Measuring ICT usage in the SME sector

ICT indicators and diffusion

Meoli Kashorda, MIEEE MIET
Professor, Faculty of Information Technology
Strathmore University

Agenda

- Background and terminology
- ICTs, Trade, and Growth
  - Kenya Country Study Report 2007
- National ICT Policy 2006 and ICT usage measurements
- Core ICT indicators in business
  - Partnership on measuring ICT for development
- ICT usage in SME sector
  - World Bank Investment Climate Survey 2003
  - Research ICT Africa data (2005)
- Firm-level strategy and national ICT policy implications

ICT vs. Information Systems

- Use ICT as an umbrella term to mean
  - Computing (software and hardware)
  - Telecommunications (mobile, fixed, Internet), and broadcasting
- Information systems (sometimes called IT systems)
  - IT + processes + people
  - Used to capture, process, disseminate information for decision-making

ICT and Trade and Growth

Kenya Country Study 2006

- ICT facilitates growth
  - Findings of Kenya Country Study of 2006 (Wagacha and Kashorda, 2007)
  - Barriers to ICT usage in domestic and international trade not explicitly addressed by the national ICT policy 2006
- ICT is a growth factor
  - Relationship between mobile teledensity growth and GDP growth

Some empirical evidence of ICT-Growth-Trade

1. Benefits of ICT cut across Developed and Developing Countries;
2. Developing Country benefits are HIGHER
3. Example of mobile phone: For an increase of 10 units per 100 people:
   - GDP growth up 0.6 percent per year in Developing countries (twice as high as in Developed Countries (Prof. Fuss, London Business School)
   - *(Over 70 billion Ksh for Kenya)*

- *Open question – Is the Kenyan 6.1% GDP growth all due to growth in mobile teledensity?*

Some empirical evidence of ICT-Growth-Trade (cont'd)

4. 1% increase in Internet Users per 100 inhabitants
   - Increases Total Exports by 4.3 percent;
   - Increases export from low income to high-income countries by 3.8%
     - See Clark and Wallsten (2004)
   - *Developing countries* with initial poor access to Internet *gain most*

ICT Tax regime

- Good News
  - No duty or VAT on PCs in Kenya
  - No duty or VAT on PC parts (2006)
    - Prices of PC falling?
- Bad News
  - Total Mobile Airtime Tax = 26%
  - Excise duty = 10%; VAT =16%
  - Conceptually at par with taxes on alcohol and cigarettes (Dr. Wagacha)
- Study recommended
  - reduction of excise tax to 5% to increase user base
  - Use excise tax to build rural infrastructure/Universal Service Fund
  - Is additional taxation required to fund universal access

Why has the mobile teledensity been growing rapidly?

- Kenya Communications Act 1998
- Large informal sector of the economy
  - Small and medium enterprises
- Low teledensity of fixed telephone lines?
  - High latent demand for voice services

ICT policy 2006 and SME sector

Ambitious Vision

A prosperous ICT-driven Kenyan society

Mission related to economic and social growth

To improve the livelihoods of Kenyans by ensuring the availability of accessible, efficient, reliable, and affordable ICT services

