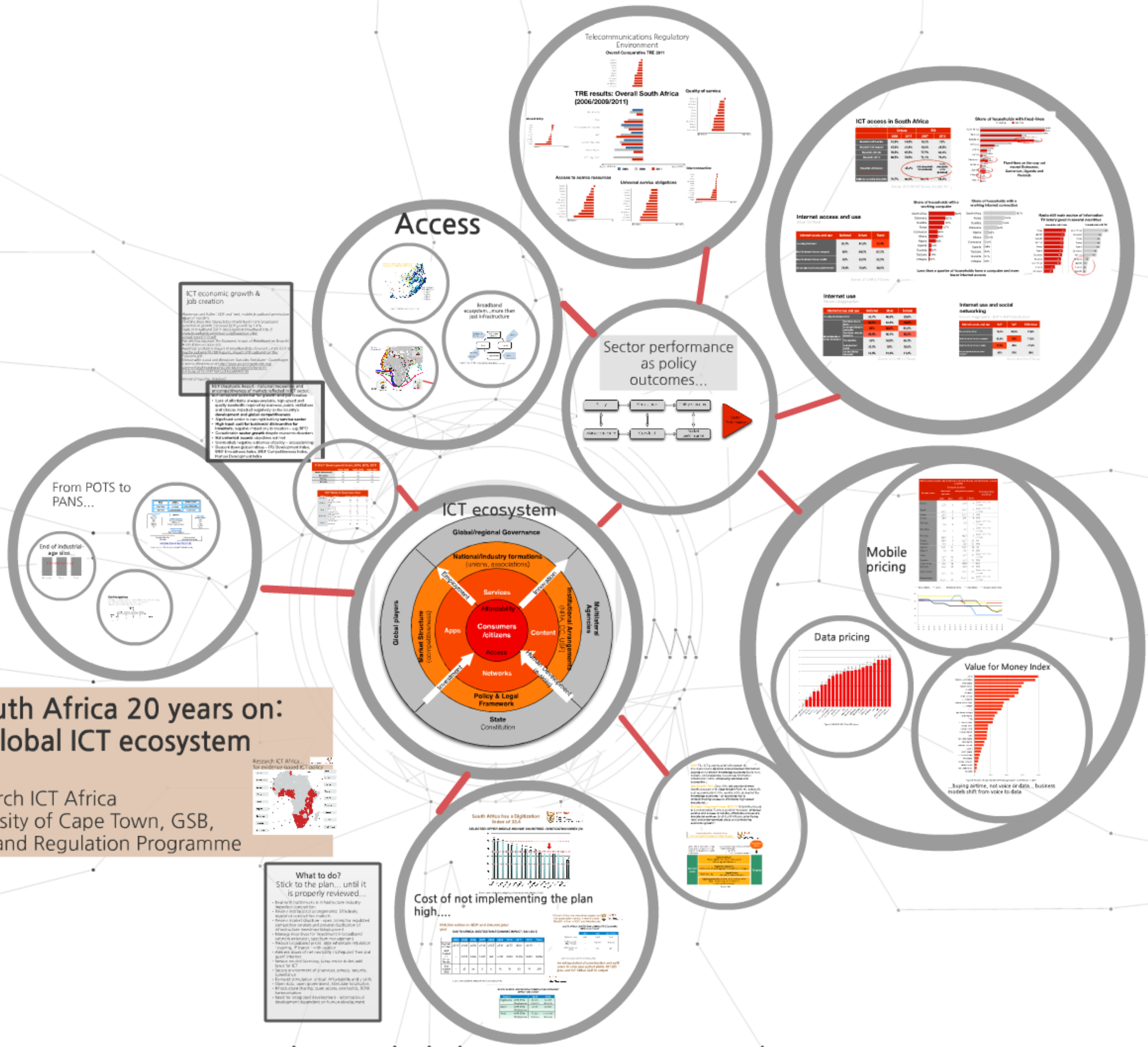
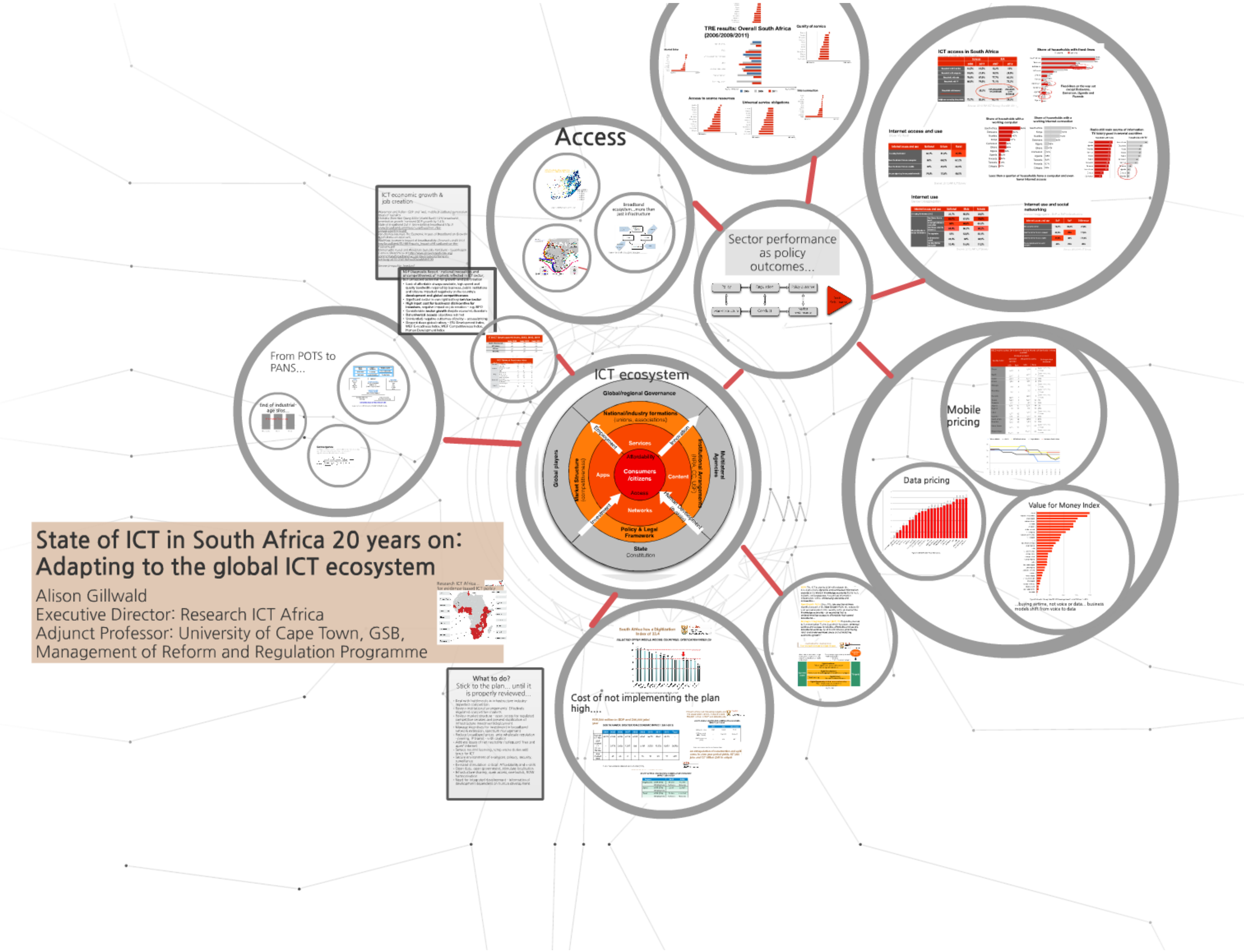
State of ICT in South Africa 20 years on: Adapting to the global ICT ecosystem

