Universal service / access indicators

- Measuring access to telecommunications: Universal service and access indicators
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TITLE: MEASURING ACCESS TO TELECOMMUNICATIONS: UNIVERSAL SERVICE AND ACCESS INDICATORS

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Measuring access to telecommunications:
Universal service & access indicators

Michael Minges

World Telecommunication Development Report 1998

World Telecommunication Development Report:

Universal Access

4th edition 1998, price: 100 Swiss Francs

Executive Summary
HTML (English, French, Spanish)
PDF (English, French, Spanish)

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The fourth edition of the ITU's *World Telecommunication Development Report* —specially prepared for the second World Telecommunication Development Conference (Malta, March 1998)—examines *universal access*. The growing importance of electronic information for economic, educational and social advancement highlights how critical universal access to communications has become. With over 40 million people waiting for a telephone line worldwide and with some least developed countries having telecommunication penetration levels up to 200 times below that of developed countries, universal access stands as one of the key issues confronting governments around the world. The report also presents the ITU's authoritative World Telecommunication Indicators for year end 1996. These statistics monitor the main telecommunication indicators as well

Introduction

Conventional measure of telecommunication development —***teledensity***✳— is inadequate for gauging universal service/access

✳ Main telephone lines per 100 inhabitants

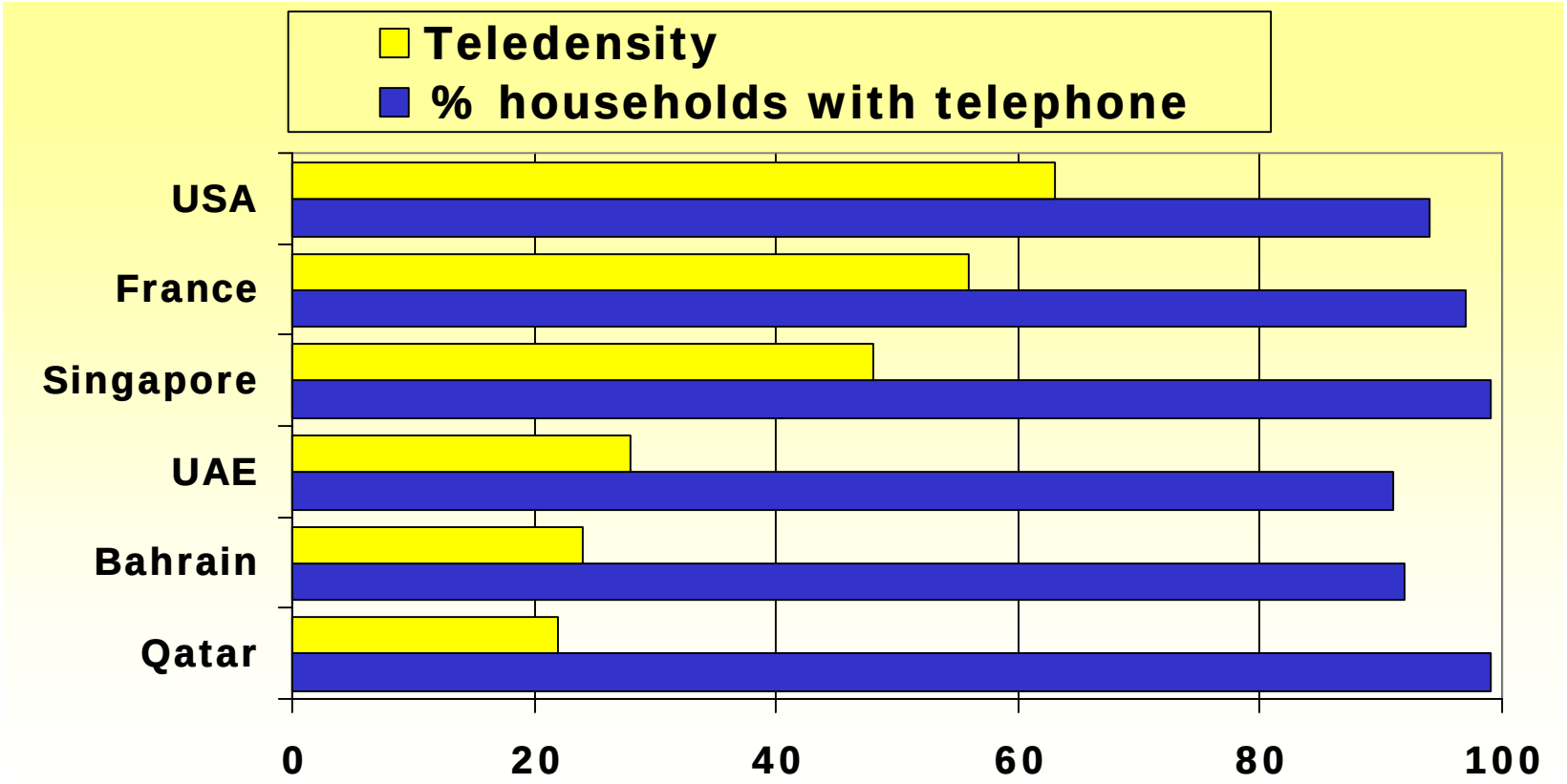
Topics of discussion

- Shortcomings of teledensity
- Universal service versus universal access
- Universal service / access indicators
- Conclusions

