Direct, personal relationships facilitated by NGOs</li> </ul>
<b>“Selling to the Poor”</b>	<b>“Business Co-Venturing”</b>

**Table 3: BOP Protocol 1.0 versus BOP 2.0**

A clear difference in approach can be seen from the initial one-sided engagement by MNC's to sell to the poor by reducing the price through down-sized packaging and almost a dumping of products on an undeveloped market where almost no relationships were formed with local communities. The new approach is about committing and engaging a market where there is a much deeper understanding of the real needs. In addition, there is a deliberate goal to develop sustainable markets to help reduce poverty by creating partnerships with local businesses and coaching local communities to become producers.

Despite promoting a much deeper relationship and a business partner focus with engaging communities BOP 2.0 still advocates that business should be the main driver and not government or local partners. BOP 2.0 still view the poor mainly as consumers of appropriate products.

### **2.6.2 Developing Sustainable BOP Markets**

Simanis and Hart (2008) is concerned that the initial vision of the BOP of combining business growth and sustainable development is in danger of imploding. The authors argue that unless “native capabilities” are embedded through a co-creation process and incorporating local businesses into the market economy, the short term gains cannot be sustained.

It is not enough to merely enter a previously neglected market by ‘dumping’ products into an undeveloped market through repackaging and price reduction strategies, to be sustainable requires intimate market knowledge, planning and development through education.

### **2.6.3 BOP Market Access**

London and Hart (2004) suggest that MNCs willing to compete in BOP markets have to develop a global capability of *social embeddedness* which involve “the ability to create a web of trusted connections with a diversity of organisations and institutions, generate bottom-up development, and understand, leverage and build on existing social infrastructure”.

It is vital to access the BOP markets though partnering with local businesses instead of pursuing business with an isolated Western-style marketing approach.

The authors found from an exploratory analysis of 24 BOP cases that only two cases were found to be successful where the companies did not access the

market through a local entity but opted for the Western-style of economic development. This also reinforces the case made for co-venturing with local business partners as outlined in the BOP 2.0 protocol by Simanis and Hart (2008).

#### **2.6.4 BOP Enabling Innovations**

One aspect unanimously agreed upon by all researchers and academics when engaging the BOP market is the reliance on innovation in either product or business process but most often a combination of both.

The theory of disruptive innovation (Christensen 1999) suggests that existing mainstream markets are the wrong place to look for major new waves of growth. Forcing a potentially disruptive innovation into a sustaining business model, putting it on a collision course with incumbents is likely to ensure its early demise (Christensen and Hart 2001).

The authors further highlight the importance of focusing technology and product development resources directly on the needs of the poor. They argue that MNCs should endeavour to build long term relationships with partners in local communities, local companies and non-governmental organisations.

Both De Silva & Zainudeen (2007) as well as Nair (2005) argues a case for technology as a means of enabling the BOP proposition where they respectively discuss telecommunications and satellite-based services as examples of technologies that enables MNCs to service the poor. This contrasts with the

stereotype “smaller packaging” distribution innovation such as HLL Salt and HLL Soap (Gordon 2008).

## **2.7 BOP IN SOUTH AFRICA**

This research would not be complete if it fails to take into consideration the BOP proposition for South Africa. “The Bottom of the South African Pyramid” is a BOP analysis and research report compiled by the Eighty20 consulting company that used statistics from various credible sources such as Stats SA, SALDRU, AMPS, FinScope, Marketta Group, ComMark Trust and The Unilever Institute to put BOP into perspective for the South African market.

This report identifies alienation from the community, food insecurity, crowded homes, use of basic forms of energy, lack of adequately paid jobs and fragmentation of the family as key measures that should be used to define poverty.

The report further define an earnings income of R20 per day as the BOP sector in South Africa and gives the following breakdown of BOP:

- 1.2 million households living on less than R5 per day;
- 2 million households living on between R5 and R10 per day;
- 2 million households living on between R10 and R20 per day.

“Accelerating Shared Growth: Making Markets work for the poor in South Africa” is a report commissioned by the ComMark Trust and written by the Centre for

Development and Enterprise that explore ways to eradicate poverty in South Africa by analysing seven case studies.

ASGISA (Accelerated and Shared Growth Initiative for South Africa) is the South African government sponsored initiative to half the number of poor people in South Africa by 2014. The report identifies the major barrier preventing people from breaking out of poverty as the problematic environment in which they are forced to pursue their livelihoods and not deprivation or poverty itself.

According to the report recognised two routes out of poverty namely: access to decent paying jobs; and entrepreneurial opportunities where both initiatives depend on the involvement of markets and the private sector.

## **2.8 CONCLUSION ON LITERATURE REVIEW**

London (2007b) summarise the current BOP dilemma very effectively in the following two paragraphs:

Interestingly, while much debate and most of the writings on this perspective have centred around who is in the BOP (Hammond, Kramer, Katz, Tran, & Walker, 2007) and how BOP ventures need fundamentally new market entry strategies (Hart, 2005; Hart & London, 2005), a deep exploration of the poverty alleviation implications has lagged.

What has not yet been fully articulated is how this perspective differs from other market-based poverty alleviation approaches, and thus, how its poverty alleviation outcomes may be different. Indeed, to give credence to the BOP perspective's claim of having unique poverty alleviation implications, we must explore the core components of this approach and understand how they differ from other market-based poverty reduction efforts (Walsh, Kress, & Beyerchen, 2005).



It is clear from the above and the literature review that there is a need for a more precise definition of BOP and therefore the research proposed in this thesis.

## **2.9 META-ANALYSIS OF THE BOP CASE STUDIES**

The following paragraph serve to clarify the findings from the literature review that was used to identify the key attributes of a BOP definition as well as the meta-analysis of the BOP case studies.

### ***2.9.1 Key dimensions and attributes of BOP***

The key BOP attributes and dimensions identified in this literature review are:

- Implicit and Explicit BOP Target Market;
- Nature of Offering (Product or Service);
- BOP Participants;
- BOP Market Sector;
- Nature of Innovation (business process, product or technology);
- Technological Novelty (if any);
- BOP participants;
- Profitability and Sustainability.

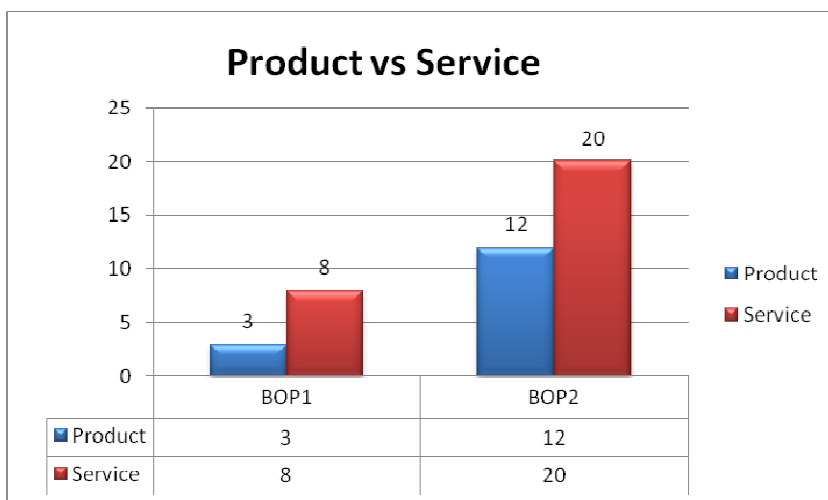


Case No	Case Name	Country	Industry	Participants	Nature of Offering	Consumer / Producer	Opportunity	Explicit Case Target Market	Implicit Case Target Market	Innovation		
										Product	Process	Technology
1	Pyrethrum Sourcing	Kenya	Agriculture	GOV, MNC	Service	Producer	Growing pyrethrum for Government	< \$0.3	<\$2		Y	
2	ASAFE	Cameroon	E-Commerce	PPP	Service	Producer	Empower woman & youth through training & education.	BOP	<\$2		Y	Y
3	ICICI	India	Financial Services	MNC, NGO, LOC	Service	Producer	Providing financial services for BOP	< \$1	<\$2		Y	Y
4	HLL Salt Annaouma	India	FMCG	MNC	Product	Consumer	Selling health improving iodine salt	BOP	<\$2		Y	
5	HLL Soap	India	FMCG	MNC, LOC, GOV	Product	Consumer	Providing soap to eradicate diarrheal pathogens	<\$2	<\$2		Y	
6	Jaipur Foot	India	Health	NGO, NPO, MNO	Product	Consumer	Providing limbs to those who cannot afford it.	BOP	<\$2	Y	Y	
7	HealthNet	Uganda	Health	MNC, GOV, NGO	Service	Producer	Healthcare system improvement	< \$1	<\$2		Y	Y
8	Voxiva	Peru	Health	MNC, GOV	Service	Producer	ICT solution for health sector	<\$2	<\$2			Y
9	Saint Louis Net	Senegal	Health	LOC, NGO	Service	Consumer	Healthcare for children	BOP	<\$2		Y	Y
10	Grameen Bank	Bangladesh	Financial Services	MNC, GOV	Service	Consumer	Micro Lending for the poor	BOP	<\$2		Y	Y
11	Grameen Telecoms	Bangladesh	ICT	MNC, GOV	Service	Consumer	Provision of a mobile telephone service	BOP	<\$2		Y	Y
12	AKASHGANG A	India	Agriculture	LOC	Product	Producer	ICT services to dairy farmers	BOP	>\$2	Y	Y	
13	Hybrid Value Chains	Mexico	Agriculture	MNC	Product	Producer	Irrigation solution for small farmer groups	BOP	>\$2		Y	
14	e-Choupal	India	Agriculture	MNC	Service	Consumer	ICT Service to enable agri-trading	BOP	>\$2		Y	Y
15	EID Parry: Indragriline	India	Agriculture	LOC	Service	Producer	Rural Farming ICT Service	BOP	>\$2	Y		
16	Magazine Luiza	Brazil	E-Commerce	LOC	Service	Consumer	E-commerce and credit service	BOP	>\$2		Y	
17	Thamel.com	Nepal	E-Commerce	MNC	Service	Producer	Changing the nature of business in Nepal	BOP	>\$2			Y
18	ViaSevrae's	Brazil	E-Commerce	MNC	Service	Producer	Providing e-commerce opportunities to small B2C businesses	BOP	>\$2			Y
19	Aptech's Vidya	India	Education	MNC	Service	Consumer	Profitable courses in IT	BOP	>\$2		Y	
20	Andhra Pradesh	India	E-Govern-ance	PPP	Service	Consumer	ICT Services for Government	\$1.64	>\$2		Y	
21	Fabio Rosa	Brazil	Energy	LOC	Product	Consumer	A solar energy home kit (TSSFA Product)	\$1.58	>\$2	Y		
22	E+Co	Nicaragua	Energy	MNC	Service	Consumer	Off the grid electricity sources	Between \$1 and \$3	>\$2	Y		
23	EDF	SA, Morocco Mali	Energy	MNC	Service	Consumer	Rural Eletrification Services	BOP	>\$2		Y	
24	Electricité de France	Morocco	Energy	PPP, LOC	Service	Consumer	Solar power solutions	BOP	>\$2	Y		
25	CrediAmigo	Brazil	Financial Services	MNC	Service	Producer	Micro financing	BOP	>\$2		Y	
26	PRODEM FFP	Bolivia	Financial Services	PPP, MNC	Service	Consumer	Banking	>\$2	>\$2			Y
27	RTS	Uganda	Financial Services	PPP, MNO	Service	Consumer	Remote Transaction Banking and Financial Services	BOP	>\$2			Y
28	ABN AMRO	Brazil	Financial Services	PPP, NGO	Service	Consumer	Micro financing	> \$9	>\$2		Y	
29	HealthStores	Kenya	Health	MNC, PPP	Product	Consumer	Over-the-counter drugs retailers and Healthcare	BOP	>\$2	Y		
30	P&G Safe Water	Guatemala	Health	MNC	Product	Consumer	Providing piped-treated and point-of-use water purification solutions	BOP	>\$2		Y	Y
31	Scojo	India	Health	MNC, GOV	Product	Consumer	Affordable Reading Glasses	<\$2	>\$2		Y	
32	CareShop	Ghana	Health	MNC	Product	Consumer	Over-the-counter drugs retailers	<\$2	>\$2		Y	
33	Mi Farmacita	Mexico	Health	LOC	Product	Consumer	To bring medicines and special services	< \$9	>\$2	Y		
34	CEMEX Parimonio Hoy	Mexico	Housing	MNC	Product	Consumer	Raw Cement, Building material, Ready Mix Concrete	> \$5	>\$2	Y	Y	
35	Holcim Apasco	Mexico	Housing	MNC	Product	Consumer	Affordable construction materials.	BOP	>\$2		Y	
36	FMS DakNet	Cambodia	ICT	MNC	Service	Consumer	ICT access to rural and remote areas	< \$5	>\$2		Y	Y
37	Infocentros	El Salvador	ICT	MNC, GOV	Service	Consumer	Computer Training Infrastructure	BOP	>\$2	Y		
38	n-Logue	India	ICT	MNC, GOV	Service	Consumer	Internet Kiosks	BOP	>\$2	Y	Y	
39	Smart Comms	Philippines	ICT	MNC	Service	Consumers	Prepaid Airtime Distribution	< \$3	>\$2		Y	Y
40	TARahaat	India	ICT	MNC, GOV	Service	Consumers	Information, e-mails and web services	BOP	>\$2			Y
41	Vodacom	South Africa	ICT	MNC, GOV	Service	Consumers	Telecommunication	BOP	>\$2	Y		
42	Nike	China	Leisure	MNC	Product	Consumers	Affordable, durable and easy-to-produce sports shoes	BOP	>\$2	Y		
43	Casas Baia	Brazil	Retailing	MNC	Product	Consumers	Furniture Retailer	BOP	>\$2		Y	

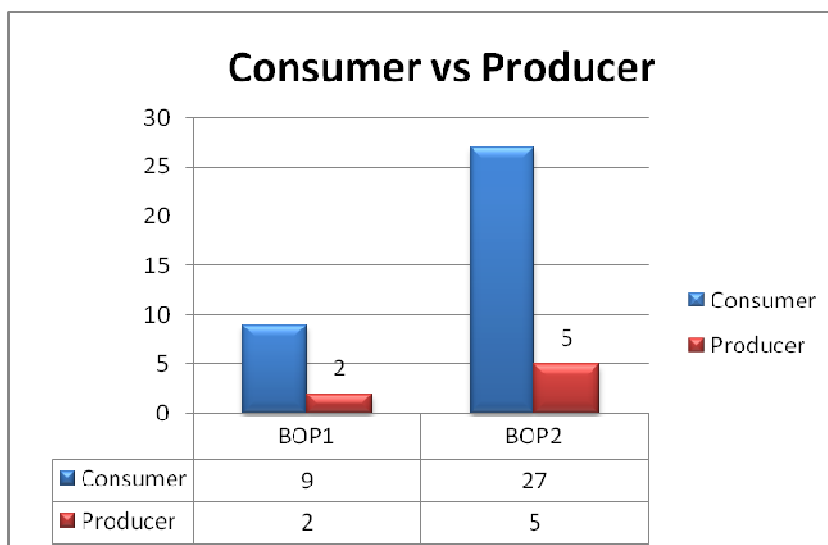
Table 4 Contains 43 Referenced BOP Case Studies

### 2.9.2 Frequency Tables and Results of the BOP Case Studies

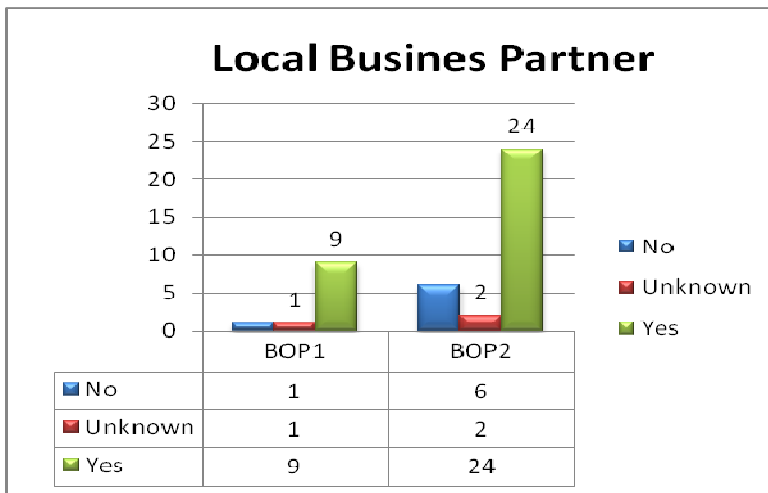
The case study summary table was divided into two market segments namely a sub-\$2 BOP market referred to as BOP1. BOP2 is the remainder of the case studies that are not strictly base of the pyramid, as it spans the upper part of Tier 4 in the economic pyramid as well as overlapping on the bottom part of the MOP (middle of the pyramid).



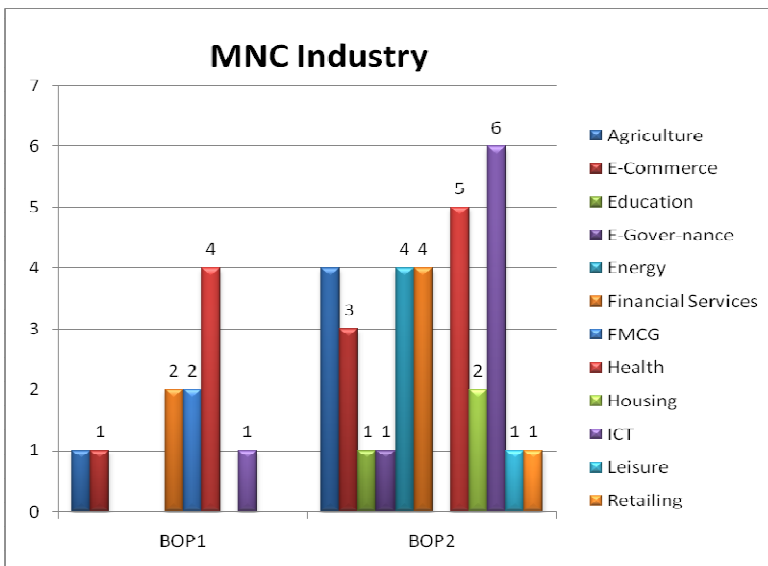
**Figure 3 Product versus Service**



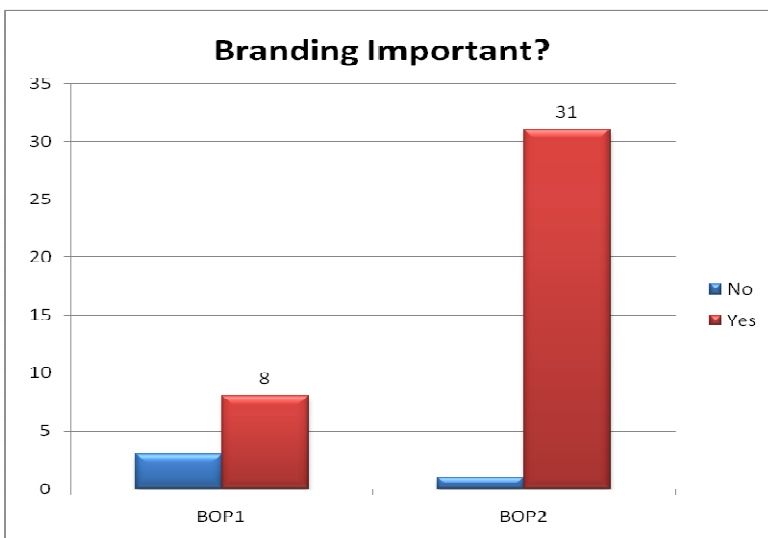
**Figure 4 Consumer versus Producer**



**Figure 5 Local Business Partner Involved?**



**Figure 6 MNC Industry**



**Figure 7 BOP Branding Importance**

### 2.9.3 The Two BOP markets

Analysis of the cited BOP case studies listed in Table 4 was dissected into two distinct, non-overlapping market segments which will be referred to as BOP1 and BOP2 as outlined in the diagram in Figure 8 below. Further analysis have been performed using BOP1 and BOP2 populations to compare and contrast the results.