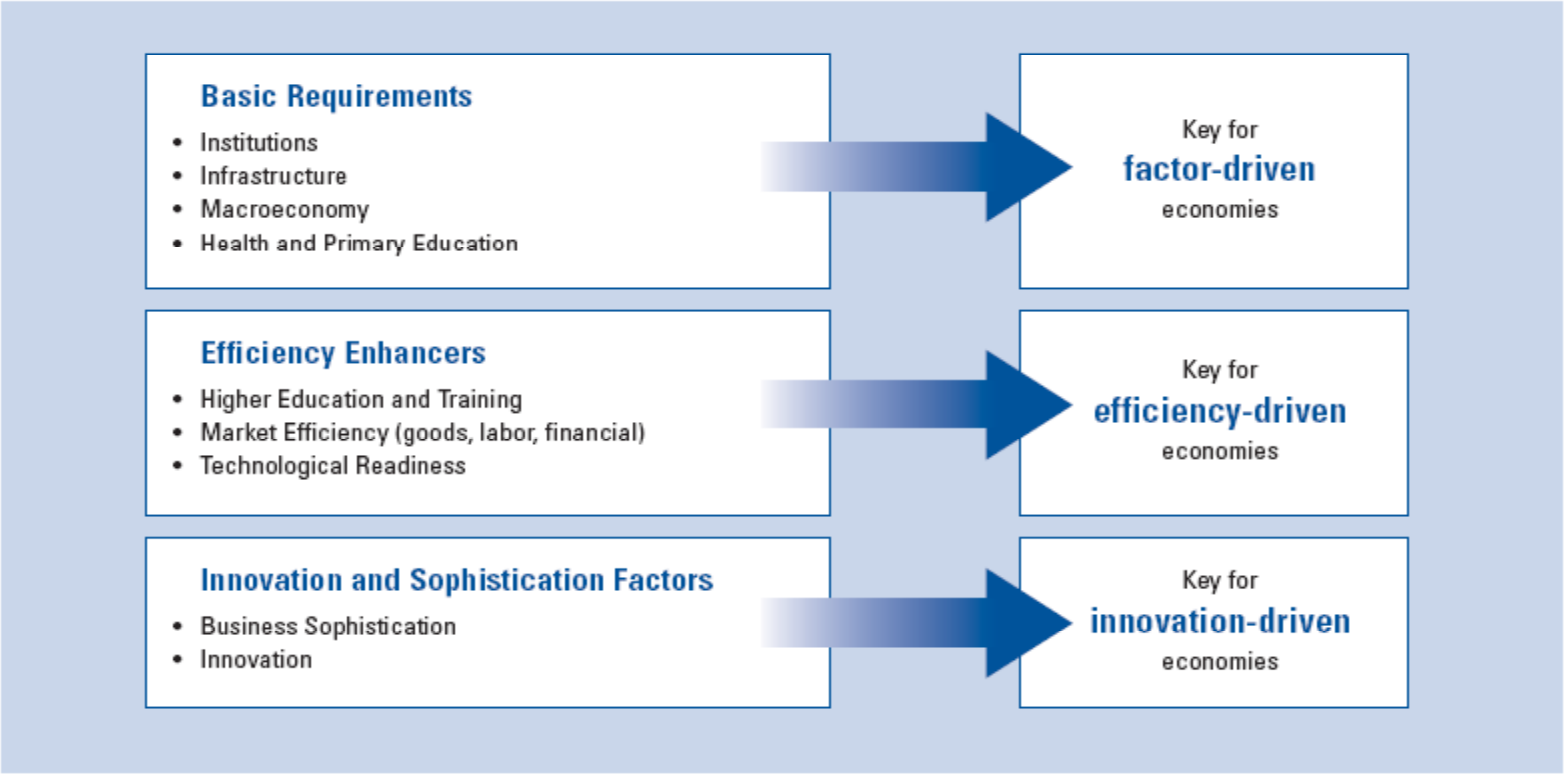
ICT policy 2006 and SME sector

- Status of ICT in Section defined in terms of the supply-side of the communication services
  - No mention of information services in the status
- Addresses ICT infrastructure issues
  - But not ICT-enabled business environment
- Concludes that problems of e-commerce due to inadequate policy, legal, and regulatory framework
  - This research suggests that this is NOT the reason for slow uptake of IS in SME sector
- ICT sector undefined in the policy
  - E.g., OECD definition based on International Standards for Industrial Classification (ISIC)
- How shall we measure progress and contribution to GDP?
  - No targets for the policy objectives or indicators for the strategies in the policy document

Why is Internet not growing?

- Internet market analysis estimated 2.7 million users in 2006
  - (Waema and Kashorda 2007)
  - Supply-side estimate!
- Low usage in government and educational institutions?
- Low usage in the SME sector?
- Low usage by households
  - 5% of Mobile users using Mobile Internet users?
- Low penetration of PCs
- No comprehensive demand-side measurements have been conducted in Kenya
  - How would we measure? What indicators?
- ICT readiness depends predominantly on usage by households, businesses, government, and education sector.

