



# ***Rural ICT Sales & Service: A Business Opportunity for East Africa.***

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## **Rural ICT Sales and Service: A Business Opportunity for East Africa**

### **Summary**

This business opportunity for sales & service of ICT equipment in rural areas is the result of the experiences and insights gained in Tanzania from the IFAD-funded First Mile project. The objective of the project is to explore how to provide affordable and reliable access to Information and Communication Technologies (ICT) in rural areas on a commercial basis.

Over the last five years mobile phone use has exploded across rural East Africa, fundamentally changing the information environment and behaviour. This has had strong effects on the markets and marketing of rural products. GPRS modems can now be used over these mobile networks to provide internet access, and mobile money transfers are becoming a strong push. The opportunity here is to harness these developments for cleaning up the market inefficiencies and thereby creating income in rural areas.

The project identified an opportunity for a rural ICT business that specializes in making sure electronic equipment will reliably work in remote rural areas, and internet access can be made affordable. The project tested the sale or lease of a bundle consisting of a netbook with a locked Linux operating system together with a GPRS modem. Tests in operating such a business continue with a small company, "FUNEA softnet", in Dar es salaam.

Experiences so far show that:

- ICTs can create the conditions for market actors to break through the default behaviour of distrust that pervades rural markets, thereby helping to clean up the many inefficiencies in the market chains.
- A business providing ICTs in rural areas needs to build a servicing network of small rural enterprises who are trained and licensed to take care of the typical problems rural users face.
- Equipment needs to be "ruggedized" which includes locked operating systems for the computers, and these need to be bundled with modems and sometimes also the power sources (eg. solar).
- People prefer to own the equipment rather than rent it. However, since many potential customers do not have the means to purchase the equipment outright, a purchase-lease needs to be offered.
- Rural entrepreneurs also need ideas that allow them to directly earn money with their laptops (eg. secretarial services, renting out the internet access, etc).

The business opportunity is to provide working ICT equipment in rural areas and keep it operating there. The unique selling proposition is that customers can be sure of local support being specifically available for them in the nearest rural town.

The business operations include testing and procurement of equipment, configuring and bundling it, then selling or leasing it via its own network of rural service providers.

Critical for success are:

- Keeping promises of servicing
- Tracking of equipment and lease payments, with possibility of fast recovery of leased equipment in case of delayed payments.
- Availability of appropriate ICT equipment and useful applications
- A strategy to provide the required electricity in areas that are off the grid.

The biggest risks are:

- Capital-intensive business, requiring good tracking of equipment and control mechanisms for payments.
- The emergence of subsidized services operated by non-commercial entities (NGOs, etc).
- The possibility of investments outstripping the operational capacity should the demand become strong.

Commercial Viability: An operational trial is under way up to December 2009 to test the operations and their financial assumptions. Financial analysis based on the experiences so far with this trial suggest that the business is commercially viable, provided the envisaged operations turn out to be correctly costed. Within 3 years a turnover of 0.3 Mio with profits of 25'000 for the company and around 20'000 for the service providers seems to be achievable, with potential to then grow much bigger. However, the main challenge will be the building of the network of reliable service providers distributed over vast rural areas, and the need for good and speedy communication among them. This itself again is best done with the solution this business wants to market, so there is internal leverage in the business for success.

## **The Setting**

The IFAD-funded First Mile project has over several years explored and developed in East Africa the business proposal that is described here. Information and Communication Technologies (ICT) have evolved strongly in Eastern Africa with some astounding effects. This has been most pronounced in the fast spreading network of the cell-phone systems. Within a few years the nature of the information flow in rural markets among the actors on the ground has fundamentally changed. First, SMS text messages allowed cheap and immediate access to remote information (mostly still on one-to-one contacts). And now, with antennas becoming more powerful, GPRS modems have brought internet access to within reach of rural people. Money transfers, already picking up greatly in Kenya, are expected to be the next major impact of ICTs in rural areas.

The situation is very dynamic in terms of communication possibilities becoming available. However, a "splitting effect" can be observed, whereby some pick up these opportunities and move fast, whereas their neighbours lag behind, resulting in a reconfiguration of the traditional information economy. These phenomena greatly affect rural economies and rural development as a whole in East Africa. It is against this dynamism that the potential of ICTs for rural markets (not only agricultural markets) has been discovered.