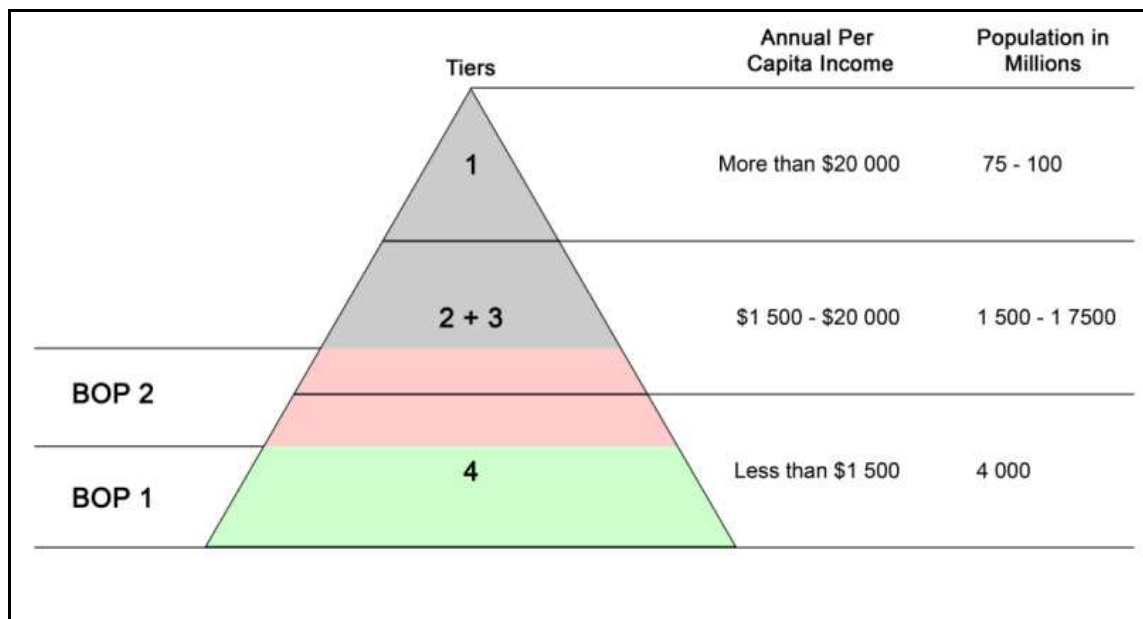


Figure 8 Illustration of the BOP1 and BOP2 Segments

Results from the BOP case meta-analysis was applied to the BOP1 and BOP2 market segments that resulted in more precise definitions of BOP1 and BOP2 in terms of the key attributes found during the literature search.

#### 2.9.3.1 Defining the BOP1 market in terms of the Identified Key Attributes

The BOP1 market is defined by using the absolute poverty line defined by the World Bank as any individual earning less than \$2 per day measured in United States dollars and adjusted for local purchasing power parity (PPP).

The BOP1 market population consists of 2.8 billion people according to the latest World Resource Institute report that was published in 2007. This accounts for 70% of the original 4-billion size BOP market as reported by Prahalad and Hart (2002).

It is predominantly services sold to the BOP1 market with the exception of one medical product (Jaipur foot) and two fast moving consumer good products (HLL salt and HLL soap) that was observed to be successful in this market segment. It is also interesting to note that these three products were first cited by Prahalad and Hart (2002) and included in the twelve classic BOP case studies but it is also the only products from their listed case studies that is successfully sold in the BOP1 market.

The most successful market sectors are: health, financial services and the fast moving consumer goods (FMCG) sectors. As one almost instinctively expects the participation of either government or an NGO (non-government-organisation or not-for-profit organisation) was involved in all the successful BOP1 cases which leads one to ask if these are true BOP initiatives?

It is very clear from an innovation perspective that the BOP1 market requires the engaging or participating organisations to improve their business processes as observed in nine out of eleven case studies. Seven cases of technology innovation and only one case of product innovation (Jaipur foot) was observed.

The importance of branding was highlighted in eight of the eleven successful case studies in the BOP1 market. Branding awareness and the importance of strong brand elements was highlighted in almost every case where branding was discussed in the case study.

### 2.9.3.2 Defining the BOP2 market in terms of the Identified Key Attributes

The BOP2 market i.e. earnings income of more than \$2 per day

- Almost all analysed BOP cases (both classic BOP cases and others) indicated that although often referred to as sub-\$2 income per day market. However, it was found that the typical customer required an income of more than \$2 per day.
- Some cases required product innovation but almost all cases required serious business process re-engineering or process innovation before a commercial viable business could be established
- Technology played a very important role in most cases and could be deemed to be the 'enabling' factor for almost all successful cases
- Both products and services were successfully delivered to this market segment but both required local partners or NGO's to act as distribution or delivery channel
- The only cases where no involvement of either local business partners or NGO's were required were the cases where the local large firms grew the company to an MNC such as CEMEX, Casas Bahia and e-Choupal
- No documented cases could be found where foreign MNCs successfully entered a BOP1 or BOP2 market without involving either a local business partner, government or a NGO.

### 2.9.3.3 The commonalities found in comparing BOP1 and BOP2

- MNC engaged local partners (mostly private partnerships but also government and NGOs);
- Explicit definition implied BOP1 although most was found to be BOP2;
- Both products and services sold successfully in BOP1 and BOP2;
- Mainly through business process innovation;
- Most cases exhibit a form of technology novelty;
- Importance of Brand.

The literature review contributes to clarifying the seemingly contrasting views by proposing a better, more precise, core definition for BOP that should address or eliminate most of the current ambiguity on the subject.

The key attributes of BOP was identified during the literature review and a meta-analysis of the referenced case studies on the BOP was performed to compile a meaningful table, refer to Table 4, containing secondary case study data. The previously identified attributes were then used to analyse and classify the case study data into meaningful clusters, leading to the identification of a more precise BOP definition by defining and describing two prominent sub-sections of BOP namely the sub-\$2 BOP1 and the \$2 and above market at BOP2.



### **3 RESEARCH QUESTIONS**

Only two research questions are considered in an effort to ensure that this research is focussed on clarifying the modern definition and understanding of BOP and that no further confusion is introduced by additional complexities that might arise when investigating any aspects not directly relating to the definition of the BOP. In addition the research attempts to establish the relevance of this definition for South Africa and the bigger African continent.

#### **3.1 WHAT ARE THE KEY ATTRIBUTES OF THE TRUE BOP?**

In order to establish a better definition for BOP it is necessary to first identify the key attributes required for a more precise definition of BOP. It is essential that a deep understanding of the BOP domain is formulated by studying relevant BOP literature and related case studies to enable the identification of the key attributes.

#### **3.2 WHAT DOES THE BOP LOOK LIKE IN SOUTH AFRICA AND THE AFRICAN CONTINENT?**

Africa, the “dark continent”, is most certainly one of the key focus areas for MNCs looking to engage BOP. It is a significant portion of the BOP population with Africa being the most neglected but also posing the biggest opportunity. It is therefore very important and relevant to understand what BOP looks like in Africa.

## 4 RESEARCH METHODOLOGY

### 4.1 RESEARCH DESIGN

This qualitative, exploratory research aims to answer the research questions by following a multi-stage approach consisting of the following steps:

1. Identify the key BOP definition attributes;
2. Perform a meta-analysis on the referenced BOP case studies to derive a more precise definition for the BOP;
3. Formulate the new BOP definition;
4. Compile and analyse a local South African case study of a BOP type project in Nigeria;
5. Compare and contrast the SA case study to the new definition;
6. Document the conclusions derived from the comparison.

The literature review was structured to achieve steps one to three. This chapter briefly reviews those steps and then outlines the method proposed to address steps four to six.

#### ***4.1.1 Identify key BOP definition attributes***

The literature review was done to establish and motivate the need for a more precise definition for the BOP proposition as described by Prahalad and Hart. The literature review further also served as a means of exploring current BOP issues that led to the identification of the key attributes that would help to propose a better BOP definition.

According to Zikmund (2003, p. 55) “descriptive research seeks to determine the answers to *who, what, when, where* and *how* questions” which are all questions that needs to be answered in order to determine the attributes of the definition for the BOP target market.

The following BOP attributes have been identified during the literature review as important aspects that needed to be to incorporated into the new BOP definition:

- BOP market size, which consists of both the population size (in number of people) for this market as well as the collective local purchasing power parity in international PPP dollars;
- BOP earnings income, which is used to define the target market in terms of a range between minimum and maximum earnings income in local PPP dollars;
- BOP market access and distribution describes the way products and services are delivered in the target market;
- BOP enabling technologies identify some technologies that have been used successfully to help the development of the target market;
- BOP participants identifies the main companies or organisations that engage the target market;
- BOP brand importance helps to highlight the importance of branding and brand trust in the BOP market;
- BOP Innovation type distinguish between product innovation, technology innovation and business process innovation which may require any number of these to be present in a successful venture;

- Profitability and sustainability refer to the need of the MNCs to be profitable while maintaining a long term sustainable engagement with the local community.

#### **4.1.2 BOP Case Study Meta-Analysis**

The literature search was structured according to a meta-analysis of the attributes identified in the literature search. According to Zikmund (2003p. 475) “descriptive analysis refers to the transformation of raw data into a form that will make them easy to understand and interpret”.

A database containing 43 BOP case studies was compiled in a spreadsheet table containing the identified BOP attributes. Each case study was analysed before codifying the corresponding attribute values into the case study database.

The identified key attributes was used as the categories in a tabulated frequency table that helped to determine values for these categories.

There was no hard data in most of the referenced BOP case studies regarding average customer income. Nor was there enough information to derive a consistent, scientific method of extracting the average customer income for these cases and therefore US\$2 per day PPP was used as a means of dissecting the BOP case studies into two main categories namely:

- BOP1 – the true base of the economic pyramid with a population of all people earning less than \$2 per day PPP;

- BOP2 – targets the upper section of the BOP market with a population of all people earning more than \$2 per day PPP, spanning the top part of BOP into an overlapping bottom part of MOP (middle of the economic pyramid). Refer to Figure 8 for a visual illustration of BOP1 and BOP2.

A spreadsheet table containing these codified case study values was used to first divide the listed cases into true BOP case studies which was all BOP1 ventures that implicitly targeted customers below \$2 PPP. The \$2 value was chosen as it is the value that the World Bank has defined as the absolute poverty line and it also is the value most used by economist when analysing or referring to the poor.

To be poor is about a lack of freedoms and it means much more than just a lack of money. It has dimensions to it such as “...to be poor is to be hungry, to lack shelter and clothing, to be sick and not cared for, to be illiterate and not schooled” (World Bank 2001). In this analysis an inclusive approach has been followed by allowing a case to be classified as BOP1 when such a case was found to be a borderline decision between BOP1 and BOP2.

Where possible this study viewed BOP1 as participants in BOP consumer activities but subject to the substantiated assumption, that the poor in this category doesn't have assets of value and spend almost all their income on food, health and energy needs. They also have no disposable income and therefore no discretionary spend.

After dissecting the table into the two categories, a frequency table was used to identify attribute values that corresponded with each of these two categories. It is important to note that the earnings income of the implicit target market for each case study was used in an attempt to draw more realistic and representative conclusions regarding the BOP.

Finally a new definition was compiled using the previously identified attributes with the values for each of these attributes being those that had the highest frequency in each column that led to the definition and description of the two sub-sector BOP markets defined in chapter 2 as BOP1 and BOP2.

#### **4.1.3 The ITEX Case Study**

Yin (2003b) states that case study is an empirical inquiry that investigates a contemporary phenomenon within its real life context. Case study research methodology relies on multiple sources of evidence to add breadth and depth to data collection, to assist in bringing a richness of data together in an apex of understanding through triangulation, and to contribute to the validity of the research (Yin, 2003a).

A local South African company (ITEX) was analysed using the same method as with the referenced BOP case studies to enable an accurate comparison between the ITEX case study and the previously analysed case studies.

A combination of a various information sources such as email correspondence, formal documented correspondence such as extracts from the RFP (request for

proposal) in combination with ethnographic interviews with key project participants of both companies (ITEX and Vmobile) have been used to elicit evidence and eliminate hindsight bias.

#### **4.2 THE RESEARCH POPULATION AND UNIT OF ANALYSIS - LITERATURE SEARCH**

The research population for the meta-analysis of the literature consisted of secondary data, i.e. case studies referenced by published research papers, and peer reviewed publications that contained definitions or attributes of the definition for bottom of the pyramid.

Although there exists a great number of articles relating to the BOP most of these articles or publications would refer to the same BOP cases which resulted in fewer unique BOP case studies that could be used in the meta-analysis. The initial aim was to find at least 30 referenced and well documented BOP cases.

Eventually a BOP case study library was found at the NextBillion.net website which contained 43 well documented BOP case studies across market sectors like agriculture, e-commerce, education, financial services, health, ICT and the retail sector.

The unit of analysis for the meta-analysis of the BOP case studies was the key attributes identified and discussed in the literature search of the BOP articles and publications by respected BOP authors.

#### **4.3 DATA VALIDITY AND RELIABILITY – META-ANALYSIS OF THE LITERATURE**

Meta-analysis is regarded as a very helpful and reliable tool for data collection as it offers a systematic synthesis of the empirical data.

The data derived from the NextBillion.net case studies was compiled into the case study database which is represented in a table containing all the important BOP attributes in column headings together with additional information derived from the analysed case studies.

The actual case study data is contained in the BOP table rows and most of these values were obtained directly from the observed case studies with the implicit target market classification that was obtained from a subjective interpretation of the case data based on the key assumptions listed in paragraph 4.1.2.

#### **4.4 POTENTIAL RESEARCH LIMITATIONS – META-ANALYSIS OF THE LITERATURE**

When performing meta-analysis the garbage-in-garbage-out principle applies which implied that the quality of the results are mainly derived, in this research, from the quality of the included articles and peer reviewed publications.

This research was further limited in scope to only include and address aspects directly relating to the definition of BOP.



Probably the most disputed data relates to the BOP market size both in terms of the number of people represented in this market as well as the market size in international or PPP dollar value. The reason for this is, as already mentioned before, that there is no complete and exact database on the world population and their income earnings.

Most of the data being used today are obtained from reports published by the World Bank, the World Resource Institute or various United Nations programmes. These institutions obtain their data from many different data sources such as national census reports, national statistics databases and special surveys focussed on these aspects.

The BOP market size in international PPP Dollars is subject to constantly varying exchange rates and country specific inflation rates which can only yield best effort, relative values that can be used to calculate and estimated market size. This results in less slippage but some slippage is still possible.

#### **4.5 THE RESEARCH POPULATION AND UNIT OF ANALYSIS – ITEX CASE STUDY**

The research population for the ITEX case study consist of company documentation relating to the case study, emails exchanged between key stakeholders and semi-structured interviews with key staff from both ITEX and Vmobile.

The same unit of analysis that was used for the meta-analysis of the BOP case studies was used on the ITEX case study as well namely the key attributes identified during the literature search of the BOP articles and publications.

#### **4.6 DATA COLLECTION, VALIDITY AND RELIABILITY – ITEX CASE STUDY**

establishment of what happened through structured interviews, document review, and/or field observation. These data are used to generate a sequence or timeline of events preceding and following the event;

When writing a case study there is always an element of hindsight bias involved. One way of eliminating or at least reducing hindsight bias is to access and incorporate as many different sources of information as possible.

In addition to this the inclusion of semi-structured interviews were used for the purpose of capturing the expression of opinions or beliefs of the respondents. This method allows the respondent and the interviewer to allow the dialogue to flow in an appropriate direction within the framework of the research.

Each interviewee was given a page containing a set of preliminary or guiding questions (refer to Appendix 2 for the list of leading questions) that were discussed in sessions approximately 30 minutes long. Each interviewee was asked to sign a consent form that also asked permission to record the interview electronically.

Employees from both ITEX and Vmobile was included in the case study interviews in an attempt to remove potential company specific bias regarding the case.

Finally a form of information triangulation was applied across the three main sources of information: the case observer, the key staff interviews and the written records that consists of newspaper clippings, emails extracts between key project stakeholders, minutes from project meetings, project plans, marketing material and the tender proposal document. Applying information triangulation.

#### **4.7 ITEX CASE STUDY ANALYSIS**

The new definitions of BOP1 and BOP2 was used to contrast and compare the South African case study of ITEX that resembles a typical BOP case where IT technology was deployed in the Nigerian telecommunications market. Some observations and a conclusion regarding BOP in Africa was derived from the findings of this comparison.

## **5 RESULTS**

The results will be presented first in terms of the local South African case study of ITEX that deployed a technology platform for a Nigerian cellular company in a BOP type market.

A summary of the findings from the meta-analysis performed on the BOP case studies in chapter 2 of this study follows after the case study.

### **5.1 ITEX CASE STUDY**

ITEX is a privately owned South African IT company that has developed a new technology solution to facilitate cost effective prepaid airtime distribution. This solution was deployed in 2005 for Vmobile, a large mobile phone operator in Nigeria, to enable them to recharge subscribers in a cost-efficient manner while also creating thousands of new job opportunities.

#### ***5.1.1 ITEX Company Overview***

ITEX, (Information Technology Experts (Pty) Limited) was founded in 1996 and is a small privately held South African company with a significant Nigerian shareholding. It has specialised expertise in secure payment technology solutions such as electronic card payments, mobile card payment terminal developments, web-based software development and niche payment, vending and acquiring solutions for the Telecoms and Banking industries.

ITEX is represented in Nigeria through a local company called IISYS (“ITEX INTEGRATED SYSTEMS LIMITED”) which strives to be one of the most effective and most respected IT companies in the Nigerian Telecoms, Utilities and Banking industries.

All ITEX components and products are developed in-house and the intellectual property belongs to the ITEX group. The solution is not dependent on any third party licensed components other than the Oracle database. ITEX is actively involved in the development, implementation and support of their own m-Commerce (mobile commerce) platform referred to as TAMS.