Assessing Global Competitiveness Index 9 pillars (Kenya ranked 93/128)



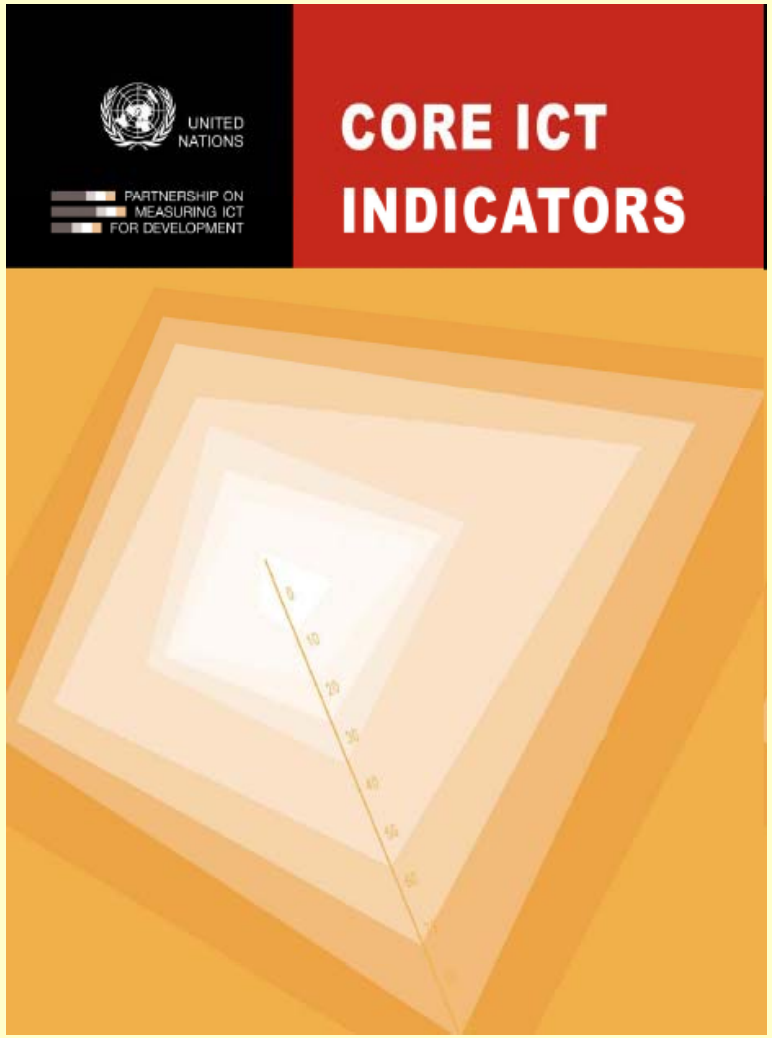
Source: World Economic Forum - Assessing Africa's Competitiveness

Core list of ICT indicators

Definitions, model questions, methodologies:

PARTNERSHIP ON MEASURING ICT FOR DEVELOPMENT

http://measuring-ict.unctad.org



Core list of ICT indicators

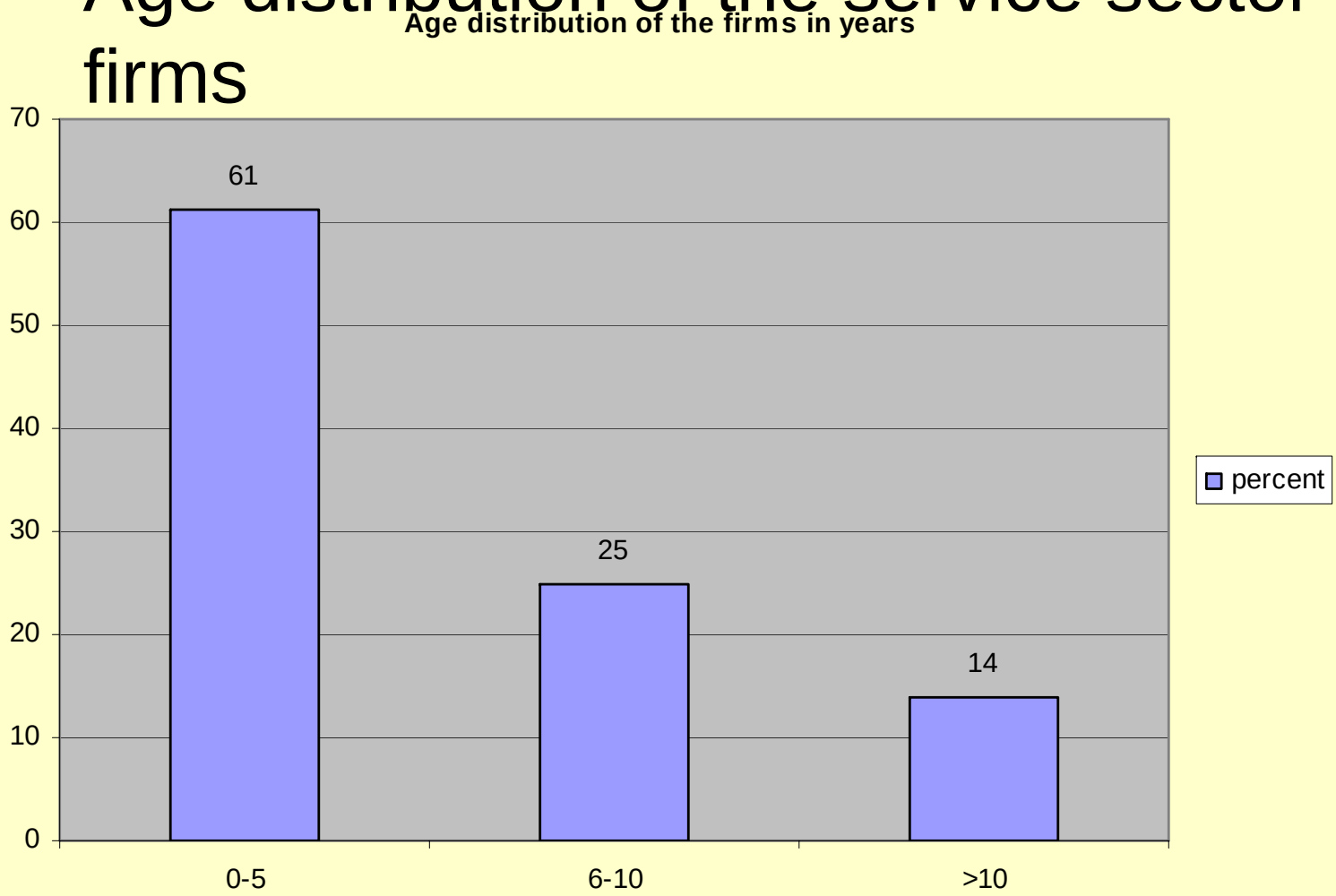
Set of indicators	*Basic core*	*Extended core*	*Reference*	*Total*
ICT infrastructure and access	**10**	**2**		**12**
ICT access and usage by households and individuals	**10**	**3**	**1**	**14**
ICT usage by businesses	**8**	**4**		**12**
ICT sector and trade in ICT goods	**4**			**4**
Total	**32**	**9**	**1**	**42**