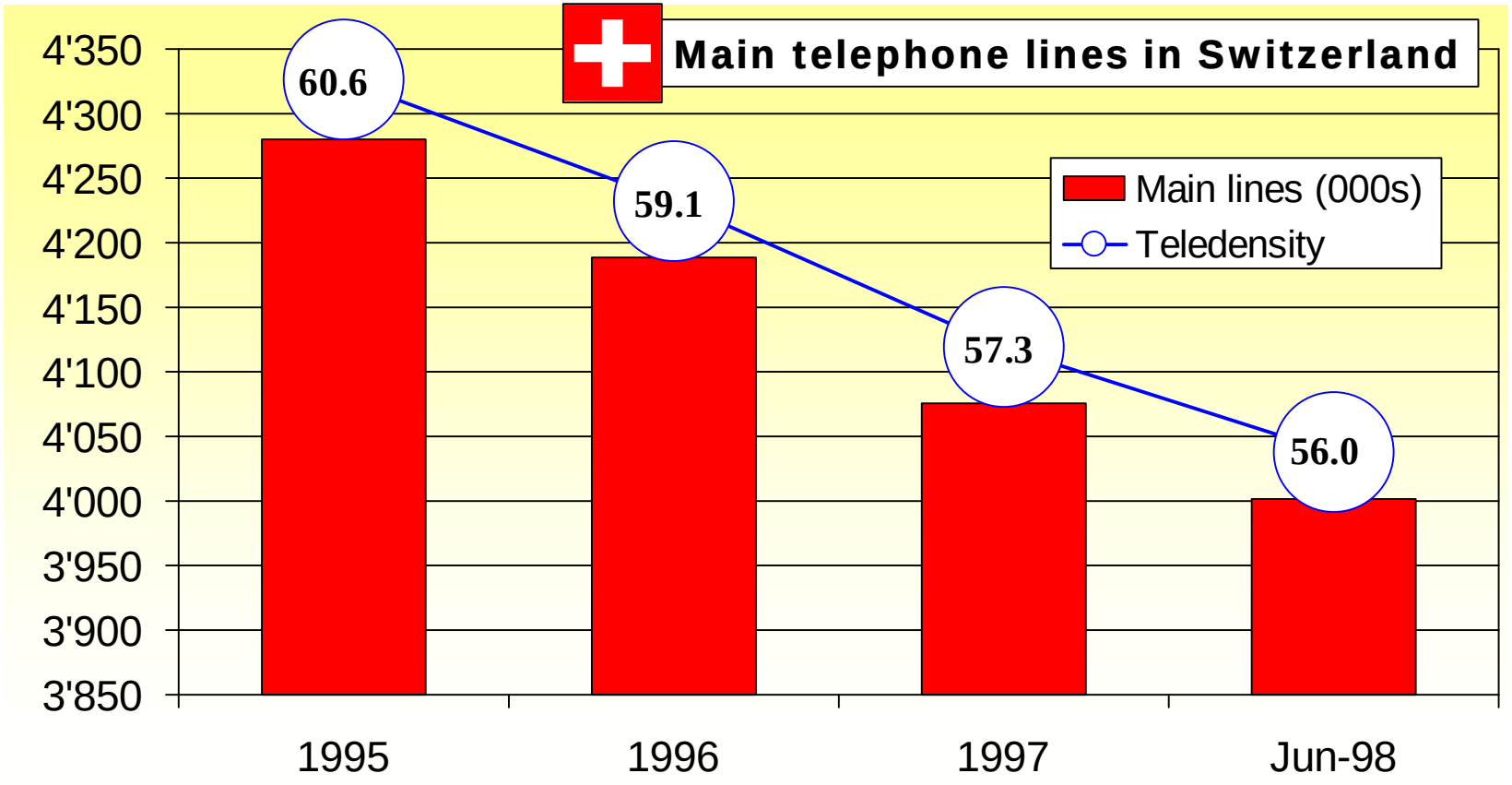
Teledensity shortcomings

- Emphasizes ***individual*** rather than ***family/community*** access
- Does not consider other access methods
- Not relevant for developing countries