ITEX’s broader solutions offer acquiring and vending solutions for dispensing electronic value products and collecting value on behalf of 3rd parties in conjunction with facilitating card payments by using TAMS as the technology platform.

### ***5.1.2 ITEX History***

ITEX started business in 1996 doing specialised software development projects as consultants to ICL South Africa for First National Bank (FNB), one of the four largest banks in South Africa. ITEX effectively in-sourced the total software development and maintenance of all FNB SpeedPoint card payment terminals that grew to a total of more than 40,000 points of presence by 2001.

Some other company software development highlights include: the development and maintenance of a garage card payment solution for Shell and

Engen (two of South Africa's largest petroleum companies); a mobile terminal solution for the Independent Electoral Commission (IEC) of South Africa to facilitate the first electronic voters roll registration in SA; various electronic voucher distribution (EVD) systems for companies such as Mobile Data Communication, PacTel Communications and two EVD and third party payment solutions for Kwikpay where one version was deployed in the UK and another in South Africa.

During 2002 ITEX started development of its own m-Commerce (mobile commerce) platform that embedded the experience gained over many years of acquiring and vending application developments in various market sectors.

Refer to Appendix 3 for a more detailed chronological and historical overview of ITEX.

### ***5.1.3 ITEX Products and Services***

TAMS (Terminal Application Management Switch) is a dynamic and secure financial transaction platform that facilitates m-Commerce (mobile commerce) transactions by managing all vending devices such as mobile phones, mobile EFT-POS terminals. IT also manages various versions of the different applications running on these devices.

The modular design of TAMS allows for various implementation configurations that provide secure, end-to-end vending and acquiring solutions for the banking, telecommunications, utilities and insurance market sectors. TAMS provides full

web based system and user administration allowing full remote system administration, maintenance and support.

TAMS has its own mobile wallet management system that was developed using bank grade security mechanisms to ensure maximum protection for the user as well as providing easy integration into standard banking platforms. In addition to secure transaction facilitation TAMS provides a full mobile banking solution when integrated into a banking system.

The integrated stock management component used together with the mobile wallet allows for the management and distribution of prepaid vouchers (or electronic tokens). TAMS can manage a wide variety of product discount structures and calculates commission earned in real-time as part of the transaction. (Refer to Appendix 4 for more detailed information on the TAMS m-commerce platform.)

#### ***5.1.4 Technology and Innovation Overview***

To better understand the full TAMS offering it is first necessary to understand the evolution of the airtime distribution models. ITEX has defined four generations of airtime distribution which will be discussed in a brief overview below. (Refer to Appendix 6 which contains a more detailed explanation of the four generations of airtime distribution.)

Each generation will be explained in a short summary focussing on the differences and the advantages of each generation.

#### 5.1.4.1 Four Generations of Airtime Distribution

The first generation of airtime distribution consisted of physical prepaid scratch card that contained a PIN and a set of instructions that enabled a subscriber to recharge his mobile airtime account.

The second generation consists of an electronic PIN that performs the same function as the PIN in the first generation voucher but has the advantage that it can almost instantly be transmitted electronically to any destination, across any terrain. This enabled just-in-time (JIT) stock delivery models for airtime distribution and could even send via SMS directly to a subscriber. High volume, bulk printing of low cost (and low quality) prepaid recharge cards emerged as one way of two popular ways of distributing second generation airtime. The other method is by selling electronic PINs through ATMs, the Internet and EFT-POS terminals.

The third generation of airtime distribution is very similar to second generation as it also involved an electronic PIN but in this case the PIN would be activated on behalf of the subscriber who would receive a message from the network informing him or her of the transaction and the new airtime balance.

The fourth generation of airtime distribution is also known as virtual recharge. This method allows any airtime reseller to increase the subscribers airtime account by sending an instruction to increase the subscribers account by any given value. The subscriber is notified of the transaction by means of a network message that informs him or her of the transaction as well as the new airtime



balance. It is important to note that no 'stock' is involved which allows for any value recharges if permitted by the network.

Please refer to Appendix 6 for more detail on the four generations of airtime distribution.

#### 5.1.4.2 ITEX Telecommunication Specific Offerings

ITEX has airtime distribution solutions for all four generations of airtime distribution. Through the combination of solutions, TAMS has the ability to also offer variants of these solutions to the operator such as: normal electronic voucher distribution; remote activation of PIN numbers; JIT (Just-in-Time) PIN activation or a variant of third generation airtime distribution (in other words loading a PIN when a request for a particular value is received and either sending it in a PIN format to the requesting vending device or directly activating the PIN in real time for the targeted subscriber or recipient.

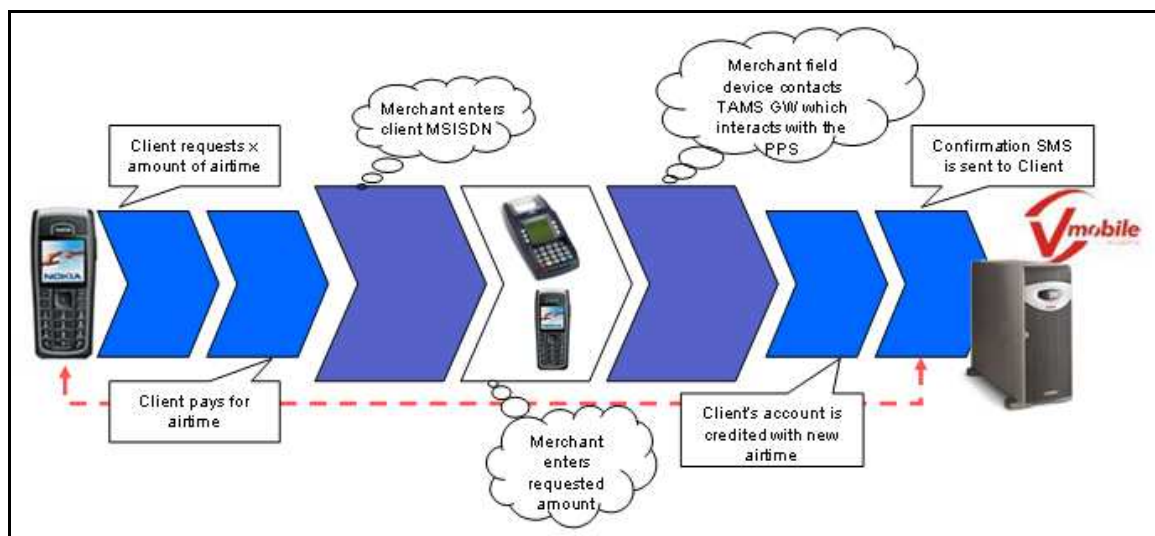


Figure 9: TAMS Virtual Recharge Model

TAMS also offers support for both a fixed denomination virtual recharge as well as any denomination (or any value) virtual recharge if permitted by the network operator.

TAMS has an optional corporate recharge component which allows batch top-ups of both prepaid and post-paid accounts to any specified value. This is popular amongst big organisations that manage their own staff recharges by uploading an Excel spreadsheet (or comma delimited file) to TAMS. This file contains the cell phone numbers and the corresponding amount to be recharged for each staff member on the list.

ITEX also has a PIN generation module that enables the creation of unique PIN and serial numbers which can be tracked through the complete airtime sales cycle from generation to distribution right through to activation and archiving.

#### 5.1.4.3 SMS and Web Based Vending and Distribution Management System

The TAMS vending solution also facilitates hierarchical distributor management. In other words, the vending management system has the ability to specify dealer hierarchical distributor structures where, for instance, a distributor has a direct relationship with a network operator and on-sells to sub-distributors at a lesser discount than what the sub-distributor receives.

TAMS manages the discounts passed on to sub-distributors. The system debits a sub-distributor's account (hosted in TAMS) at the discount structure specified

by his parent for all transactions processed by him / her or processed by that sub-distributor's lower down channel.

This process was designed to offer an operator the ability to manage its entire distribution channel through a single vending solution by not giving any distributor an unfair advantage and also to have a perspective and insight into every distributor's business. The better the operator understands the health of its distributors' businesses, the better it can manage its own risks.

TAMS also allows special SMS instructions to be sent from registered cell phones that aims to achieve the same results for users that do not have access to the internet. TAMS can even deliver specific reports via SMS to requesting users.

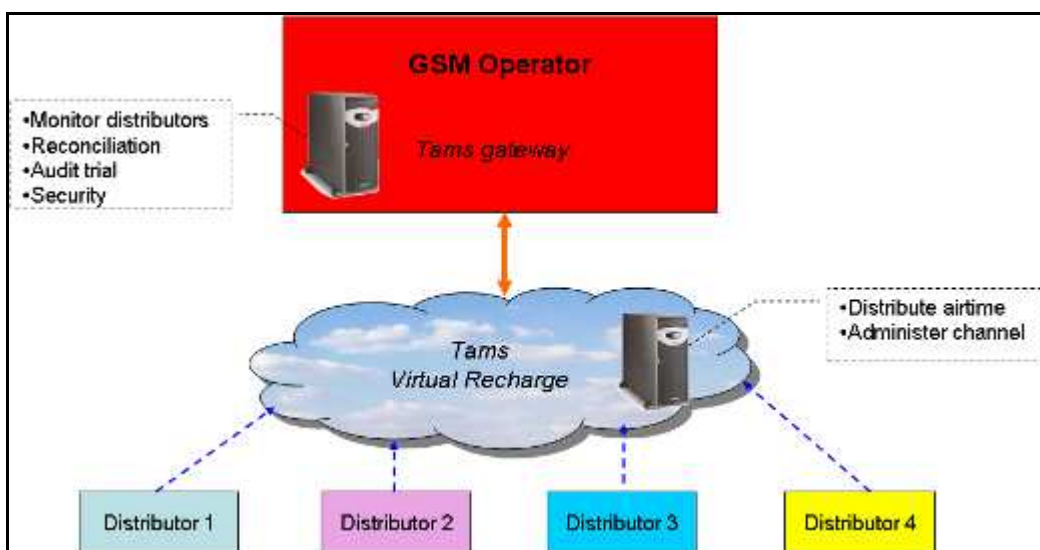
#### ***5.1.5 ITEX Business Model***

ITEX has developed a business model based on experience gained in the implementation of EVD systems for both GSM operators as well as for Super Dealers (also known as airtime resellers or distributors). ITEX gained many insights into the opportunities and challenges faced by both the operator as well as the operator business partners in the airtime distribution business.

ITEX recommends that the distribution of airtime should be a partnership between 3 parties namely:

- The GSM Operator that is also the TAMS system owner as well as the only party that has full access to all aspects of the database.

- ITEX, the solution provider, and also responsible for the implementation, maintenance, upgrade and remote online support of the TAMS system.
- The Distributors (also referred to as Super Dealers, Trade Partners or Resellers) are responsible for managing their own distribution business using the TAMS system to track and control their own business partners downstream of their own distribution channel.



**Figure 10: The TAMS EVD Distribution System**

All three parties are responsible for ongoing identification of new innovative ways to increase and improve distribution of airtime and the enabling of new channels to distribute airtime such as the banks through their ATMs and acquiring EFT-POS terminals.

#### 5.1.5.1 Benefits of the ITEX Triad Business Model

There are various benefits to this approach such as: eliminating “unfair” advantages between different size distributors which result in retaining good competition amongst the distributors.

The virtual airtime penetration into the market is much quicker if it is rolled out by all distributors through their distribution channels, as opposed to being done only by one distributor. The success of the solution is then not dependant on a single distributor.

The GSM operator gains full access to all information aspects regarding the distribution channel as well as specific subscriber activities. This information is obtained and logged by the system for all transactions processed on the TAMS system which is owned by the GSM operator.

The GSM operator can compare distributors with each other in terms of percentage of total turnover, profitability and liquidity. This information is very valuable in monitoring the financial health and stability of the distributors

The core business of a distributor is the distribution of airtime while the system development and maintenance is not core to the business of a distributor. Although the distributor forms an integral part of the implementation of an EVD system, generally they don't have specialist knowledge of the development and maintenance of EVD systems.

An EVD solution provided by a distributor is mainly focused on the distribution of airtime and doesn't always take the future strategies, products and developments of the GSM operator and the telecommunications industry into account.

The branding of 'virtual airtime' is linked much stronger to the GSM operator than to the distributor and creates a competitive edge for the GSM operator over its competitors when it is supplied as a single branded product

Fourth generation implementations are also supported by distributors because they don't have to incur any capital expenditure on expensive terminals, but do have the option of implementing terminals as part of their own solutions if they wish to do so and thus creating alternative deployment models.

The business of a GSM operator is better positioned to deliver true 24x7 business support it ensures system "uptime" and proper disaster recovery as well as ensuring that the total distribution business model is well supported for all parties.

#### ***5.1.6 The Nigerian Mobile Telecommunications Market***

GSM is an acronym for Global System of Mobile Communications and in Nigeria it is synonymous to telecommunications explosion. The Nigerian GSM revolution began in August 2001 and radically changed the Information and Communications Technology (ICT) landscape in this West African country.

Since the GSM launch, mobile telephony has rapidly become the most popular method of voice communication in Nigeria. Growth has been so rapid that Nigeria has been rightly described as "one of the fastest growing GSM markets in the world".

The Nigerian GSM market uptake and growth has indeed been impressive and according to statistics supplied by the Nigerian Communications Commission (NCC) GSM operators had recorded over seven million subscribers by August 2004 in comparison with the 450,000 working, fixed-lines installed by NITEL since 2001.

#### 5.1.6.1 The Nigerian GSM Operators

The Nigerian Communications Commission awarded four GSM licenses in Nigeria and according to the NCC (2005) report the following summarises their respective market positions at the time.

##### **1. MTN Nigeria**

MTN Nigeria is the most successful telecommunications company in the country to date. It is a unit of the South African company by the same name but has Nigerian businessmen and women holding a 22.5% minority stake. Since launching in 2001, it has led the industry since inception and has a subscriber base of more than 3.3 million. MTN's success has been attributed to its parent company from SA, which supports the Nigerian operations with adequate financial and human resources. Local banks and multilateral development finance companies have given valuable support that enabled the company to rapidly cover most of the country's urban locations.

##### **2. Vee Networks of Nigeria (Vmobile)**

The company started as Econet Wireless Nigeria (EWN) Limited, taking its name from its original technical partner, Econet Wireless International (EWI), which was founded by the Zimbabwean Strive Masiyiwa. The two

partners became embroiled in a bitter quarrel over moves to give management control of the firm to Vodacom of South Africa in 2004 – a move EWI is strongly opposed to and is fighting in courts in Lagos, Paris, and Johannesburg. The bitter internal rancour initially affected the good fortunes of the company that started as MTN's archrival.

As the quarrel diverted attention from the main business, there was little cash to finance operations. However, with the May 2004 re-launch as Vmobile, the company has been turned around and has become competitive. Its subscriber base is approximately 2.4 million. Vmobile has acquired fairly good coverage through an aggressive roll out strategy, and presently operates in over 40 towns. Vmobile was first to launch in Lagos, Port Harcourt, Uyo, Warri, Kano and Ibadan, and is 100% Nigerian-owned.

### **3. Globacom (Glomobile)**

This wholly-owned Nigerian company was named as the second national operator last year with a basket of licences, among which are fixed line phone, mobile, international gateway services. Glomobile, the cellular unit, was launched in August 2003 and has since grown its subscribers to 1.9 million. This makes it the second largest mobile operator behind MTN. The fixed unit is due to launch by the end of the year. Recently, it said it had launched its gateway services in the UK and would be opening others in France, U.S. and Asia to effectively cover the major global centres.

Since it launched its services on August 29, 2003, Glomobile has been at the forefront of revolutionary changes in the GSM sector in Nigeria, offering both Prepaid and Contract services along with a range of Value Added Services.

Glomobile, in one year of operation, became the fastest growing GSM network in Africa, achieving record a one million subscribers, and covering over 60 towns in just nine months of operation. The subscriber figure at the moment stands at 2.7 million with coverage extending to over 3,000 towns, communities and major roads, thus becoming the second largest operator as well as the network with the widest coverage in Nigeria. The network will soon extend its frontiers to the West African sub-region as it is now in the final stages of concluding negotiations with two neighbouring countries.



#### 4. Mobile Telecommunications Limited (MTel)

Nigerian Mobile Telecommunications Limited (M-TEL) is the mobile unit of NITEL. Established in 1996 for the purpose of providing affordable and reliable mobile cellular services all over the country, MTEL took over the operations of 10,000 (TACs) Analogue system, which was hitherto managed by Nigeria Telecommunications Limited (NITEL). In 2001, MTEL was merged with NITEL to make for more practical and convenient operation.

In April 2003, MTEL was brought back to deploy GSM services nationwide. However despite the entry of Pentascope in 2003, it has continued to lag behind other mobile firms. As at end of 2004, its subscriber base stood at 892,000.

##### 5.1.6.2 Market Competition

<b>Mobile Subscribers - Net Additions</b>			
<i>Middle East &amp; Africa</i>			
<b>Country</b>	<b>Subs end-04 (mil.)</b>	<b>Net adds in 2004 (mil.)</b>	<b>Growth (%)</b>
Turkey	35.443	7.190	25.45
Nigeria	9.174	6.024	191.3
South Africa	18.935	3.305	21.14
Saudi Arabia	9.162	1.812	24.65
Tunisia	3.713	1.762	90.26
Morocco	9.094	1.734	23.56
Algeria	3.156	1.706	117.72
Egypt	6.995	1.366	24.26
Syria	2.174	1.034	90.74

Source: Informa Telecoms & Media, eShekels, NCC

**Table 8: Mobile Subscriber Growth (NCC 2005)**

Table 8 above confirms the exceptional growth of the mobile telecommunications market in Nigeria that has almost doubled the number of GSM subscribers in 2004.

<b>GSM Pricing Trend</b>					
<i>Prepaid SIM Pack</i>					
	<b>Dec-02</b>	<b>Jun-03</b>	<b>Dec-03</b>	<b>Jun-04</b>	<b>Dec-04</b>
MTN	13000	13000	6500	5999	1000
VMOBILE	4000	12900	6000	5500	1000
MTEL	10000	9000	9000	6500	2500
GLOBACOM	-	-	10999	3300	1
<b>Average</b>	<b>9000</b>	<b>11633</b>	<b>8125</b>	<b>5325</b>	<b>1125</b>
<b>% Change</b>		<b>29%</b>	<b>-30%</b>	<b>-34%</b>	<b>-373%</b>

**Table 9: Nigerian Prepaid Starter Pack Pricing Trend**

More evidence of the mounting competitive pressure can be observed in Table 9 above as well as from the following extract from the (NCC 2005) report.

Prior to Glo Mobile's launch in August 2003, MTN and Vmobile (then Econet Wireless Nigeria) dominated the GSM sector. Both operators charged subscribers N50 (USD\$0.36) per minute for calls despite complaints of poor service. They also dismissed pressure to introduce "per second billing" (PSB), claiming it was not immediately feasible.

But the entrance of Glo Mobile in August 2003 changed the competitive landscape. The company entered the marketplace with "per second billing" from the outset. It followed with a variety of innovative packages that endeared it to many telephone users. One of these was a popular product targeted at low-income earners who could acquire starter packs through instalment payments taken off their airtime credit.