ICT usage in SME sector

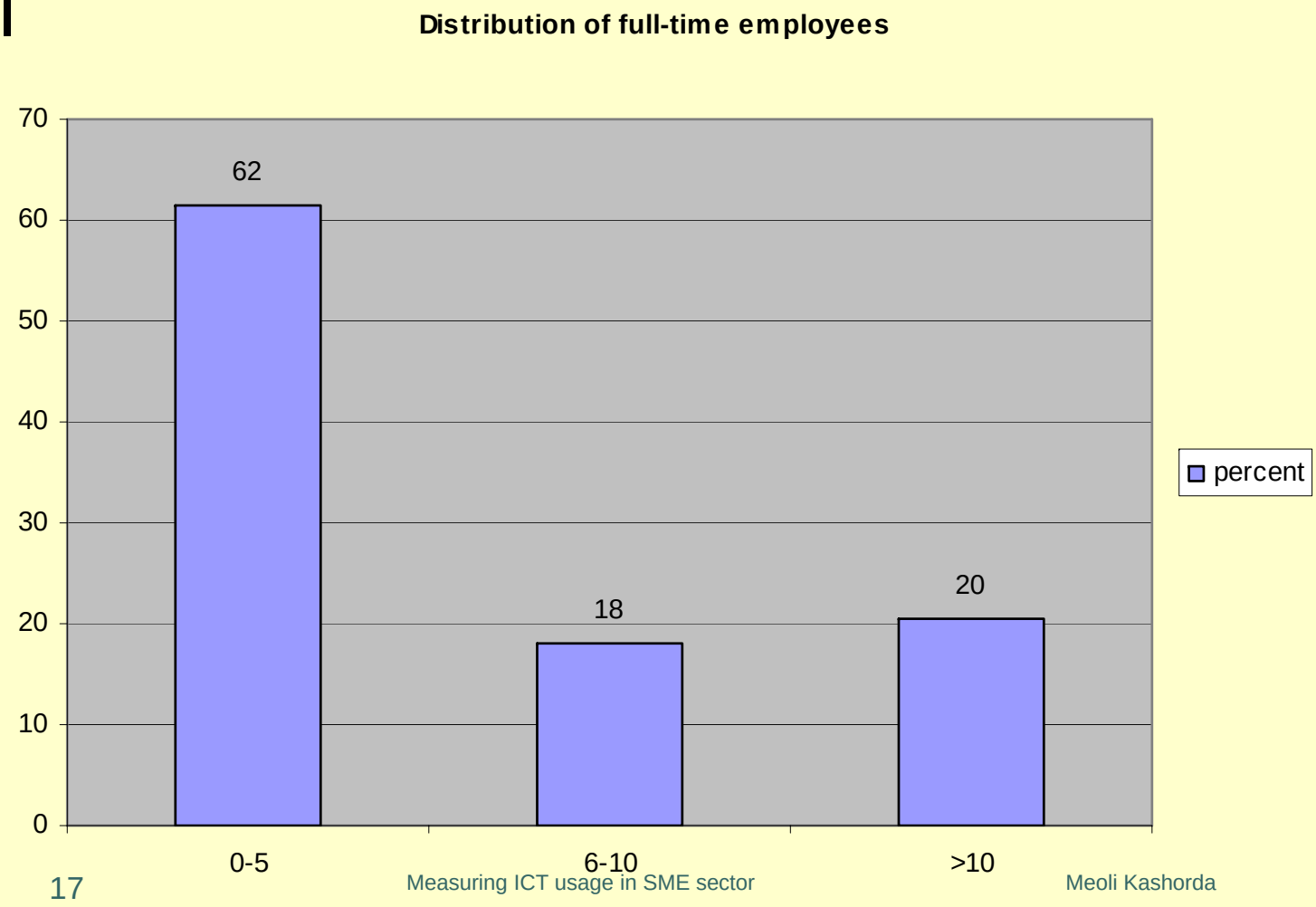
Analysis of Research ICT Africa (RIA) data

- Survey conducted in 2005 by RIA researchers
- Survey of 216 service sector SMEs in cities and major towns in Kenya
  - Manufacturing sector data not analyzed
- 61% of the enterprises < 5 years old
- Small enterprises
  - 62% with 5 employees or less

