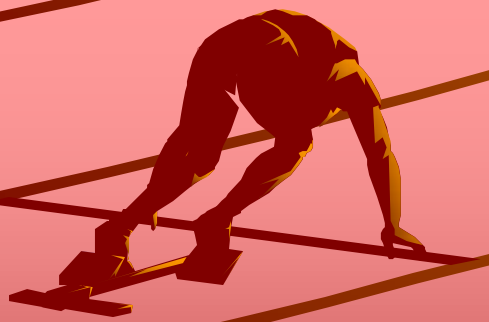
CHALLENGES OF HIGH AMPU IN A LOW ARPU WORLD



Mahinda B. Herath

World Dialogue on Regulation

Expert Forum on ICT Sector and Regulatory Performance Indicators

Singapore 2-3 March 2007

Context: Unveiling the “Business Case” in serving the “Poor”……..

- “Poor” = “Financially Constrained” = “Low-ARPU customers”
- The shifting focus: ARPU to AMPU
- Positive AMPU (in spite of low-ARPU): Profits!
- Collective purchasing power of the “Poor” : Fortune at the BOP
- Serving the “Poor”: Not necessarily a task for the Governments
- Serving the “Poor”: An “essential” business proposition for telcos, to secure new revenue streams
- A Win-Win solution

ARPU vs. AMPU: The shifting focus …

- **ARPU: What Lies Ahead? …..** *The problem is ARPU doesn't measure profits, only revenue, so it doesn't take into account capital expenditures and other costs of operation …..*

  Wireless Week, July, 2003

- **Heavy usage but low ARPU ..** *[In India] levels of ARPU are expected to decline to Rs 296 (US$6.79) per month by 2008-09 …..*

  Wireless World, April, 2005

- **ARPU vs. AMPU: Subscriber measurement comes of age….** *Faced with an inability to profitably compete for low revenue customers …Orange Suisse decided to rethink its approach and evaluate the cost of generating a positive AMPU while keeping the ARPU low.*

  Openet TELECOM Newsletter , April, 2006

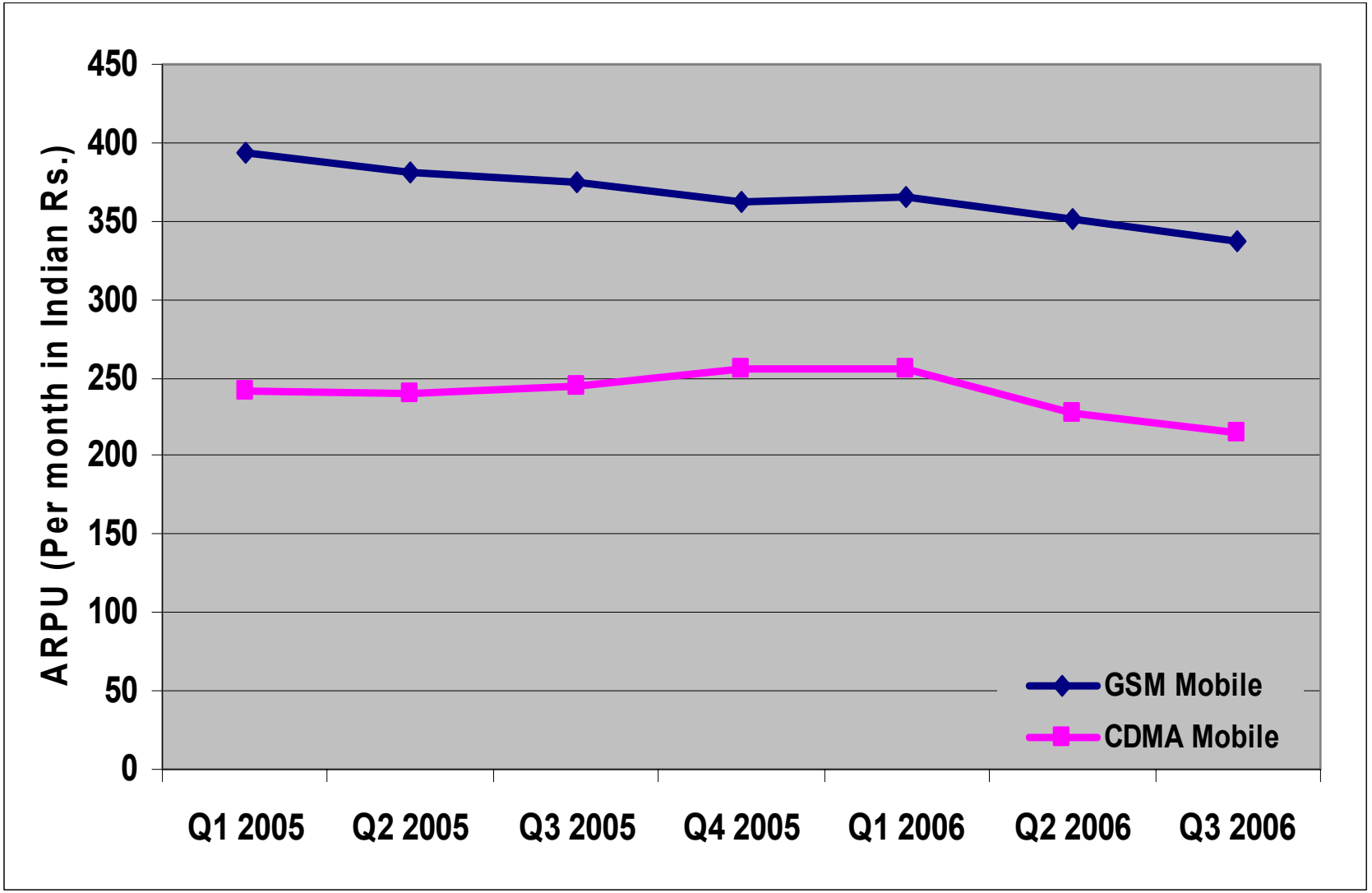
- **AMPU Not ARPU: A BETTER METRIC FOR THE WIRELESS INDUSTRY**

  The Shosteck Group, Maryland, US

ARPU : More concerns …

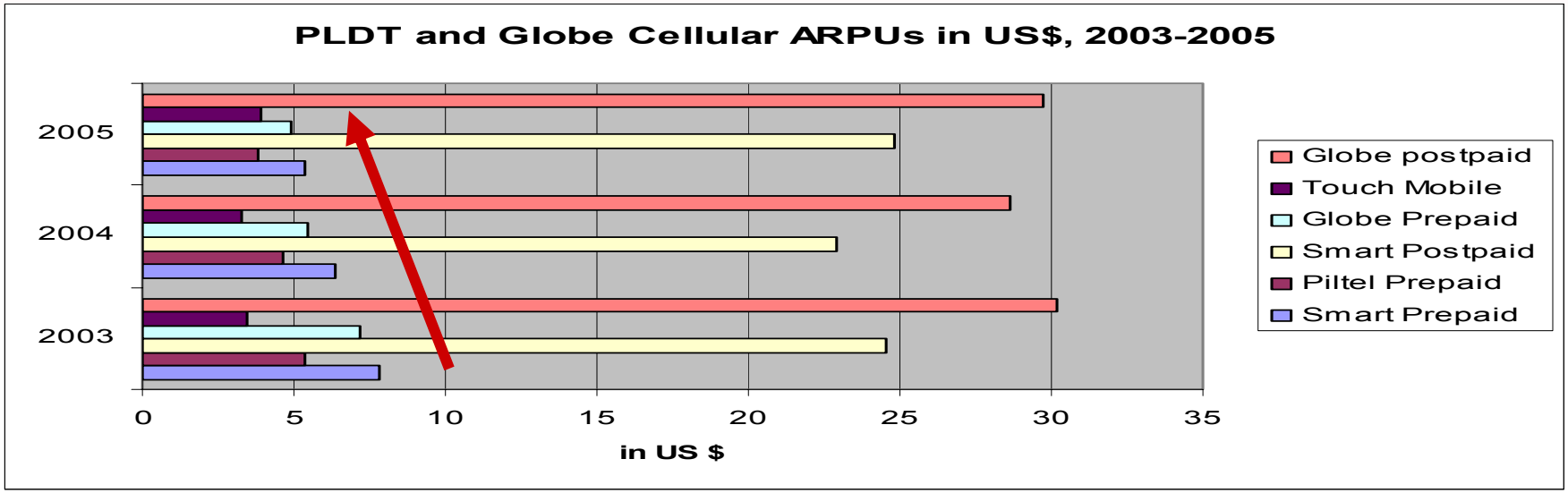
- Over the past decade, the industry has expressed dismay at declining ARPU…. Part of this dismay stems from the assumption that declining ARPU implies a loss in profits.
- Most analysts believe that ARPU will continue to decline due to competitive pricing pressures and an expanding subscriber base.
- With declining ARPUs, most operators tend to believe that serving low-ARPU customers is inherently unprofitable.

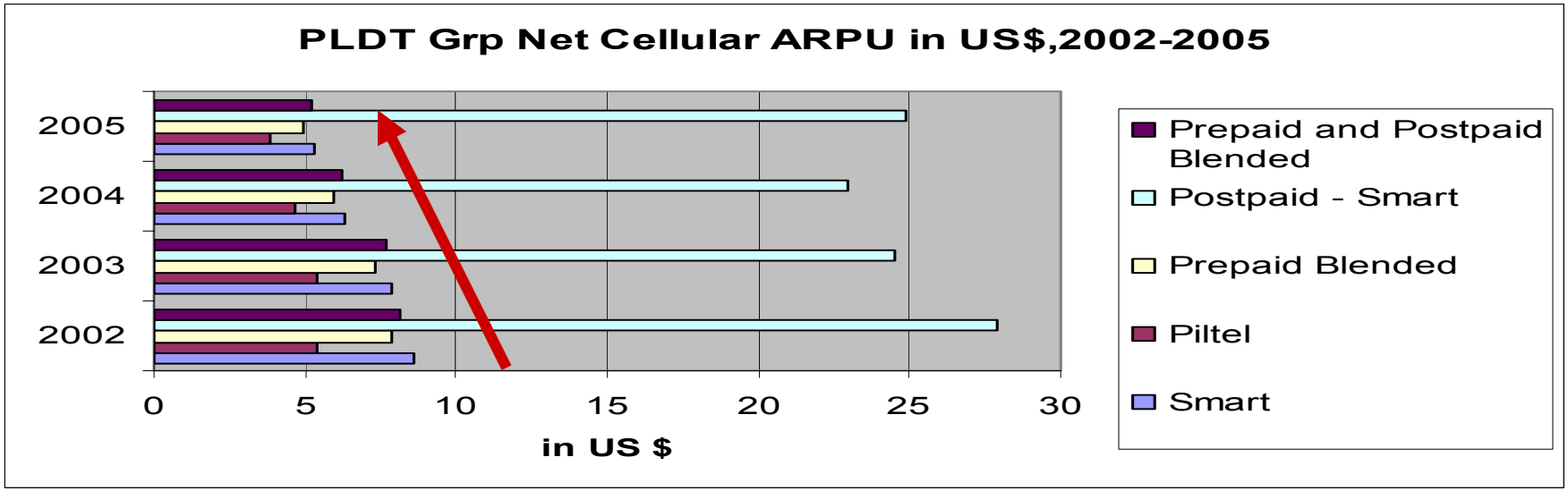
Declining ARPUs in the Region: India



(Source: TRAI Data)

Declining ARPUs in the Region: Philippines





(Source: LIRNEasia SIX COUNTRY MULTI-COMPONENT STUDY 2006-2007, Philippine Country Report)

Understanding the Low ARPU World : Getting it right ……..

- Do low ARPU customers actually lose money for Operators?
- Are high ARPU customers consistently profitable?
- How could Operators tap low-ARPU markets?
- How could Operators profit even if ARPU continues to decline?

ARPU vs. AMPU: The Comparison

ARPU	−	CCPU	=	AMPU
• ARPU (Average Revenue Per User) is simply the revenue per subscriber or service		• CCPU (Cash Cost Per User) is the initial cost of service (Capex) and ongoing costs (Opex) per subscriber or service		• AMPU (Average Margin Per User) is the gross profit per subscriber or service (ARPU minus CCPU)

- ❑ An high ARPU does not guarantee a positive AMPU
- ❑ On the other hand, low ARPU does not preclude positive AMPU
- ❑ Positive AMPU means PROFITS

AMPU & ARPU: The Myths

- **Myth: Customer value is measured based on the ARPU.**

  Not necessarily! A customer who delivers high ARPU but at a loss might be more of a loser, if more services are sold to him.