Now the market is awash with attractive packages that are slowly lowering tariffs, and the price of starter packs have crashed from N20,000 (USD\$145) in 2001 to N1 (less than 1 US cent) in 2004 for a basic prepaid option. The primary result of competition is the increase in the national telephone subscriber base to about 10 million for mobile and fixed lines by the end of 2004.

With the crash in the price of SIM cards, the number of subscribers is increasing with greater income becoming available to many operators through the sale of recharge cards. Competition has also provided

thousands of new jobs and improved the depth and professionalism of the industry. Close to 4,500 people have been directly employed by the GSM operators and an estimated 500,000 Nigerians are benefiting from indirect employment generated by the GSM operators.

Competition between the mobile operators is increasing by the day as they seek out any possible opportunity that would give them an advantage to increase their market share.

#### 5.1.6.3 New Market Opportunities and Products

The distribution and selling of airtime started to create new challenges for the GSM mobile operators as their customers consisted almost entirely of prepaid subscribers.

Nigeria is a large country with many geographical challenges for any product that had to be transported from one point to another. Prepaid airtime voucher fraud and theft started to rise as clever citizens realised that these vouchers represent real money.

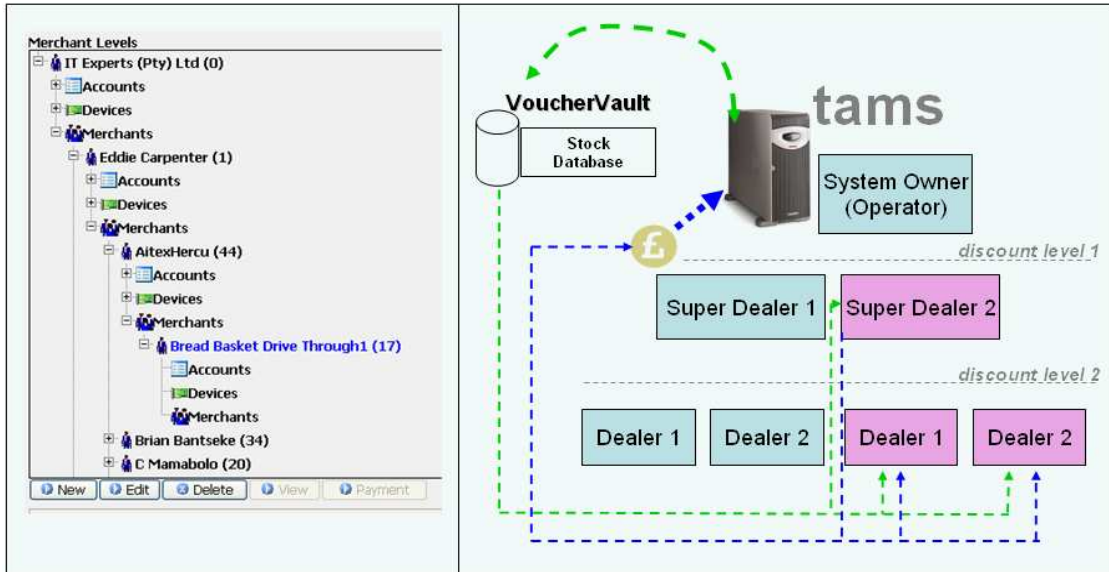
MTN launched VTU (Virtual Top-Up), which is a virtual recharge solution similar to TAMS EVD, in November 2004 as an answer to many of these issues. The competition needed solutions of their own to counter this increasing threat to their business. In a competitive environment such as this, innovative new technology will invariably bring an unfair advantage to the owner.

#### 5.1.6.4 Society and Social Impact on Poor

This new way of selling airtime to mobile subscribers did impact the poor in two major areas namely: job creation and more affordable access to telecommunication.

The TAMS business model allowed any VCharge vendor to employ and enable new recruits to also vend airtime by simply issuing a simple registration SMS from his mobile handset to TAMS. This SMS instruction received from a registered VCharge vendor enables the registration of a new vendor below him in the multi-level network.

TAMS registers the new vendor as well as his mobile phone as a trading device. The new vendor can be given credit on TAMS by any registered VCharge vendor with a positive balance in his mobile airtime wallet. The entrepreneur receives the difference in commission between what he receives on the TAMS EVD system for a specific product and the commission that he passes on to the new vendor for that same product. The commissions earned are calculated in real-time and added to the appropriate wallet (or airtime account) during every successful transaction.



**Figure 11: TAMS Multi-Level Network Hierarchy**

Because there is no physical stock but only commissions linked to virtual products on TAMS, the cost to sell any virtual product on TAMS is the same and consists of the communications overhead of doing the transaction. Since the SMSes are all sent to the same special, zero-rated short code, such as 38380, the SMS does not cost the vendor any money.

Me2U is an example of a new service that is now possible for one subscriber to recharge another subscriber by 'sending' some of his own airtime to another subscriber. This can even be done between a fixed contract subscriber and a prepaid subscriber.

### **5.1.7 ITEX in Nigeria**

ITEX was invited to Nigeria in December 2004 by their Nigerian partners to demonstrate the TAMS EVD system to Glo Mobile, a company that was well respected in the industry for their innovative drive. The ITEX team was not

received with the enthusiasm expected and was told to return in a few months time.

Before returning to SA the following Sunday, the ITEX team had joined some friends from Vmobile for a South African “braai” at the Vmobile apartments. Being curious about the visit to Lagos it soon became known to the Vmobile management that ITEX potentially had the solution they were looking for. Jimmy (CEO of ITEX) recalls “I knew we had a real opportunity to deploy TAMS at Vmobile when I sensed the excitement coming from JJ after I told him about TAMS and explained why it is a much better solution than the MTN VTU SIM based solution”. Refer to Appendix 7 for the advantages of a non-SIM based application.

ITEX returned to Lagos during January 2005 to do an integration of TAMS into the Vmobile Prepaid platform and do a ‘Proof-of-concept’ demonstration of the TAMS EVD system to the Vmobile management on 17 January 2005. The Vmobile management evaluated the business benefits associated with EVD and more specifically ‘virtual recharge’ which performs a direct top-up of a prepaid customers’ account. Vmobile immediately decided to issue a closed RFP (Request for Proposal) and invited ITEX to participate.

ITEX knew that it was going to be difficult to compete with the much bigger MNCs that were also invited to tender for the Vmobile business. ITEX knew the one big advantage they had was their Nigerian shareholding and decided to further increase their chance of winning the tender by establishing a local

Nigerian company, IISYS, which would become the West Africa region distributor and support agent for ITEX.

By tendering through the newly established local company, the company not only scored additional points during the evaluation of the tender but ITEX got to 'hide' the fact that they only had ten employees and unimpressive financials when compared to their internationally recognised competitors who consisted mostly of large corporate companies and MNCs.

The tender was indeed successfully awarded to IISYS (staffed by ITEX) during April 2005 mainly due to the demonstrated technological superiority. One of the key advantages ITEX had over VTU (the competing MTN product) was the fact that the TAMS EVD was a non-SIM based solution. This meant that application customisation, upgrades and maintenance is easy and quick because changes required only occur in one place which is the central TAMS platform and not on thousands of field devices deployed throughout the whole of Nigeria. (Refer to Appendix 7 for more information on the advantages of a non-SIM based applications).

Despite doing a live 'proof-of-concept' integration in less than a week between TAMS EVD and the Vmobile prepaid platform, it would take another 5 months before TAMS EVD could go live. The main reasons for this was the fact that the business process flows had to be mapped to Vmobile policy documents that outlined roles and responsibilities for each function within the business; the

TAMS EVD system directly impacted the day-to-day jobs of more than a 100 people within Vmobile across sixteen internal departments.

Vmobile had to ensure that the implemented solution could be trusted before they commenced with a public awareness campaign that would educate both their Trade Partners as well as their subscribers on the 'new way' of recharging your airtime account by means of 'VCharge' - the new Vmobile product brand for the TAMS EVD recharge solution.

Within nine months of deploying the TAMS EVD solution for Vmobile, the TAMS EVD system is being used by more than 900 super dealers (or Trade Partners as Vmobile prefer to call them) that collectively employed more than 180,000 street vendors with each vendor using a system registered mobile phone as a trading device.

The TAMS EVD system implemented by ITEX for Vmobile Nigeria is doing real-time recharges on a '24x7' basis and at a peak rate of 22 transactions per second (equal to almost 80,000 transaction per hour) resulting in more than eleven million transactions per month.

This is indeed a remarkable accomplishment for many reasons but the most important are:

- it proved that the ITEX technology from a volumes and a system robustness view works;
- It proved that the ITEX EVD business processes work satisfactorily;



- It proved that the ITEX business model of engaging a GSM company directly works;
- It proved that a real-time virtual recharge solution can effectively replace physical airtime scratch cards;
- It created a paradigm shift in the existing airtime distribution model;
- It provided a win-win scenario for all stakeholders where:
  - ITEX received annuity based income obtained from a license fee linked to system use;
  - Vmobile saved money and reclaimed control over the distribution network;
  - The Business Partners got better discounts (partly as a share of the direct cost-saving by Vmobile) and everyone got access to the system that enabled them to improve their management of their own airtime distribution business;
  - The street vendors made greater profits with less risk;
  - The Vmobile subscribers obtained airtime more readily at more consistent pricing with no risk of fraudulent transactions;
- Airtime can be sold at lower denominations without additional costs to the GSM Operator;
- It proved that a non-SIM based solutions works better than a SIM based solution;
- It completely removed all aspects of stock (the PINs generated by GSM Operators) and stock associated problems;
- The system enables a whole new world of virtual products and new opportunities such as Me2U;

ITEX has finally perfected its business model through thorough research and a comprehensive understanding of all stakeholder which consist of the GSM operator, the Trade Partner (or Super Dealer), the merchant or street vendor and the GSM Network subscriber.

### ***5.1.8 Lessons Learned and Valuable Insights***

In the end the most valuable aspect to ITEX was the lessons learned by deploying the solution for Vmobile.

ITEX learned about the value of brand and the power it brings once trust is instilled in the brand. JJ, the Vmobile Chief Sales and New Products Officer, observed the difference in approach when taking products to market between themselves (Vmobile ) and a competitor by the following remark “..they had a very different view of how the product should live. Their view was that Africans want something physical to touch - which is not necessarily true. Once the trust is build around the brand you can grow the product”.

According to Vmobile and in the words of JJ this project was a huge success as he comments on the question around the success of this project “Unheard of success! I’ve been around and spoke to many other (GSM) companies... to have 180 000 merchants accounting for 18% of Vmobile’s outgoing airtime revenues in a period of six months was absolutely phenomenal...”. ITEX contributes this achievement to their world-class technology solution as well as an extremely effective technical team.

A final observation from JJ was around the reason for the successful project implementation which he contributes to three aspects, namely:

1. The position of the project within the company “We had buy in and support right from the top”.
2. Two key external factors were “the physical, geographical environment that created challenges that could only be solved by this project and the regulatory environment that started to dictate what type of products could be brought into Nigeria and which had to be manufactured within the borders of the country”. JJ referred to new legislation that prohibit the import of physical prepaid recharge vouchers into Nigeria.
3. The involvement and ownership of the right departments within Vmobile as he mentions the Sales department that took ownership of the project and the involvement of the ‘Billing & Admin department’ which enabled access to the Vmobile IT systems. He also mentioned the buy in and support from the IN (Intelligent Network) Engineering team that enabled the real-time integration into the prepaid platform.

ITEX learned firsthand the importance of selecting the right technology for your business as every business need to implement technology that can support their product market strategy. This was highlighted when MTN lowered their entry level recharge voucher to 400 Naira on the same day that Vmobile introduced their new 300 Naira recharge voucher. The Both was advertised in the same local newspaper “The PUNCH, Tuesday, September 6, 2005”. See

Figure 12 below. The importance of this becomes clear when you learn that more than 60% of all voucher sales can be attributed towards the lowest denomination voucher...



The PUNCH, Tuesday, September 6, 2005 Page 28

Recharge electronically from **N300** with **Vcharge**

**Benefits**

- Conveniently recharge without a scratch card (no PIN required)
- Flexibility to purchase airtime from **N300**.

DENOMINATION	VALIDITY
N300	5 days
N400	10 days
N500	15 days
N1000	45 days
N2000	90 days
N5000	180 days
N20000	365 days

Available at any authorized Vmobile outlet near you.

It's all about you. **Vmobile**

The PUNCH, Tuesday, September 6, 2005 Page 27

MTN **N400** airtime now available at **MTN Service Centres**

everywhere you go

Figure 12: The PUNCH, Tuesday, 6 September 2005 page 28 and page 37

## 5.2 A BRIEF SUMMARY OF BOP1 AND BOP2 THAT RESULTED FROM THE META-ANALYSIS

The BOP1 market is a subsection of the BOP market defined as all people earning less than \$2 per day PPP and are described in terms of the key attributes as outlined below:

- Market population of more than 2.8 billion people;
- Successful market sectors are:
  - Financial services (specifically micro lending)
  - Healthcare
  - Retail FMCG (fast moving consumer goods)
- Require either local partnerships or NGO involvement to be successful
- Business process innovation was required in all cases and some required technological innovation in addition to process innovation.
- Consumer product selling at BOP1 required brand focus and brand awareness campaigns to be effective.
- Successful product sales required continued marketing campaigns focussing on value-adds such as health improvement obtained from using the product.

The BOP2 market consists of all people with earnings income of more than \$2 per day PPP and are outlined below in terms of the key attributes:

- Almost all analysed BOP cases (both classic BOP cases and others) indicated that although often referred to as sub-\$2 income per day

market. However, it was found that the typical customer required an income of more than \$2 per day.

- Some cases required product innovation but almost all cases required some form of business process re-engineering or process innovation before a commercially viable business could be established.
- Technology played a very important role in most cases and could be deemed to be the 'enabling factor' for most of the successful cases.
- Both products and services were successfully delivered to this market segment but both required local partners or NGOs to act as distribution or delivery channel.
- Branding are considered to be more important at this level than at the top of the economic pyramid.

The discussion of the South African case study will follow in chapter 6 of this study.

## 6 DISCUSSION OF RESULTS

The purpose of this research is to give a better definition for the BOP as it is very clear from the literature review that the BOP proposition introduced by Prahalad and Hart (2002) gave rise to contrasting views regarding the reality and viability of the BOP consumer market.

Two research questions was asked with the intention to not only clarify the contrasting views but also to give direction towards formulating a better definition for the BOP. These two questions will be discussed through a critical interpretation of the findings from this study with reference to the relevant theory that was reviewed in chapter 2.

### 6.1 RESEARCH QUESTION 1: WHAT ARE THE KEY ATTRIBUTES OF THE BOP?

A number of important attributes have been identified during the literature search and these attributes will be discussed in the following paragraphs with reference to current literature.

#### ***6.1.1 Implicit and Explicit BOP Target Market***

The BOP refers to a huge market of more than 4 billion people with an earnings income of less than \$5 per day. The World Bank 2000/2001 report indicates that 2.8 billion, which equates to more than 70% of the total BOP population earn less than \$2 per day. The World Bank (2001) has defined \$2 earning income

per day as the absolute poverty line and as such refer to people that is part of BOP but do not have access to discretionary spend.

By definition all case studies included in this study explicitly defined the BOP as their target market but after analysing these cases most were found to exclude at least 70% of the BOP market as their implicit market was found to be above \$2 per day PPP.

The data in Table 4 shows that only 11 of the 43 case studies truly targeted the entire BOP with almost 75% of the cases really targeting the top part of the BOP market. The literature review confirms the ambiguity relating to the BOP target market and Karnani (2006) also support the argument by indicating that most of the classic BOP case studies also did not target the lower part of the BOP.

I therefore conclude that the original definition of the BOP proposition is not clear enough to ensure that the complete BOP market is provided for and observe that most are implicitly targeting the top part of BOP defined as BOP2.

To truly engage the BOP, especially the part where real poverty eradication is desperately required (BOP1) and also due to fact that 70% of the BOP resides in BOP1 (the bottom part of the pyramid) needs to be addressed in the new definition.



### **6.1.2 The BOP Market Size**

Probably the most debated aspect of the BOP relates to the market size. Crabtree (2007) highlights the extremes in US\$ market size between the US\$ 13 trillion referred to by Prahalad (2002) and the US\$ 0.3 trillion as calculated by Karnani (2006).

The major reasons for these discrepancies and differences of opinion relate to factors such as the source of information, the confusion introduced by purchasing power parity versus United States dollars, income per person versus income per household and earnings income versus consumption per capita.

There is very little global data relating to actual income per capita. The World Bank data are generally being accepted as the most reliable authority on this but even their data are only updated every few years.

The use of purchasing power parity (PPP) in international dollars rather than United States dollars are being used as a better way of comparing 'apples with apples' which implies that a loaf of bread should cost the same across the world when bought in international PPP dollars. Rapid changing inflation rates and fluctuations in global exchange rates makes this seemingly simple monetary comparison model unreliable. This is especially the case when data starts aging as is the current case with the values being used still reflecting 2002 data.

In some case studies or articles the target market would refer to earnings income per person while other times earnings income per household would be

used. The inconsistent use of earnings income per capita versus the consumption per capita further complicates matters.

Hammond *et al* (2007) has published the World Resource Institute (WRI) 2007 report where they find the BOP market to consist of a population of 4-billion people with a collective purchasing power of \$5 trillion PPP when measured in household earnings.

BOP1 consists of the 2.8 billion people living below the World Bank defined absolute poverty line of less than \$2 per capita per day in PPP.

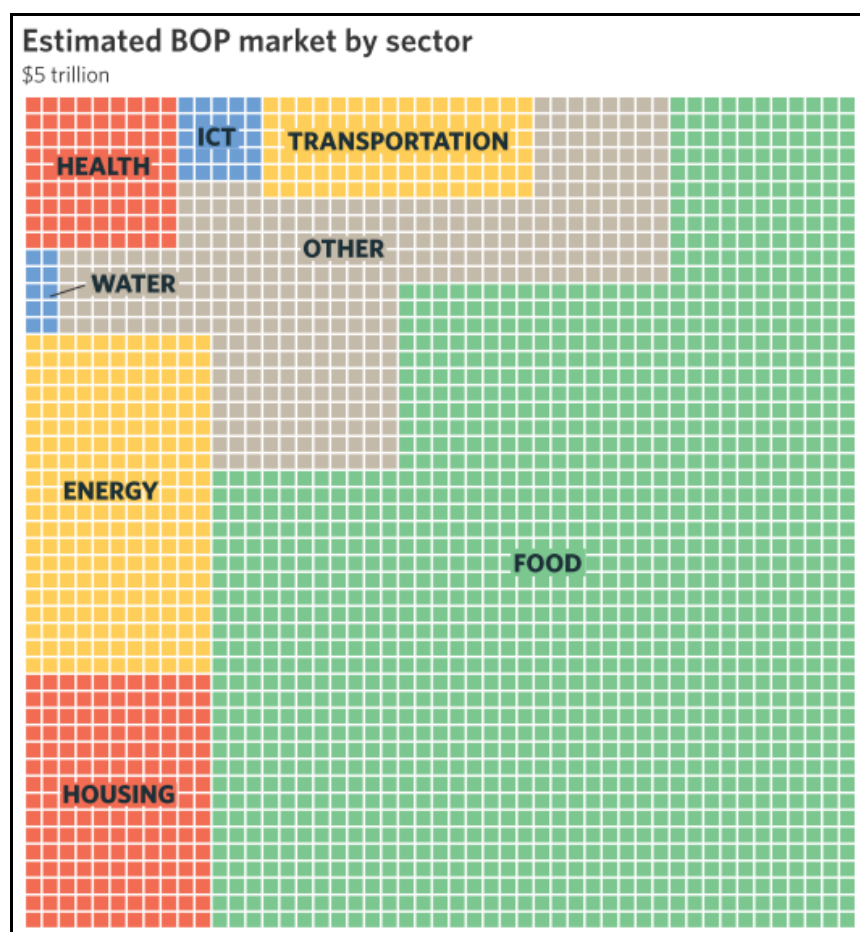


Figure 13: The \$5 trillion BOP market by sector (Hammond *et al* 2007)

The diagram above in Figure 13 gives a visual map of the BOP market spend by sector and it confirms that the top five sectors is food, energy, housing, transport and health.