Teledensity shortcoming I: Persons not families



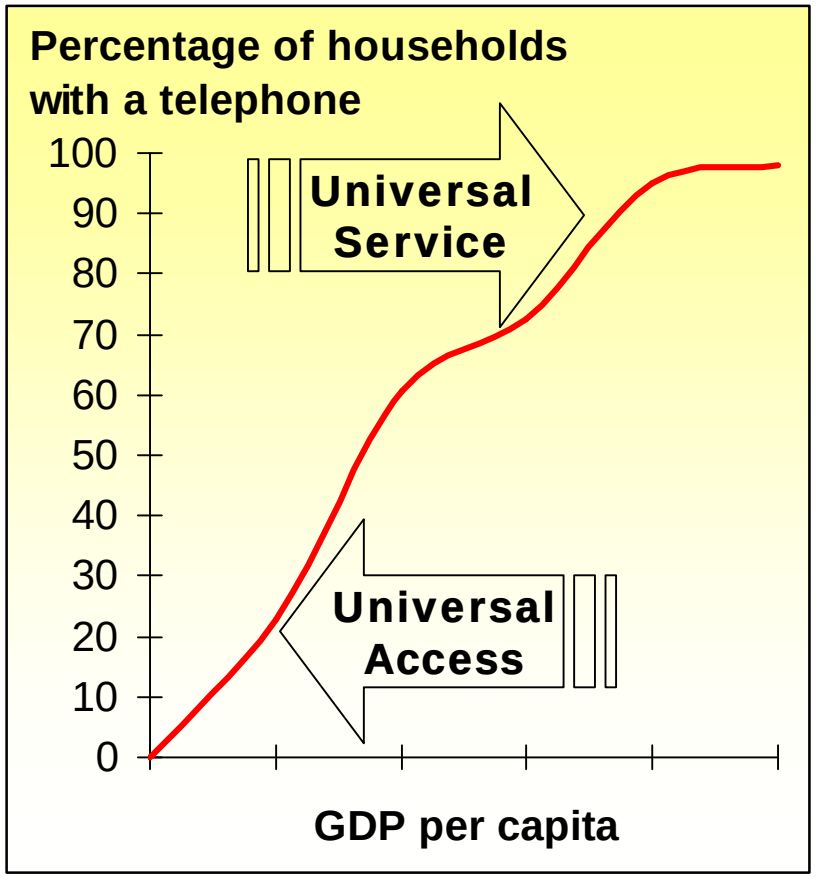
Teledensity shortcoming II: Main telephone lines declining



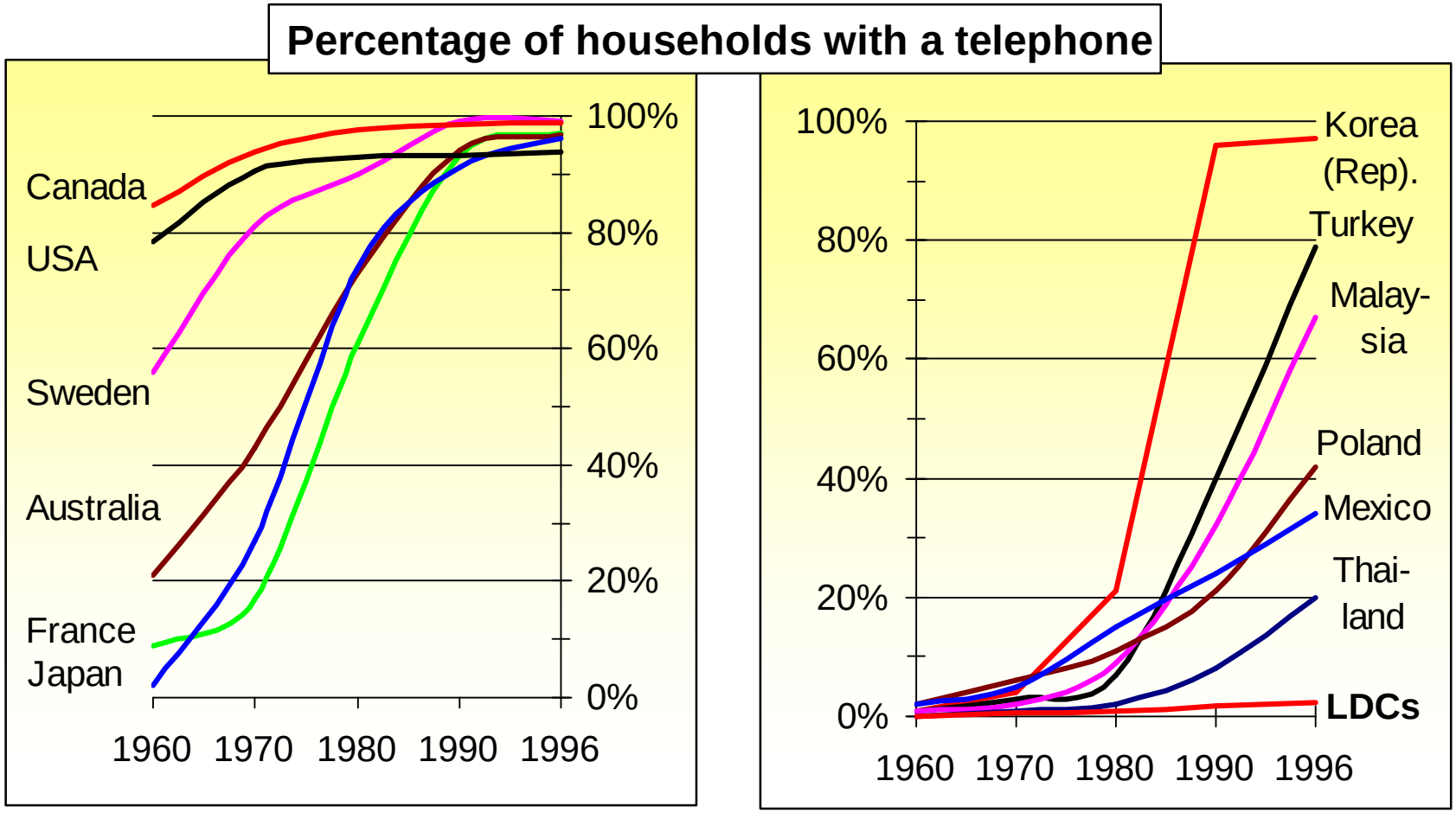
Source: Swisscom.

