Internet for the Next Billion
Buenos Aires, November 26th, 2009
Nokia Siemens Networks
Connecting the Next Billion

The next billion vision
Solutions for the next billion
Services for the next billion
A complex ecosystem

5 billion people connected
Our market vision 2015 – the World connected

Applications predominantly in internet

Multitude of business models

5 billion people connected

Broadband everywhere
The challenge of connectivity: Affordability

Global Income Pyramid

- **IP connectivity affordability barrier at 1.2bn (2007)**
- **Voice affordability barrier at 3bn (2007)**
- No voice & No Internet/IP
- **0.8bn >40$/day**
- **1.5bn 4-40$/day**
- **1.3bn 4$/day**
- **1.4bn 2$/day**
- **1.3bn 1$/day**

Source: Nokia Worldmap 2006, NET Strategy & Technology
Towards universal access

Over 1.5 million mobile subscribers every day, mostly coming from emerging markets
New growth will come primarily from lower income segments

Example income distribution

- Population without mobile
- Penetration now
- Expected penetration in 2009

Income classes:
- High
- Upper mid
- Mid
- Low
- Very low

Share of population
The opportunity in New Growth Markets

Mature markets

Emerging markets

- Overall high growth opportunity in emerging markets
- The cellular penetration supersedes the PC penetration by far, which drives our believe that mobile owners will drive the growth
- Internet in emerging markets will be fixed and mobile

Source: Nokia Siemens Networks 2007
The Connectivity Scorecard study

Groundbreaking study that ranks countries on approximately 30 indicators of connectivity contributing to social and economic prosperity

Created by Leonard Waverman, professor of economics at London Business School

Conducted under his direction by global economic consulting firm LECG and commissioned by Nokia Siemens Networks

Key findings:

• Not even the world’s richest countries can afford to become complacent about their current telecom and computing profile
• Every nation has substantial scope for re-organizing government, business and consumer activity to more fully reap the benefits of technology
Latin-America TCO facing large differences with other emerging economies

APAC has clearly the lowest TCO across regions

Source: Nokia, November 2007
Monthly TCO per country

Only four countries meet the monthly TCO target of USD 5, all of them in APAC.

Average 13.16 US dollars

Source: Nokia, November 2007
High TCO/GDP per capita ratio = low penetration

TCO to GDP per capita ratio

Source: Nokia, November 2007
Digital inclusion requires much more than just connectivity...

Source: Marja-Liisa Viherä 1999 (adapted)
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A customized solution for a challenging environment:
Nokia Siemens Networks RLU project at Oi, Brazil

Transmission not available to PGMU locations

Deployment of terrestrial Tx capability only possible to connect 1 public payphone to almost all locations with between 100 – 300 inhabitants (2569 locations)

Other locations – 300 thru 600 inhabitants – called for 1. an access device able to offer telephone, fax and Internet and 2. digital transmission to connect these services to Oi’s network. (1935 locations)

Total 4500 rural sites, voice and broadband data services, public and private users
A solution matching Latin-American environmental conditions:
Nokia Siemens Networks RLU

RLU site at a school

Solar power supply

Satellite feeding

RLU
Nokia Siemens Networks Village Connection meeting the challenge of connecting the next billion

The challenge:
- Profitable mobile connectivity for rural subscribers who typically can afford US$ 3 per month

The solution: Village Connection
- Significantly reduced TCO through novel network architecture and slim site solution
- New business model enabled by local subscriber management

Ready for roll-out:
- Connecting communities in India now
- Global roll-out starting 1Q2008
Evolution from affordable voice to Internet

**Phase 1: Voice services**
- Personal GSM Voice + SMS
- Village Connection

**Phase 2: Shared internet**
- Internet kiosk to access Internet with assistance
- Village Connection + Internet kiosk

**Phase 3: Personal internet**
- Personal mobile with internet
- Shared mobile with internet
- Shared PC
- Broadband services

Consumers will want to try out the benefits that internet will bring and understand the value.
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Services to match with end-users needs

**E-Government**
- Documentation
- Job Searching
- Taxes Collection

**Health Care**
- Alerts / Reminders
- Patient Surveillance
- Prevention Campaigns

**Mobile Banking**
- Payment / Cashing
- Stock Exchange
- Money / Credit transfers

**Small Business**
- Local Advertising
- Payment / Financing
- Marketplace Integration

**Education**
- Distance Learning
- Content Distribution
- Technical Training (troubleshoot)

**Agriculture**
- Weather
- Market Information
- Commodities Prices
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Find your new role in the complex ecosystem

Operators
Vendors
Authorities
NGOs

Access:
- Rural coverage
- Regulatory environment
- Political initiatives

Affordability

Competence:
- IT skills

Motivation:
- E-government
- Relevant and local content
- Social media
- Job information
- Health care
- Education
- Buy/sell
- Support for small businesses
- Banking
- Entertainment
- Local community commitment

Schools
Universities

ISPs
Local companies and entrepreneurs

Health care providers
Banks
Individual users

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Mobile World Congress 2008, Barcelona
The vital role of multi-stakeholder cooperation

- **Private sector**: Affordable connectivity
- **Market expansion**
- **Affordable connectivity**
- **Socio-economic benefits**
- **Consumers**
  - ICT adoption
- **Public sector**
  - Regulation & initiatives
- **Enabling environment**
- **Income growth**
- Social investment
- **Civil society**
  - Income growth
  - Regulation & initiatives
  - Enabling environment
  - Affordable connectivity
  - Market expansion
  - Socio-economic benefits
  - Consumers
Cooperation is needed to bring digital inclusion

**What can the private sector do?**
- Focus on the total cost of ownership
- Cost-effective end-to-end solutions
- Affordable and innovative devices and services

**What can governments and regulators do?**
- Independent regulator to foster healthy competition
- Compliance with global technological standards
- Imposing low or eliminating all taxes and duties on mobile devices, network infrastructure equipment and services
- Delivering a regulatory framework that facilitates convergence
Conclusion: Nokia Siemens Networks and the digital inclusion challenge

- Innovate to serve new customers
- Address communications needs
- Adapt technology to social needs
- Make services affordable
- Work with authorities

Gracias!
Presenter
Nokia Siemens Networks
Guillermo Wichmann