The report also confirms that the sub-\$2 market population is still 2.8 billion people although there is no hard dollar value given for BOP1.

### **6.1.3 Nature of Offering (Product or Service)**

Although both the literature and the underlying case studies confirm that both products and services are consumed at the BOP it is clear from the analysis performed in BOP1 that it is almost exclusively services that are consumed at the base of the pyramid. This does not really come as a surprise as there is no discretionary spend as the population at the base are constantly hungry and lack shelter, medicine and clothing according to the World Bank (2001).

Karnani (2006) confirms this finding and states “Several of the examples that apparently support the BOP proposition involve companies that are profitable by selling to people well above the \$2-per-day poverty line...”.

Therefore one expects companies offering service related to healthcare, ICT services and financial services (micro lending to be more precise) to the BOP1 market segment to be more successful than selling consumer products that requires discretionary spend.

Moore (2006) notes that “Even though these people are poor, they still spend money. They spend money on the same kinds of things as wealthy people do; they just spend it differently. They cannot buy quantity, they cannot buy luxury, and they cannot buy convenience”.

Focussing on selling consumer services and goods to BOP1 customers can only be sustainable if the engaging company targets one of the big five sectors outlined by Hammond *et al* (2007) where BOP currently already spend their money. Selling services and goods in the food, health, energy, housing and transport sectors for the bigger BOP market while the BOP1 market excludes housing and transport.

The analysis of product versus service sales can be seen in Figure 3 where it is can be observed that there almost twice as many successful case studies in both the BOP1 and the BOP2 market segments.

#### **6.1.4 Branding at BOP**

It is actually because the poor have little money that they are more conscious of how they spend their money as it has to be spend on goods that they know will last and they can trust which leads to high level of brand trust. The poor also have less money to ‘experiment with’ between different brands and therefore the high brand loyalty once they commit to a specific brand.

It was observed from the case studies that consumer product selling required branding focus and brand awareness campaigns in the market place.

Successful product sales required continued marketing campaigns focussing on value-adds such as health improvement obtained from using the product.

The data in Table 7 clearly indicate the importance of brand in the BOP market and I therefore conclude that branding remain a key focus for companies engaging the BOP although intuition may wrongly lead us to believe that it does not matter and that it will lead to additional expenses that could rather have gone into additional discounts on products.

#### **6.1.5 BOP Market Sector**

When observing successful BOP1 case studies it was noted that the three main industries of Financial Services (specifically micro lending), Healthcare and FMCG in the retail industry appeared more frequently.

Further analysis indicated that the main focus is on the consumption of services in financial services and healthcare environment and that only fast moving consumer goods can be sold successfully to BOP1 customers.

When extending the analysis to include the BOP2 market segment there are no real evidence that outright favoured either service or product sales to customers in this market segment to.

Except for the presence of more industries in the BOP2 market segment there were also no single industry that outperformed other industries by huge margins. It was observed that the Education, e-Governance, Leisure and

Retailing industries had only one successful representation in the BOP analysis Table 4 in the FMCG sector.

#### **6.1.6 Nature of Innovation**

Business process innovation was found to be the key type of innovation that was required for organisations and companies targeting the BOP1 and BOP2 market segments. Technology innovation and product innovation was also found to necessary in some cases but was cited less frequently than business process innovation as the key innovation that enabled a successful market adoption.

#### **6.1.7 Technological Novelty**

Almost all case studies that was examined indicated the existence of some form technological novelty.

There were however successful cases reported that did not require any new technology. It is also not clear whether new technology was always required right from the start as a type of opportunity enabler or if technology was developed or acquired during a later phase to address a specific identified need.

In many cases technology was the enabling factor towards providing a product or a service successfully in the BOP1 (only one instance mentioned) and BOP2 market segments.

### **6.1.8 Profitability and Sustainability**

Probably the most important but also most ignored attribute when dealing with opportunity at the BOP has to be the sustainability of the BOP venture. It was argued in the literature review that profit without a regard for sustainability leads to further exploitation of the poor.

The counter side of the argument would be that MNCs will not engage a market for a long period of time if there is no clear profit incentive in pursuing the target market hence the absence of MNCs in this market segment until now.

Simanis and Hart (2008) is concerned that the initial vision of the BOP of combining business growth and sustainable development is in danger of imploding. The authors argue that unless “native capabilities” are embedded through a co-creation process and incorporating local businesses into the market economy, the short term gains cannot be sustained.

### **6.1.9 BOP Participants**

It was observed from the analysis on successful cases in the BOP1 market that no MNC was successful in pursuing this market without partnering with an NGO, government or a local company. It was found that less than half of the MNCs engaging the BOP2 market segment succeeded in pursuing consumer business alone in the BOP2 market segment.

Short term profit focus is potentially one of the biggest stumbling blocks for MNCs looking to engage the BOP market as it is quite evident that sustainable networks of trust takes time to established with new foreign culture, partners.

When looking at the South African case study it was mentioned that it would not have been possible for ITEX to do business in Nigeria without involving a local business partner. Although a lot of questions were asked later on regarding the their local partner involvement and strategic fit and how much of a difference it could have made to the business if ITEX selected different business partners.

Simanis and Hart (2008b) describe the BOP Protocol as the co-venturing process in which a company together with a BOP community conceives, launches, and evolves a new business that serves that same community.

From the data in Figure 5 it is evident that both BOP1 and BOP2 market segments engaged with local partners in almost every successful case and I therefore conclude that to be successful in the BOP requires the involvement of a local partner, local government or a local NGO.



## 7 CONCLUSION

To be poor is about a lack of freedoms and it means much more than just a lack of money. The World Bank defines this state of existence “...to be poor is to be hungry, to lack shelter and clothing, to be sick and not cared for, to be illiterate and not schooled” (World Bank 2001).

In stark contrast to the World Bank view Prahalad and Hart published an article in 2002 entitled “The Fortune at the Bottom of the Pyramid” that posed a proposition to multinational companies (MNCs) stating that huge profits can be made whilst simultaneously eradicating poverty by focussing their efforts on selling to the poorest of the poor at the base of the economic pyramid (BOP) which is an untapped market consisting of more than four billion potential customers that earn less than \$2 per day.

Due to the enormous perceived scope and costs of doing business at BOP resulted in most organisations ignoring this huge market consisting of more than 4-billion people with a combined buying power of \$5 trillion purchase power parity.

BOP is not only about the opportunity to sell goods and services to the poor but also about eradicating poverty and a responsibility to engage and incorporate the poor in the global economy. Gordon, Dakshinamoorthy & Wang (2006) indicate that when they are part of the formal economy, consumers receive better prices, expanded product offerings, and improvements in essential

services such as health care and education and in 25% of the time communities obtain economic benefits as well as a rise in income from these market activities.

Moore (2006) notes that “Even though these people are poor, they still spend money. They spend money on the same kinds of things as wealthy people do; they just spend it differently. They cannot buy quantity, they cannot buy luxury, and they cannot buy convenience, but the poor are as interested in quality goods, access to credit, and the lure of brand names as wealthier consumers.”

### **Portrait of the Typical BOP1 Customer**

The typical BOP1 customer as defined and described in chapter 2 is a poor, almost constantly hungry person that is dressed in creased (sometimes dirty) clothes and show definite signs of malnutrition and has a good chance of being sick. It is indeed very difficult to view this person that might be mistaken for a beggar as a legitimate BOP market segment customer.

The increasing number of successful BOP case studies would lead one to believe that MNCs are indeed succeeding in selling both products and services to the BOP consumer market but I would like to conclude with the following mostly unanswered questions:

1. Do MNCs really sell to consumers at the base of the economic pyramid especially when baring in mind the portrait of the poor depicted above who really represent the customer at the base of the pyramid?

2. What are the long term profitability and sustainability outlook for these ventures as in most of the case studies it is still too early to tell?
3. How many MNCs are jumping onto the popular BOP proposition by transforming social responsibility projects into ventures that represents BOP engagements?

For future research I would recommend that more local case studies be documented and analysed as it is only when we gain more insight through real local experiences that one can insights into solving problems of this complex nature.

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## APPENDIX 1: BOP CASE STUDY META-ANALYSIS

Case No	Case Name	Country	Industry	Participants	Nature of Offering	BOP Consumer or Producer	MNC Opportunity	Case Target Market (Explicit)
1	Pyrethrum Sourcing	Kenya	Agriculture	GOV, MNC	Service	Producer	Growing pyrethrum for Government	< \$0.3
2	ASAFE	Cameroon	E-Commerce	PPP	Service	Producer	Empower woman & youth through training & education.	BOP
3	ICICI	India	Financial Services	MNC, NGO, LOC	Service	Consumer	Providing financial services for BOP	< \$1
4	HLL Salt Annaourna	India	FMCG	MNC, NGO	Product	Consumer	Selling health improving iodine salt	BOP
5	HLL Soap	India	FMCG	MNC, LOC, GOV	Product	Consumer	Providing soap to eradicate diarrheal pathogens	<\$2
6	Jaipur Foot	India	Health	NGO, NPO, MNO	Product	Consumer	Providing limbs to those who cannot afford it.	BOP
7	HealthNet	Uganda	Health	MNC, GOV, NGO	Service	Consumer	Healthcare system improvement	< \$1
8	Voxiva	Peru	Health	MNC, GOV	Service	Consumer	ICT solution for health sector	<\$2
9	Saint Louis Net	Senegal	Health	LOC, NGO	Service	Consumer	Healthcare for children	BOP
10	Grameen Bank	Bangladesh	Financial Services	MNC, GOV	Service	Consumer	Micro Lending for the poor	BOP
11	Grameen Telecoms	Bangladesh	ICT	MNC, GOV	Service	Consumer	Provision of a mobile telephone service	BOP
12	AKASHGANGA	India	Agriculture	LOC	Product	Producer	ICT services to dairy farmers	BOP
13	Hybrid Value Chains	Mexico	Agriculture	MNC	Product	Producer	Irrigation solution for small farmer groups	BOP
14	e-Choupal	India	Agriculture	MNC	Service	Consumer	ICT Service to enable agri-trading	BOP
15	EID Parry: Indiagriline	India	Agriculture	LOC	Service	Producer	Rural Farming ICT Service	BOP
16	Magazine Luiza	Brazil	E-Commerce	LOC	Service	Consumer	E-commerce and credit service	BOP
17	Thamel.com	Nepal	E-Commerce	MNC	Service	Producer	Changing the nature of business in Nepal	BOP
18	ViaSevrae's	Brazil	E-Commerce	MNC	Service	Producer	Providing e-commerce opportunities to small B2C businesses	BOP
19	Aptech's Vidya	India	Education	MNC	Service	Consumer	Profitable courses in IT	BOP
20	Andhra Pradesh	India	E-Governance	PPP	Service	Consumer	ICT Services for Government	\$1.64
21	Fabio Rosa	Brazil	Energy	LOC	Product	Consumer	A solar energy home kit (TSSFA Product)	\$1.58
22	E+Co	Nicaragua	Energy	MNC	Service	Consumer	Off the grid electricity sources	Between \$1 and \$3
23	EDF	SA, Morocco, Mali	Energy	MNC	Service	Consumer	Rural Eletrification Services	BOP



Case No	Case Name	Country	Industry	Participants	Nature of Offering	BOP Consumer or Producer	MNC Opportunity	Case Target Market (Explicit)
24	Electricité de France	Morocco	Energy	PPP, LOC	Service	Consumer	Solar power solutions	BOP
25	CrediAmigo	Brazil	Financial Services	MNC	Service	Consumer	Micro financing	BOP
26	PRODEM FFP	Bolivia	Financial Services	PPP, MNC	Service	Consumer	Banking	>\$2
27	RTS	Uganda	Financial Services	PPP, MNO	Service	Consumer	Remote Transaction Banking and Financial Services	BOP
28	ABN AMRO	Brazil	Financial Services	PPP, NGO	Service	Consumer	Micro financing	> \$9
29	HealthStores	Kenya	Health	MNC, PPP	Product	Consumer	Over-the-counter drugs retailers and Healthcare	BOP
30	P&G Safe Water	Guatemala	Health	MNC	Product	Consumer	Providing piped-treated and point-of-use water purification solutions	BOP
31	Scojo	India	Health	MNC, GOV	Product	Consumer	Affordable Reading Glasses	<\$2
32	CareShop	Ghana	Health	MNC	Product	Consumer	Over-the-counter drugs retailers	<\$2
33	Mi Farmacita	Mexico	Health	LOC	Product	Consumer	To bring medicines and special services	< \$9
34	CEMEX Parimonio Hoy	Mexico	Housing	MNC	Product	Consumer	Raw Cement, Building material, Ready Mix Concrete	> \$5
35	Holcim Apasco	Mexico	Housing	MNC	Product	Consumer	Affordable construction materials.	BOP
36	FMS DakNet	Cambodia	ICT	MNC	Service	Consumer	ICT access to rural and remote areas	< \$5
37	Infocentros	El Salvador	ICT	MNC, GOV	Service	Consumer	Computer Training Infrastructure	BOP
38	n-Logue	India	ICT	MNC, GOV	Service	Consumer	Internet Kiosks	BOP
39	Smart Communications	Philippines	ICT	MNC	Service	Consumer	Prepaid Airtime Distribution	< \$3
40	TARahaat	India	ICT	MNC, GOV	Service	Consumer	Information, e-mails and web services	BOP
41	Vodacom	South Africa	ICT	MNC, GOV	Service	Consumer	Telecommunication	BOP
42	Nike	China	Leisure	MNC	Product	Consumer	Affordable, durable and easy-to-produce sports shoes	BOP
43	Casas Baia	Brazil	Retailing	MNC	Product	Consumer	Furniture Retailer	BOP



Case No	Case Name	Case Target Market (Implied)	Innovation			Nature of Innovation	Technological Novelty
			Product	Process	Technology		
1	Pyrethrum Sourcing	<\$2		Y		<b>Business Process:</b> Providing a means for BOP to produce for the constant demand for pyrethrum farming communities are sure of an income.	None
2	ASAFE	<\$2		Y	Y	<b>Business Process &amp; Technology:</b> To recognise the importance on training as a key part in the empowerment strategy.	Providing access to the internet
3	ICICI	<\$2		Y	Y	<b>Technology and Process:</b> ICICI developed radical technologies and created whole new strategies.	ICICI Bank
4	HLL Salt Annaourna	<\$2		Y		<b>Process Innovation:</b> Annapurna salt with stable iodine	None
5	HLL Soap	<\$2		Y		<b>Process Innovation:</b> The ability to reach the masses.	None
6	Jaipur Foot	<\$2	Y	Y		<b>Product &amp; Process Innovation:</b> Designing and manufacturing of limbs suitable for rural life.	Limbs designed for squatting, barefoot walking
7	HealthNet	<\$2		Y	Y	<b>Process and Technology:</b> The availability of information ensures accurate reporting & analysis of health data	Personal Digital Assistants, Wireless WideRay, PenDragon Software
8	Voxiva	<\$2			Y	<b>Technology:</b> Providing a flexible solution for users, regardless of their level of technological sophistication or type of device.	Radio and Internet connections, Interactive Voice Response System
9	Saint Louis Net	<\$2		Y	Y	<b>Technology &amp; Process:</b> Job Searches, Classified Adds, Weather Forecasts and e-government services	Basic telephone services and internet access and use of an intranet.
10	Grameen Bank	<\$2		Y	Y	<b>Business Process Innovation:</b> Lending to mainly women, credit vetting through community	Virtual Banking System
11	Grameen Telecoms	<\$2		Y	Y	<b>Technology &amp; Process Innovation:</b> Using wireless technology to provide their service	Wireless Infrastructure
12	AKASHGANGA	>\$2	Y	Y		<b>Product &amp; Process Innovation:</b> Providing IT to increase efficiency in rural dairy cooperatives Increasing quality of dairy products	Automatic Milk Collection Systems, Accurate Electronic Weighing Scales,
13	Hybrid Value Chains	>\$2		Y		<b>Business Process Innovation:</b> Building opportunities for small farmers through shared	None
14	e-Choupal	>\$2		Y	Y	<b>Process Innovation:</b> Reengineering of the Value Chain.	Delivery of real-time information independent of
15	EID Parry: Indiagriline	>\$2	Y			<b>Technology &amp; Process Innovation:</b> Providing farmers and sugarcane growers access to Servicethrough computers.	None
16	Magazine Luiza	>\$2		Y		<b>Process Innovation:</b> The employees teach people how to use the computer and let them come back to	Computer Training
17	Thamel.com	>\$2			Y	<b>Technology Innovation:</b> Using the internet as a channel for small vendors to promote and sell their	Internet Sites
18	ViaSevrae's	>\$2			Y	<b>Technology Innovation:</b> Providing improvements and infrastructure for supporting e-commerce activities.	Provision on e-commerce infrastructure and support
19	Aptech's Vidya	>\$2		Y		<b>Business Innovation:</b> Making a computer training affordable.	Computer based education program
20	Andhra Pradesh	>\$2		Y		<b>Process Innovation:</b> Using ICT to eradicate illiteracy and corruption	Information and Communication Technologies
21	Fabio Rosa	>\$2	Y			<b>Product Innovation:</b> Providing low income house holds which are not on a electricity grid with solar electricity products	A solar home kit (TSSFA)
22	E+Co	>\$2	Y			<b>Product Innovation:</b> Providing rural communities with clean energy.	Solar Photovoltaics, wind energy, geothermal energy
23	EDF	>\$2		Y		<b>Process Innovation:</b> Creation of small, locally run companies to provide services.	Pre-Paid Electricity



