Cost effective methodologies for ICT survey design in Africa

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Introduction

- Growing demand for data and analysis across Africa

- RIA has undertaken nationally representative surveys at household, individual & informal business levels to meet this demand

- Conducted in 2004, 2005, 2007/8 & 2011/12

- Resulted in evidence based analysis to inform policy

- Countries surveyed have reduced from 20 in 2004 to 12 in 2011/12

- Importance of qualitative and quantitative data

- Affordability is key - especially in Africa
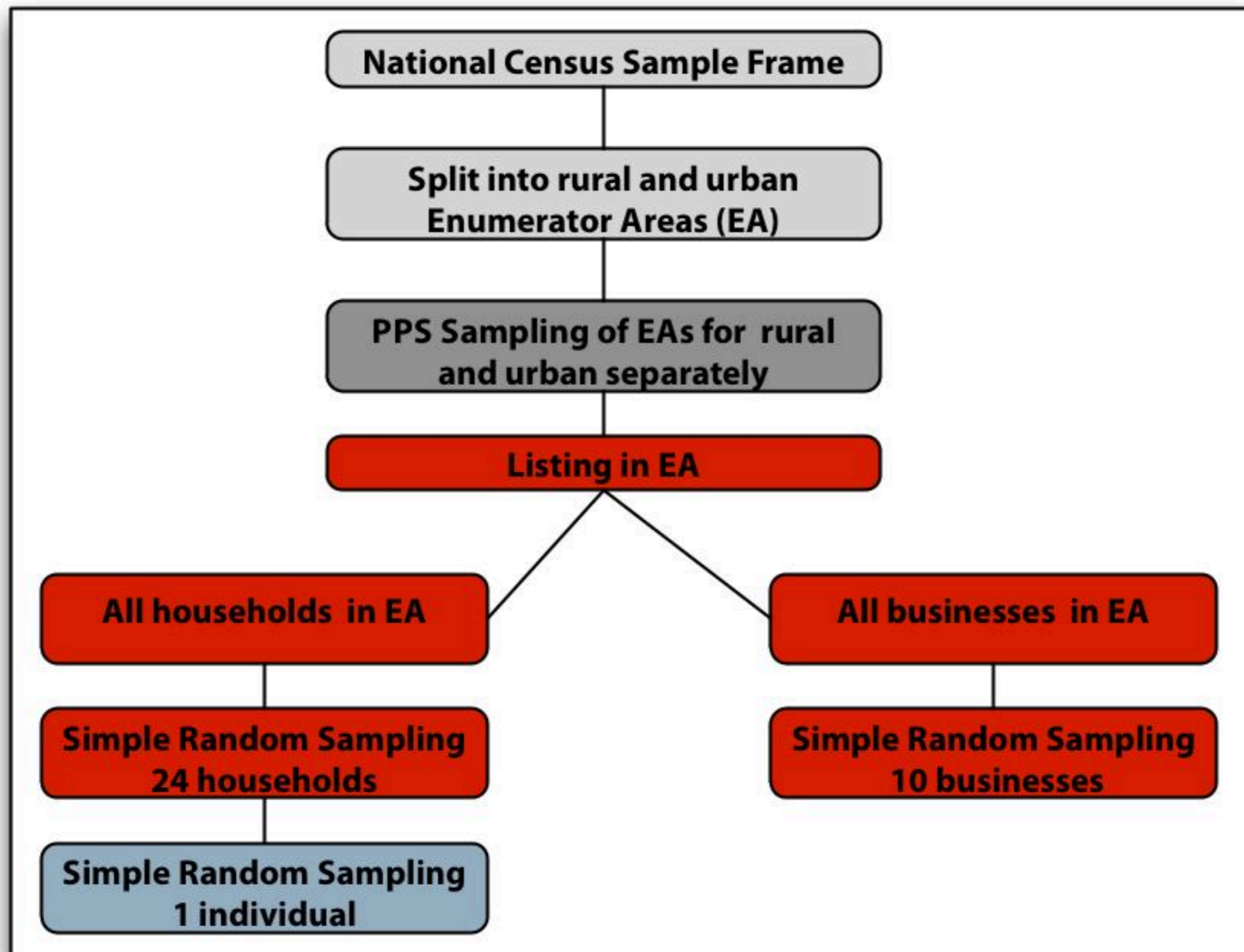
- Start with the methodology

Introduction

- The RIA Survey delivers all indicators required by the Partnership for Measuring ICTs for household, individuals, businesses and institutions. The household, individual, business and institutional iCT indicators will be complemented by various aspects with relevance for policy makers and regulators:

  - Untapped demand: willingness and ability to pay for services of non-users

  - Income elasticity of demand of users

  - Multiple SIM card ownership

  - Internet adoption: with focus on mobile internet

  - Mobile transfer adoption and m-banking

  - Employment generation and GDP contribution of SMEs

  - ICT access and usage of informal operators (individuals trading without physical presence and any form of registration).