The First Mile project set out to explore how the fast spread of ICTs in rural areas can be usefully harnessed for improving the efficiency of markets and incomes in rural areas. The project specifically learned how to make internet access reliably available in rural areas. We learned this worked best through laptops with GPRS modems. There is now a trial under way up to December 2009 with FUNEA Softnet, an ICT company in Dar es Salaam. The trial will

test commercial operations and identify financial implications of making such laptops and modems accessible in remote rural areas on a commercial basis. The trial will also enable us to put together a business plan based on real 'commercial' results.

This report is a first attempt at pulling together the experiences made so far into building the business case for a rural ICT sales and service operation. Further trial work will verify the commercial viability of the defined procedures and operations by December 2009.

## **Insights into the Business Case**

### **ICTs Build Trust for Trading**

Distrust is the basic attitude that governs behaviour in rural markets throughout East Africa. In order to cover their own risks, everybody must resort to cheating their trade-partners, who in turn has no other way to protect themselves than by cheating back. This results in huge inefficiencies along the marketing chains. Today, we estimate that half the price-increase between East African producers and end-customers of agricultural produce is due to the costs of countering the effects of "cheating" along the value chain. Were it possible to increase efficiency through transparency, then part of the savings could be passed on to rural producers.

ICTs work to allow trade-partners to cross check prices and conditions almost immediately and over large distances. ICTs allow tracking and tracing of produce to identify where something went wrong. ICTs also allow advance arrangements for trade even for very time-sensitive deals, where the push of a button then triggers the agreed transactions. More recently ICTs are also being used for cash transfers where bank branches struggle to make their services available when they are needed. Using ICT's in this way provides control mechanisms that generate trust among trade partners in the deals that they make. This cuts through the prevalent default behaviour based on distrust.

### **ICTs Require a Rural Service Network**

We have observed that technology is not the bottleneck. Computers, laptops, printers, photocopy machines, solar power, etc., can all be made to work in even very remote rural areas. Invariably, however, the technology begins to fail within weeks due to viruses, dust and poor handling. The true challenge of ICTs is not to install them in rural areas, but to keep them operating there for the lifetime of the equipment. This is aptly demonstrated by the many tele-centers that have become dysfunctional after outside funding stopped and servicing was no longer possible.

As with all rural services, the real problem is distance. Just to have a faulty computer repaired means very long trips to main cities and back again – with no guarantee that the problem is then solved. And because bandwidth is a persistent problem in outlying areas, required "automatic" downloads of anti-virus programs are impossible. In our experience the typical average lifetime of a laptop in rural areas is about 4-5 months, after which it grinds to a halt and is in most cases irretrievably lost. This means selling ICTs and related services in rural areas MUST go along with building a network of local entrepreneurs who are capable of front-line servicing and trouble-shooting.

### **Rugged Equipment Required for Rural Use**

Most electronic equipment is built for use in clean air-conditioned urban offices, not for the dusty conditions of a bus or truck ride or a rural school or office where termites and ants run wild. Furthermore, operating systems usually require permanent virus control, which in rural areas with poor bandwidth becomes impossible. And finally, power is a constant issue. Solar systems are reliable but very expensive. Local generators too are expensive and tend to damage batteries through their unstable voltages and power surges. Main grid connections often brown out or are entirely out for long and unknown durations, etc. etc.

In our search for improved ICT access in rural areas we have learned that:

- Laptops are preferable to desktops, even though they may be more expensive, because they require less power, have their own batteries, and are much easier to move (to safety in the night, and while on the move).
- The small recently released GPRS enabled 'netbooks' are even better than laptops.
- The Linux operating system is rugged and can handle much abuse
- Locking the operating system is a measure against viruses. This means that nothing can be saved on the hard drive so all documents are saved on USB flash drives.
- GPRS modems, at the moment, provide the cheapest internet access in rural areas. Easy payments through airtime vouchers make them easily accessible to rural users.
- A critical factor is airtime because of its high cost and slow typing skills of users. Applications must therefore be such that as much as possible can be done offline so data can be up- and downloaded in online "bursts".

The sale and service business described here will start with netbooks with locked Linux operating system, along with a GPRS modem; and depending on the situation, a printer and solar power.

### **ICT Technical and Operational Adaptation**

ICT technology is evolving rapidly, and the prices are tumbling. This means that any operation with ICTs in rural areas must be careful not to get stuck with one particular technology. For instance in 2007 it was the right thing to invest into satellite dishes and directional antennas on towers. Today, in many areas their role has shifted to becoming backup systems. Concretely, the business should continually test the latest equipment to see if it can more efficiently meet the functions that are demanded. Ideally, the business will develop relationships with suppliers to allow such testing.