Universal *service* versus universal *access*

- *Universal service*: telephone in every home
- *Universal access*: telephone within reasonable distance for everyone
- Policy related to level of economic development



Universal service: Takes a long time



Universal service: Only a lucky few

	DEVELOPED ECONOMIES	% of house-holds with telephone	Year 90% reached
1	Canada	98.7	1971
2	United States	93.9	1970
3	Australia	96.8	1986
4	Japan	96.1 †	1989
5	New Zealand	96.0	1976
6	Austria	*90.0*	*1995*
7	Belgium	*92.0* †	1994
8	Denmark	‡	1982
9	Finland	90.0	1987
10	France	97.0	1985
11	Germany	94.7 †	1995
12	Greece	98.1 †	1993
13	Italy	97.5	1992
14	Luxembourg	‡	1989
15	Netherlands	*96.5*	1990
16	Spain	94.7 †	1994
17	Sweden	‡	1975
18	UK	*91.1*	1994

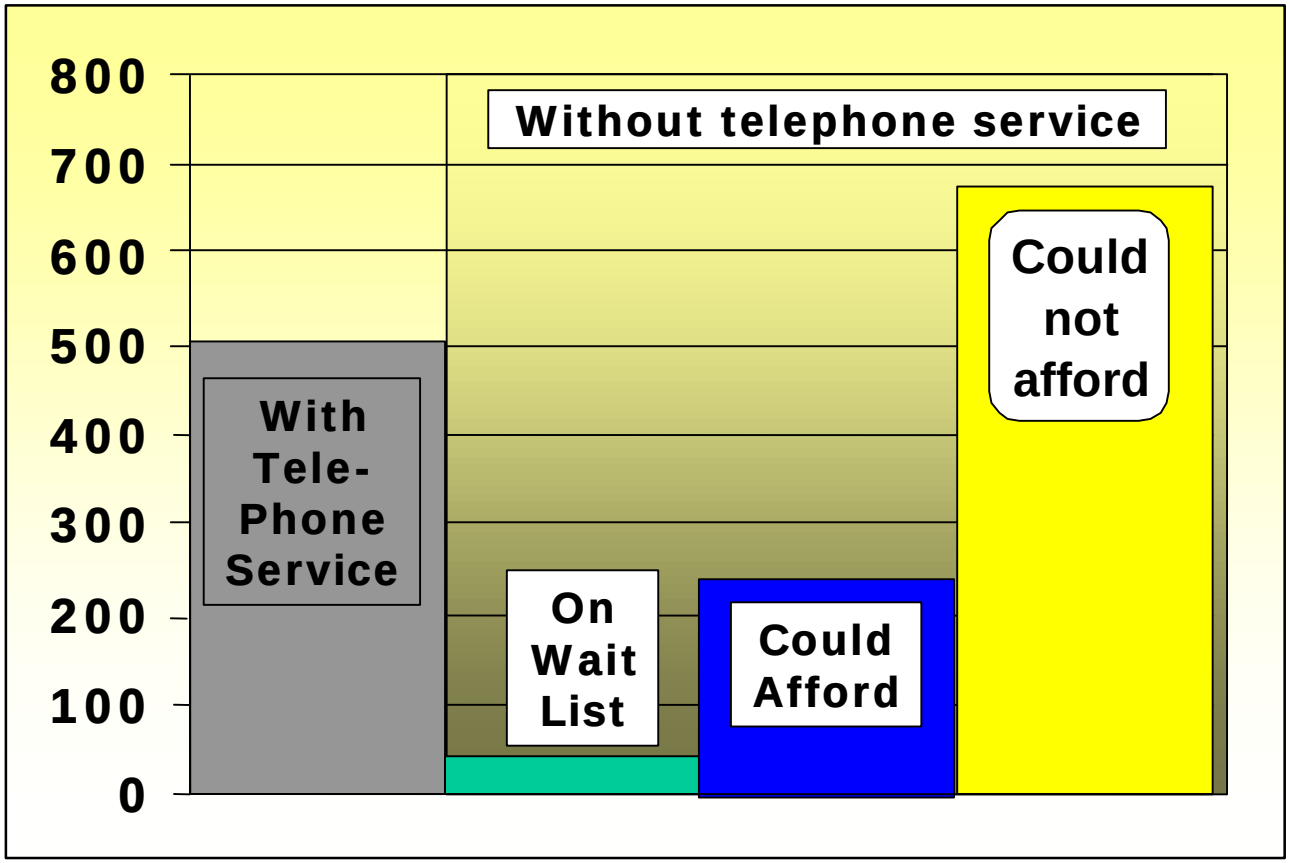
	DEVELOPING ECONOMIES	% of house-holds with telephone	Year 90% reached
19	Bahrain	‡	1992
20	Brunei	‡	1993
21	Cyprus	‡	1990
22	Hongkong	‡	1986
23	Israel	*95.0*	1989
24	Korea (Rep.)	*95.2*	1990
25	Kuwait	‡	1993
26	Macau	‡	1992
27	Malta	‡	1987
28	Qatar	‡	1983
29	Singapore	‡	1983
30	Taiwan-China	‡	1990
31	UAE	93.5 †	1995

Note: % of households with telephone obtained from census surveys and refer to year 1996. † Residential telephone lines per 100 households. ‡ Residential telephone lines per 100 households is greater than 100 due to 2nd telephone lines.