Case No	Case Name	Case Target Market (Implied)	Product	Process	Technology	Nature of Innovation	Technological Novelty
24	Electricité de France	>\$2	Y			<b>Product Innovation:</b> Providing rural communities with solar power	Solar Power
25	CrediAmigo	>\$2		Y		<b>Business Process Innovation:</b> Microloans at a high growth rate	None
26	PRODEM FFP	>\$2			Y	<b>Technology and Process Innovation:</b> PRODEM FFP places smart stand alone ATMs in the field	Smart Cards, Digital Fingerprint Recognition, Voice Recognition, Touch
27	RTS	>\$2			Y	<b>Technology and Business Process Innovation:</b> The <i>Remote Transaction System</i> (RTS)	Front-end POS devices, Smart cards, Agent Cards, RTS Server software, POS
28	ABN AMRO	>\$2		Y		<b>Process Innovation:</b> Making micro financing accessible	None
29	HealthStores	>\$2	Y			<b>Product Innovation:</b> Provide the quality, accessible and affordable franchise for licensed chemical sellers.	None
30	P&G Safe Water	>\$2		Y	Y	<b>Product &amp; Technology:</b> A new Point-of-Use technology	Water purification
31	Scojo	>\$2		Y		<b>Process Innovation:</b> By engineering business process in such a way to provide a pair of affordable	None
32	CareShop	>\$2		Y		<b>Process Innovation:</b> Provide the quality, accessible and affordable franchise for licensed chemical sellers.	None
33	Mi Farmacita	>\$2	Y			<b>Business Process Innovation:</b> Fill gaps in access to healthcare and provides profitable business ownership opportunities	None
34	CEMEX Patrimonio Hoy	>\$2	Y	Y		<b>Product &amp; Business Process Innovation:</b> CEMEX launched Patrimonio Hoy that enables poor people to pay for services and building materials.	Production Technology
35	Holcim Apasco	>\$2		Y		<b>Process Innovation:</b> Service and distribution schemes.	None
36	FMS DakNet	>\$2		Y	Y	<b>Technology Innovation:</b> Providing ICT access to people in rural and remote areas.	DakNet, FMS VAN-APX Networking, WiFi Data Transmission
37	Infocentros	>\$2	Y			<b>Product Innovation:</b> Developing local content to stimulate the usage of the internet in rural communities	The Internet
38	n-Logue	>\$2	Y	Y		<b>Product &amp; Process Innovation:</b> A three-tier franchise business model	corDECT - fixed Wireless Local Loop technology.
39	Smart Communications	>\$2		Y	Y	<b>Technology &amp; Process Innovation:</b> Minimizing of physical product distribution costs.	Smart Buddy, pureTxt, Pasa Load, Smart Load, Smart Money
40	TARAAhaat	>\$2			Y	<b>Technology Innovation:</b> Connecting franchised village internet centres with VSAT links	Satellite Technology
41	Vodacom	>\$2	Y			<b>Product Innovation:</b> Putting down more than \$1.2 billion for GSM infrastructure	GSM Technology
42	Nike	>\$2	Y			<b>Product Innovation:</b> Creating a new product which is affordable, durable and easy-to-produce	None
43	Casas Baia	>\$2		Y		<b>Process Innovation:</b> All the process of credit checks and account updates are all automated	Casa Bahia has a full time IT project office tailored for the organization



Case No	Case Name	Client Base	Product / Service Description	MNC / CO Sponsor	Local Business Partner?
1	Pyrethrum Sourcing	> 200 000	Raising household income levels of small scale pyrethrum farmers in Kenya	PBK, SC Johnson	Yes
2	ASAFE	> 3 500	Training woman to be more efficient in business and to incorporate the internet	None	Yes
3	ICICI	> 3.2 mil	Micro financing	ICICI InfoTech Ltd	Yes
4	HLL Salt Annaourna	?	Distributing stable iodised salt to rural communities.	Unilever HLL	Yes
5	HLL Soap	> 1 mil (outlets)	Soaps and Detergents	Government of India WHO, Private Sector	Yes
6	Jaipur Foot	> 60 000	Foot and Lower Limb Prosthesis	BMVCSS, ISRO	Yes
7	HealthNet	?	Providing e-mail and internet access to health workers - Data collection and analyses, information dissemination for the health sector	Uganda Ministry, SATELLIFE, IDRC	Yes
8	Voxiva	> 204 000	Information and Communication Technology	World Bank, WHO, FDA, CDC, DoD, NIH	Unknown
9	Saint Louis Net	> 4 000	Pésinet and Saint Louis Net	Pésinet ,Saint Louis Net	No
10	Grameen Bank		Micro Lending	Grameen Bank	Yes
11	Grameen Telecoms	> 286 000	Mobile Telecommunication	Grameen Telecom, Grameen Phone, Grameen Bank	Yes
12	AKASHGANGA	600	Accessible IT Solutions	ICICI InfoTech Ltd	Yes
13	Hybrid Value Chains	> 1 mil	Empowerment of small farmer groups through a business network	None	Yes
14	e-Choupal	> 1 mil	IT Solution to take part in agri-trading	e-Choupal	Yes
15	EID Parry: Indiagriline	100 000	Providing small farmers with needed support	Murugappa Group	Yes
16	Magazine Luiza	?	Magazine Luiza sells a mix of furniture, consumer electronics and white goods. They also provide it	Magazine Luiza	No
17	Thamel.com	> 10 600	Changing the nature of business in Nepal	Thamel.com	Yes
18	ViaSevrae's	?	Providing e-commerce opportunities to small B2C businesses	Paradigm	Yes
19	Aptech's Vidya	> 2.5 mil	Profitable courses in IT	Aptech, Vidya	No
20	Andhra Pradesh	> 76 mil	Sustainable and affordable infrastructure, Well architected and sustainable software development, Human resources	None	No
21	Fabio Rosa	> 6 100	Provide solar powered energy to rural households, Implementing grazing management with electronic fencing, Implement profitable nature conservation	AVINA and CANOPUS	No
22	E+Co	> 200 000	Off the grid electricity sources	BUN-CA	Yes
23	EDF	> 670 000	Rural Eletrification Services	UNDP, UNEP	Yes



Case No	Case Name	Client Base	Product / Service Description	MNC / CO Sponsor	Local Business Partner?
24	Electricité de France	> 43 000	Solar power solutions	EDF, Tenesol, Total	Yes
25	CrediAmigo	> 123 000	Micro financing	Banco do Nordeste	Yes
26	PRODEM FFP	> 48 000	Banking	ACCION International	No
27	RTS	> 80 000	Remote Transaction Banking and Financial Services	UMU, ACCION, FINCA, FOCCAS	Yes
28	ABN AMRO	> 400	Micro financing	Banco ABN AMRO Real, ACCION	Yes
29	HealthStores	> 400 000 pa	Over-the-counter drugs retailers and Healthcare	HealthStore	Yes
30	P&G Safe Water	?	Providing piped-treated and point-of-use water purification solutions	PPPs, GOVs, NGOs	Yes
31	Scojo	> 50 000	Affordable Reading Glasses	Drishtee, Vendanta, Byrraju, HLL Shakti,	Yes
32	CareShop	270 Shops	Over-the-counter drugs retailers	CareShop	Yes
33	Mi Farmacita	?	To bring medicines and special services	Grupo Farmicéutico, Laboratorios Collins	Yes
34	CEMEX Parimonio Hoy	?	Raw Cement Ready Mix Concrete Aggregates Clinker	CEMEX	Unknown
35	Holcim Apasco	> 400 000	Affordable construction materials.	Holcim Apasco	Yes
36	FMS DakNet	?	Leverages short- range wireless technology in tandem with traditional telecommunication and physical transportation	FMS, AAfC / JRF	Yes
37	Infocentros	?	Local Content Computer Training Infrastructure	El Salvador Government	Yes
38	n-Logue	?	Internet Kiosks	n'Logue, Government	Yes
39	Smart Communications	> 3.6 mil	Prepaid Airtime Distribution	Philippine Long Distance Telephone	Yes
40	TARahaat	?	Information, e-mails and web services		Yes
41	Vodacom	> 4 Mil	Telecommunication	Vodacom Group	Yes
42	Nike	> 2 Mil	Affordable, durable and easy-to-produce sports shoes	Nike	Unknown
43	Casas Baia	?	Furniture Retailer	Casas Baia	No





Case No	Case Name	Partner Capacity	Customers / Income Group	Business Enabler?	Branding Required?	Initiative Starting Year	Case Study Period (Year)
1	Pyrethrum Sourcing	Producer	<\$2	A high demand for pyrethrum	No	1970	1970 - 2004
2	ASAFE	Producer	<\$2	Large number of woman in business	No	1956	1992 - 2003
3	ICICI	Distributor	<\$2	The need for micro financing	Yes	2001	2001 - 2003
4	HLL Salt Annaourma	Distribution	<\$2	Even the poorest need iodised salt	Yes	1995	Unknown
5	HLL Soap	Distribution	<\$2	Partnerships with the Government and Private Sector	Yes	1988	Unknown
6	Jaipur Foot	Complimenting Serviceand Research	<\$2	The need for low cost prosthesis	No	1968	Unknown
7	HealthNet	Distributor and Backer	<\$2	Habving readily available real-time access to health care information	Yes	1998	1998 - 2001
8	Voxiva	Unknown	>\$2	Providing a real-time data distribution and sharing channel	Yes	2001	2001 - 2003
9	Saint Louis Net	Distributor	<\$2	The need for health care for the youth and IT services	Yes	2001	2001 - 2003
10	Grameen Bank	Distribution	<\$2	Efficient distribution channel	Yes	1996	1999 - 2001
11	Grameen Telecoms	Distribution	<\$2	Efficient distribution channel	Yes	1996	1999 - 2001
12	AKASHGANGA	Producer / Distributer	>\$2	Global Procures, high cost of domestic production, High need to operate more efficiently.	Yes	1996	2001 - 2002
13	Hybrid Value Chains	Producer	>\$2	Common needs	No	2006	2006 - 2007
14	e-Choupal	Distributor	>\$2	Inefficient business processes of ITC	Yes	1998	Unknown
15	EID Parry: Indiagriline	Producer	>\$2	Challenges that result in yields and quality being inferior and the need to improve it	Yes	Unknown	Unknown
16	Magazine Luiza	n/a	>\$2	Treating customers with dignity.	Yes	1957	
17	Thamel.com	Producer / Distributer	>\$2	A need of Nepalese people to send sentiment abroad	Yes	2000	2000 - 2005
18	ViaSevrae's	Producer	>\$2	Deregulation and privatization of the telecommunication sector.	Yes	1997	1997 - 2001
19	Aptech's Vidya	Producer	>\$2	IT training / education is a feeder for higher level courses	Yes	1999	1999 - 2003
20	Andhra Pradesh	n/a	<\$2	This experiment is motivated by the desire to transform the state where poverty is totally eradicated.	Yes	Late 1990's	to 2003
21	Fabio Rosa	Financing	<\$2	The importance of electricity for the residents of rural communities to improve quality of life and the opportunity for	Yes	1998	1998 - 2002
22	E+Co	Distributor	\$2	Need for basic lighting and productive uses like irrigation and operating	Yes	1994	1994 - 2003
23	EDF	Distribution	>\$2	A people centered approach to electrification services and uses energy as a tool for poverty reduction	Yes	2002	2002 - 2007



Case No	Case Name	Partner Capacity	Customers / Income Group	Business Enabler?	Branding Required?	Initiative Starting Year	Case Study Period (Year)
24	Electricité de France	Distributor	>\$2	The need for power	Yes	2002	2002 - 2005
25	CrediAmigo	Financing	>\$2	The need for financing	Yes	1998	1998 - 2001
26	PRODEM FFP	Distributor	>\$2	Making banking accessible for the BoP market	Yes	1999	2001 - 2002
27	RTS	Distributor / Producer	>\$2	The need for reliable banking	Yes	2002	2002 - 2004
28	ABN AMRO	Distributor	> \$9	The need for access to financing	Yes	2002	2002 - 2004
29	HealthStores		<\$2	Malaria, tuberculosis and other treatable diseases are the cause of seventy to ninety percent of all childhood illnesses	Yes	1997	1997 - 2004
30	P&G Safe Water	Research, production and distribution	<\$2	The need for usable water as an essential.	Yes		
31	Scojo	Distribution	<\$2	Scojo has developed an innovative, market-based solution for this health	Yes	2001	2001 - 2006
32	CareShop	Distributors	<\$2	CareShop uses market forces to improve health outcomes across the country.	Yes	2002	2002 - 2007
33	Mi Farmacita	Distributor and Producer	< \$9	Mexico's loose pharmaceutical regulations and poor distribution channels for generic medicines	Yes	2004	2004 - 2006
34	CEMEX Patrimonio Hoy	Unknown	> \$5	The need of the Mexicans to leave a heritage	Yes	1998	1999 - 2003
35	Holcim Apasco	Distribution	> \$5	Housing shortage in the country	Yes	1996	1996 - 2003
36	FMS DakNet	Distribution	> \$5	Providing low cost ICT services	Yes	2002	2002 - 2003
37	Infocentros	Distribution	>\$2	10 year interest free loan from the government and partnerships with ministries	Yes	1998	1998 - 2001
38	n-Logue	Distribution	>\$2	Upstream and downstream partners	Yes	2000	2000 - 2004
39	Smart Communications	Distribution	< \$3	Technology Innovations	Yes	1991	Unknown
40	TARahaat	Distribution	>\$2	The need to access relevant local and global information	Yes	1999	1999 - 2001
41	Vodacom	Distribution	>\$2	A Government Mandate	Yes	1994	1994 - 2003
42	Nike	n/a	>\$2	International Nike has build up and the World Shoe Project	Yes	Unknown	Unknown
43	Casas Baia	n/a	>\$2	Deep loyalty from it's customers	Yes	1952	Unknown



Case No	Case Name	Publication Year	Customer Needs	Profitable?	Sustainable?	Market Access
1	Pyrethrum Sourcing	2004	Income Education Employment	Yes	Yes	Pyrethrum has a positive sustainability profile due to its characteristics.
2	ASAFE	2003	Education Funding / Financing	Yes	Yes	Providing the opportunity for woman to qualify in their business field.
3	ICICI	2003	Microfinance Better Savings	Yes	Yes	Giving microloans to those who could not get financing else where.
4	HLL Salt Annaourma	2003	Iodised Salt Jobs Income	Yes	Yes	Annapurna is an iodised salt that prevents IDD and Goiters. K15 increase mental agility and IQ.
5	HLL Soap	2003	Relief from diarrheal diseases	Yes	Yes	India has more than 30% of the worlds deaths relating to Diarrheal Diseases.
6	Jaipur Foot	2003	Foot and Lower Limb Prosthesis Suitable for Rural Life	Yes	Yes	10 million to 25 million amputees in the world with an additional 250 000 added each year
7	HealthNet	2003	Access to Health Information Training and Research	Yes	Yes	Partnership with the Uganda Ministry of Health
8	Voxiva	2003	Data Collection Different Device Compatibility Improved Decision making	?	Yes	There was no way of transmitting data so there was no way of administrating this data
9	Saint Louis Net	2003	Health Care for Children IT Services	No	Yes	Providing basic health care for children from low income communities at affordable prices and also IT services which empower the customer to make
10	Grameen Bank	2001	Access to finance	Yes	Yes	Rapid distribution of their service
11	Grameen Telecoms	2001	Access to communication	Yes	Yes	Rapid distribution of their service
12	AKASHGANGA	2003	Higher Income	Yes	Yes	Aggressively targeting the dairy market in a village society.
13	Hybrid Value Chains	2007	Irrigation for farming	?	?	In a pilot phase
14	e-Choupal	2003	Better Information Content Better Information Timing	Yes	Yes	Local areas where farmers gather to exchange information
15	EID Parry: Indiagriline	2003	Financing Training / Education Management Support	Yes	Yes	Pioneered sugar production and expanded the business to include the making of sugar-based confectionery, sanitary ware, fertilizers and bio-
16	Magazine Luiza	2007	Being able to own furniture Access to a Credit Option	Yes	Yes	The retailers flexible procedure for credit approval.
17	Thamel.com	2005	Business	Yes	Yes	Focus locally but selling globally of Nepalese products.
18	ViaSevrae's	2001	Brand recognition Business expertise National distribution network	?	?	Deregulation and privatization of the telecommunication sector.
19	Aptech's Vidya	2003	IT Know how	Yes	Yes	Because of its low prise, it has popularity and success.
20	Andhra Pradesh	2003	Access to Electronic Information Convenient citizen services Support for e-commerce initiatives	Yes	Yes	Government initiative
21	Fabio Rosa	2003	Electricity	Yes	Yes	The need for electricity at low income households
22	E+Co	2003	Basic Lighting Electricity for Production	Yes	Yes	The poorer countries tend to have the lowest levels of electrification.
23	EDF	2007	Basic Requirements of Families Local Economic Development	Yes	Yes	A competitive multi-energy, multi-Serviceprovider



Case No	Case Name	Publication Year	Customer Needs	Profitable?	Sustainable?	Market Access
24	Electricité de France	2005	Electricity	Yes	Yes	Conventional power grids will never reach these communities.
25	CrediAmigo	2004	Microfinance	Yes	No	Giving microloans to those who could not get financing else where.
26	PRODEM FFP	2003	Savings Credit Secure Money Transfers	Yes	Yes	Accessible banking for the BoP market
27	RTS	2005	Automation of Transactions Reduced Client Time and Travel Frequent Payments, Reduced Risk	Yes	Yes	Remote transactions - Accessibility in rural areas
28	ABN AMRO	2004	Financing	Yes	No	Accessible Financing
29	HealthStores	2005	Affordable healthcare	Yes	Yes	Malaria, tuberculosis and other treatable diseases are the cause of seventy to ninety percent of all childhood illnesses and deaths in the developing world.
30	P&G Safe Water	2006	Safe Usable Water	No		Diarrheal diseases resulting from a lack of safe water remain a leading cause of illness and death in the developing world.
31	Scojo	2007	Sight	Yes	Yes	Presbyopia is a condition that currently affects 700 million people and can be solved immediately with
32	CareShop	2008	Demand for more accessible, available, high-quality drugs and preventatives.	Yes	Yes	Malaria remains the country's top killer, followed by HIV / AIDS, diarrheal diseases, lower respiratory infections and peri natal conditions.
33	Mi Farmacita	2007	access to quality and affordable medicines	Yes	Yes	Providing a private-sector based solution to the problem of getting affordable, certified medicines and doctor consultations to low-income communities
34	CEMEX Parimonio Hoy	2003	Community Representative Businesses Opportunities for Poor Families Access to credit	Yes	Yes	Bargaining power and market dominance plays a key role in the determination of prices and selection of distributors.
35	Holcim Apasco	2004	Availability of Affordable Construction Materials Technical Support	Yes	Yes	Lower product prices
36	FMS DakNet	2005	Unknown (regarding ICT)	No	No	BoP do not need this services for there is no application of it for them
37	Infocentros	2001	Internet Access Training Technical Assistance	Yes	Yes	Through alliances with government and business.
38	n-Logue	2004	Internet Access Training Technical Assistance	Yes	Yes	Rapid distribution of their service
39	Smart Communications	2004	Access to Pre-Paid Airtime Smaller Packet Sizes	Yes	Yes	Over 500 000 re-sellers of airtime
40	TARahaat	2001	Information Education Job Creation	?	?	Franchises in rural communities
41	Vodacom	2003	Affordable Communication Services	Yes	Yes	Government Mandate
42	Nike	2002	Affordable and durable sport shoes	No	No	Local retailers
43	Casas Baia	2003	Be treated with respect Affordable Furniture Credit	Yes	Yes	More than 330 stores country wide

## APPENDIX 2: The Vmobile Airtime Project - Leading Questions

1. Was the project successful in your view?
2. Why do you say so?
3. What do you contribute the success of this project to?
4. What existing problems were solved by this project?
5. What do you think the benefits were for:
  - a. Vmobile
  - b. ITEX
  - c. Airtime Dealers
  - d. Network Subscribers
6. What impact did this project have on the poor?
7. Please elaborate / Why do you say this?
8. Do think that the poor gained from this project? Please elaborate.
9. What do you think were the enabling factors that made this project work?
10. Elaborate on what you think were the more significant:
  - a. Business Process Innovation
  - b. Product Innovation
11. Do you think this project could have been successful without involving local business partners? Why do you say so?
12. What do you think the average income for the street vendors were:
  - a. Before they became virtual airtime resellers?
  - b. After they became virtual airtime resellers?
13. Do you view this as a Base of the Pyramid project?