Survey Methodology

Meth...

Tanzania	1,200	500	1,700
Uganda	1,200	500	1,700
Tunisia	1,200	500	1,700
Total	**15,300**	**6,200**	**21,500**

None Respo...
Sample Fram...
Confidence I...
Design Facto...
Absolute pre...
Population I...
Minimum Sa...
Size

National Census Sample Frame

Split into rural and urban Enumerator Areas (EA)

PPS Sampling of EAs for rural and urban separately

Listing in EA

All households in EA

All businesses in EA

Simple Random Sampling 24 households

Simple Random Sampling 10 businesses

Simple Random Sampling 1 individual

Survey Characteristics

Survey Summary	Household & Individuals	Businesses
Target Population	All households individuals 15+	All businesses
Domains	1 i.e. national level	
Tabulation groups	Urban, Rural	National
Oversampling	Urban 60% Rural 40%	
Clustering	Enumerator Areas (EA) national Census	
None Response	Random substitution	
Sample Frame	Census sample from NSO	
Confidence Level	95%	95%
Design Factor	2	1
Absolute precision	5%	5%
Population Proportion	0.5 for maximum sample size	
Minimum Sample Size	768	384

Survey Definitions

Survey Definitions	
Household	Constitutes a person or group of persons, irrespective of familial relation, who normally live together in the same housing unit or group of housing units and have common cooking arrangements.
Head of household	A head of a household is a person who economically supports or manages the household or, for reasons of age or respect, is considered as head by members of the household, or declares him-/herself as the head of a household.
Member of a household	All persons who lived and ate with the household for at least six months including those who were not within the household at the time of the survey and were expected to be absent from the household for less than six months. All guests and visitors who ate and stayed with the household for six months and more. Housemaids, guards, baby-sitters, etc. who lived and ate with the household, even for less than six months.
Businesses	Any business with a physical presence in the EA, the intent to make a profit

Sampling and Sample Size

- Desired level of **accuracy** typically confidence level of 95% - risk of error the researcher is willing to accept in the study

- Absolute **precision** (relative margin of error) typically 5%.

- Population proportion P conservatively would be 0.5 (yields the largest sample size)

- The larger the sample size, the smaller the standard error

$$n = \left(\frac{Z_a \sqrt{p(1-p)}}{C_p} \right)^2$$

$$n = \left(\frac{1.96\sqrt{0.5(1-0.5)}}{0.05} \right)^2 = 384$$

2012 Country Sample sizes

Targeted and actual sample size	HH Sample		Business Sample	
	Target	Actual	Target	Actual
Botswana	900	919	400	386
Cameroon	1,200	1,199	500	520
Ethiopia	1,600	1,608	600	841
Ghana	1,200	1,203	500	500
Kenya	1,200	1,239	500	513
Mozambique	1,200	1,199	500	495
Namibia	900	967	400	374
Nigeria	1,600	1,552	600	554
Rwanda	1,200	1,200	500	640
South Africa	1,600	1,589	600	627
Tanzania	1,200	1,201	500	491
Uganda	1,200	1,200	500	500
Total	**14,100**	**14,157**	**5,700**	**6,055**

Weighting

Weights - for corrective representation and inference

- HH_w = household weight

$$HHw = DW * \frac{1}{P_{HH} * P_{EA}}$$

- IND_w = Individual weight 16+

$$INDw = DW * \frac{1}{P_{HH} * P_{EA} * P_I}$$

- P_{HH} = Household Selection Probability

$$P_{HH} = \frac{N}{HH_{EA}}$$

- P_{EA} = EA Selection Probability

$$P_{EA} = m * \frac{HH_{EA}}{HH_{STRATA}}$$

- P_I = Individual Selection Probability

$$P_I = \frac{1}{HH_{m16+}}$$

Emerging issues

- Government provision of e-services/e-participation

- Freedom of expression, Privacy, Cyber Security

- Quality of service

- Extent of ICT use

- Digital content production

- Impact assessment

- Pricing/Affordability

- Youth

- Gender

- Urban poor

Questionnaire - Household Section

Household Indicators

- Household access to ICT devices (including radio, TV)

- Household Internet Access (type of access, number of users)

