

# Transaction Economics for Technology Enabled Branchless Banking

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Three types of front-end technologies are being used by banks and BCNMs in India in the deployments set up to further the cause of financial inclusion. These are point of sale (POS) devices, computers (desktop or laptops) with internet connectivity, and mobile phone devices.

For a variety of reasons such as security features, physical evidence, physical (photograph) and biometric authentication etc., government agencies and most public sector banks are using biometric cards and POS devices or in few cases kiosk model (computer with internet connectivity). There can be arguments for and against the purported benefits and challenges of each technology, but one of the bigger considerations for CSPs (agents) is the cost of technology that they have to bear. It is usually the upfront cost of deployment that is the major cost but the ongoing cost of maintenance, operating the devices and other paraphernalia are also quite substantial. Given the challenges faced by banks and BCNMs with the viability of the BC channel, these costs, although small in absolute value, play a major role.

A basic analysis of capital expenditure on the three technologies and the routine expenditure required to run these technologies shows that mobile phone devices are by far the least expensive of the technologies. The ratio of cost per transaction can be as high as 180 times. Usually overlooked by policy makers and other stakeholders, this kind of cost difference has a huge bearing on implementation and sustainability factors, and thus on the stability of deployments.

- This report compares agent level capital and operational costs of the more commonly used technologies for agency banking.
- Technology is usually assessed in terms of convenience of conducting transaction, user interface, portability etc. One very important impact of the choice of technology is on the viability of the business model. Present report focuses on the impact of choice of technology on agent economics.
- The three technologies compared here are:
  1. Mobile
  2. Card (POS device), and
  3. Internet (kiosk).
- While mobile technology is chosen for real time and usually online transactions; card based models are deployed for transactions where customer identification is critical- such as Government benefit payments. Kiosk model with direct connectivity to bank's server is a recent development that literally brings bank (and its full suite of products) nearer to the customer by allowing online transaction in customer's bank account at the agent point.
- Similar benefits and challenges of each model have often been discussed and debated. Without getting into the operational aspects of each technology we present the financial impact of each technology on agent economics.

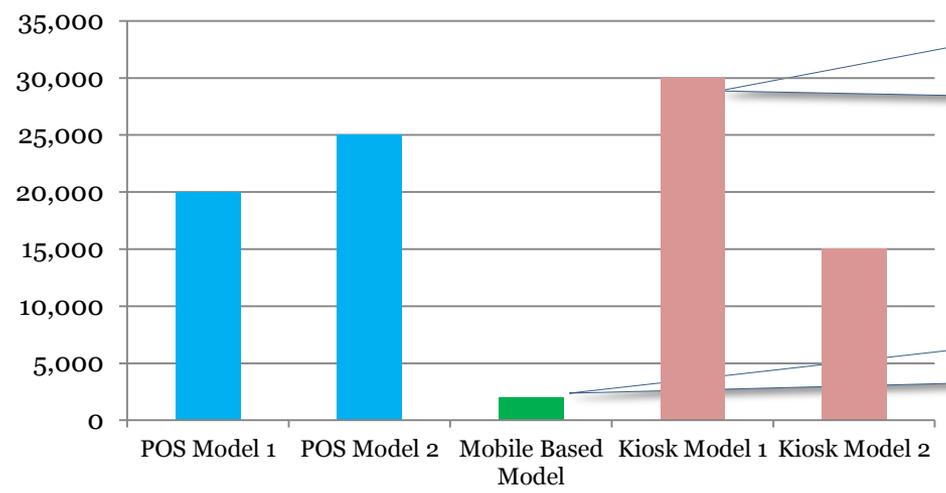
## Cost Analysis: CAPEX

Business Correspondents	Mobile and POS machine	Only Mobile	Kiosk (Desktop/laptop)	Printer and Webcam	Inverter/Generator
	Rs.				
POS Model 1	20,000	--	--	--	--
POS Model 2	25,000	--	--	--	--
Mobile Based Model	--	2,000	--	--	--
Kiosk Model 1	--	--	15,000	5,000	10,000
Kiosk Model 2	--	--	15,000	--	--