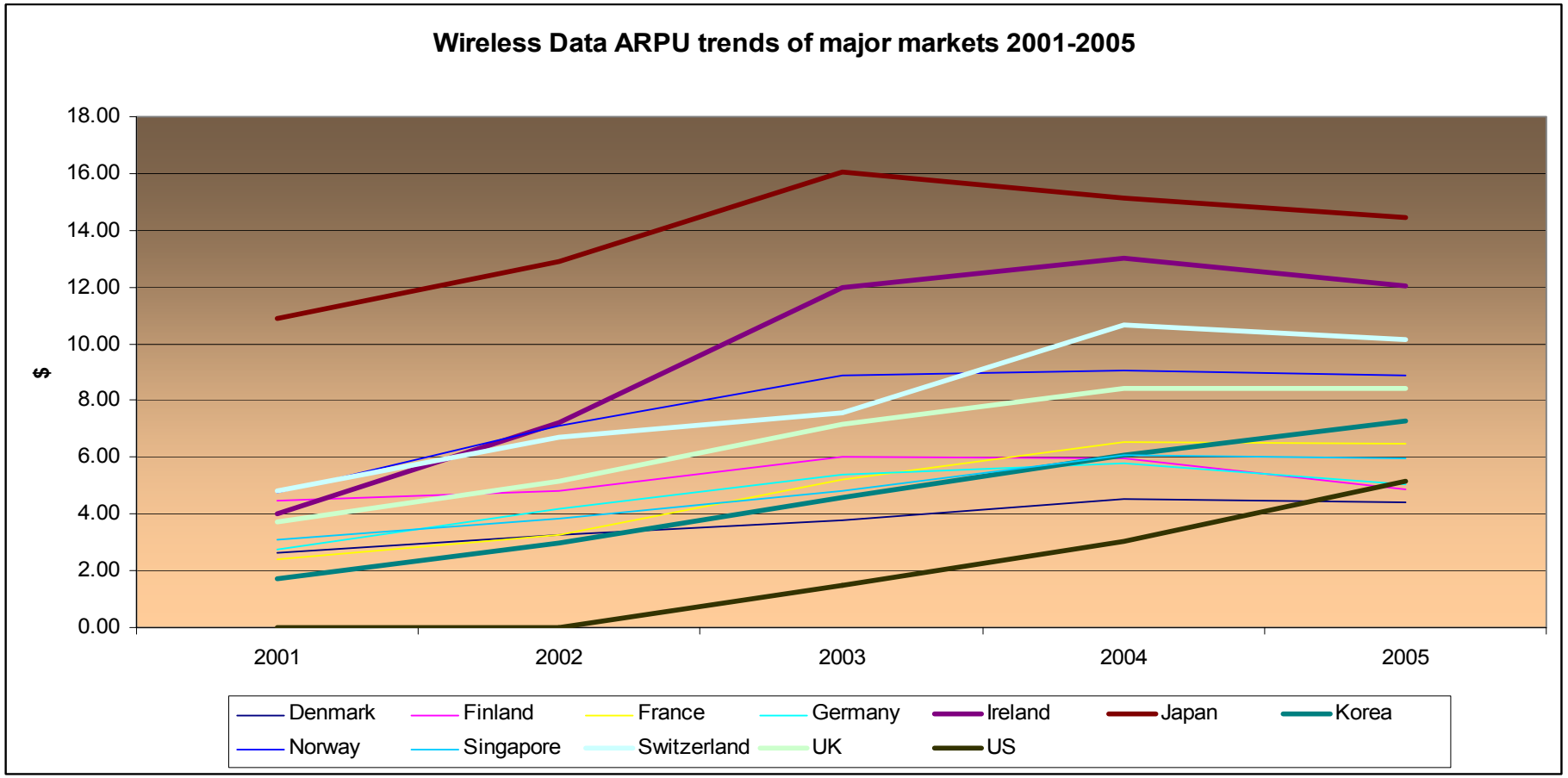
- **Myth: Margins for low-ARPU customers are inherently unprofitable.**

  Low revenue per user need not preclude a positive AMPU. Low revenue users can still be profitable as long as ARPU exceeds average cost per user. *E.g. Pre-paid customers (low ARPU but high AMPU) vs. post-paid customers (high ARPU but low AMPU)*

- **Myth: New data services will lift ARPU, and with that profitability.**

  Even though data services will raise revenues, the full costs of delivering data may exceed such revenues. *E.g. Revenues vs. costs of providing UMTS services, as at today*

More Complications: Data ARPU growth too is slowing down!



Source: Chetan Sharma Consulting

Apart from the concerns around AMPUs of most data services, Data ARPU growth too is slowing down in many markets!

AMPU vs. ARPU: The Math

Illustration: MMS picture vs. GPRS email (with 30k picture attached)

- **ARPU** →

Per MMS	Per GPRS email($1/MB)
12c	3c

- **ARPU for MMS is four times greater than GPRS**

- **Costs** →

Per MMS	Per GPRS email	
10c	0.5c	MMS as a service incurs interconnect fees, infrastructure costs and other charges far higher than GPRS bearer

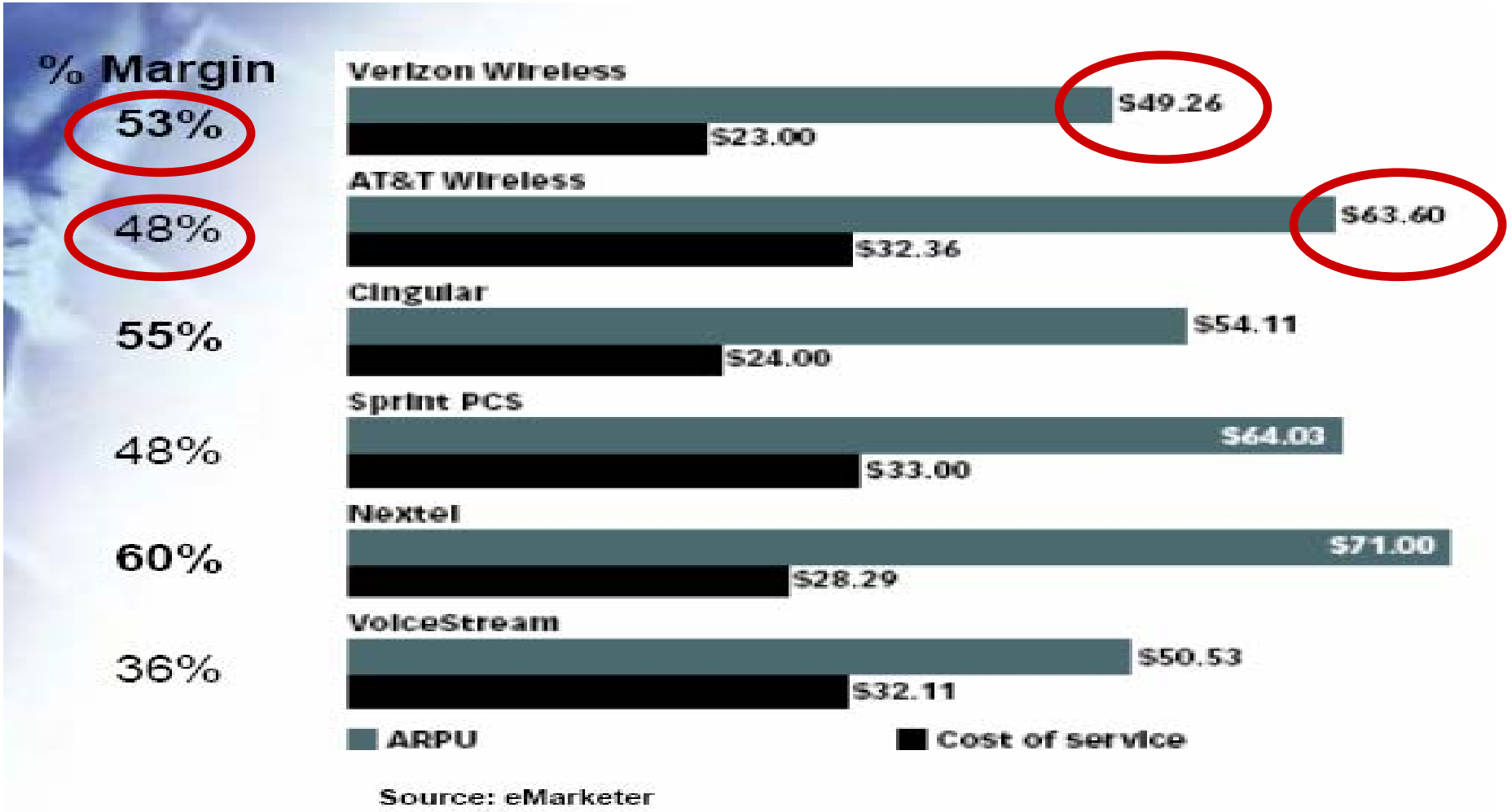
- **AMPU** →

Per MMS	Per GPRS email($1/MB)
12c – 10c = 2c	3c – 0.5c = 2.5c

- **AMPU for GPRS is 25% greater than MMS !**

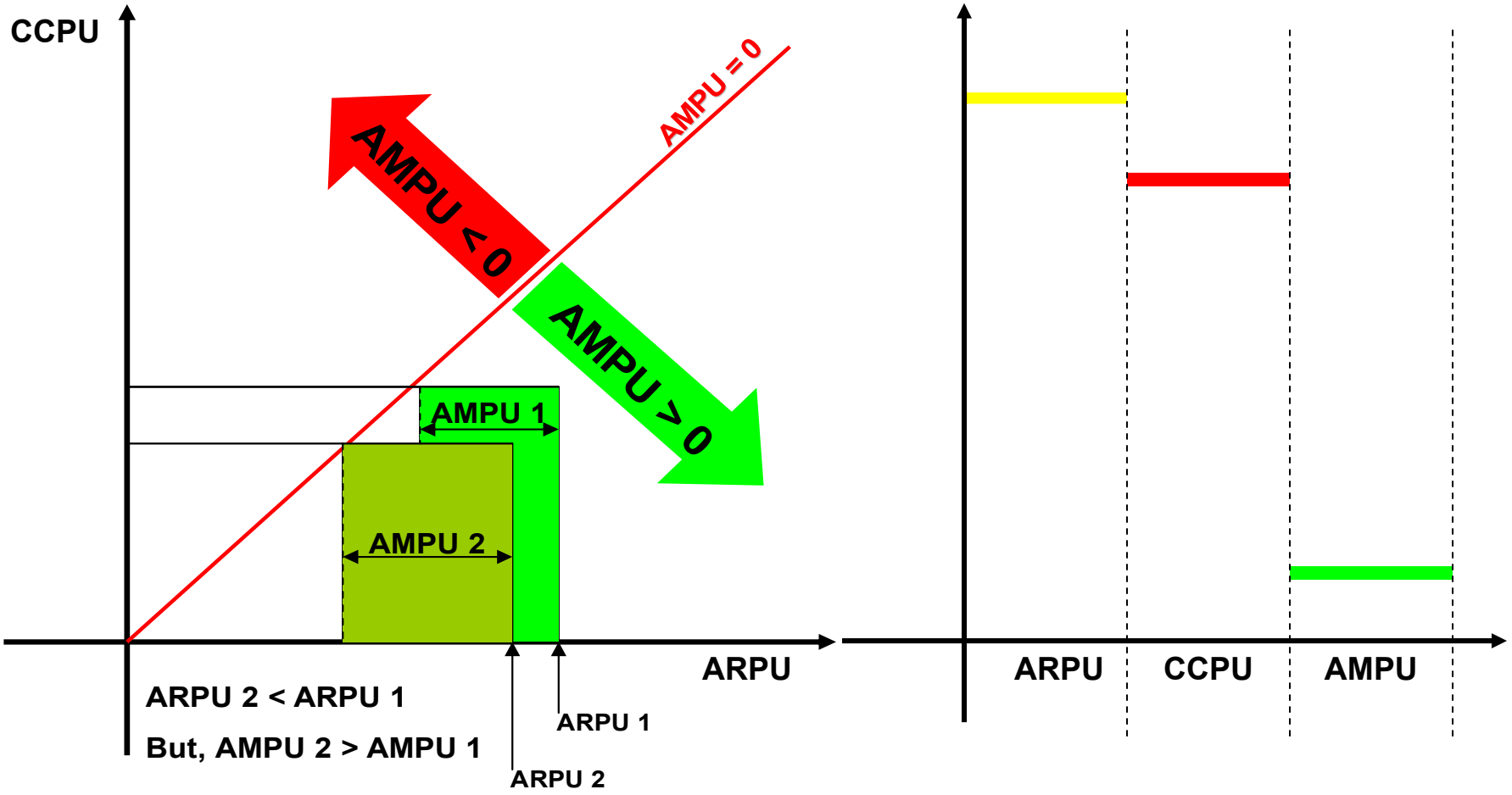
(Source: Openet TELECOM Newsletter , April, 2006)

AMPU vs. ARPU: More Examples….