### **ICT Equipment 'Bundles' Required for Rural Use**

Experience shows that a laptop on its own is rarely useful unless there are internet cafes and printing shops 'next door'. To be useful a laptop usually also needs a GPRS modem and a USB-flash stick to go along with it. That is the minimal bundle required. However, further equipment often needs to be added to the bundle:

- A printer and/or scanner. Often the two go together.
- A power source, ie. solar or pico-hydro etc. This can also charge mobile phones and if possible charge solar lanterns as well.

### **Sale, Lease and Rent Business Options**

Financial projections suggest that the best deal for rural users would be to rent their ICT equipment. Here, they pay for working equipment, and if the equipment fails the rental business has to come in fast with working replacements in order not to lose a rental payment. However, with the present attitude of distrust between users and unlicensed "fundis" (technical specialists in rural areas), people prefer to own the equipment they use. So renting has proved to be an unpopular option so far. On the other hand, most people do not have the cash available to buy the equipment outright. They would, however, be able to pay for ICT equipment in instalments. So the solution presenting itself that many appear to be comfortable with is a purchase-lease arrangement. However, direct sales are the easiest option for the business. So for customers who can afford it, that should be the option to be pushed. Equipment sold in this way also needs servicing. A service agreement needs to be there for direct sales and well as purchase-lease options.

### **Ideas to Help Financing Leases**

Many rural entrepreneurs who want to access ICT equipment do not make enough money from a laptop and modem to pay for its lease. The business would share ideas with these people on how to earn money with the laptop and modem. This looks like being easier than expected. Many people in rural areas have increasing needs for secretarial services and also internet access. Hiring out the leased equipment to these people can help reduce the burden of financing lease agreements.

### **The Business Opportunity**

The business opportunity is for a company to specialize in providing ICT equipment and related services in rural areas, and including solar power equipment where grid power is unavailable.

The income streams can be from direct sales, commissions on each sale, and purchase leases for those customers wishing to spread their payments over two years.

The company will also establish a network of local service providers it trains and licenses, resulting in a business opportunity at that level for many small entrepreneurs based in rural areas.

### **Clients**

So far interest has been identified from among the following types of customers:

- The emerging Market Access Companies and Information Board Managers in the network being established for agricultural marketing. This network turns out to be a potential main partner for the rural ICT company, ie. the MACs and IBMs may well become the retailers in rural areas, themselves becoming the licensed "fundis" also for the ICTs, or very closely linked with such fundis.
- Farmer groups and associations
- Government employees, who often have their own loan schemes to be able to buy the equipment.
- Teachers and schools
- Medical officers and local hospitals
- Tourism operations, eg. hotels, guesthouses, tour operators.
- Traders, transporters, processing operations.

- NGOs
- Suppliers of equipment who then use the network for their marketing
- Etc

### **Unique Selling Proposition**

The unique selling proposition to any and all of these clients is:

A service that ensures reliable and affordable internet access in rural areas. There is a "face" in the village or nearest rural town (ie. the licensed "fundi") who is approachable and can take care of a problem when it arises, even to the point of taking back a machine and providing a replacement for the duration of repairs.

### **The Business Operations**

The business operations consist of

- Search for and testing of useful equipment
- Procurement of suitable equipment,
- Equipment 'ruggedization' and specific configuration,
- Manage sales and leasing arrangements
- Financial operations (recovering leases, etc).
- Management of the service network, including identification and induction of new small entrepreneurs and their training in the new technologies and financial management.

### **Equipment and Ownership**

A typical lease 'bundle' will include a Laptop with Linux operating system and StarOffice software. A GPRS modem and software installed on the Laptop, and a Flash Drive of 250 - 500MB.

The laptop computer remains in the ownership of the company until the full amount of the lease price has been paid. After the full amount has been paid the lease contract is terminated and the laptop becomes the property of the client. If the client wishes to return the equipment before the lease terminates s/he may do so. If there is any damage repairs or a replacement must be paid before this lease contract is terminated. The client cannot demand any refund for any payments made before giving back the equipment.

### **Warranty and Care**

The company provides a one-year warranty. This means the company promises to replace the laptop if there is any fault in construction or installation within one year. If the fault is because of wrong use of the equipment or if an unauthorized repair was made the warranty does not apply.