Source: *ITU World Telecommunication Development*

Universal service: Unaffordable for most

Around ~1'500 million households in the world



Affordability in South Africa

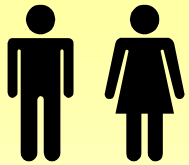
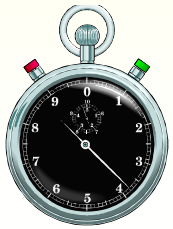
Affordability levels by differing costs of telephony per month*

	R30	R40	R50	R60	R70
H/h not able to afford more than 2% on income spent on telephony	44%	53%	60%	65%	69%
	3 829	4 648	5 215	5 642	6 017
H/h not able to afford more than 3% of income spent on telephony	30%	40%	48%	53%	58%
	2 616	3 445	4 142	4 648	5 067

* All estimates are done in 1997 Rands
Table from the DRA Development Document Defining the Categories of Needy People

http://www.usa.org.za/documents/discuss2.htm#access

Universal access concepts

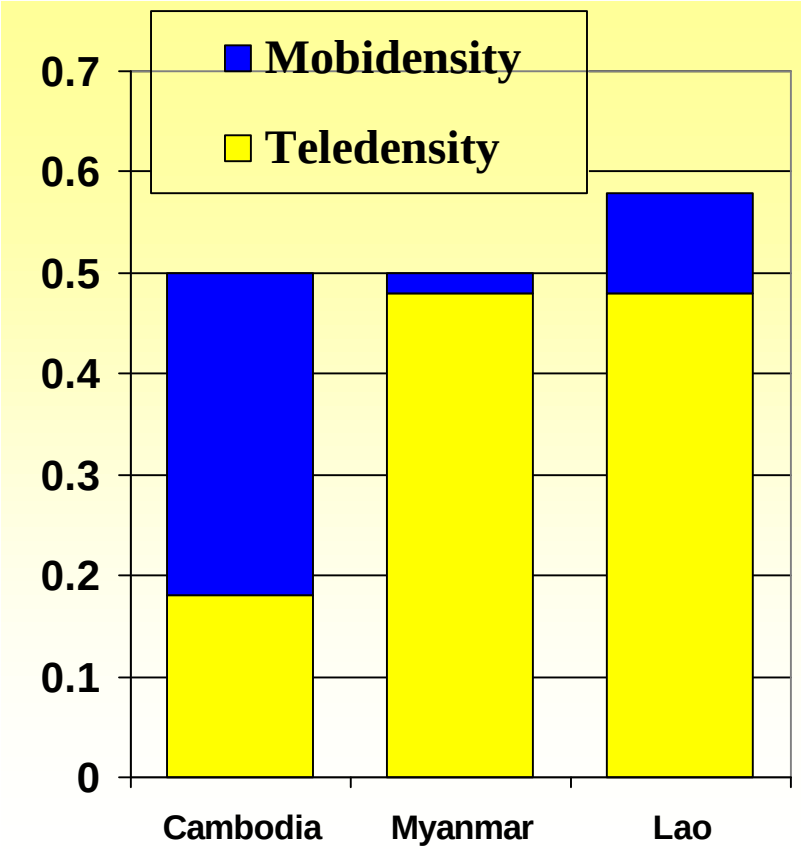
Criteria	Definition	Example
Population 	A telephone for every permanent settlement of ‘x’ population	In Ghana, defined as a telephone in every locality of more than 500 people.
Distance 	A telephone within ‘x’ kilometres	In Burkina Faso, defined as a telephone every 20 kilometres .
Time 	A telephone within ‘x’ minutes	In South Africa, proposed as a telephone within a 30 minute traveling distance.

Universal service & access indicators

- Total telephone density
- Households with a telephone
- Access to a telephone
- Towns with telephone service
- Payphones: Per inhabitant, Per main line
- Distance from a telephone
- Time from a telephone

Total telephone density

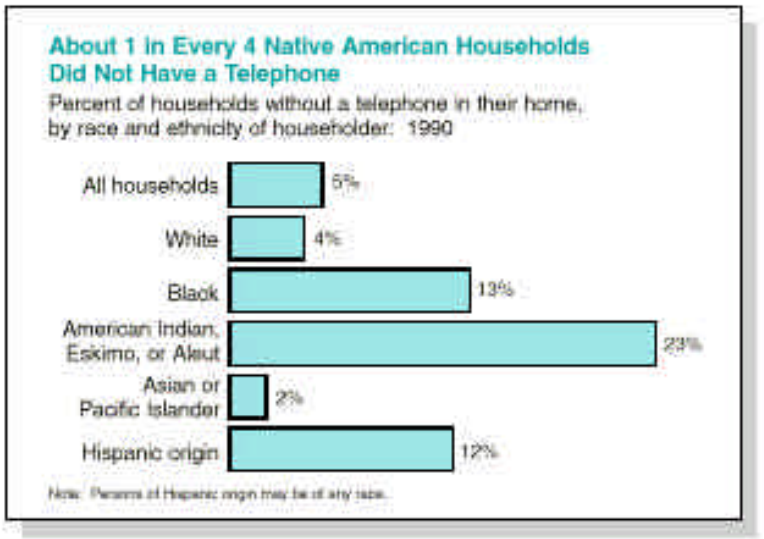
- Main telephone line **plus** mobile cellular penetration