- A higher ARPU could yield a lower AMPU (or lesser profits)
- A low ARPU could yield a better AMPU (or higher profits)

The impact of costs in controlling AMPU



Even with a lesser ARPU a better AMPU can be achieved; by controlling costs

Doing Business in a low ARPU world

- Shift focus from ARPU to AMPU
- Identify Major cost drivers that affect AMPU, in particular, those over which operators can exercise control
- Reduce CAPEX and OPEX to achieve a positive AMPU
- Create “volume”
- (Positive AMPU) x (Volume) = Business model for low ARPU world
- Refine continuously ⟶ for sustainability

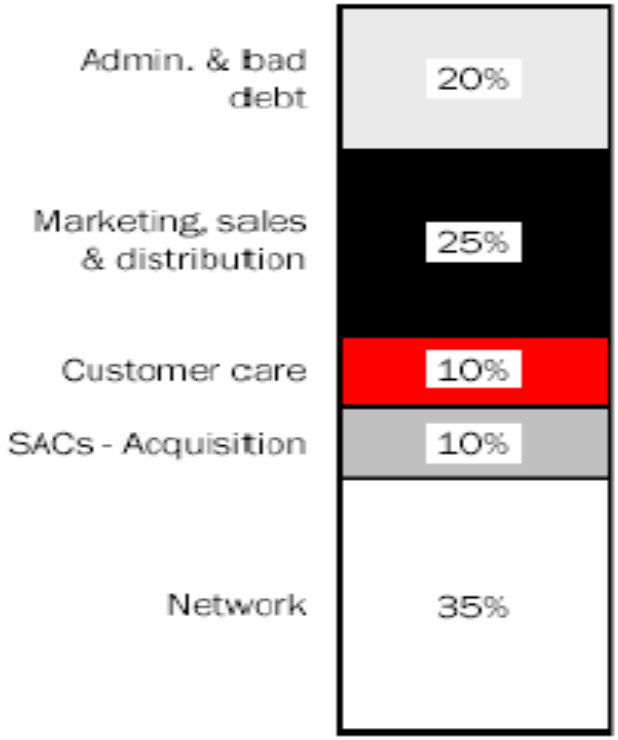
Major Cost Drivers that affect AMPU

Subscriber Acquisition Costs (SAC)	❑Terminal Subsidies ❑Dealer Commissions ❑Marketing, Sales & Distribution
Service OPEX	❑Customer care & Billing ❑Service Creation & Content ❑Administration & Bad debts
Network OPEX	❑Coverage cost ❑Capacity cost ❑Network O & M
Network CAPEX Depreciation	

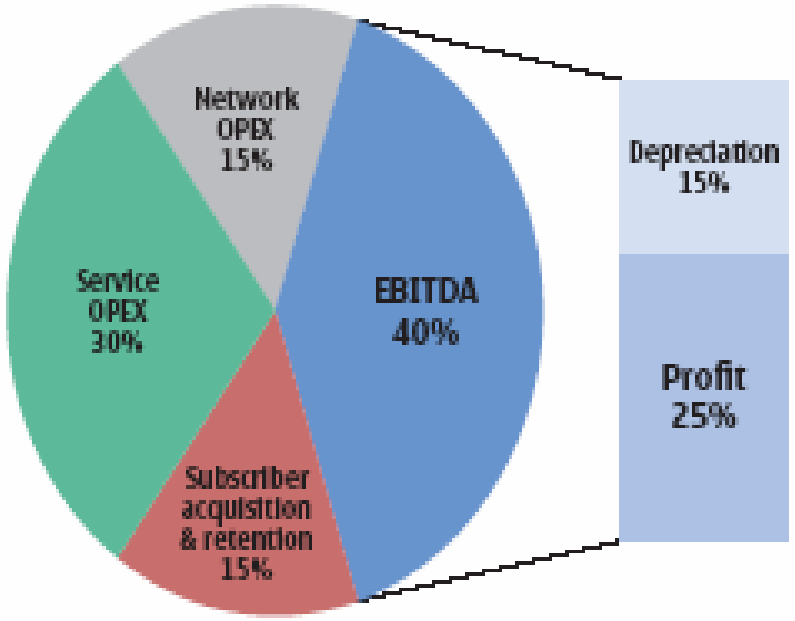
Note: While some operators classify marketing and sales costs under SAC (E.g. France Telecom, VimpelCom etc.), others (T Mobile, Virgin Mobile and many US operators) classify the said costs as service costs. Discrimination of Service OPEX and Network OPEX too is often Operator dependent.

Typical Cost Breakdowns

Typical US National Carrier Operating Expenses Breakdown



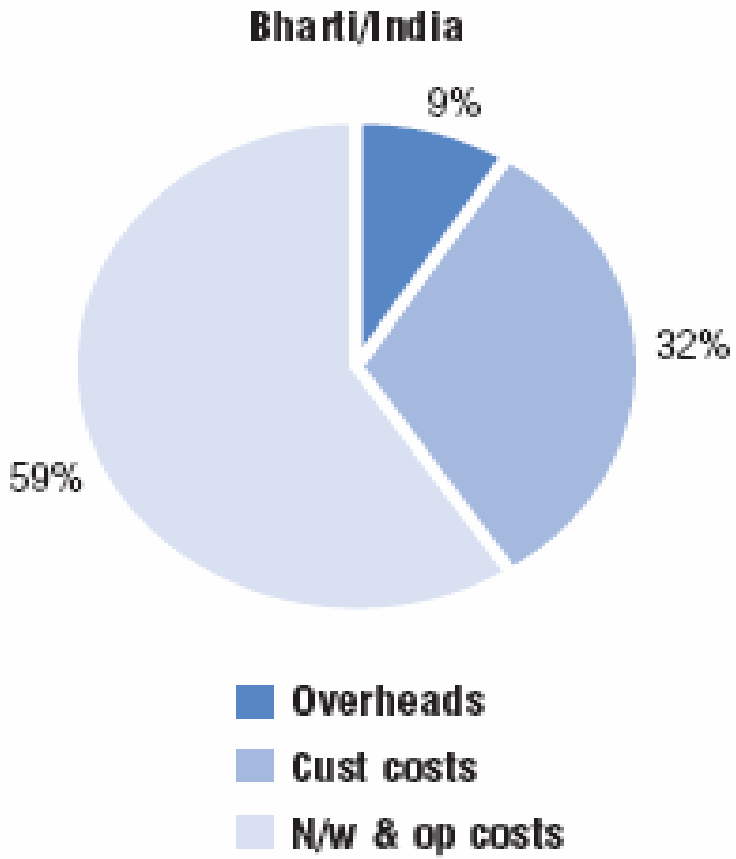
Typical Breakdown (Europe)

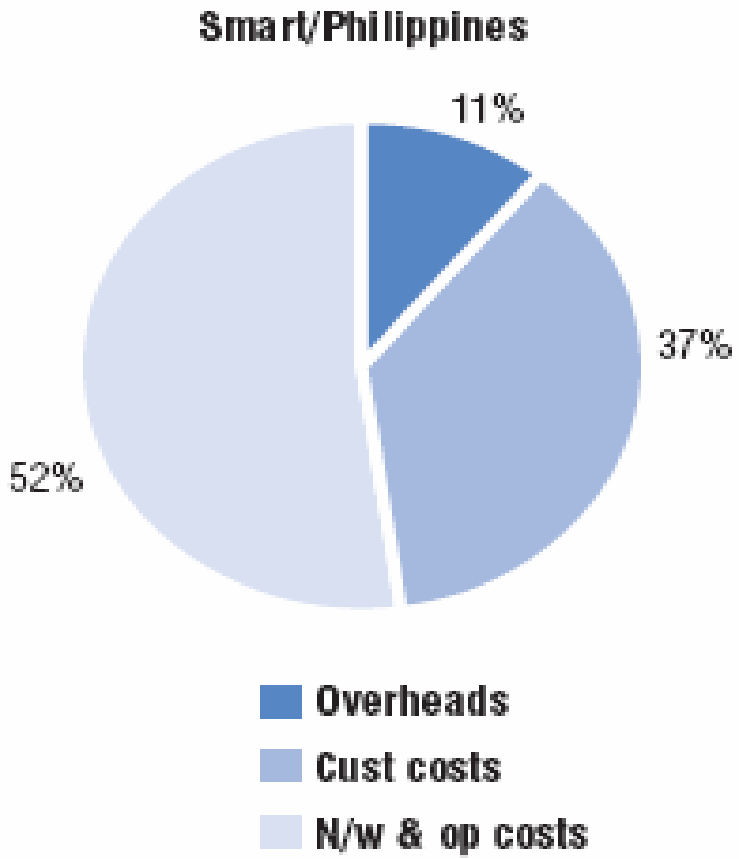


(Source: eMarketer)

(Source: Nokia)

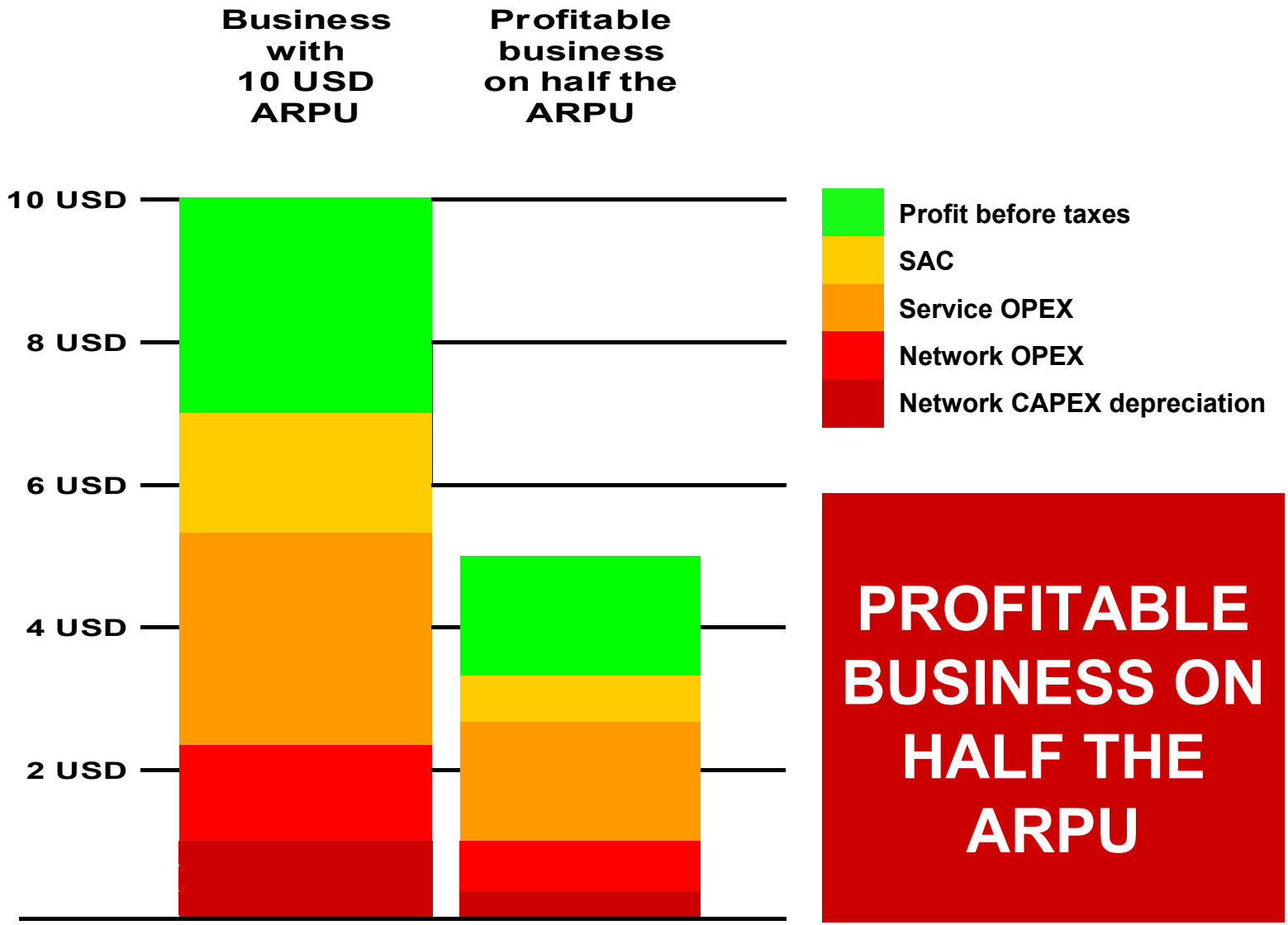
Cost Breakdowns form the Region: Some Examples





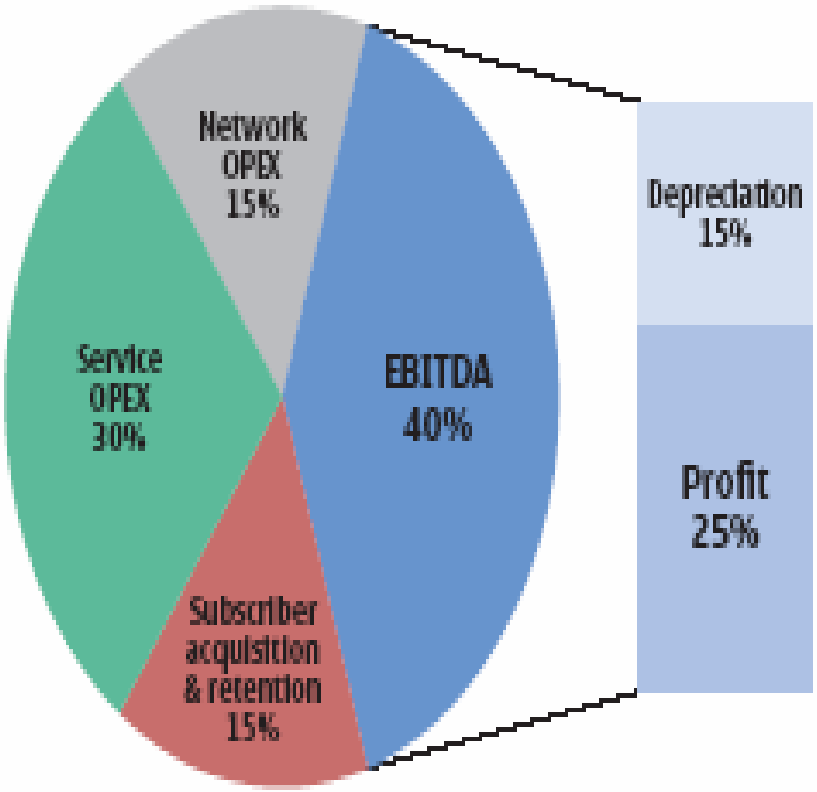
(Source – Extracted from "Minutes vs. Subscribers" ; An IBM Business Consulting Services' White Paper)