The client promises to take correct care of the laptop to prevent theft or damage from dropping, heat, dampness, and electrical surges from the grid. If the laptop becomes unusable because of poor care the client will still pay the full amount of the lease.



## Servicing

Only the company and its authorized technicians can service the leased equipment both for software or hardware. No local technician or computer shop is allowed to service the equipment unless authorized by the company. In case of damage due to faulty servicing the client will bear the costs of repair or replacement.

## Leasing Period and Payments

A typical lease period is for two years. A deposit of three monthly payments must be made at the beginning of the lease period. The deposit can also be paid in three instalments over the first three months of the lease period. This means that during the first three months double the monthly payment is made. The deposit will be counted towards the end of the lease contract. That is the last three months are already paid.

Lease payments are made at the end of each month in advance for the next month. An example of the schedule of payments for a lease valued at US\$ 797 over 24 months is shown in the table below.

Date	Minimal amount to be paid	Amount USD
Before handing over equipment	Monthly instalment plus one monthly instalment for one third deposit	66.42
After 1 month	Monthly instalment plus one monthly instalment for one third deposit	66.42
After 2 months	Monthly instalment plus one monthly instalment for one third deposit	66.42
After 3 months	One monthly instalment	33.21
After 20 months	Each month for 17 months	17 x 33.17
	Total	\$797.00

On the 25th of each month the company will check the exchange rate of the USD according to the national bank, and inform the client via SMS what is the minimum amount of local currency to be paid before the end of the month. The payments are made to the Mobile phone account of the company. Each month the client can decide to pay more than the minimum. This is calculated back into US dollars and deducted from the balance due. In such a case the full amount is paid back earlier and therefore the laptop becomes the property of the client earlier. After each payment the company informs the client via SMS of the total balance still to be paid.

## Penalty for Delayed Payments

If the payment does not arrive by the last day of the month in the companys account a penalty is added. For each day of delay in payment a small penalty is added to the balance. The delay is counted from the 1st day of the next month. The penalty must be paid through a second transfer separate from the monthly payment. If after 30 days the payment is not made the company will take back the equipment. After retrieval of the equipment the client cannot request any refunding of past payments from the company.

### **Loss or Damage**

If the equipment is lost or stolen, the client will pay the remaining lease costs. The company will only replace equipment that has a fault covered by the warranty. If the equipment is damaged due to any of the following, the client is responsible for bearing the costs of repairs and replacements:

- Dropping and knocking.
- Power surge from the grid.
- Heat, dirt and dust, water and dampness.

### **Challenges, Competition and Business Development**

#### **The Challenge of Reliability and Quality Control**

The single most important challenge to the business is reliability of the service. Rural people expect unreliability in all services and will by default distrust any promises. To overcome this default behaviour the business must:

- Only promise the minimal that can be reasonably expected.
- Only operate wherever the capacity and competence is in place to deliver reliable service.
- Fulfil promises of servicing no matter what the costs may turn out to be.

A further challenge is ensuring tight quality control over the network service members, and providing customers a direct line to the company in case of complaints or inability to reach their local service provider.

The business must make sure that their network of service members has all the support they need, with very fast reaction times when problems arise. Again, any attempts to save costs here will result in losses later on.

#### **Recovery of Lease Payments**

Payment discipline is generally very poor in East Africa. Often this arises from poor communications and poor transaction possibilities. Late payments also contribute to the prevalent environment of distrust. This must be countered by:

- Written and signed lease contracts.
- Providing clients an easy and reliable means to pay their leases, either through mobile payments directly to the company, or via cash to the local service network member.
- Acknowledgement of each receipt of payment by the company via SMS or Email.
- Instant and effective follow-up (through phone calls, etc) with clients who have delayed their payments.
- Effective recovery of any leased equipment in case payments are delayed for more than 30 days. This can only be achieved by having each lease being "covered" by a sponsor well known in the community of the client or a sponsor well known to the company.

### Poor Electricity Supplies

The rural ICT business will need to develop a strong strategy for providing electricity in off-grid areas for operating the equipment it sells. This can be through partnering with energy equipment providers (solar, pico-hydro, fuel generators) to add their equipment to the bundle, or itself engaging in the marketing of such equipment.

### Competition from Urban Retailers

Purchase-lease arrangements for electronic equipment exist in East Africa. However, they are only available from large urban retailers, and often even only in the capital itself. Rental arrangements are also available from large retailers. However, rental agreements are only signed with large organization having adequate funds for the large deposits required. There are no networks operating in rural areas that provide the integrated service proposed here.