## Cost Analysis: OPEX

Business Correspondents	Internet/GPRS Connection	Electricity	Maintenance Cost	Stationery Cost (Printing, paper etc.)
	Rs.			
POS Model 1	200*	--	117	77
POS Model 2	100	--	146	50
Kiosk Model 1	1,000	1,000	146	391
Kiosk Model 2	583	552	81	215

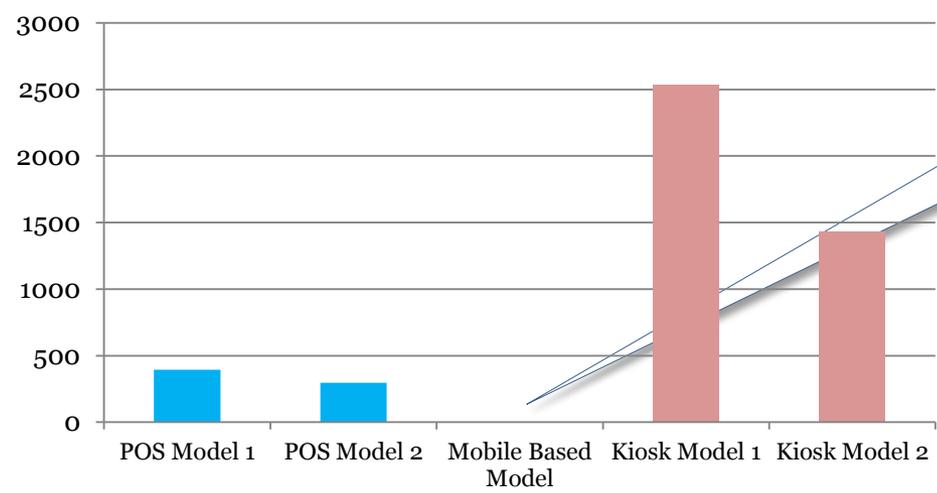
### Total Investment (CAPEX)



Increased investment to purchase inverters due to non availability of electricity. Additional purchase of printers were also made. This was ***especially observed in case of rural agents***

Agents are required to purchase only a mobile handset which costs around Rs.2,000-3,000 to conduct the BC business

### Total Operational Expenses (OPEX)



Opex for mobile based technology is almost NIL

Capex (above) for POS based models does not include cost of cards for each POS device, which can range from Rs.30,000 to Rs.120,000 depending on quality and number of cards mapped to a POS . For calculations in the following slides, the additional cost of cards has also been considered.

## Average business (ranges) done by agents

Transaction	Rural (#/ month)	Urban (#/ month)
Account Opening (initial period)	20-30	15-20
Account Opening (after 12 months)	5-7	8-10
Cash-In/ Cash- Out # (savings account)	100-125	150-200
Cash-In/ Cash- Out (Rs.) (savings account)	10,000-25,000	15,000-50,000
Remittance *	30-40	500-600

## Potential revenue generation

	Rural	Urban
Estimated Revenue – <i>with remittance</i> (Rs./ month)	350-500	3,500-6,000
Estimated Revenue – <i>without remittance</i> (Rs./ month)	50-150	200-350

\* Remittance is location specific. These figures do not apply for all agent locations. At some places, there may be NIL remittance transactions.

## POS+ Card: Volume of business required to cover technology cost

Technology cost/ month	Rs.2,200- 2,500	
Transaction Type	Business required to cover technology cost	
	Per month	Per day
Only ac opening (#)	220-250	7-8
Only Cash-in/ Cash-out	Rs.1,100,000- 1,250,000	Rs.35,000- 40,000
Only remittance	200- 250	7- 8

With the current business volumes shown in slide # 6, POS based model leads to a loss ranging from Rs.200 to Rs.2,000 depending upon the location and products offered. Only urban agents in locations with high migrant inflow, can expect to reach business volumes that just about cover the technology cost.