Challenge: “+” AMPU in a low ARPU World



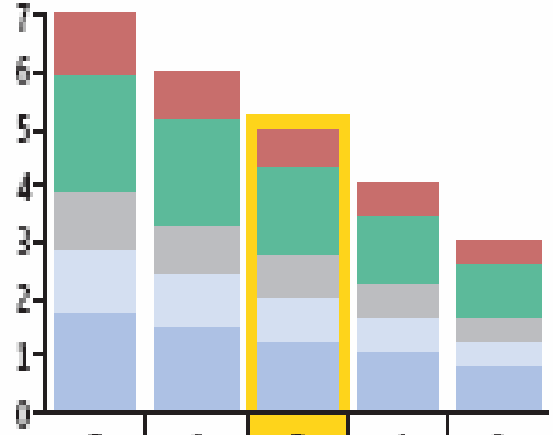
(Source: Nokia)

Budgeting Costs: For Positive AMPU



EUR5 ARPU / month sets the limit to:
- EUR 0.75 SAC & SRC
- EUR 1.5 service OPEX
- EUR 0.75 Network OPEX
- EUR 0.75 depreciation

} per month per subscriber



Example ARPU levels →	7	6	5	4	3
Subscriber acquisition	1.05	0.90	0.75	0.60	0.45
Service OPEX	2.10	1.80	1.50	1.20	0.90
Network OPEX	1.05	0.90	0.75	0.60	0.45
Depreciation	1.05	0.90	0.75	0.60	0.45
Profit	1.75	1.50	1.25	1.00	0.75

(Source: Nokia)

Strategies to exercise control on costs

SAC	❑ **Low cost terminals** ❑ **Prepaid offerings** ❑ **Franchise type arrangements** ❑ **Shared access/Payphones**
Service OPEX	❑ **Prepaid offerings** ❑ **Shared access/Payphones** ❑ **Applications and content: that adds meaningful and perceivable value**
Network OPEX & CAPEX	❑ **Cost efficient technology solutions** ❑ **Prepaid offerings**

Low Cost Terminals

- Cost of handsets - considered by many mobile operators as the major barrier to profitably in serving low income groups
- Consumer behavior studies suggest that a low terminal price plays better in the consumer's mind rather than long-term costs
- Handsets marketable to low-income segments should satisfy expectations of;

Affordability

Handsets will have to get below USD30 to help enough potential users move beyond "handset barrier" in emerging markets (*GSMA*)

Usability

Usability expectations of such ultra-low cost handsets would evolve around functionality, power consumption and device longevity

Wide-spread availability

Operator-led distribution vs. grey markets and availability of recycled, refurbished or second-hand handsets

Low Cost Terminals: Initiatives…

- **Emerging Markets Handset (EMH) initiative of GSMA: Generated necessary economics of scale for the low-cost handset supplier, ensured thro' assured high volume purchases on a collective basis by operators who joined forces for a collective tender**

EMH Ph. 1	**Motorola C115** 	**USD 40 Ex-factory**
EMH Ph. 2	**Motorola C113**  **Motorola C113a** 	**USD 30 Ex-factory**

- **Texas Instruments' integrated single-chip solution for mobile phones**
- **Initiatives to manufacture handsets in the region** (E.g. BPL Telecom India)

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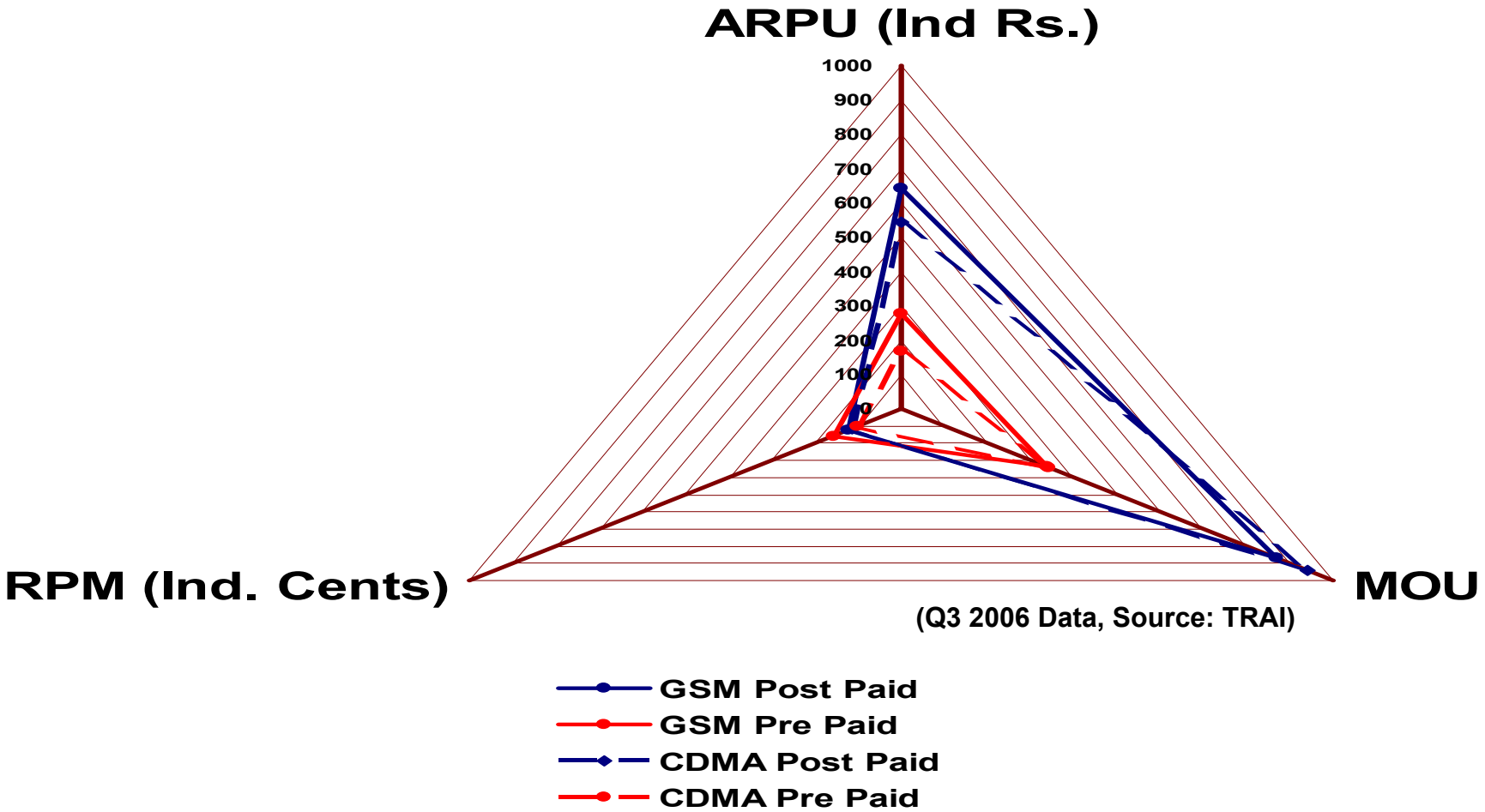
Prepaid Offerings

Customer perspective	❑Allows control of expenditure & consumption ❑Benefits beyond costs: Hassle-free sign-up, ease of use, ideal for people with no steady incomes
Operator perspective	❑MOU and revenue is less than contract based customers ❑Twice as likely to churn than contract based customers ❑However, generates higher revenue per minute (RPM) ❑Typically has fewer costs per subscriber ❑SAC is around 85% less compared to contract based ❑Emergence of cost effective “electronic” top up solutions: to reduce “re-charging” costs (E.g. Transfer of airtime via SMS) ❑Lower deployment costs ❑Increasing focus on profiling prepaid users, as Operators value margins over revenue (AMPU over ARPU)

Prepaid offerings reduce SAC, Service OPEX, Network OPEX and Network CAPEX

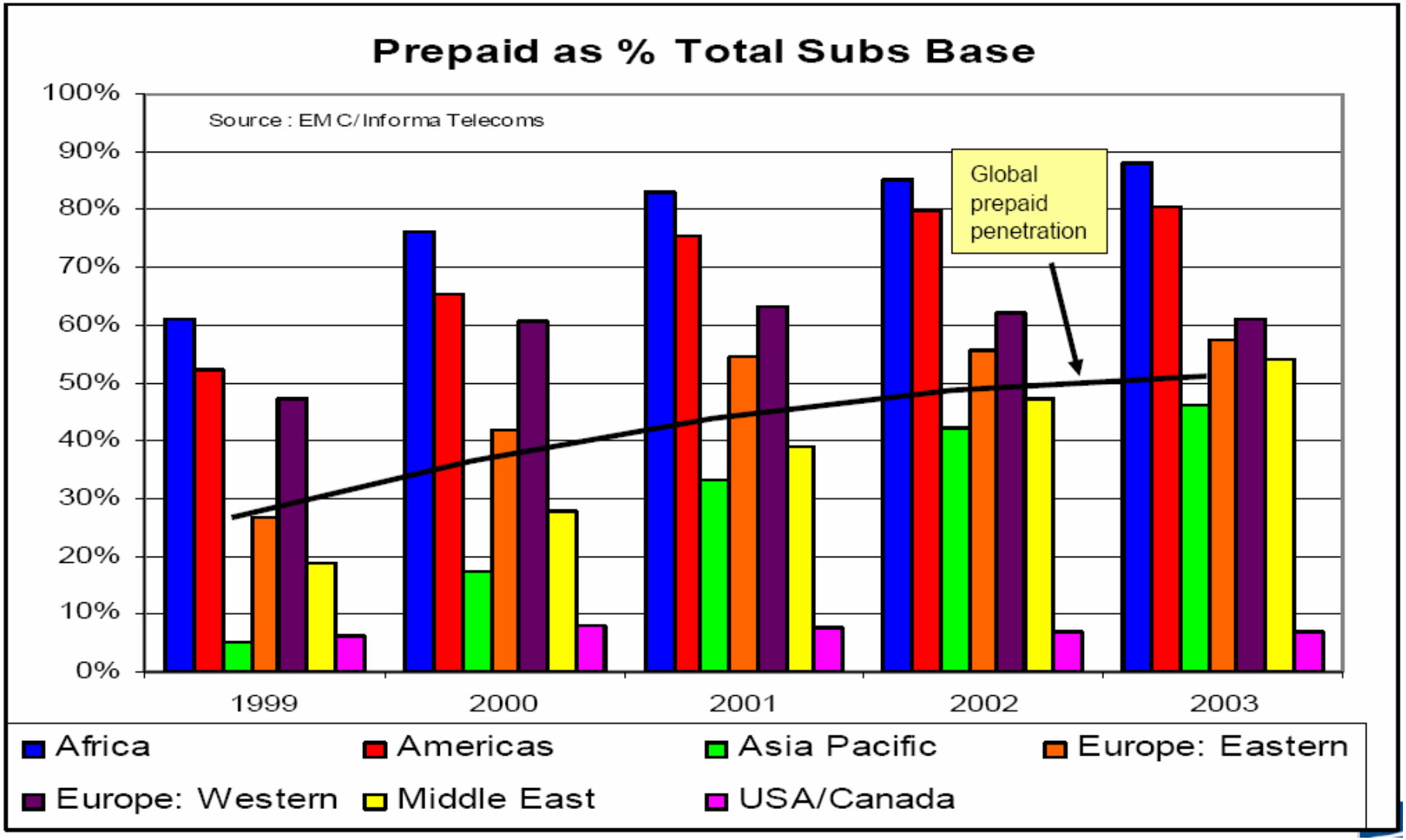
Prepaid vs. Postpaid Characteristics: An illustration - using Indian data