- Barriers to household internet access

- Household expenditure on internet

Household Indicators - Example from questionnaire

MODULE HI: HOUSEHOLD INTERNET ACCESS					
HI.1	DOES THIS HOUSEHOLD HAVE A WORKING INTERNET CONNECTION?		[1] Yes [0] No		Skip Hi.2-11 if H1.1=0
HI.2	WHAT TYPE OF INTERNET CONNECTION IS THIS? (READ OUT)	MODEM / ISDN DIAL-UP	[1] Yes [0] No		
HI.3		ADSL	[1] Yes [0] No		
HI.4		MOBILE MODEM (3G)	[1] Yes [0] No		
HI.5		USING MOBILE PHONE	[1] Yes [0] No		
HI.6		WIRELESS BROADBAND	[1] Yes [0] No		
HI.7		OTHER, PLEASE SPECIFY:			
HI.8	HOW MUCH IS SPENT MONTHLY FOR THE INTERNET (SUBSCRIPTION & USE)?				
HI.9	WHAT IS THE NAME OF THE SERVICE PROVIDER?				
HI.10	HOW MANY HOUSEHOLD MEMBERS USE THE INTERNET AT HOME?				
HI.11	HOW MANY OF HOUSEHOLD MEMBERS THAT USE THE INTERNET AT HOME ARE BELOW THE AGE OF 15?				
NO HOUSEHOLD INTERNET ACCESS					
HI..12	WHAT IS THE MAIN REASON WHY THE HOUSEHOLD DOES NOT HAVE A WORKING INTERNET CONNECTION		[1] Cannot afford it [2] Not available in the area [3] Do not know how to use it [4] Other, please specify:		ask only if Hi.1=0

Questionnaire - Individual Section

Individual characteristics

- Demographic & other information:

    - gender

    - age,

    - education

    - labour force status

    - income

    - literacy levels

    - language

- Other ICT uses:

    - mobile money; public phones; computers

Mobile Phones

- Ownership -

  - type of phone; expenditure (data vs voice)

- Use -

  - moving beyond the multiple responses

- No mobile phone -

  - barriers, use, SIM card ownership, willingness to pay**

Internet

- Use - why internet was first used; where internet was first used; frequency of use; content;

- Access - institutions of learning, public places etc.

- Limitations (users)

- Social Networks - type of activities performed;

- Use of the internet by type of activity - an indication of demand for online services & applications; sophistication of internet use; level of ICT skills;

- Freedom of Expression, Privacy & Cyber Security;

- No Internet Use - reasons; interest & willingness to use the internet;

e-Government

- emerging information services - accessing government sites via internet (mobile or computer): citizens' ability to gain up to date information; ability to navigate from one ministry to another;

- enhanced information services - delivery of one way or two way communication with citizens (communication initiated through email portals available or contact details provided on government websites, downloadable forms, submit requests for forms or financial services)

- transactional services - government engagement with citizens online (financial transactions, applying for tenders, certificates, licenses, permits and filling taxes, citizens providing input or requesting information on policies, regulation, programmes etc.)

- connected services - proactive government offering integrated e-services and e-solutions (centralised approach cutting across departments)

Pricing/Affordability

- Willingness to pay

- users and non-users

- income categories

Capabilities

- Assessing the capabilities of individuals in using ICTs

- Introduced in the Western cape survey

- A means to assessing impact/effects of access to ICTs

Informal Business Survey

Modules

- Admin, Business Information

- Supplier Information - **financial transactions; communication methods**;

- Customer Information - **financial transactions; communication methods**;

- Financials

- Business Climate

- Fixed-line

- **Mobile Phone** - how it is used; frequency of use

- **Computer** - what it is used for; who uses it the most

- **Internet** - what it is used for; most frequent user

Financial Transaction Modules

- Banking - how they are using the services, frequency, how it enhances their businesses

- Mobile Money - how they are using the services, frequency, how it enhances their businesses

Emerging issues

- Businesses & their use of government services

- Businesses & cyber security issues, e-commerce

Conducting the survey

Important things to consider when conducting the survey

- Field work and training

  - Language constraints, respect for culture

  - Appearance of enumerators

  - Importance of on the ground assistance

- Stats office to contribute

- Funding arrangements (Partial by NSO, or **Dept funded**)

- Whether or not focus groups are needed

  - These are generally important and strongly recommended as they provide insight into the qualitative components that can't be easily measured - culture etc

Costing the survey

Household and Individual Survey Budget

- Optimisation exercise

- Budget depends on many things:

  - length of survey

    - are extra modules (Eg- business) added

    - number of modules

  - scope of survey

  - sample size

  - whether or not focus groups are added (necessary)

  - and… exchange rate!

Household and Individual Budget

- As industry experts what do <u>you</u> think it will cost?

- Depends on the sample size = say 2000 HH

Survey Budget - Household & Individuals		Cost
1	**Survey Design and Analysis**	????
2	**Fieldwork Costs**	????
	Sampling (HH, EA's)	
	Travel costs	
	Device costs	
	Focus group discussions	
3	Analysis (Research Report)	
	Grand Total	????

Household and Individual Budget

Approximate* budget

Survey Budget - Household & Individuals		Cost
1	**Survey Design and Analysis**	
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	Focus group discussions	
3	**Analysis (Research Report)**	
	Grand Total	

Budget not to be quoted. Used only for illustrative purposes. Non-binding.

Conclusion

- It is not as exorbitantly expensive as one may have anticipated

- Data must be used and analyzed carefully

- Drawbacks of statistical techniques must be understood
  - These become negligible if the survey is conducted often enough

- We have mastered the art of survey data in Africa

- **Tell your president/minister: It is doable!!**

Thank You