Households with a telephone

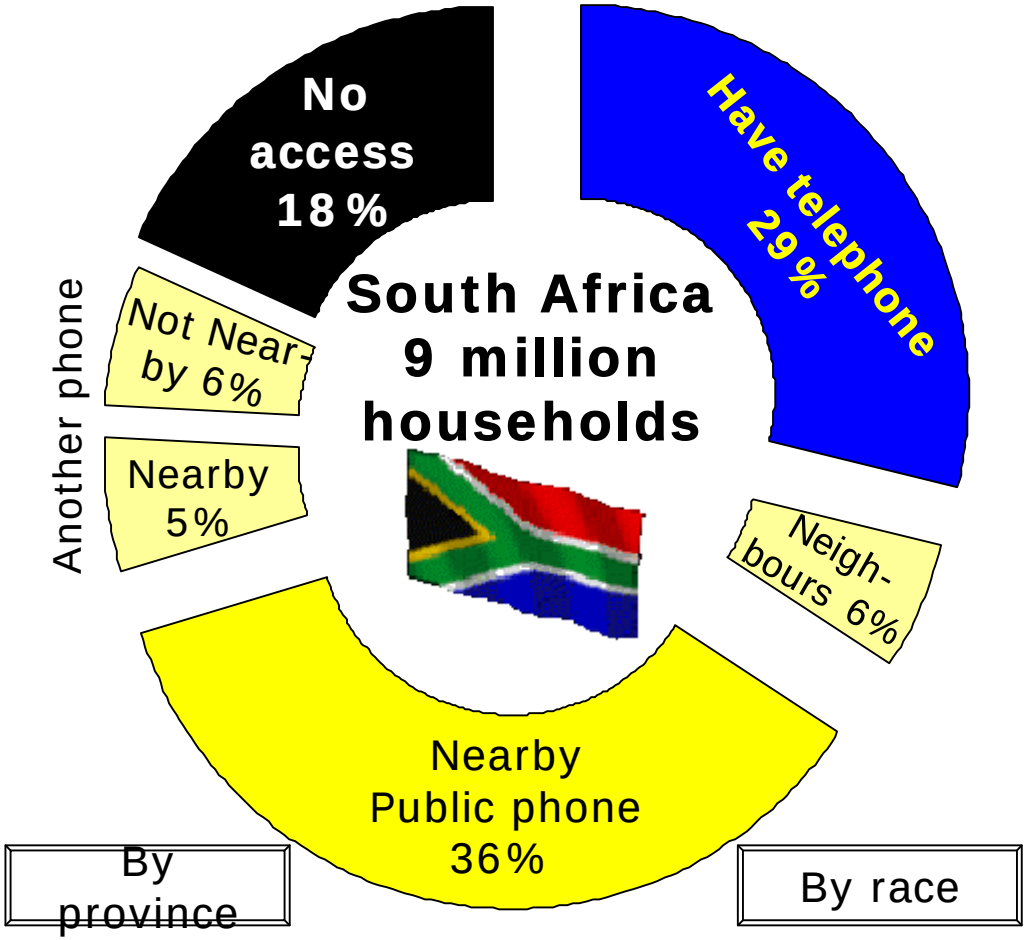
- Can derive from residential lines:
  - Residential telephone lines in service ÷ Households
- However:
  - Split between residential and business not always available or reliable
  - 2nd lines and vacation lines will distort result
- Some national statistical offices collect household telephone penetration.

Phoneless in America



Source: US Bureau of the Census.
http://www.census.gov/ftp/pub/apsd/www/statbrief/sb94_16.pdf