Prepaid = Low ARPU, Low MOU, but High RPM

Postpaid = High ARPU, High MOU, but Low RPM

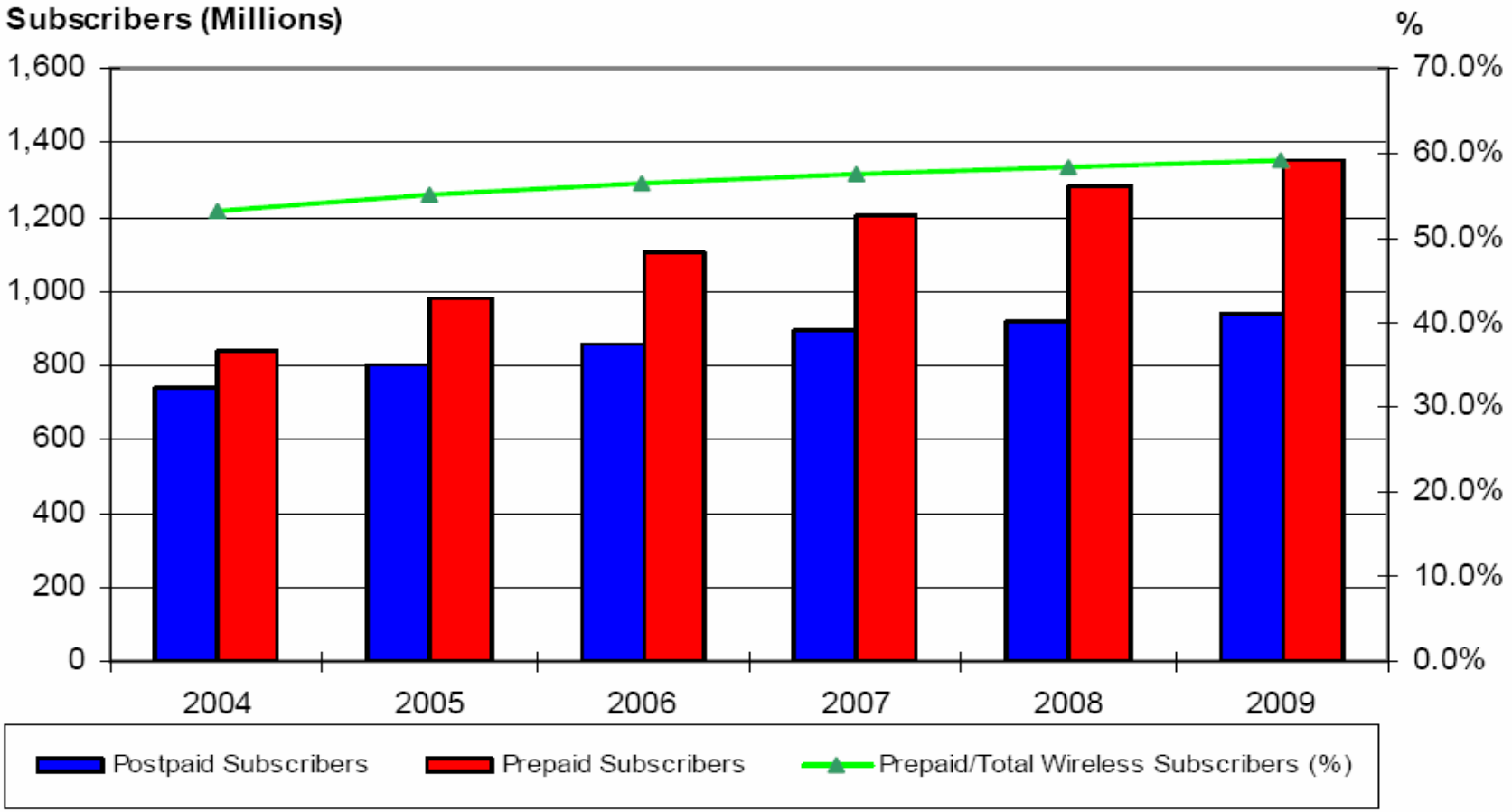
Prepaid Offerings: Worldwide trends…



(Source: ARC – Strategic Analysis & Consultancy)

Prepaid Offerings: Worldwide trends…

Global Prepaid Forecasted Base up to 2009



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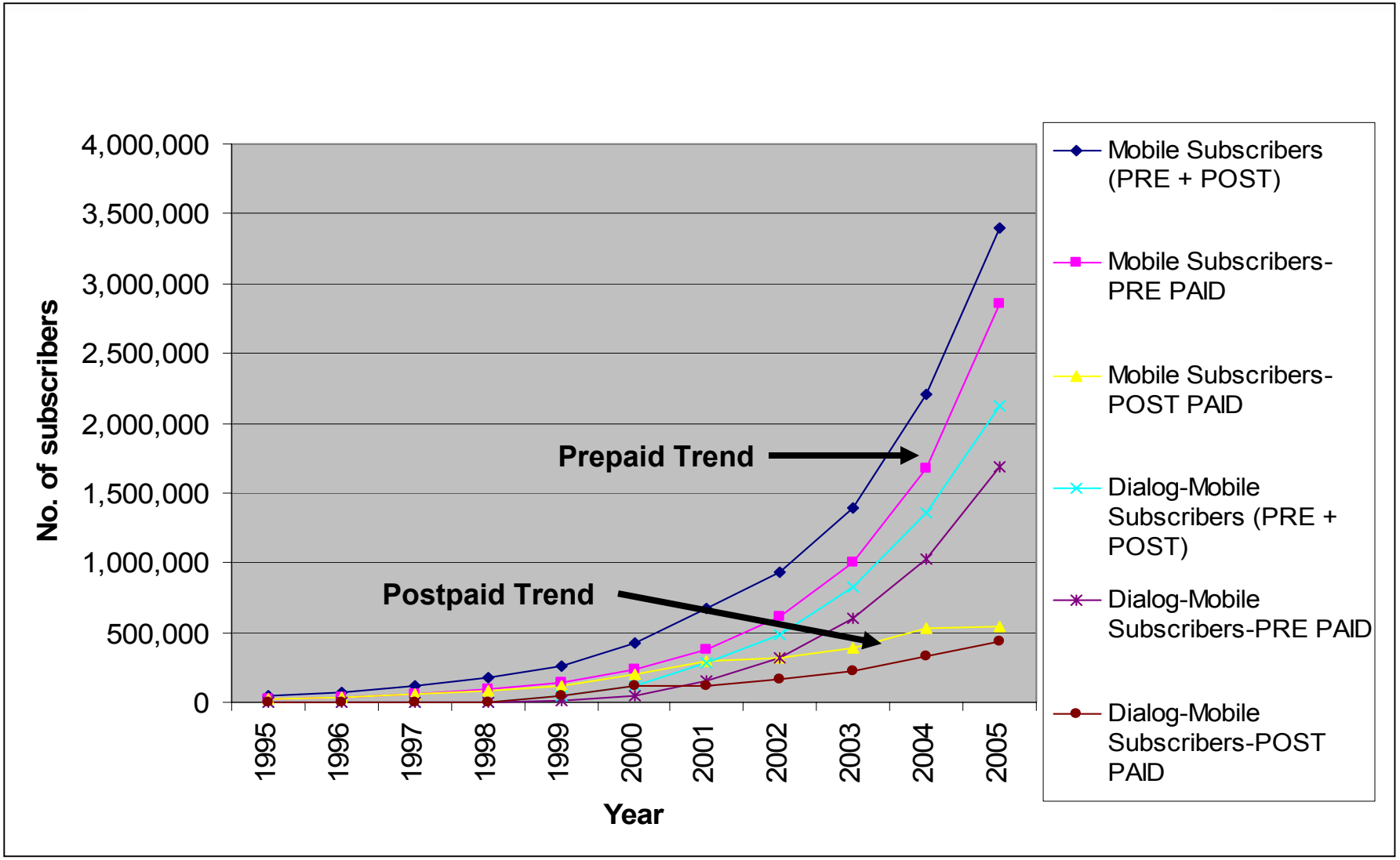
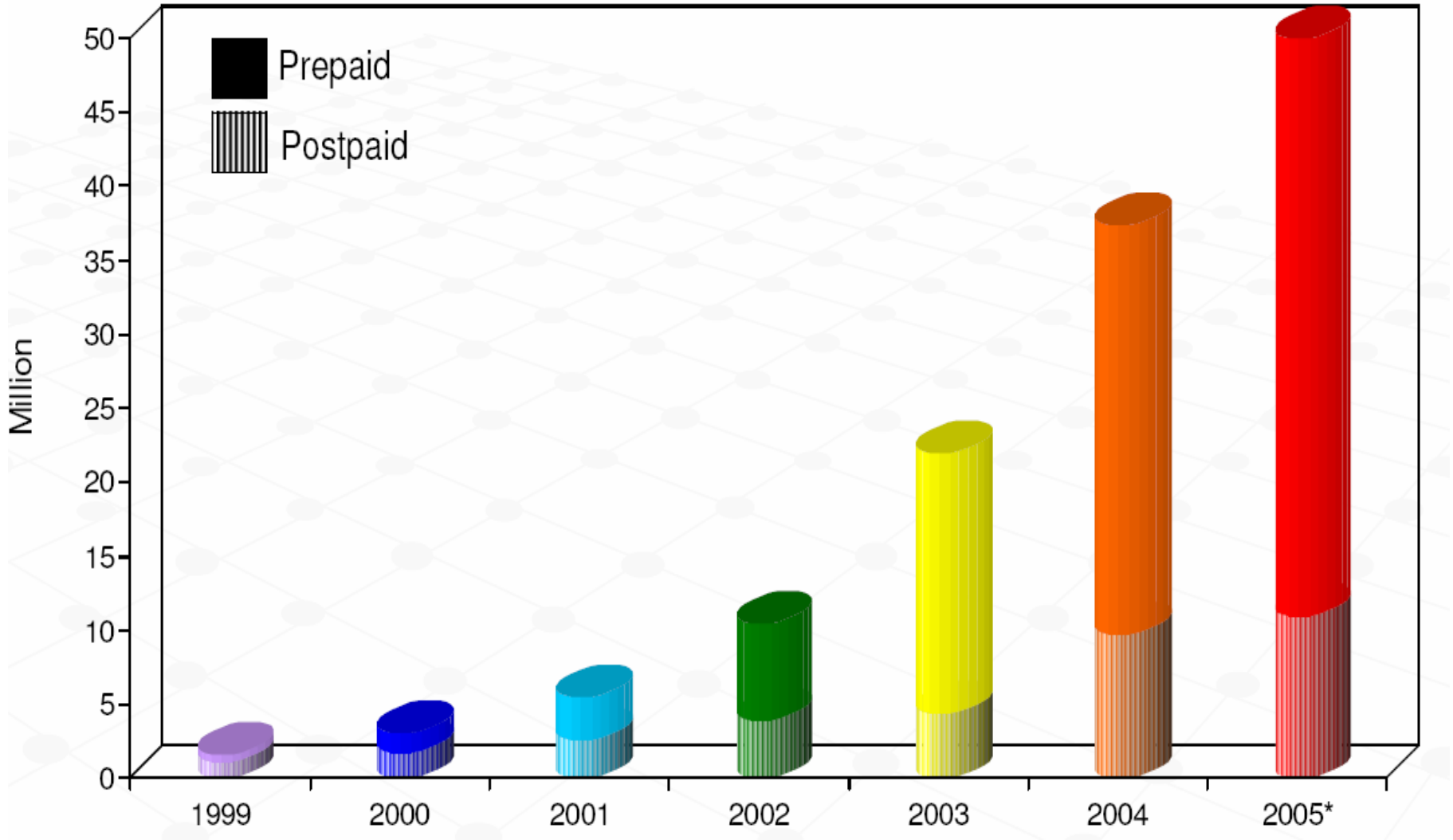
Prepaid Growth in the Region: Sri Lanka



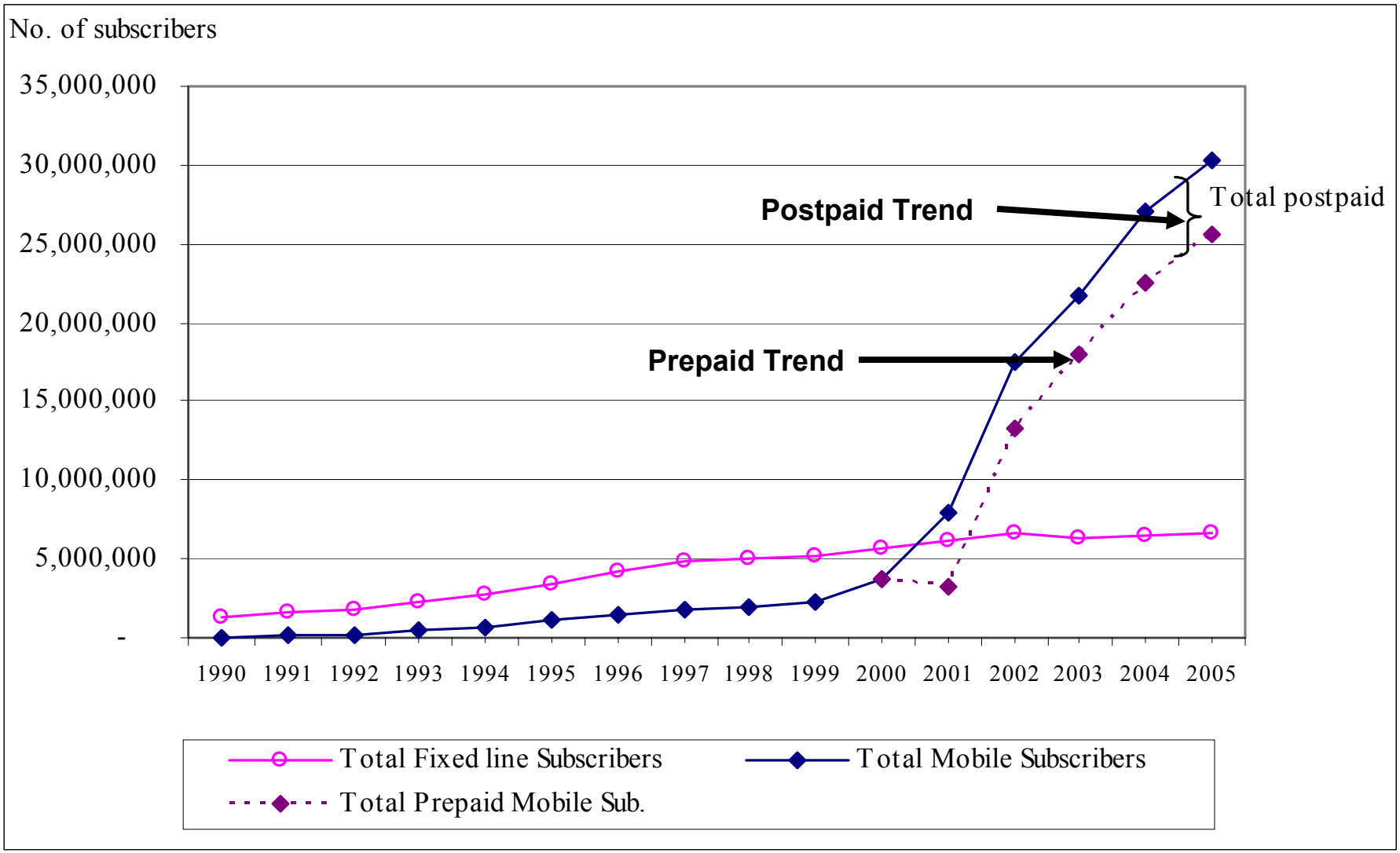
(Source: LIRNEasia SIX COUNTRY MULTI-COMPONENT STUDY 2006-2007, Sri Lanka Country Report)