## Mobile: Volume of business required to cover technology cost

Technology cost/ month	Rs.50-100	
Transaction Type	Business required to cover technology cost	
	Per month	Per day
Only ac opening (#)	5-10	1
Only Cash-in/ Cash-out	Rs.25,000-50,000	Rs.800-1,700
Only remittance	5-10	1

Given that most mobile phone based models do not require purchase of new/expensive handsets and that most entrepreneurs already have one, the incremental capex for mobile based model is nil. Opex for the handset is also almost nil, barring the depreciation/ replacement cost every 3 years. From technology perspective, this model is the least expensive and costs can be easily recovered from even a small number of transactions.

## Kiosk: Volume of business required to cover technology cost

Technology cost/ month	Rs.1,500-3,000	
Transaction Type	Business required to cover technology cost	
	Per month	Per day
Only ac opening (#)	150-300	5-10
Only Cash-in/ Cash-out	Rs.750,000- 1,500,000	Rs.25,000-50,000
Only remittance	150-300	5-10

Kiosk model costs more in terms of opex because running a computer for online transactions it requires continuous power supply and internet connection. Power supply in most locations, except metros and some Tier I cities, is very poor. Rural areas are the worst affected. Running a power generator or installing a UPS/ battery and its maintenance is very costly. Internet connection with decent speed and good connectivity also cost around Rs.500-1,000 per month.

### Cost Sharing: Huge Burden on Agents

- Many of the costs associated with technology are usually borne by the agent. They either pay directly for the asset (computer or mobile handset) or they are asked to pay a “security deposit” which is almost the same as cost of the asset (say Rs.20,000 for POS device).
- In very few cases the asset is paid for by the BC or concerned bank, such as that of Bank of India (for directly appointed CSPs in Wardha, Maharashtra).
- In a POS based model, the cost of cards (Rs.50-70) is usually borne by the bank. Some banks, usually the private banks such as Axis and ICICI, charge the customers for card during enrolment, though not explicitly for card but as a lump sum “account opening” or “enrolment” fee.
- Opex is borne by agent. Few line items such as internet charges are reimbursed by BC as that is an easily identifiable direct cost and is almost fixed. BC/bank reimburses a fixed amount of Rs.100 per month in addition to the commission earned by the agent.
- Out of the three models, mobile based technology is the least expensive and recoverable. Assuming other costs of set up being same for all models, mobile based technology adds the least burden on expenditure side.

### Cost Comparison for the Three Models (CAPEX)

- A POS device usually costs between Rs.15,000 to Rs.20,000 depending upon
  - the order size
  - whether imported or assembled
  - security standards
  - enhancements capabilities such as blue tooth printer etc.
- A huge additional cost in POS based models is that of the cards given to customers. Each card costs between Rs.50 and 80 depending on the quality, features, customisation etc. A POS device becomes sustainable with 1,000 to 1,500 cards mapped to it (transacting on it). Therefore the real Capex of a POS device is much higher because realistically it includes the cost of cards as well.
- A computer can cost between Rs.15,000 to Rs.25,000, depending upon
  - whether it is a desktop or a laptop
  - brand, storage, speed
  - enhancement capabilities such as biometric reader etc.
- A mobile phone device used by BC agents can cost between Rs.1,000 to Rs.5,000, depending upon
  - the technology used by the service provider: USSD, SMS or Java based programme
  - Whether a specific model is prescribed by the service provider (usually increases the cost) or not (agents usually prefer the most basic device)

### Cost Comparison for the Three Models (OPEX)

- Running a POS device leads to the following expenses on a recurring basis:
  - electricity
  - paper rolls
  - maintenance and repair (may or may not be covered under AMC)
- For a computer based model, following expenses are usually incurred:
  - electricity
  - power back up (UPS or generator), because mostly it is used in online deployments, and therefore interruption cannot be allowed
  - internet
  - printing ink and paper
  - maintenance and repair (may or may not be covered under AMC)
- A mobile phone device has almost NIL operating expenditure. But some of the deployments may require internet connection.
- Of the three models, mobile based deployments have the least operational expenditure, while POS and computer based models are more expensive. Among the two, computer based models are usually more expensive to run, as they are online, therefore require internet connection, and usually have the printing option for receipts, thereby adding the cost of paper and printer. Some advanced versions of POS devices also reach the opex levels of computer based model.