Universal access

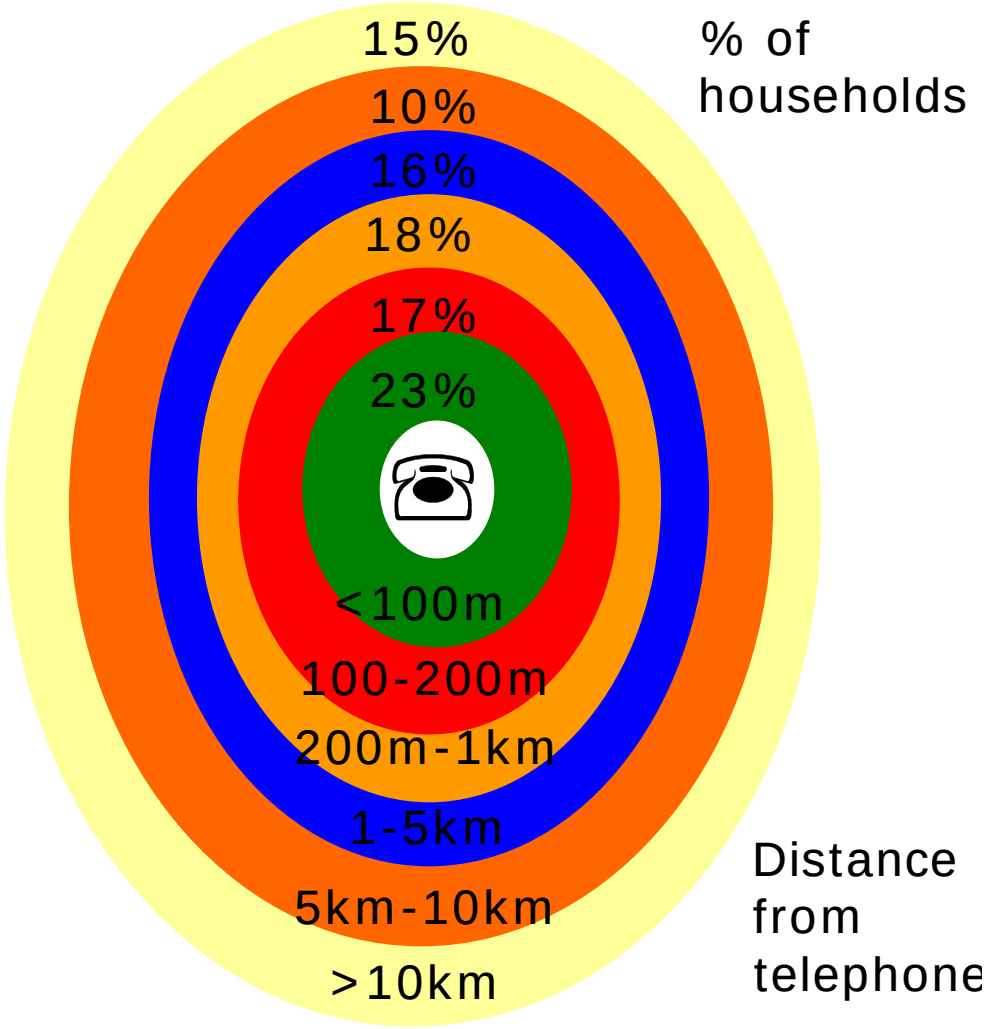


Source: Statistics South Africa. <http://www.statssa.gov.za/>

Teledensity:	10.7
Cellular density:	3.7
Total telephone density:	14.4
Household telephone penetration:	29%
Universal access penetration (% of households with access to telephone):	**82%**

Distances from telephone

- "Systematic"
- Hard to measure
- Relative to transport method (e.g., foot, bicycle, car, bus, etc.)
- Few known examples!



Source: Statistics South Africa.

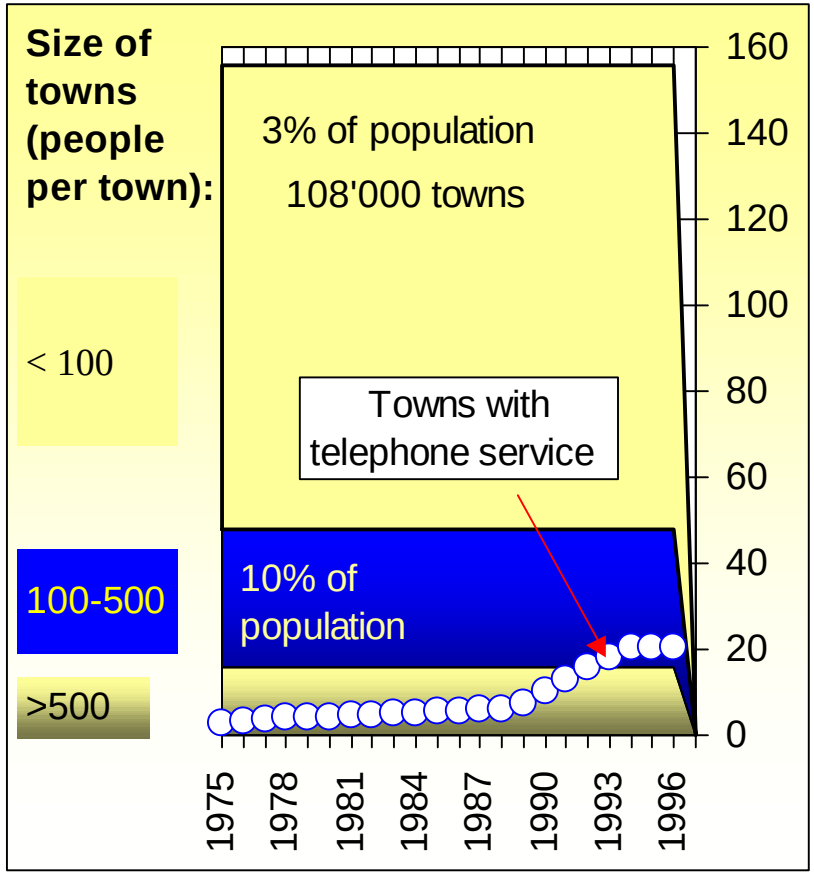
Time from a telephone

- Concrete concept that is fairly simple for person to understand
- Disadvantage is that time is relative to the means of transport for getting to a telephone (walking, bicycle, bus, car, etc.)
- Few known examples!