Prepaid Growth in the Region: India



(Source: COAI-PWC Benchmarking Reports & S. D. Saxena, BSNL)

Prepaid Growth in the Region: Thailand



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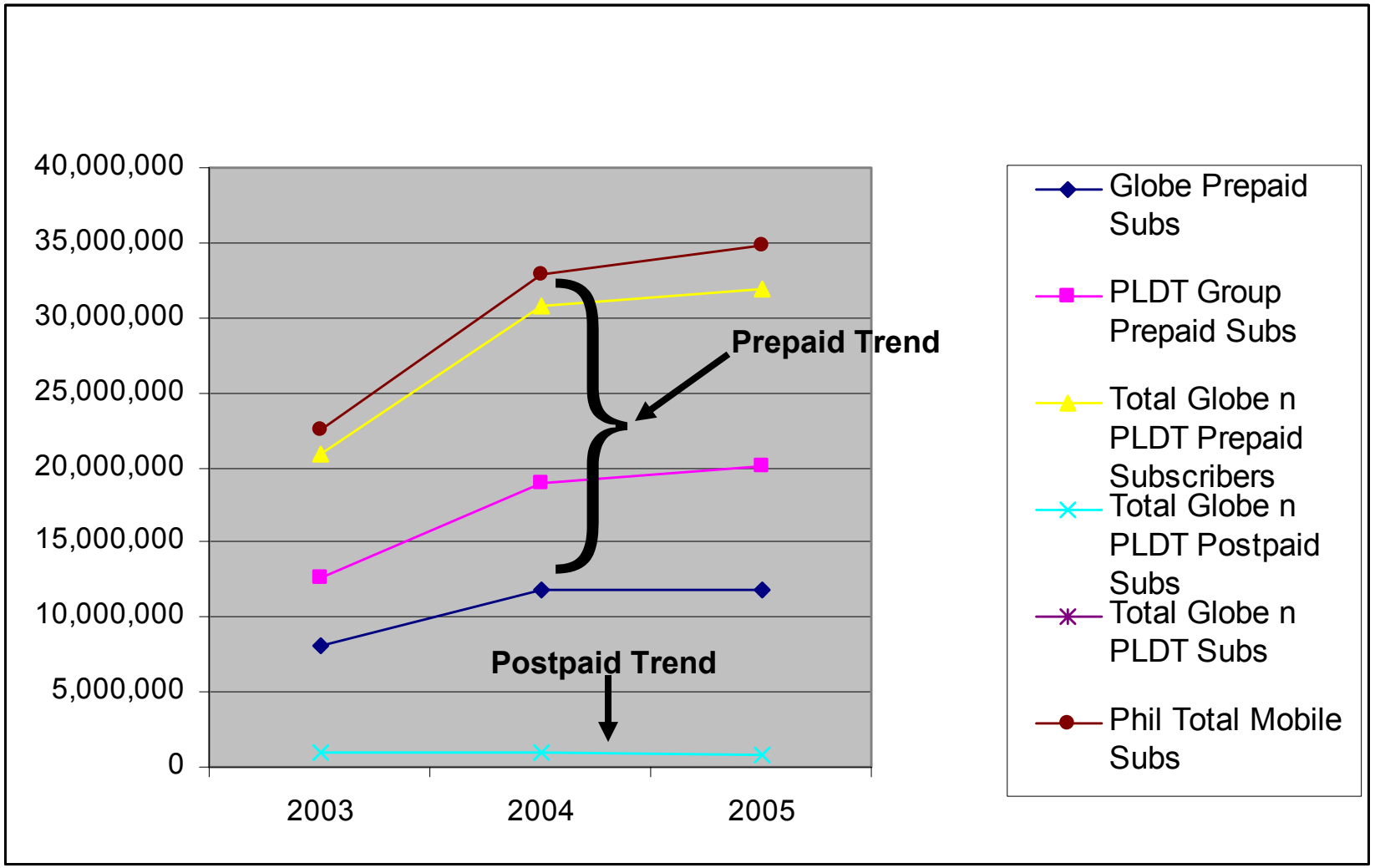
Prepaid Growth in the Region: Philippines



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Network OPEX & CAPEX	❑ Cost efficient technology solutions ❑ Prepaid offerings

Franchise type arrangements

- Promotes community based networking (i.e. local/peer to peer)
- Promotes “relationship selling”
- This in turn reduces marketing and advertising costs
- ∴ Franchise type arrangements reduce SAC

Applications and content: that adds meaningful and perceivable value

- “Shoestring” study, LIRNEasia: “Close to non-existent” instrumental usage amongst “financially constrained”, whereas relationship maintenance or social purposes seems to be a priority
- Lack of applications and content that add meaningful and perceivable value to day to day life of such people could be the reason for above
- Creation of such applications could improve revenues and utilization efficiencies of OPEX & CAPEX

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Shared Access & Payphones

- Shared access/resale models reduces costs for users in the low-ARPU world
- This in turn reduces SAC as well as service OPEX (E.g. Reduced marketing/sales costs, billing costs, administration costs etc.)
- Innovations: Community based neighbourhood networks in Indonesia allows sharing of high bandwidth costs of IP connectivity

  (Refer BOTTOM UP ICT4D IN INDONESIA By Dr. Onno W. Purbo @ http://sandbox.bellanet.org/~onno)
- Public payphones, especially mobile public pay phones, promote shared access in the low-ARPU world
- Different models adopted in various countries to provide mobile public phones

Mobile Payphones: Different Models …

Country & mobile operator	Type of payphone
Bangladesh, Grameen Phone	Woman, recruited by Grameen bank and given a micro-finance loan to buy a handset, operating mobile phones as public phones in rural areas
India, Spice Telecom	Mobile operator recruiting small entrepreneurs to operate mobile phones as payphones
South Africa, MTN and Vodacom	Both mobile operators are obligated to provide fixed-wireless public payphones in container
Uganda, MTN	Mobile operator created subdivision MTN Publicom to provide fixed-wireless payphones using a franchise-type arrangement
Colombia	Mobile technology is used for the Compartel program/ Rural telecom fund including payphones
Ecuador, BellSouth	At least 618 payphones--367 of which are in the 2 largest cities, Quito and Guayaquil. They offer public payphones also to be housed to restaurant and shop owners, gas stations and similar establishments.

(Source: Intelecon Research & Consultancy Ltd.)

Strategies to exercise control on costs

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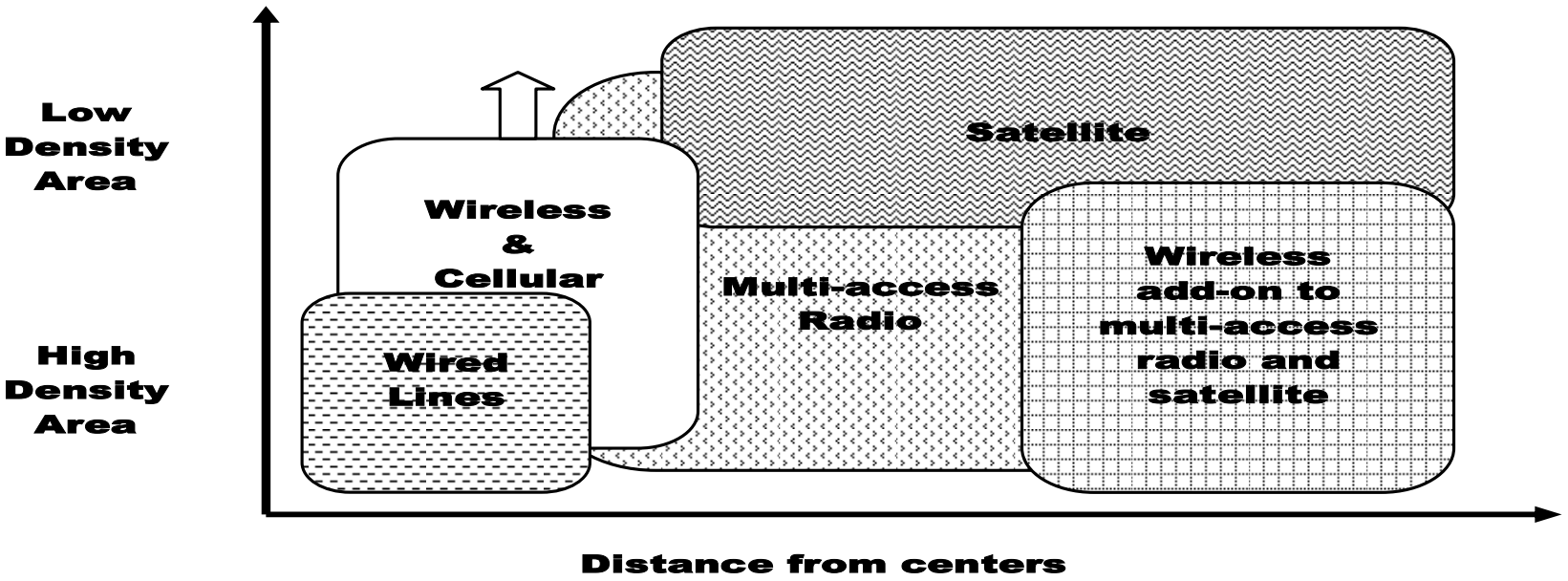
Cost Efficient Technology Solutions

- Reducing network costs is a key to keeping "financially constrained" segments connected profitably (positive AMPU)
- Demand density & distance from center are the two key parameters needed to determine access technology suitable for a particular locality or community



- Wireless, especially cellular mobile, is the preferred technology in deploying network infrastructures in new growth markets

Low cost wireless networks: Initiatives …

Design	Advantages	Examples
Compact & scalable GSM solution	❑Integrated, single enclosure ❑Maximize no. of subs per site ❑Smaller installation footprints ❑Low entry/augmentation costs	❑UltraWAVE range - Alvarion ❑"Connect" BS & BSC – Nokia ❑"Shelterless Site" - Nokia
Expanded cell coverage	❑Boosted signal strength ❑Reduced power consumption and transmission costs ❑Lesser number of cell-sites; to cover a given area	❑"Expander" soln. - Ericsson ❑"Evolium" solution - Alcatel
Distributed switching, soft switching & aggregation in transport NW	❑Efficient use of bandwidth ❑Cost savings in transmission NW ❑Reduced power, O & M, site rentals, interconnection charges ❑Simplified network management	❑Distributed Mobile Switching Center (DMSC) soln.- Alcatel ❑Mobile Core Expander soln. – Ericsson ❑Aggregation devices - RAD Com
WMN & WMCN (Wireless Mesh Networks)	❑Optimal routing & self healing ❑Rapid deployment ❑Reliable & cost affective coverage to large areas	❑WRT54G Wireless Broadband Router - Linksys ❑WMN solutions – Nortel, Cisco, Tropos Networks etc. ❑BreezeACCESS range - Alvarion

Doing Business in a low ARPU world

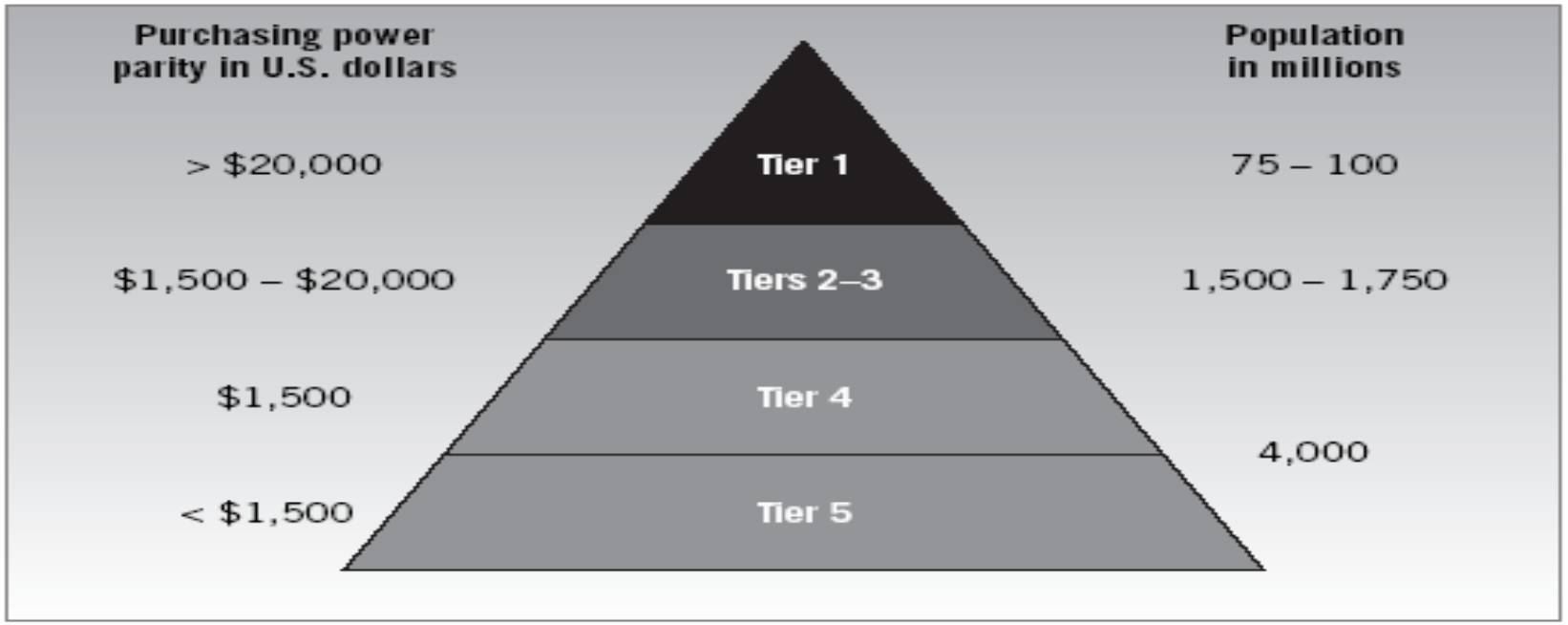
- Shift focus from ARPU to AMPU
- Identify Major cost drivers that affect AMPU, in particular, those over which operators can exercise control
- Reduce CAPEX and OPEX to achieve a positive AMPU
- Create “volume”
- (Positive AMPU) x (Volume) = Business model for low ARPU world
- Refine continuously ⟶ for sustainability