## APPENDIX 3: HISTORY OF ITEX

### 1. ITEX Company History

ITEX is a South African company with a significant Nigerian shareholding. Its proficiencies include EFT-POS developments for the m-commerce industry, web-based software development and niche acquiring and vending solutions for the Telecoms and Banking industries.

ITEX is represented in Nigeria through ITEX INTEGRATED SERVICES LIMITED. ITEX INTEGRATED SERVICES LIMITED aims to be one of the most effective and most respected IT companies in the Nigerian Telecoms, Utilities and Banking industries. This is achieved by providing services and forming strategic partnerships with world-class organisations like VNL Limited (VNL), InterSwitch Limited, First Bank Plc and various retail groups and merchants in Nigeria.

Because ITEX INTEGRATED SERVICES LIMITED is a newly incorporated entity with no trading history, reference in this document has been made to the expertise, experience and products of ITEX South Africa (ITEX).

ITEX is a privately held company incorporated in 1996 as a software development partner to the bank acquiring industry in South Africa. The company has evolved to focus on providing m-Commerce Information Technology Solutions and Consulting Services to local and international organizations in the telecommunication and banking industries.

### 2. Chronological History of ITEX

In 1996 ITEX started out on software development projects with NATECH / ICL in the South African bank acquiring environment. ITEX's responsibilities and project sizes grew and ITEX later became solely responsible for the entire acquiring software platform for First National Bank, one of the four largest banks in South Africa. With the bank, ITEX's software was deployed over a period stretching from 1996 to 2001 to more than 40'000 EFT-POS terminals.

Some of ITEX's other vending and acquiring projects included:

- © 1998 – ITEX did developments in the forecourt or garage card environment for both Shell and Engen, two of South Africa's largest petroleum companies. During this time, ITEX also developed a loyalty-type lotto application for Shell.
- © 1999 – ITEX developed a solution for the Independent Electoral Commission (IEC) of South Africa to facilitate voter registration. 1999 also saw development of one of the first electronic voucher distribution (EVD) systems for a company called Mobile Data Communication (Pty) Ltd.
- © 2000 – ITEX entered a number of development projects including an EVD development for a South African company called PacTel Communications and an asset management application using the same hardware that was used by the IEC the year before for voter registration.
- © 2001 – Continued development work for First National Bank and for Engen in the forecourt environment.
- © 2002 – ITEX developed a solution for Kwikpay (UK and RSA) for acquiring 3rd party payments and vending electronic airtime. In this year, ITEX also commenced development of its own m-Commerce (mobile commerce) platform based on all the experience gained over the years of acquiring and vending application development
- © 2003 – ITEX continued development on its own solutions expanding offerings to the telecommunications and third party insurance sectors specifically pertaining to acquiring and vending.
- © 2004 – Expansion of offerings to telecommunications and banking sectors with ITEX's own solutions portfolio.

Find below a timeline of ITEX's history and project highlights.

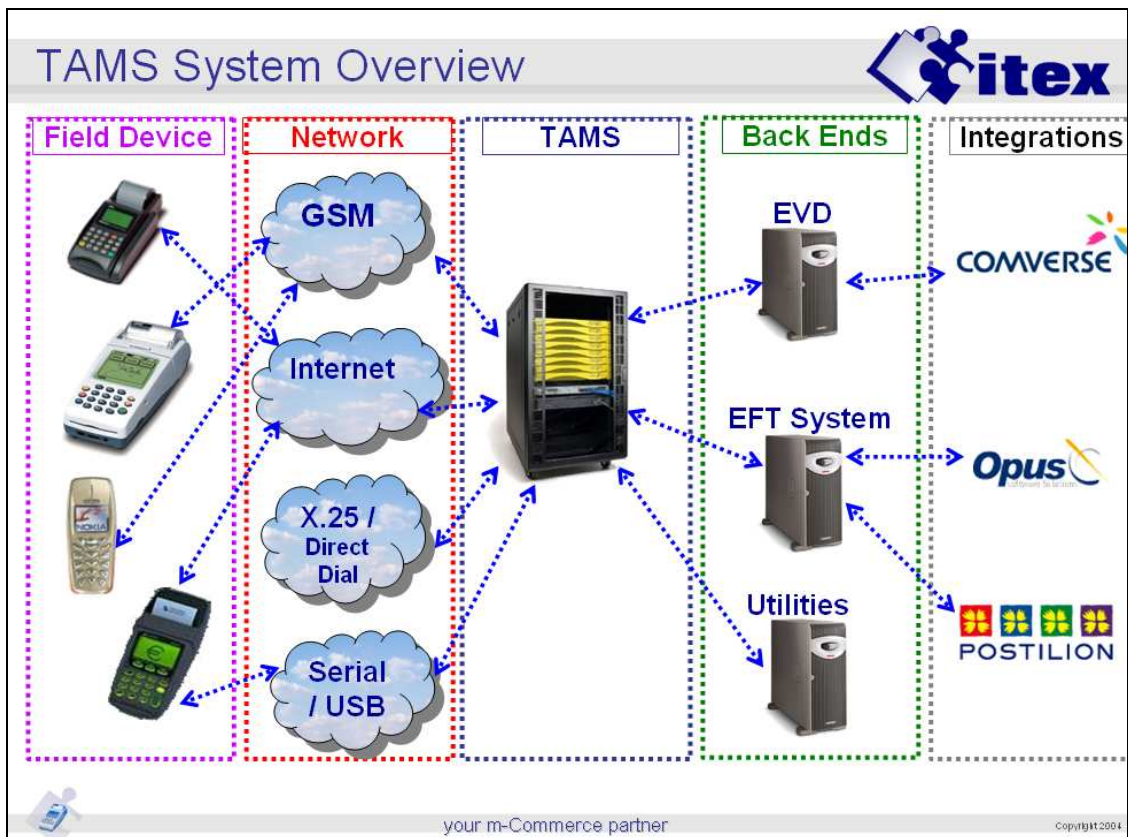
### 3. Company Timeline

Year	Topic	Description
1996	First National Bank	Speedpoint development with ICL / Natech
1997	First National Bank	Continued development and support
1998	Engen	POS applications for the forecourt environment
	Shell	POS applications for the forecourt environment Shell lotto competition application
	First National Bank	Continued development and support
1999	IEC (Independent Electoral Commission)	Voter's roll registration application for the South African elections
	First National Bank	Continued development and support
	MDC (Mobile Data Communications)	EVD Development with ICL / Natech
2000	IEC (Independent Electoral Commission)	Asset management application utilising the POS devices they have acquired for the voter's registration
	First National Bank	Continued development and support
	PacTel	EVD Development with ICL / Natech
2001	First National Bank	Continued development and support
	Engen	Continued development and support
2002	KwikPay Plc	Ingenico POS terminal development EVD System 3 <sup>rd</sup> Party Payment System Recharge Proof of Concept for UK (Swipe Card)
	ITEX / TAMS	Issued first Version of TAMS (Terminal Application Management System) Field Device Support Added for: <ul style="list-style-type: none"> <li>• Sygade ePoints</li> <li>• Natech FP5 Devices</li> </ul>
2003	Netsure Senegal	EVD: Implemented TAMS and VoucherVault
	ITEX / TAMS	Continued development on TAMS (Version 2.1) <ul style="list-style-type: none"> <li>• Cell-U-Charge Module Completed</li> <li>• Virtual Insurance Module Finished</li> <li>• Field Device Support Added for: <ul style="list-style-type: none"> <li>• Lipman Nurit Range of Devices</li> <li>• Ingenico Models: 510, 710 &amp; 730</li> </ul> </li> </ul>
	ITEX / HelpDesk	Version 1 of HelpDesk completed as an add-on to TAMS
2004	ECONET Lesotho	EVD / Recharge: Implemented a 4 <sup>th</sup> generation EVD site for ECONET Lesotho
	Itinerant Mobile South Africa	EVD: Implemented TAMS and VoucherVault
	Netsure Senegal	Virtual Insurance: Implemented a test version of the virtual insurance model
	ITEX / TAMS	Continued development on TAMS (Version 3.02)
	Netsure Mauritania	EVD: Implemented TAMS and VoucherVault



## APPENDIX 4: The ITEX m-Commerce Platform

TAMS (Terminal Application Management Switch) is a dynamic platform for managing and executing m-Commerce transactions. Based on the modular design, the platform creates opportunities ranging from integration to existing credit / debit card systems to applications like distribution of virtual insurance policies and vending electronic airtime.



The TAMS platform was designed to act as an application switching that route transactions from Field Devices such as mobile phones, POS terminals, Web applications or even PDA devices through to the correct back office environment or 3<sup>rd</sup> party platforms such as banking switches, GSM IN platforms or a prepaid service authorisation system.

TAMS enables a single distribution device to become a channel for numerous different applications for example 3<sup>rd</sup> party payments, prepaid airtime services and prepaid electricity sales.

The ITEX TAMS m-Commerce technology platform offers clients the ability to operate their businesses independent of propriety trading devices and communication protocols. The solution consists of independent integrated components that interface to legacy systems that enables ITEX to deliver end-to-end solutions to clients.

The TAMS m-Commerce platform can best be described as:

- A smart field device management system
- An intelligent application switch
- A distributor financial management system
- A multi-tier networking distribution management system
- An intelligent stock management system
- A field device (asset) tracking system
- A commission tracking and management system
- A mobile wallet management system

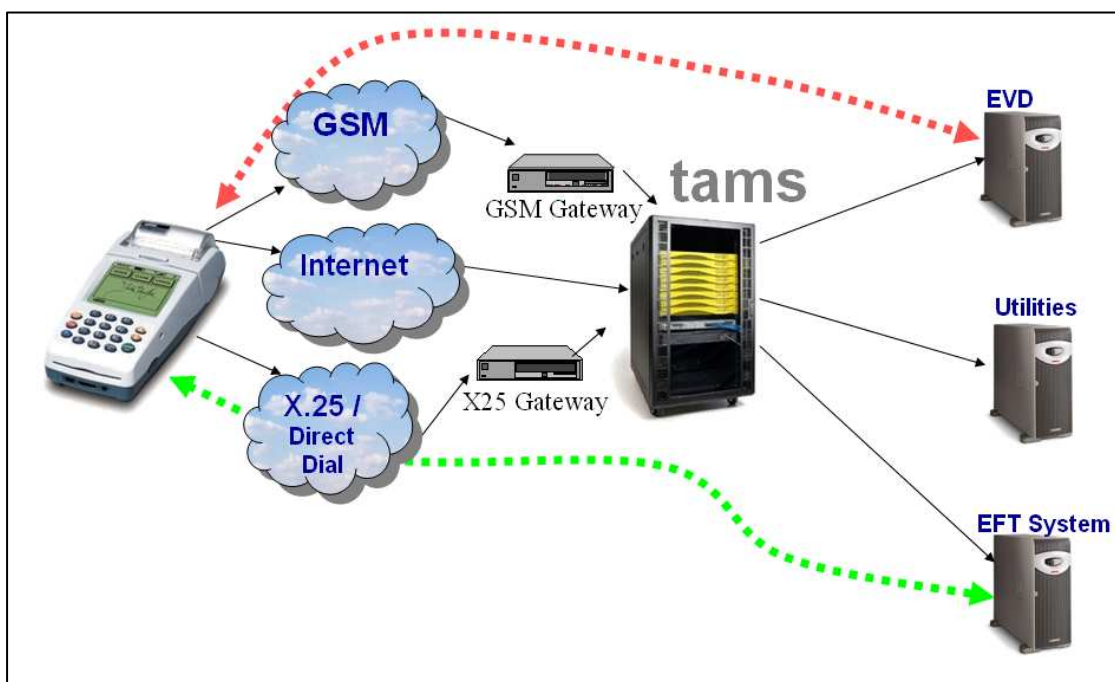
The TAMS switch has been designed in such a way that it is communication layer or data carrier type independent which allows and manages multiple types of network connections into the system. TAMS is also field device independent and has support for different types of field devices.

Some field devices are application specific or have limitations that only support certain applications for example, a mobile phone is not effective for processing card payments but can be used very effectively to process airtime vending transactions.

ITEX has an open architecture strategy that allows the integration of almost any 3<sup>rd</sup> trading party device but has identified and implemented a selection of quality EMV certified devices that provides the most cost effective solution for customers.

ITEX has proposed and implemented a combination of mobile phones and EFT-POS terminals for vending airtime. EFT-POS devices are more effective in high transaction volume environments such as retail outlets or forecourts. ITEX currently support the following terminal ranges:

- Ingenico Elite Range
- Lipman Nurit Range
- Sygade / Natech FP5 and ePoint devices
- Support for new models or 3<sup>rd</sup> party EFT-POS terminals can be added in four to six weeks time



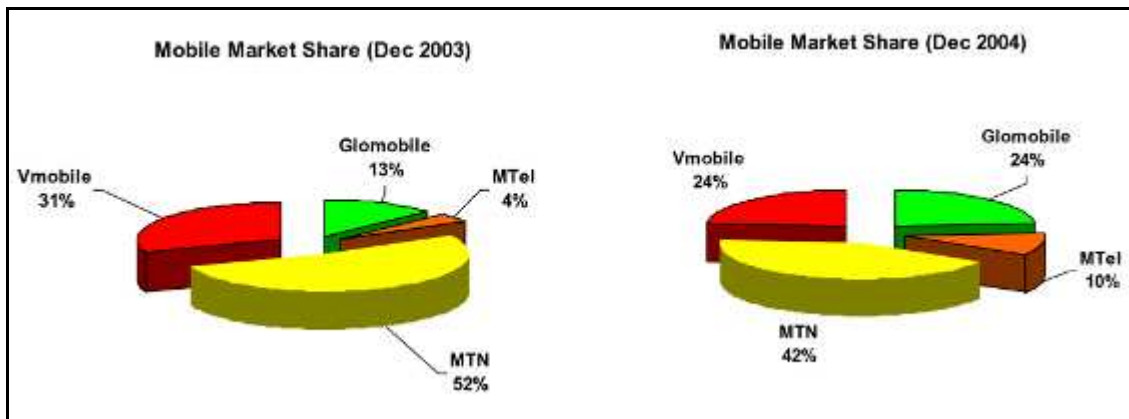
TAMS is not limited to any specific backend application and can be integrated into other legacy systems for specific tailored solutions whilst still having the ability to facilitate transactions for other backend applications implemented through the same field device. TAMS is already integrated in into some industry standard backend platforms such as the Schlumberger SEMA PPS (through PAMI) as well as the EPPIX post billing platform.

The TAMS EVD solution is more than just a system that enables the distribution of electronic vouchers, it is a full airtime administration and management system which includes:

- Vending and dealer management
- PIN generation
- PIN management and tracking
- PINless solutions
- Corporate recharge solution
- Full customer care capabilities
- Extensive reporting and business analysis tools
- Supports for all four generations of airtime distribution as described below.

## APPENDIX 5: An Overview of the 4 Nigerian Mobile GSM Operators (Information was extracted from the NCC 2004 report)

There are four GSM players in the Nigerian market place and the diagram below depicts the change in total market share and final positions at the end of 2004.



Nigerian Mobile Market Share Dec 2003 & Dec 2004

### 1 MTN Nigeria

MTN Nigeria is the most successful telecommunications company in the country to date. It is a unit of the South African company by the same name but has Nigerian businessmen and women holding a 22.5% minority stake. Since launching in 2001, it has led the pack and now has over 3.3 million subscribers. MTN's success has been attributed to its solid parent company, which backs it with adequate financial and human resources. Local banks and multilateral development finance companies have also lent valuable support, enabling the company to rapidly cover most of the nation's urban localities.

#### 1.1 Management

MTN Nigeria is 76.44% owned by Mobile Telephone Networks International Limited, 20.56% owned by Nigerian partners with the International Finance Corporation, the infrastructure investment arm of the World Bank, holding the balance of 3% shareholding. Mr. Pascal Dozie is the Chairman of MTN Nigeria, Col. M. Sani Bello, Vice Chairman, and Mr. Sifiso Debengwa, the Managing Director.

#### 1.2 Network coverage and services

As at December 2004, MTN covered over 90 major towns in Nigeria. The company has a total of 21 mobile switching centres and over 940 radio base stations across the country. Several more are in the process of being installed.

In January 2003, MTN commissioned the first phase of its digital microwave transmission backbone, Y'elloBahn. Constructed at a cost of \$120 million, Y'elloBahn spans 3,400 kilometres and traverses over 120 cities, villages and communities.

Y'elloBahn is Africa's most extensive transmission infrastructure and has helped to enhance call quality on MTN's network, while coverage has been extended to more than 90 major towns and a total of over 5,000 villages and communities across Nigeria. The second phase of Y'elloBahn is currently ongoing and will span another 4,500 kilometres.

MTN's service offerings include products such as MTN Pay As You Go™, MTN Flexi™ (all pre-paid packages), MTN Messenger, MTN BusinessTime™ (post-paid or contract packages), MTN Booster Card™, as well as an array of value added services that include Enhanced Data and Fax, Short Message Service (SMS), International Roaming, Wireless Application Protocol (WAP) MTN Funtones™, MTN Directory Enquiries™, MTN Business Directory, MTN Graphix, MTN Logos, MTN Downloads, Recharge a Contract and Virtual Booster.

### **1.3 Network Size and Installations**

In 2004, MTN connected sixty-four additional interconnection circuits to other operators to enable interconnect with other networks. The company installs more than 20 base stations each month, and currently has the most extensive GSM infrastructure across the country. The company has covered over 5,000 communities and recently launched a new campaign tagged "Everywhere you go" – a reflection of the breath of its network size.

### **1.4 Contracts and Major Suppliers**

MTN has numerous suppliers spanning the entire gamut of GSM services and applications. The company's major infrastructure supplier is LM Ericsson.