Age distribution of the service sector firms



Distribution of no. of employees



Indicators on ICT access and usage by business

Core indicator	Data source
B1 Proportion of businesses using computers	Research ICT Africa (RIA) SME 2005 survey and World Bank Investment Climate surveys 2003
B2 Proportion of employees using computers	Research ICT Africa SME 2005 survey and World Bank Investment Climate surveys 2003
B-3 Proportion of businesses using the Internet	Research ICT Africa SME 2005 survey and World Bank Investment Climate surveys 2003
B-4 Proportion of employees using the Internet	Research ICT Africa Surveys SME 2005 survey and World Bank Investment Climate surveys 2003
B-5 Proportion of businesses with a Web site	Research ICT Africa SME 2005 survey and World Bank Investment Climate surveys 2003

Indicators on ICT access and usage by business (cont)

B-7 Proportion of businesses receiving orders over the Internet	Research ICT Africa SME 2005 survey and World Bank Investment Climate surveys 2003
B-8 Proportion of businesses placing orders over the Internet	Research ICT Africa SME 2005 survey and World Bank Investment Climate surveys 2003
B-9 Proportion of businesses accessing the Internet by modes of access (e.g., dial-up, narrowband, mobile, broadband)	Research ICT Africa SME 2005 survey and World Bank Investment Climate surveys 2003
B-10 Proportion of businesses with a LAN	Research ICT Africa SME 2005 survey and World Bank Investment Climate surveys 2003
B-12 Proportion of employees using the Internet by type of activity (e.g., Internet e-mail, information access, Internet banking, G2B customer service, on-line catalog	Research ICT Africa SME 2005 survey and World Bank Investment Climate surveys 2003