Low ARPU Business: Creating "volume"…

- The concept of "Fortune at the BOP"; preached vigorously by Prof. C.K. Prahalad could be the key here …
- The distribution of wealth and capacity to generate incomes in the world can be captured in the form of an economic pyramid
- At the top are the wealthy, with opportunities for generating high levels of income
- On the other hand, more than 4 billion people live at the BOP on less than $2 per day - They are the world's poor

However, by virtue of their numbers, the world's poor represent a significant latent collective purchasing power; that awaits to be unlocked

Fortune at the BOP



The economic pyramid. *Source:* C. K. Prahalad and Stuart Hart, 2002. The Fortune at the Bottom of the Pyramid, *Strategy+ Business*, Issue 26, 2002.

The BOP market potential is huge: with more than 4 billion underserved people and an economy of USD 2 to 3 trillion PPP

This is my estimate. Prof. Prahalad's estimate is "over 13 trillion USD"!

Creating “volume”…

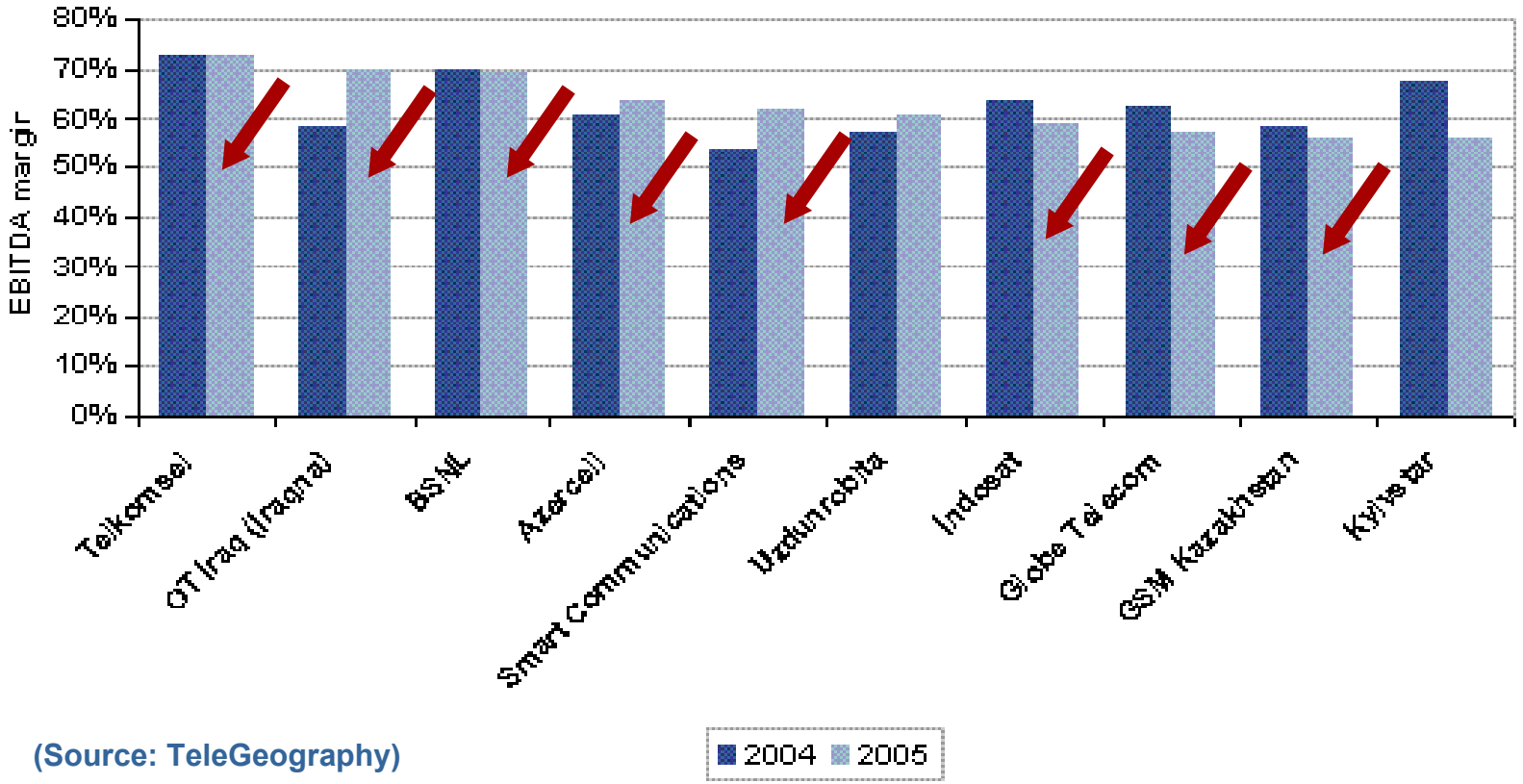
- View the BOP market as a new growth opportunity
- Expose BOP consumers to the range & variety of opportunities available
- Create value & choices for the BOP consumers
- Factor in the existing “poverty penalty” (poverty premium) in creating value and in business modeling
- Create capacity to consume:
  - Affordability :- Micro refills/top-ups/vouchers, Pre-paid calling cards of lower denominations etc. (“*telecoms in sachets*”)
  - Access:-Distribution patterns that take into account where the poor live & their work patterns (Walking distance, access during late evening etc.)
  - Availability:- Distribution efficiency; to ensure availability, as and when the BOP consumer makes the decision to consume

Positive AMPU x Volume = Business model for low ARPU world

Refine continuously: For sustainability …

- Changes in ARPU and CCPU could adversely affect the AMPU
- Continuous refinements are essential to maintain a positive AMPU, especially as penetration increases
- Access to cross subsidies from urban users (e.g. Grameen Phone), US/UA funds & ADC, if available, could be factored into increasing the efficiency of the business model
- Regulatory environment is critical for sustainability of the business
  - Unified/Technology neutral licensing regime – To ensure cost effective technology deployment
  - Asymmetrical interconnection (Higher rates for rural termination as compared to urban termination) – To increase efficiency of the business model
  - Infrastructure sharing
  - Tax reductions/exemptions for handsets

Cellco success stories: Mostly in Asia …

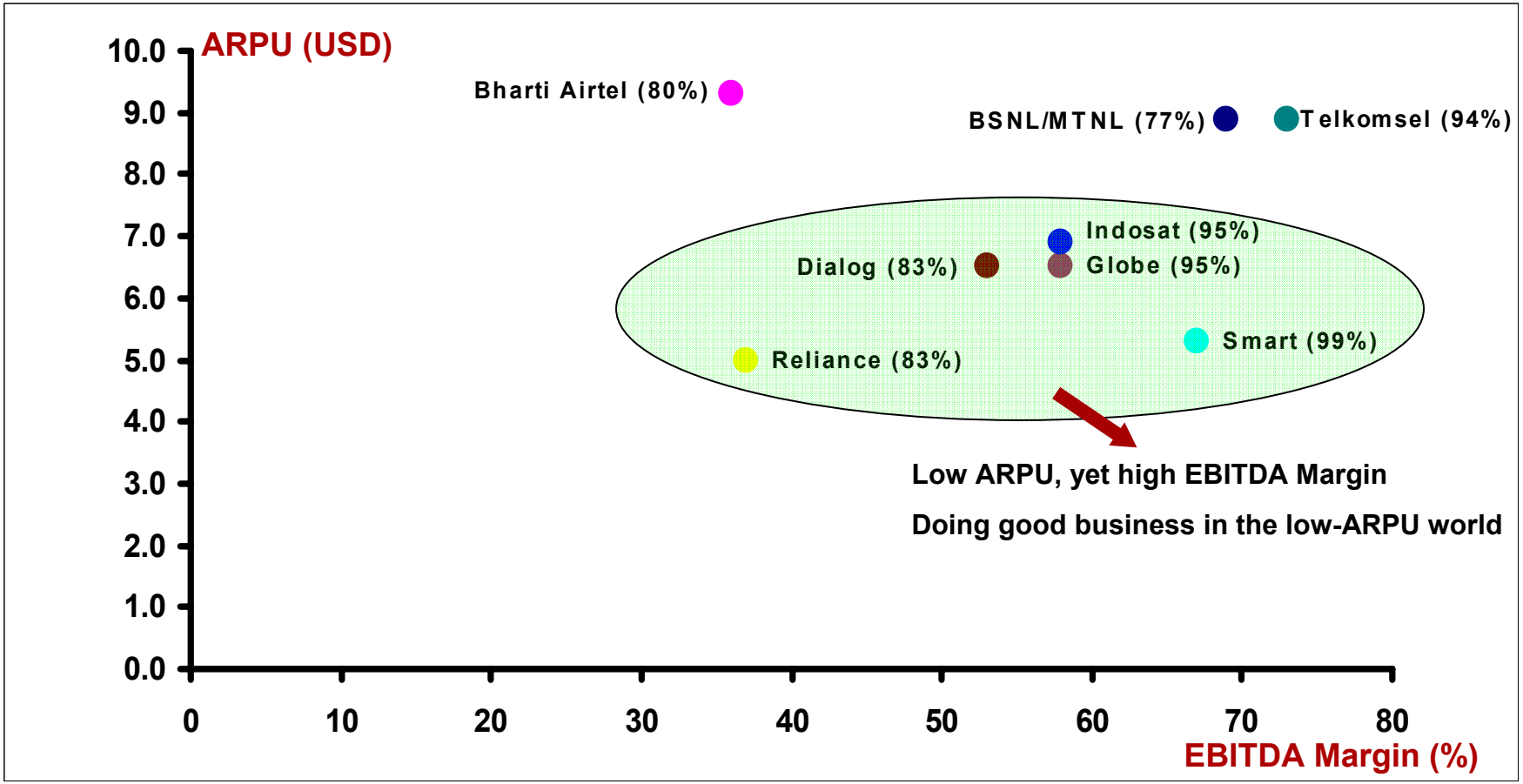


(Source: TeleGeography)

In terms of EBITDA margin, 8 of the top 10 cellcos ranked by TeleGeography's Wireless Operator Metrics ranking service hail from Asia, with the 2 remaining coming from Eastern Europe (*2005 data*)

(Success stories mostly in the low-ARPU world?)