### Useful Applications for Business Development

Most computer and internet applications have limited use for immediate income generating opportunities in rural areas. It will therefore be very beneficial for the sales of the rural ICT business if it also engages in R&D efforts for designing and delivering specific applications for rural East Africa. Such applications could include:

- Distance courses on various topics, ranging from language courses to accounting, simple engineering, and business skills.
- Teacher training for remote schools, curricula development.
- Health data collection and processing-distribution.
- Managing transport pools for remote rural areas.
- Public accounting of community projects, etc.
- Organizing the bulking, quality control, tagging and forwarding of agricultural produce ("collection point management").
- Agricultural warehouse management.
- Stocks control for retail networks in rural areas.

Our observation is that software programmers are unaware of the potential in rural areas, and if they are, they have little possibility to enter into creative interaction with the reality of rural opportunities. Whatever is offered at present is usually vastly over-designed with confusing features, and often not fit for the specific rural operational environment with low bandwidth, tricky power sources, and unreliable connectivity. The rural ICT business can bring its knowledge and experience about these conditions to the table in collaborative R&D efforts with other companies or agencies.

## **Risks and their Mitigation**

### **High Capital Requirement**

Selling and leasing electronic equipment requires large amounts of capital. Economies of scale can only be achieved through bulk orders requiring large amounts of capital. In the case of leasing this results in a lot of equipment that belongs to the company and is thinly distributed over vast rural areas. The risk to capital, therefore, is considerable. This can be countered by:

- A well managed network or rural service providers.
- A strict and efficient payment control and retrieval mechanism.
- A good tracking system for the leased equipment.
- A "buffer fund" with low long-duration interests out of which high-interest credits for short-term purchases and sales can be made.
- A system of monthly accounts status reports ensuring detection of irregularities within days.
- A balance of own sales and sales commission arrangements with suppliers, thereby avoiding capital payments up front.

### **Viruses Attacks**

Viruses are the single most important risk for operating computers in East Africa. This risk is effectively managed by only leasing out machines with a locked Linux system. Direct sales can be according to what customers wish, but they must be warned of the consequences of viruses in case they use Microsoft operating systems.

### **Theft of Equipment**

Theft of computers is not uncommon. This risk is best managed through insurance. Such insurances are available but tend to be very costly for rural entrepreneurs. It will therefore be good for the business to approach an insurance company and come up with a competitive product that it can offer its rural clients.

### **Over Exceeding Capacity**

If demand for equipment leasing rises sharply there is a risk that there will be strong pressure to upscale as fast as possible. New investments in stock could quickly outstrip the capacity of the network of service providers to meet client service demand. This is a trap that could be avoided through a strategy of:

- An early detection of rising demand so that the service network can be appropriately expanded and trained.
- Immediate investment in the training of small entrepreneurs in the rural areas, and building their network
- Using experienced network members to train new comers, developing a second cadre of trainers to come in between the business and its licensed service providers in the rural towns.

## **Financial Projections**

Based on the experiences so far a pricing and costing plus a business projection over three years have been developed (see attached Excel) that take into account the operations, costs and achievable incomes identified so far. These will be further verified in the course of the ongoing trial. Analysis shows that with a laptop at 350, a modem at 150 and monthly lease-purchase for such a bundle at 32 the breakeven can be reached in the first year with 100 bundles sold and 50 bundles leased for two years. Further analysis suggests that within 3 years a turnover of 0.3 Mio could be reached, with a net profit before taxes of around US\$ 25,000 for the company itself, and almost US \$ 20,000 for the retail network, plus creating at least two well-paying jobs in the company itself.

## **Commercial Viability**

The trial is still under way until December 2009 and therefore it is premature to finally conclude on the commercial viability of this venture. However, it is already clear that the demand for laptops in rural areas is confirmed, the first clients typically being salaried government officers, teachers, medical doctors, etc. So if the trial shows that the envisaged operations turn out to be correctly budgeted, this business appears to have a good chance for commercial viability.

Having said that, one must point out the operational challenge: It is no small thing to build a network of reliable service providers spread out in rural areas often difficult to reach, and to ensure good and speedy communication throughout this network. This at present appears to be the most critical point to look into. On the other hand, how else to achieve this than by building on the capacity of small rural service providers to be able to communicate through ICTs? The elegance of this business is that the main challenge for it to emerge is taken care of by the solution it wants to provide, thereby achieving internal leverage for success.