## **4. Vmobile**

### **1.5 Company Overview**

The company started as Econet Wireless Nigeria (EWN) Limited, taking its name from its original technical partner, Econet Wireless International (EWI), which was founded by Zimbabwean Strive Masiyiwa. The two partners became embroiled in a bitter quarrel over moves to give management control of the firm to Vodacom of South Africa in 2004 – a move EWI is strongly opposed to and is fighting in courts in Lagos, Paris, and

Johannesburg. The bitter internal rancour initially affected the good fortunes of the company that started as MTN's archrival.

As the quarrel diverted attention from the main business, there was little cash to finance operations. However, with the May 2004 re-launch as Vmobile, the company has been turned around and has become competitive. Its subscriber base is approximately 2.4 million. Vmobile has acquired fairly good coverage through an aggressive roll out strategy, and presently operates in over 40 towns. Vmobile was first to launch in Lagos, Port Harcourt, Uyo, Warri, Kano and Ibadan, and is 100% Nigerian-owned.

### **1.6 Management**

Vmobile is fully owned by indigenous investors including three state governments, namely Lagos, Delta, and Akwa Ibom, banks and other institutional investors. Mr. Gamaliel Onosode is the Chairman of Vmobile, Mr. Willem Swart, the Chief Executive Officer, while Jean Pierre Snijders is the Chief Regulatory Officer.

### **1.7 Network Coverage and Services**

Since the commencement of its operations, Vmobile has firmly embarked on an aggressive pursuit of service. By the end of 2004, the company had covered over 50 major towns via network investments totalling \$650 million with \$300 million in equity and \$350 million in debt and vendor financing. It has international roaming services in over 60 countries and also has agreements with 100 networks in the world.

Vmobile has a range of products, which includes:

- Veego - a prepaid package;
- Vcorporate solutions - the contract package; and
- Freedom - an innovative prepaid contract package.

Vmobile also offers the following value added services namely: Vmobile voicemail, text messaging, International roaming, conference call, ringtones, graphics, news, games, entertainments, sports, information services, love & life and save my contacts.

### **1.8 Contracts and Major Suppliers**

Vmobile's main infrastructure suppliers are Ericsson and Harris Corporation.

## **5. Glo Mobile**

This wholly-owned Nigerian company was named as the second national operator last year with a basket of licences, among which are fixed line phone, mobile, international

gateway services. Glomobile, the cellular unit, was launched in August 2003 and has since grown its subscribers to 1.9 million. This makes it the second largest mobile operator behind MTN. The fixed unit is due to launch by the end of the year. Recently, it said it had launched its gateway services in the UK and would be opening others in France, U.S. and Asia to effectively cover the major global centres.

Since it launched its services on August 29, 2003, Glomobile has been at the forefront of revolutionary changes in the GSM sector in Nigeria, offering both Prepaid and Contract services along with a range of Value Added Services.

Glomobile, in one year of operation became the fastest growing GSM network in Africa, achieving record a one million subscribers, and covering over 60 towns in just nine months of operation. The subscriber figure at the moment stands at 2.7 million with coverage extending to over 3,000 towns, communities and major roads, thus becoming the second largest operator as well as the network with the widest coverage in Nigeria. The network will soon extend its frontiers to the West African sub-region as it is now in the final stages of concluding negotiations with two neighbouring countries.

While pursuing the expansion strategy with vigour, the network has earned the identity of the Nigerian innovator. This is because it boasts a wide variety of innovative packages and tariff plans designed to fulfil the needs of a broad spectrum of market segments in Nigeria.

Prominent among the innovations Glo Mobile introduced were the Per Second Billing, Txt2Email, Friends and Family, Pre-paid Premium, Multimedia Messaging Service (MMS), Talk Now, Magic Plus, Glo Direct, Glo Mobile Internet , ProfitMax Plus and Glo Fleetmanager.

In January 2003, Globacom announced plans to cover 76 cities within six months for its Glo Mobile GSM network. The second national operator (SNO) was awarded a bouquet of licences covering GSM, fixed wireless access (FWA), international gateway and national long distances (LDO) licences. The operator officially launched its GSM network on 27 August 2003, and a year later at the end of August 2004 launched Nigeria's first 2.5G (general packet radio service, GPRS) network.

## **1.9 Management**

Globacom is owned by Otunba Mike Adenuga, who is the chairman. Mr. Paddy Adenuga is Executive Director, Glo Mobile; Miss Bella Adenuga, Executive Director-Glo Gateway; Mr. Ashok Israni, Chief Operating Officer, Glo Gateway; Mr. Deepak Verma, acting Chief Operating Officer, Globacom; and Mr. Subhra Das is the group Director of Marketing and Strategy, Globacom .



### **1.10 Network Coverage and Services**

Globacom has covered over 87 major towns in the first year of operation, with expansion still going into many parts of the country. Glo Mobile is the first and only mobile operator to deploy environmentally friendly palm tree and pine tree base stations in Nigeria. Globacom had added 1.3m subscribers as at August 2004. In the same month it deployed a 2.5G GPRS network supporting both voice and high-speed data transmission. The operator is laying a 2,800 fibre optic national backbone to provide broadband access and reliable voice and data transmission. Globacom has deployed four state-of-the-art gateways in Port Harcourt, Abuja and two in Lagos.

In August 2004, Glo Gateway commissioned the first of five international gateway switches for six continents. The switches will provide telephone hubbing services to the rest of the world. The operator estimates it will carry one billion international minutes within the next one year, with 350 million minutes coming from Nigeria. The gateway infrastructure and switches are based in Africa, Singapore, Hong Kong, The United Arab Emirates and Australia.

### **1.11 Contracts and Major Suppliers**

Globacom's main suppliers are Siemens and Alcatel. Siemens is building fibre optic transmission backbone integrating North and South Nigeria. The project is backed by PNB Paribas of France and other Nigerian banks.

## **6. Nigerian Mobile Telecommunications Limited (M-TEL)**

Nigerian Mobile Telecommunications Limited (M-TEL) is the mobile unit of NITEL. Established in 1996 for the purpose of providing affordable and reliable mobile cellular services all over the country, MTEL took over the operations of 10,000 (TACs) Analogue system, which was hitherto managed by Nigeria Telecommunications Limited (NITEL). In 2001, MTEL was merged with NITEL to make for more practical and convenient operation.

In April 2003, MTEL was brought back to deploy GSM services nationwide. However despite the entry of Pentascope in 2003, it has continued to lag behind other mobile firms. As at end of 2004, its subscriber base stood at 892,000.

### **1.12 Management**

The Nigerian Government wholly owns MTEL. Mr. Edwin Momife is the Chief Executive Officer, Shamsudeen Alonge, Chief Technical Officer, Prince A.B Apampa, Chief Marketing Officer, and A.Z. Ahmed, Chief Finance Officer.

### **1.13 Network Coverage and Services**

MTEL has covered all the 36 state capitals and Abuja. A total number of 85 towns have been covered by Mtel in 2004. It offers the following GSM Cellular services: basic telephone and SMS; offers per second billing; most affordable GSM network, and currently upgrading to GPRS. MTEL has spot-coverage in all the 36 state capitals with its network transmission built on the legacy infrastructure of its parent. The company's strategy has been to deliver seemingly limited GSM presence across the country.

### **1.14 Contracts and Major Suppliers**

MTEL's main infrastructure suppliers are Huawei, Ericsson, and Motorola.

## APPENDIX 6: Four Generations of Airtime Distribution

To better understand the full TAMS offering it is first necessary to understand the evolution of airtime distribution over the last decade. ITEX has defined the evolution of airtime distribution by means of the 4 generations of airtime distribution as described below.

### 1.1 FIRST GENERATION (PHYSICAL CARDS)

The first generation of airtime distribution consists of branded, physically printed disposable cards that contain the following minimum elements:

- Product Name e.g. Vodacom Recharge Voucher;
- Printed Voucher Value in the local currency e.g. R29;
- Serial number which is a unique number that identifies this specific voucher for tracking and customer support purposes;
- A masked PIN, generally hidden below a layer of scratch off material;
- Instructions to perform the recharge normally printed on the back.

These vouchers are generated by the network operator and distributed to all registered service providers for reselling throughout the region where the service is offered.



It enabled the concept of prepaid contracts that could be recharged at any time by simply purchasing a recharge voucher from an approved service provider for the amount of airtime that is needed. Recharging the account is done by following the instructions on the back of the card which generally means sending a special recharge instruction from a switched on mobile phone.

These classic prepaid recharge cards are still in use today and have the following advantages and disadvantages:

#### Advantages of Physical Recharge Cards

- Flexible in use and can be activated at any time;
- It can be freely transferred and used on any prepaid contract;
- It can be branded;
- It is not dependent on any 3<sup>rd</sup> party system to work.

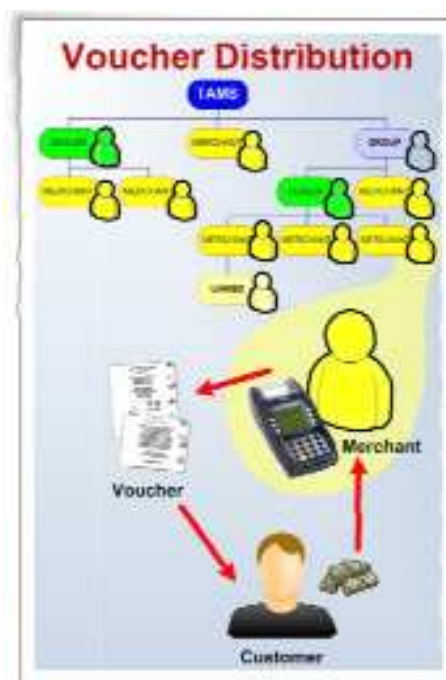
### Disadvantages of Physical Recharge Cards

- It only allows for fixed denomination recharges;
- It represents real value equal to the amount printed on the card which results in additional costs such as insurance and secure storage;
- It is anonymous and therefore does not belong to a specific person and it cannot be replaced if lost or stolen;
- It is a form of stock that needs to be carried and tracked on accounting systems
- Has to be physically transported from one place to another;
- This is the most expensive way of distributing airtime as the physical cards itself is made of high quality materials and had to also cater for the masking of the PIN with special material which made it expensive to produce.

### 1.2 Second Generation (Electronic PIN Distribution)

This is also known as classic EVD (Electronic Voucher Distribution sometimes also referred to as Electronic Value Distribution) and most network operators would refer to this as logical distribution. This form of airtime distribution was introduced in an attempt to overcome some of the limitations of the physical recharge cards.

Instead of printing expensive recharge cards network operators would generate large volumes of electronic PINs or e-PINs which would be encrypted and distributed electronically to service providers or airtime resellers in bulk. Each electronic PIN has an associated product, face value and a unique serial number to enable tracking and customer support.



These electronic PINs would be distributed in encrypted spreadsheets or text files through any media that supports electronic data distribution such as data CDs, DVDs, memory sticks, secure online downloads, email or secure FTP to name a only few popular methods.

Resellers would sell these PINs to prepaid customers in one of two ways namely bulk printed recharge cards or by sending the PIN directly to the customer through various methods such as SMS,

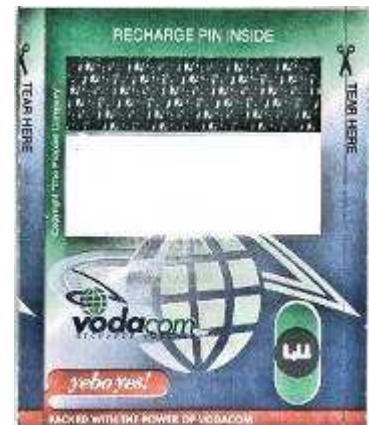


ATM slips, retail POS (point-of-sale) slips or even through the internet on a secure web page to name some of the distribution mechanisms. The most common way of selling 2<sup>nd</sup> generation PINs are through retail outlets where the PIN together with the recharge activation instruction would be printed on the till slip at POS.



Distribution through bulk printed cards remain one of the most popular ways of distributing airtime in most 3<sup>rd</sup> world countries such as Mozambique, DRC and Nigeria due to the more efficient distribution cost savings. These bulk printed vouchers are produced by on printing the e-PINs on cheaper, branded, pre-printed sheets of 16 (4 by 4) or 20 (4 by 5) recharge cards per page were the PIN is masked in a similar manner than many salary payslips are produced today.

This resulted in mass production and distribution of low cost bulk printed recharge cards that still share many of the limitations of the original recharge cards but allows for cheaper and quicker distribution. On the negative side it was also easier to “steal” valid PINs from these bulk printed cards as it is not as well protected as the original prepaid recharge cards.



### Advantages of electronic PIN Distribution

- Electronic distribution from network operator to reseller in bulk via CD, DVD, memory stick or through the internet (through secure download, FTP or email)
- Can be sold to market via ATM, POS terminals, web and/or direct SMS
- Low distribution cost (eliminates expensive operator printed recharge cards)
- JIT (Just-in-time) stock management
- Not dependent on realtime or “always on” communications
- Can be stored in a virtual warehouse or database for on demand distribution
- Flexible in use and can be activated at any time
- It can be freely transferred and used on any prepaid contract of the same service provider

### Disadvantages of electronic PIN Distribution

- It only allows for fixed denomination recharges
- Bulk Printed vouchers are less secure and are prone to fraud
- It represents real value equal to the amount printed on the card which results in additional costs such as insurance and secure storage once printed

- The electronic PINs can be stolen if not stored in a secured database
- It is anonymous and therefore does not belong to a specific person and it cannot be replaced if lost or stolen
- It is a form of stock that needs to be carried and tracked on accounting systems
- Once it is printed it still have to be physically transported from one place to another which takes time and increase cost
- A specific problem with bulk printed electronic PIN distributions relate to the selling of duplicate PINs when the systems used to manage these electronic PINs are not very well designed and developed.

### **1.3 Third Generation (PINless Recharge)**

The third generation of airtime distribution resembles 4<sup>th</sup> generation or true virtual recharge but in practise is more of 2<sup>nd</sup> generation which still relies on PINs which are loaded on behalf of the customer and will typically also be sold at POS but instead of printing a till slip with the PIN details the cashier would ask for the customer's cell phone number which are entered into the POS and a PIN with the amount of airtime requested would be activated for the specified cell phone number. The customer would almost immediately receive a network message confirming the increase in airtime for that account.

This works well in communities where literacy is low and customers struggle to load the airtime onto their own mobile phones. It also helps to eliminate problems with lost, stolen and defect recharge cards.

#### **Advantages of PINless Recharge**

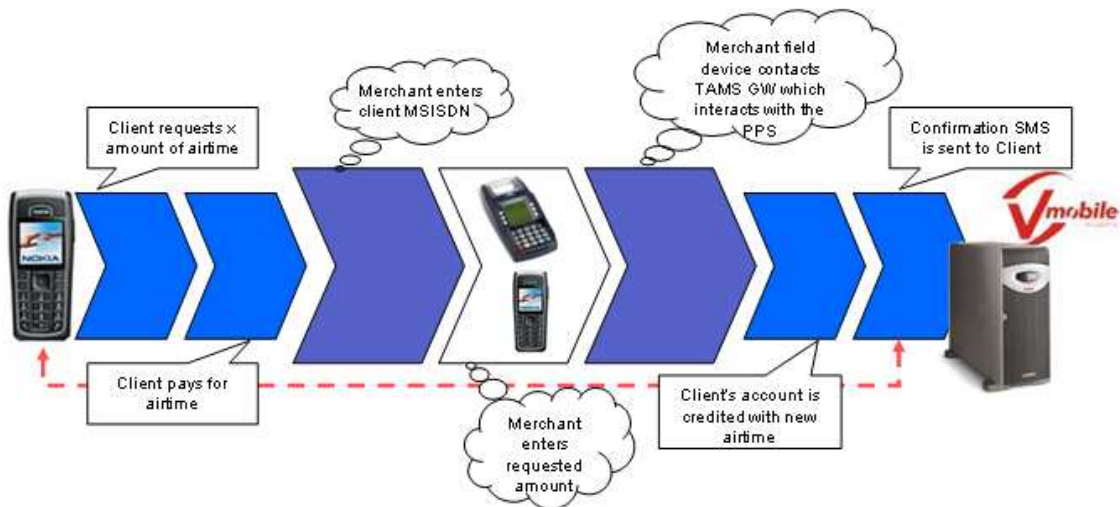
- No PIN (or PIN loaded directly to account on backend);
- More secure for customers due to immediate confirmation of airtime;
- Can be deployed in a JIT (Just-in-time) stock management method.

#### **Disadvantages of PINless Recharge**

- Still limited to fixed value airtime recharges;
- Still dependent on stock (PINs);
- Slow moving bigger amount PINs must still be bought;
- Limited distribution options;
- More time consuming sales.

#### 1.4 Fourth Generation (Virtual Recharge)

This method or airtime reselling are also referred to by some networks or resellers as PINless which is partly why ITEX defined to the four generations in an attempt to reduce confusion. This is not a true PIN or recharge card distribution process but rather a direct cell phone account top up which requires a direct communications link into the network operators system called an IN (intelligent network) platform. When selling airtime to a subscriber the reseller asks the subscribers for his cell phone number which is linked to his account at the operator.



The airtime reseller can top up or recharge the subscribers account with any denomination since there is no fixed value PINs involved and perform the airtime sale by issuing a SMS or USSD instruction to the IN platform with the subscribers' cell phone number and the amount to be recharged. The subscriber will immediately receive a confirmation message from the network to confirm the recharge amount as well as the new airtime balance.

#### Advantages of Virtual Recharge

- Any value recharges (if permitted by the network operator);
- No PIN involved which simplifies the activation process;
- Allows for distribution via Internet, SMS, ATM, POS and Cell phones;
- Eliminates voucher management of PINs for network operator;
- Eliminates stock management;

#### Disadvantages of Virtual Recharge

- Solution needs to be integrated into the network's prepaid platform;
- Dependents on direct communications link (normally the networks own SMS or USSD service);

## APPENDIX 7: ADVANTAGES OF A NON-SIM BASED APPLICATION

The TAMS system is a non-SIM based solution with the application residing on the TAMS back-end and not on the SIM module of the mobile handset. In other words, all the intelligence resides on the back-end and the mobile handset is merely a dumb field device used for its input capability and display. Application customisation, upgrades and maintenance is easy and quick because it only needs to take place in one place and not on thousands of field devices.

### Some of the advantages of non-SIM based solutions are:

- There is no dependency on the type or age of handset used. This opens the barrier to entry to anyone who owns a mobile handset to offer recharge transactions (provided that they have been registered on TAMS for trading airtime).
- Maintenance on the application and channel is very simple because there is only one application that needs to be changed or updated and all users are instantly upgraded. It is difficult to introduce changes on SIM based applications, as the application is burned into the SIM.
- Using an interactive protocol like USSD, the user experience and application convenience are high. Our SMS messaging option for 3rd generation PIN-less distribution only requires the last 7 digits of the MSISDN to be entered.
- It is more cost effective because no special SIM cards are required.
- Because the solution is PIN-less, there is no requirement for secure encrypted messaging – no PINs are sent to the subscriber.
- Rollout to the market is quicker because no special SIMs need to be manufactured and distributed; any person with a normal SIM could be a dealer.