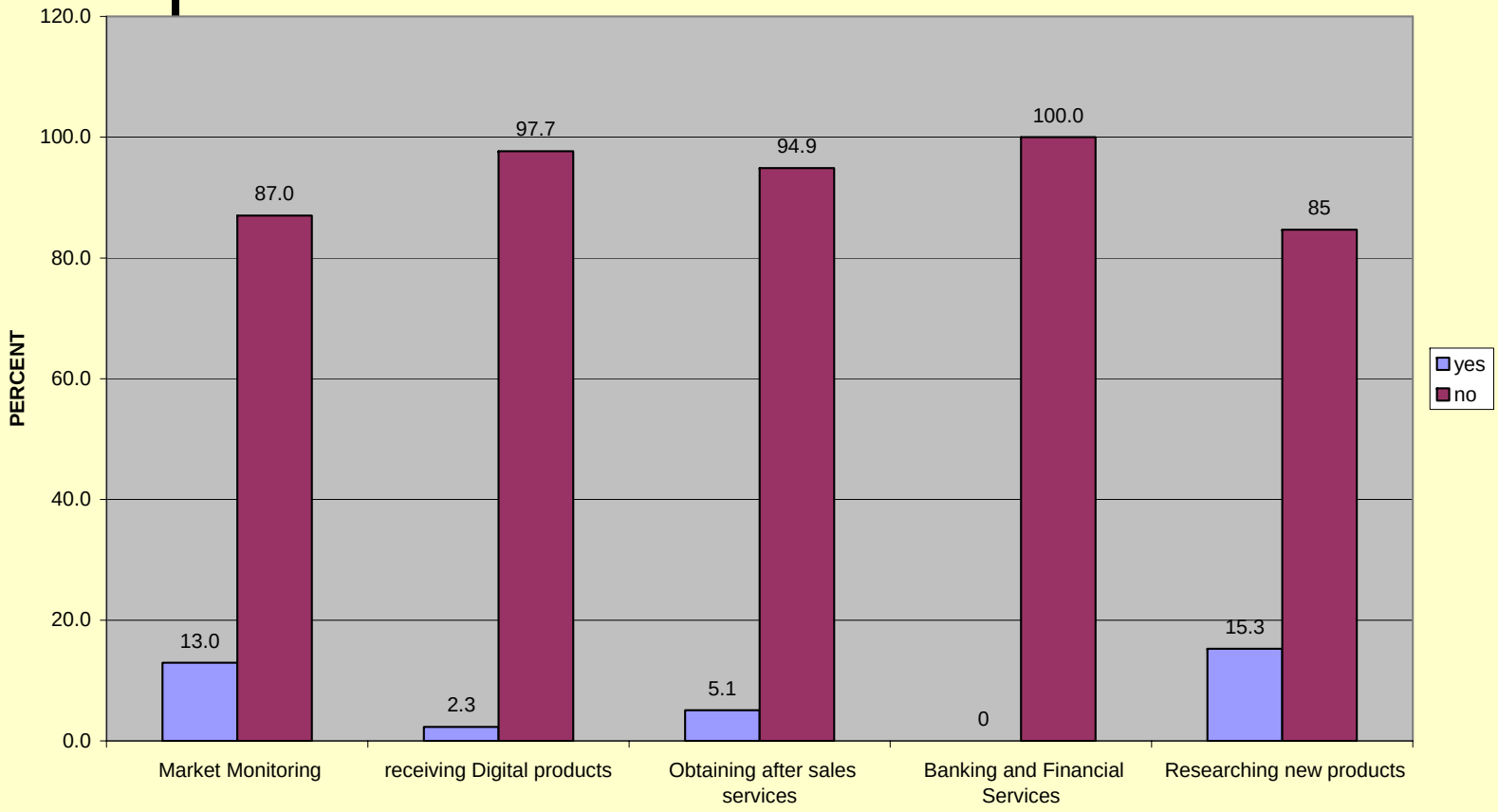
Findings for SME sector

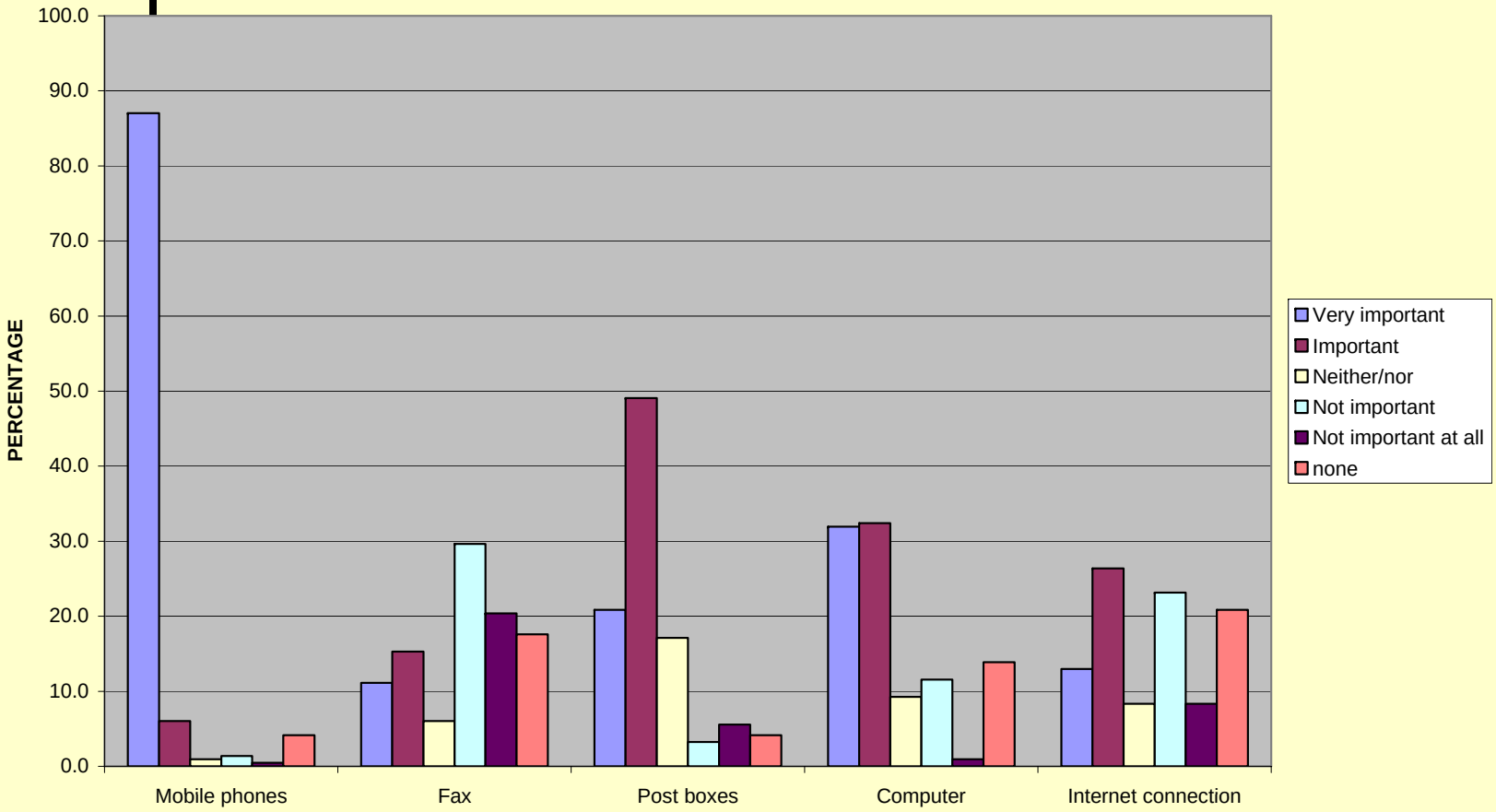
Core indicator	Percentage
B1 Proportion of businesses using computers	17.1
B2 Proportion of employees using computers	29.2
B3 Proportion of businesses using the Internet	6.7
B4 Proportion of employees using the Internet	7.4
B5 Proportion of businesses with a Web site	3.7
B7 Proportion of businesses receiving orders over the Internet	9.3