## Macro Level Impact

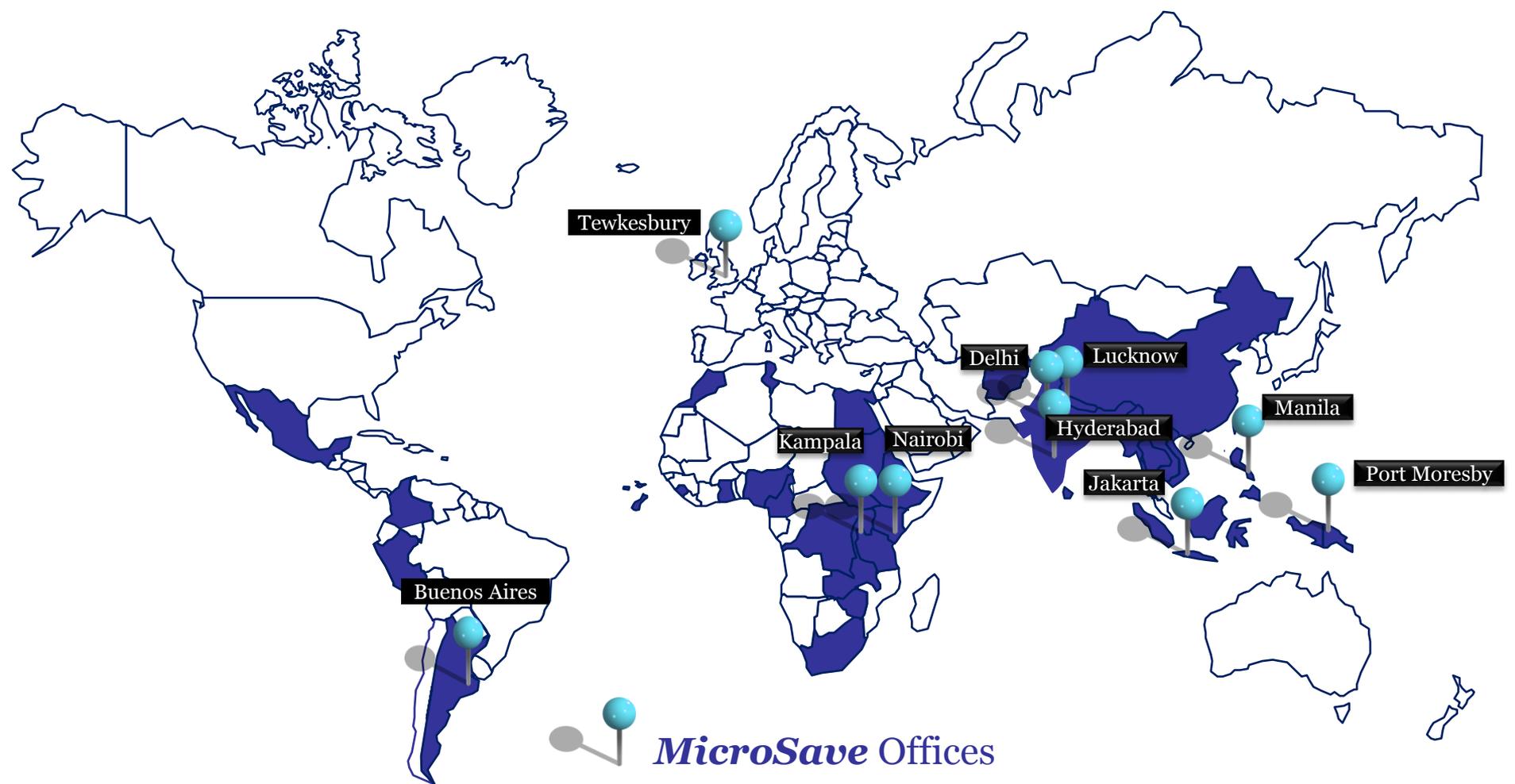
- According to the latest report from Ministry of Finance, in the year 2012-13
  - ✓ There were 183.80 million transactions through BC outlets.
  - ✓ The total value of these transactions was Rs.165.33 billion.
  - ✓ The number of BC outlets was 152,000.
- Considering the cost of deployment and operating the three technologies, if all the agent outlets had only one kind of technology, the capital expenditure required would be:

Technology	Capex	Opex (per month)
Only POS Devices	Rs.6.84 to 22.04 billion	Rs.30.4 to 70.37 million
Only Computers	Rs.2.73 to 4.56 billion	Rs.212.8 to 380.0 million
Only Mobile Phones	Rs.0.15 to 1.21 billion	Almost NIL to Rs.15.2 million

- Depreciating the value of devices over five years, and adding the operational expenditure, the cost per transaction (for the transactions done in 2012-13) comes to:

	Range (Rs.)	
POS Devices	9.43	27.93
Computers	16.87	29.77
Mobile Phones	0.17	2.32

The actual cost of transaction will be more, since common costs such as salaries, commissions, travel expenses have not been considered as these are common to all technologies, and here the focus was to bring out the impact of choosing one technology over the other.



## MicroSave Offices

**MicroSave (India)**  
 Head Office: Lucknow  
 Tel: +91-522-2335734  
 Fax: +91-522-4063773  
 New Delhi Office:  
 Tel: +91-11-45108373  
 Hyderabad Office:  
 Tel: +91-40-23516140  
[info@MicroSave.net](mailto:info@MicroSave.net)

**MicroSave (Kenya Office)**  
 Shelter Afrique House,  
 Mamlaka Road,  
 P.O. Box 76436, Yaya 00508,  
 Nairobi, Kenya.  
 Tel: +254-20-  
 2724801/2724806  
 Fax: +254-20-2720133  
 Mobile: +254-0733-713380  
[info@MicroSave.net](mailto:info@MicroSave.net)

**MicroSave (Uganda Office)**  
 Regency Apartments  
 30 Lugogo By-Pass  
 P.O. Box 25803  
 Kampala, Uganda.  
 Phone +256-312 202342  
 Mobile:  
 +256-706 842368  
[info@MicroSave.net](mailto:info@MicroSave.net)

**MicroSave (UK Office)**  
 The Folly, Watledge Close,  
 Tewkesbury,  
 Gloucestershire  
 GL20 5RJ  
 UK  
 Tel. +44 1684 273729  
 Mobile +44 796 307 7479  
[info@MicroSave.net](mailto:info@MicroSave.net)

**MicroSave (Philippines Office)**  
 Unit 402, Manila Luxury  
 Condominiums,  
 Pearl Drive corner Gold  
 Loop,  
 Ortigas Center, Pasig City,  
 Metro Manila, Philippines.  
 Tel: +(632) 477-5740  
 Mobile: +63-917-597-7789  
[info@MicroSave.net](mailto:info@MicroSave.net)

**MicroSave (Indonesia Office)**  
 Jl. Penjernihan I No. 10,  
 Komplek Keuangan -  
 Pejompongan,  
 Jakarta Pusat 10210,  
 Indonesia.  
 Tel: +62 82122 565594  
[info@MicroSave.net](mailto:info@MicroSave.net)

**MicroSave (PNG Office)**  
 Corner of Musgrave  
 Street and Champion  
 Parade,  
 Port Moresby, Papua  
 New Guinea.  
 TeleFax No.: +675 321  
 8823/321 8854  
[info@MicroSave.net](mailto:info@MicroSave.net)