Performance of Some Regional Celcos - In the Low – ARPU World



Key: – Operator Name (Prepaid %)

(Created from 2005 Data – Sources: TRAI, COAI & Company Data)

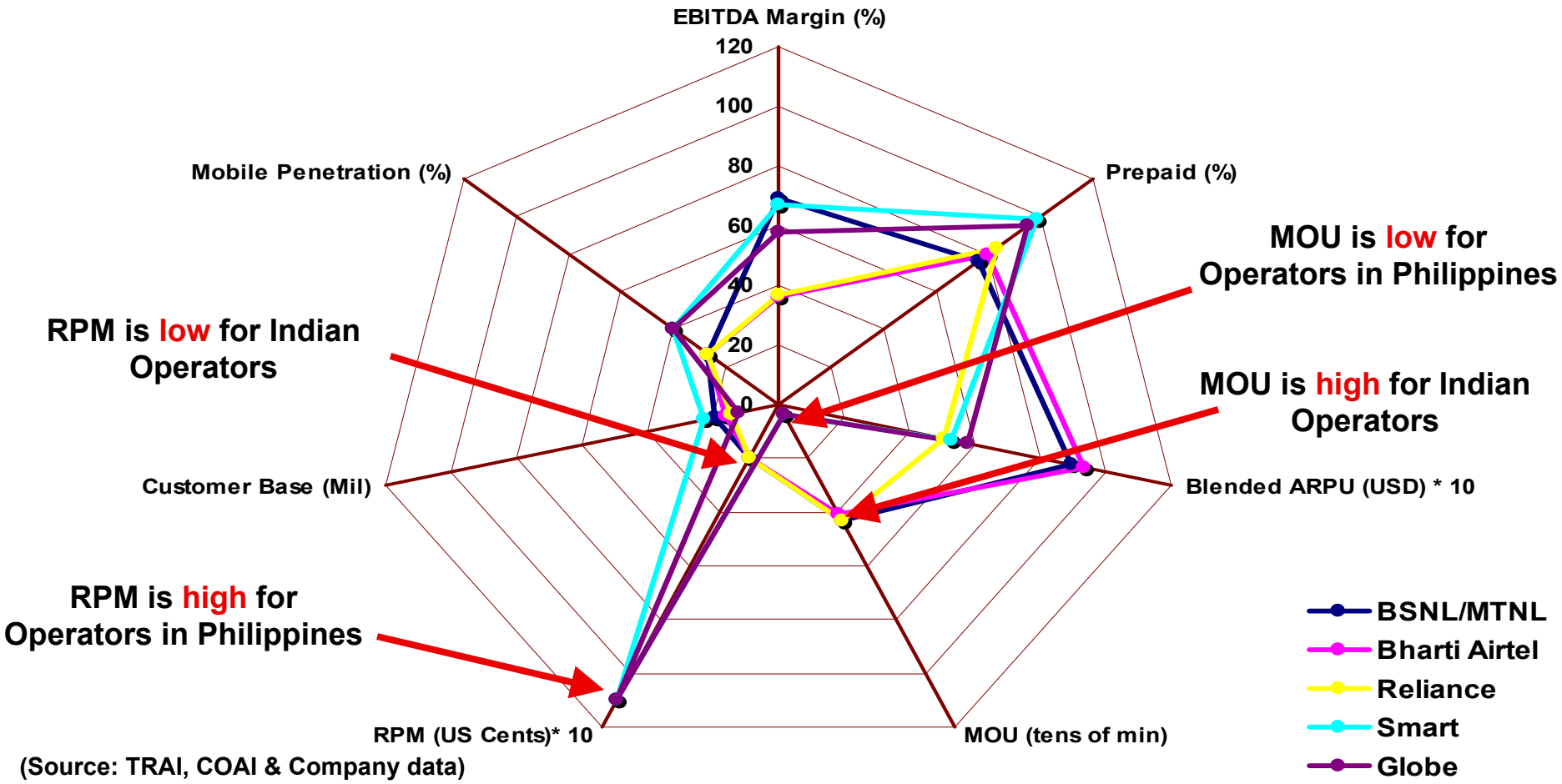
Low – ARPU Business Models: SMART of Philippines appears to be leading the pack, with an EBITDA Margin of 67% at a blended ARPU of 5.3 USD

Low - ARPU Performance: A word of caution

- High EBITDA margin in a low-ARPU business may be due to high RPM (Revenue Per Minute).
- High tariffs could drive RPM higher, depending on the nature of the competition.
- A high RPM in a low-ARPU scenario could indicate a high “poverty penalty” or “poverty premium”.
- The above phenomenon is characterized by low MOU (Minutes Of Usage) per user.
- Low to moderate mobile penetration/subscriber bases could also be an explanation for very high EBITDA

Therefore, high EBITDA margin models in the low- ARPU world may not necessarily deliver value for money to the BOP users

Low - ARPU Performance of Regional Celcos: A wider perspective



(Source: TRAI, COAI & Company data)

Indian users pay less and use more

Filipino users pay more and use less

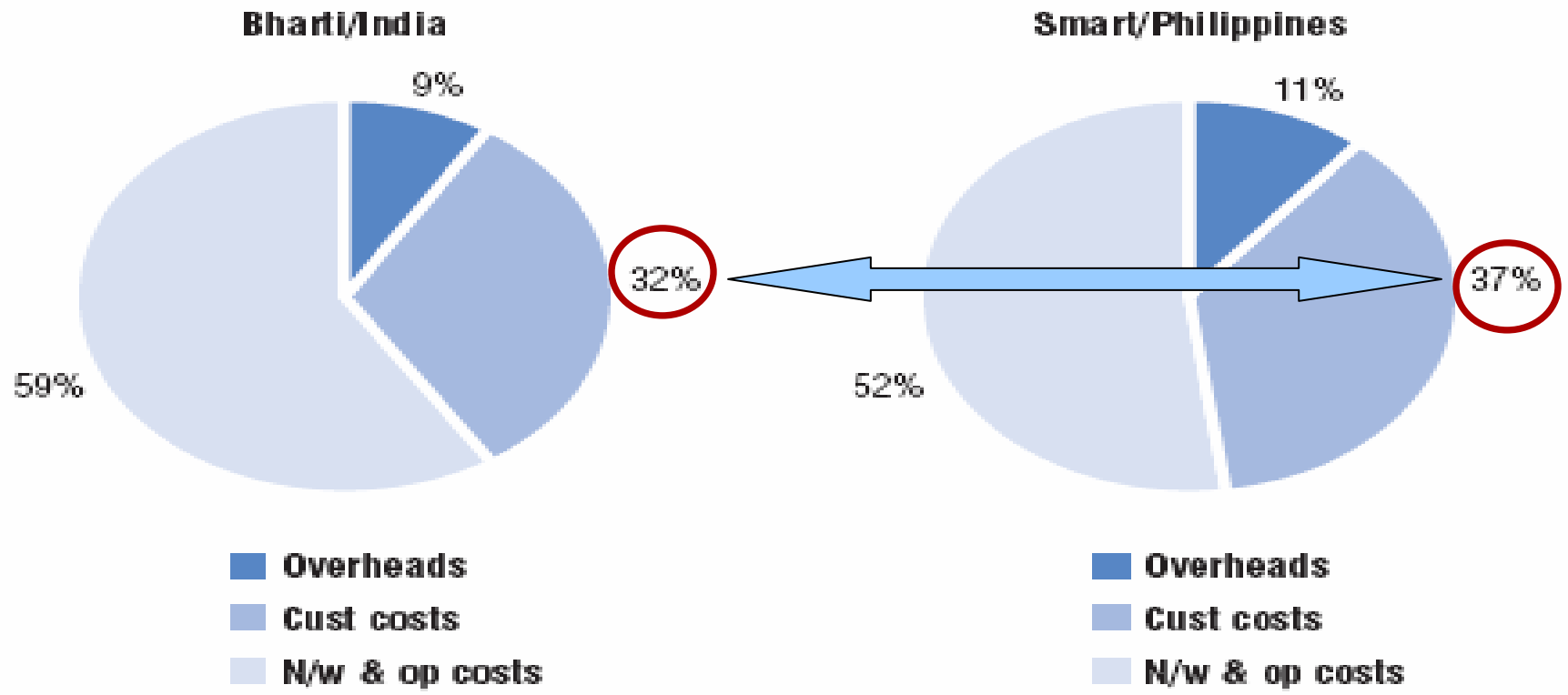
Emerging Concept: "Subscriber Model" vs. "Minute Model"

- **Recent research has revealed the existence of two Celco business models in the developing world; the "Subscriber Model" and the "Minute Model".**

  (Source - Minutes vs. Subscribers; Strategic Perspectives for Wireless Telco Operating Models, an IBM Business Consulting Services' White Paper)

	Subscriber Model	Minute Model
Focus	Relative cost of subscribers	Relative cost of capacity (technology)
Objective	Maximize unit subscriber profitability	Maximize per minute profitability
Approach	A "Marketing" perspective	A "Factory" or a "Production" perspective (Maintain low tariff to attract & retain customers)
KPIs	❑Subscriber market share ❑ARPU ❑Cost per subscriber	❑Net realization per minute ❑Average capacity utilization on airtime capacity created ❑Cost per minute
Environment	❑Smaller markets ❑Few competitors ❑Competition on differential services	❑Markets with significant scale potential (beyond 20 – 30 million subscribers) ❑Fragmented competitive structure ❑Higher relative cost of technology
Success Stories…..	Smart & Globe in Philippines	Bharti in India

Cost Structures: “Minute” model vs. “Subscriber” model



Minute Model

Maintain low tariffs to attract customers

Hence Customer Costs are relatively low

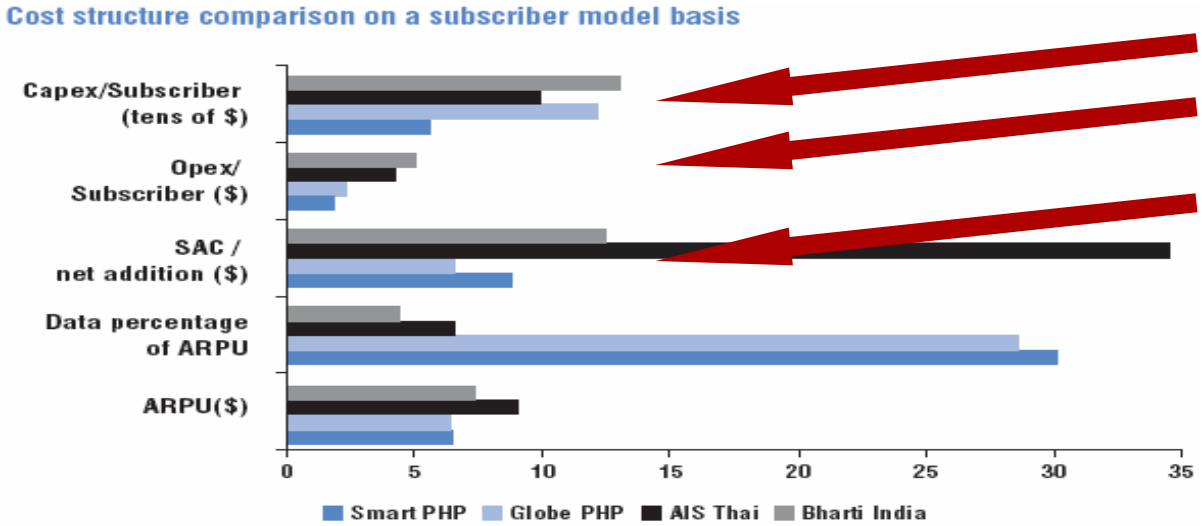
Subscriber Model

Marketing approach to acquire customers

Hence Customer costs are relatively high

(Source: Extracted from the IBM Business White Paper mentioned before)

"Subscriber Model" and "Minute Model": Two different optimization problems

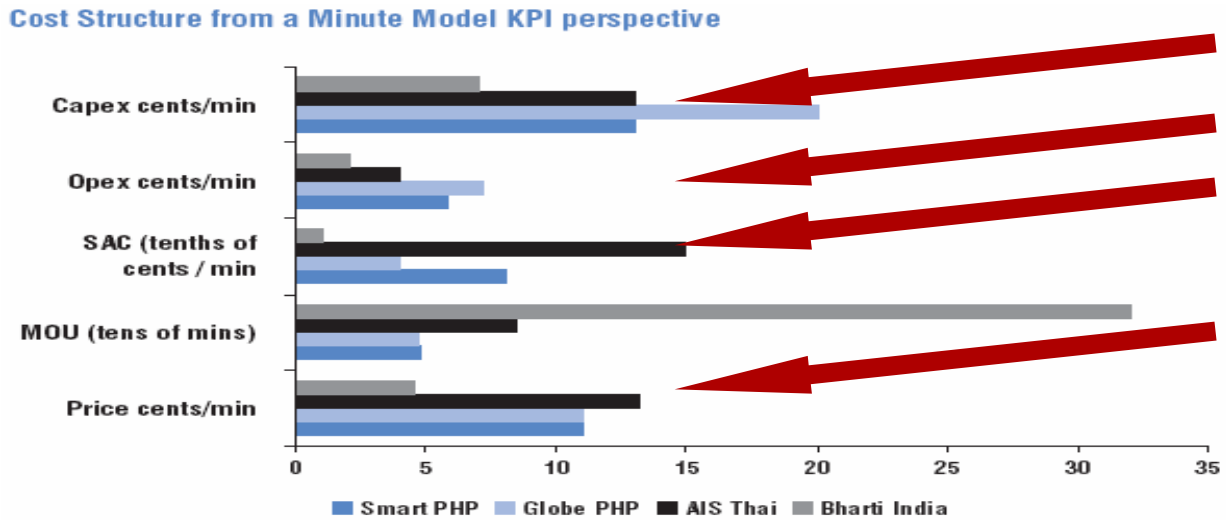


Lowest Capex per Sub = Smart

Lowest Opex per Sub = Smart

Lowest SAC per Sub = Globe

Subscriber Model = Optimization w.r.t. profit margin per subscriber



Lowest Capex per Min. = Bharti

Lowest Opex per Min. = Bharti

Lowest SAC per Min. = Bharti

Lowest PPM = Bharti

Minute Model = Optimization w.r.t. profit margin per minute

(Source: Extracted from the IBM White Paper mentioned before – Dec. 2004 data)

Thoughts for the future…

- High EBITDA margin performers in low-ARPU markets may not necessarily deliver value for money to the BOP users.
- Although it appears that "Minute" Models would serve the BOP market better, the current thinking is that such models would work only under certain environments, mainly due to the need to harness the "scale" potential.
- Some suggest that Celcos should move from being country players to regional players or even global players; to increase the market scale and tap enough capacity from the "collective purchasing power at the BOP" - to sustain low - ARPU business models.
- However, it appears that there is much potential for research in this area; thro' mathematical modeling and optimization techniques. Optimization w.r.t. long term profitability of operator as well as the value-for-money factor for the user could yield interesting hybrid models!

Thank you for your attention !