Findings (cont)

B8 Proportion of businesses placing orders over the Internet	7.4
B-12 Proportion of employees with e-mail	35.6%
B13 Proportion of businesses with working computers	43.5
B14 Proportion of business with e-mail subscriptions	29.6
B15 Proportion of businesses with Internet access	25.0

PURPOSE THE ENTERPRISE USE THE INTERNET AS CONSUMER(USERS)




IMPORTANCE IN BUSINESS ACTIVITIES
PERCENTAGE
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Mobile phones
Fax
Post boxes
Computer
Internet connection
Very important
Important
Neither/nor
Not important
Not important at all
none

World Bank's Investment Climate Survey 2003 data

Internet usage	Kenya	Small (1-19 employees)	Medium (20-99 employees)	Large (100+ employees)
Firm age (years)	27.11	27.05	22.97	32.8
Sample size	282	79	104	76
Firms that export directly (%)	52.7	27.94	57.45	70.15
Domestic sales	81.82	89.73	80.37	74.52
Firms using the Web in interaction with clients/suppliers (%)	32	13.92	37	42.67
Uses email to interact with clients/suppliers (%)	78.42	62.03	81.55	90.67

ICT applications small businesses

- In Kenya, limited to telephones
  - Majority have no fixed lines
  - All have mobile lines
  - Many do not use computers or the Internet
- Small businesses ready to use ICT applications
  - But availability, affordability and access barriers
  - No baseline survey data of ICT usage in SME available

National ICT leadership and strategy

- Implementation of policy and strategy depends on leadership capacity of businesses, government, and educational institutions
- Focus on change management and project management
  - Training – business schools?
  - Performance management

National ICT policy and strategy recommendation

- Conduct a comprehensive baseline survey of ICT in business including SME sector
  - Use the core indicators agreed upon by the Partnership on Measuring ICT for Development
  - Internationally comparable data
  - Involve the Kenya Bureau of Statistics and CCK for credibility
- Adopt ISIC for measuring the ICT sector
  - ICT sector measurement through KRA
- Include explicit targets in the policy
  - ICT usage in business targets

Firm-level ICT strategies

- Anecdotal evidence
  - Most of the companies listed in NSE are effective users of ICT
  - Large and Medium-sized also effective users of ICT
  - Is it stronger leadership? International business?
- Focus group discussion suggests
  - Business and management education for small and micro-enterprises very important
- Analysis of affordability for SME sector necessary?
- How about availability of ICT applications for SME sector?

END

Thank You!