If there is no telephone in the dwelling How many minutes do you have to travel to the nearest telephone you can use (by your usual means of transport)?
0 - 5 minutes
6 - 15 minutes
16 - 30 minutes
31 - 60 minutes
1 - 2 hours
Over 2 hours
Source: Statistics South Africa. 1997 Household Survey

Towns with telephone service

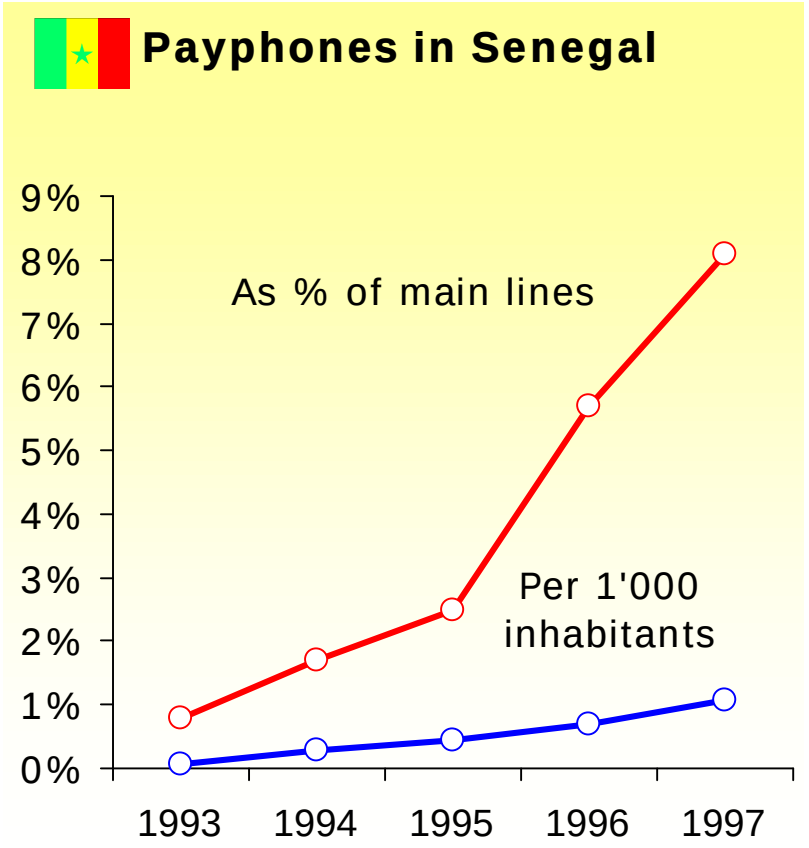
- Concrete measure
- Number of countries collect this statistic
- Needs to be related to size of towns



Mexico, Number of localities, 000s

Payphones

- Most countries collect this statistic
- Occasional definitional challenges (e.g., private payphones)
- Distribution important (e.g., how many in large cities?)
- Impact of pre-paid mobile cellular
- Share as % of main lines more relevant for developing countries



Conclusions

- Policy-makers & regulators need to reappraise (and collect!) the statistics used to measure universal service and access:
  - Developed countries: Universal service (households with telephone, preferably disaggregated)
  - Developing countries: As many universal access indicators as possible
- The trends of universal service and access need to be monitored carefully with liberalization and economic development
- Collaborate with national statistical agencies
- Access to other forms of communications (e.g., Internet) are becoming important

Telephone facilities by province: South Africa

3.10 Telephone facilities by province*

	Eastern Cape	Free State	Gauteng	Kwazulu-Natal	Mpuma-langa	Northern Cape	Northern Province	North West	Western Cape	South Africa
Telephone in dwelling/ cellular phone	207,292	143,057	889,960	447,048	110,049	57,513	72,941	120,717	542,673	2,591,249
Telephone at a neighbour nearby	62,804	27,760	66,036	122,430	23,669	25,715	52,432	33,190	81,625	495,662
A public telephone nearby	327,246	288,987	799,760	546,272	296,046	57,941	360,849	300,229	268,102	3,245,433
At another location nearby eg. work	42,756	48,681	82,751	76,335	44,386	18,037	59,680	67,543	46,567	486,736
At another location not nearby	84,592	42,027	33,879	127,949	38,359	4,290	130,890	56,686	11,114	529,785
No access to a telephone	598,909	72,188	77,446	329,328	87,525	22,765	299,434	138,854	29,295	1,655,743
Not stated	8,749	2,311	14,336	11,571	3,976	723	6,232	3,426	3,639	54,963
Total	1,332,348	625,011	1,964,168	1,660,934	604,010	186,984	982,457	720,643	983,015	9,059,571

* Excluding institutions and hostels

Telephone facilities by population group: South Africa

3.11 Telephone facilities by population group of head of household*

	African/ Black	Coloured	Indian/ Asian	White	Unspecified /Other	Total
Telephone in dwelling/ cellular phone	740,783	321,849	187,433	1,312,267	28,917	2,591,249
Telephone at a neighbour nearby	342,015	109,544	21,792	18,851	3,460	495,662
A public telephone nearby	2,916,226	194,306	24,753	96,622	13,526	3,245,433
At another location nearby eg. work	390,616	57,987	4,398	31,434	2,303	486,736
At another location not nearby	511,573	12,128	1,194	3,142	1,748	529,785
No access to a telephone	1,592,049	42,220	3,269	12,211	5,993	1,655,743
Not stated	40,736	3,171	801	7,965	2,290	54,963
Total	6,533,998	741,206	243,639	1,482,492	58,237	9,059,571

* Excluding institutions and hostels

Percent of households with telephones by province: South Africa