Alison Gillwald
Executive Director: Research ICT Africa
Adjunct Professor: University of Cape Town, GSB, Management of Reform and Regulation Programme




State of ICT in South Africa 20 years on:
Adapting to the global ICT ecosystem
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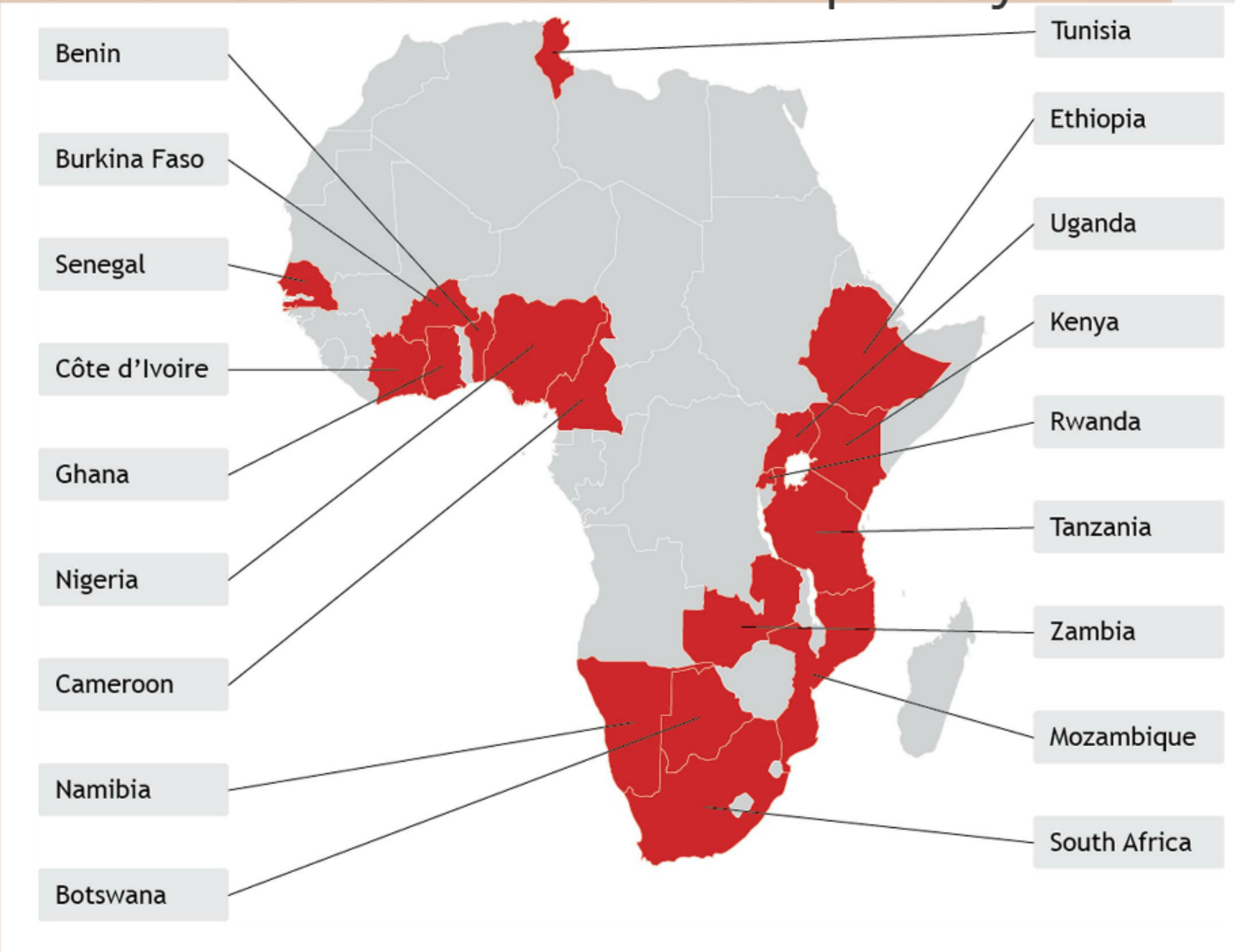
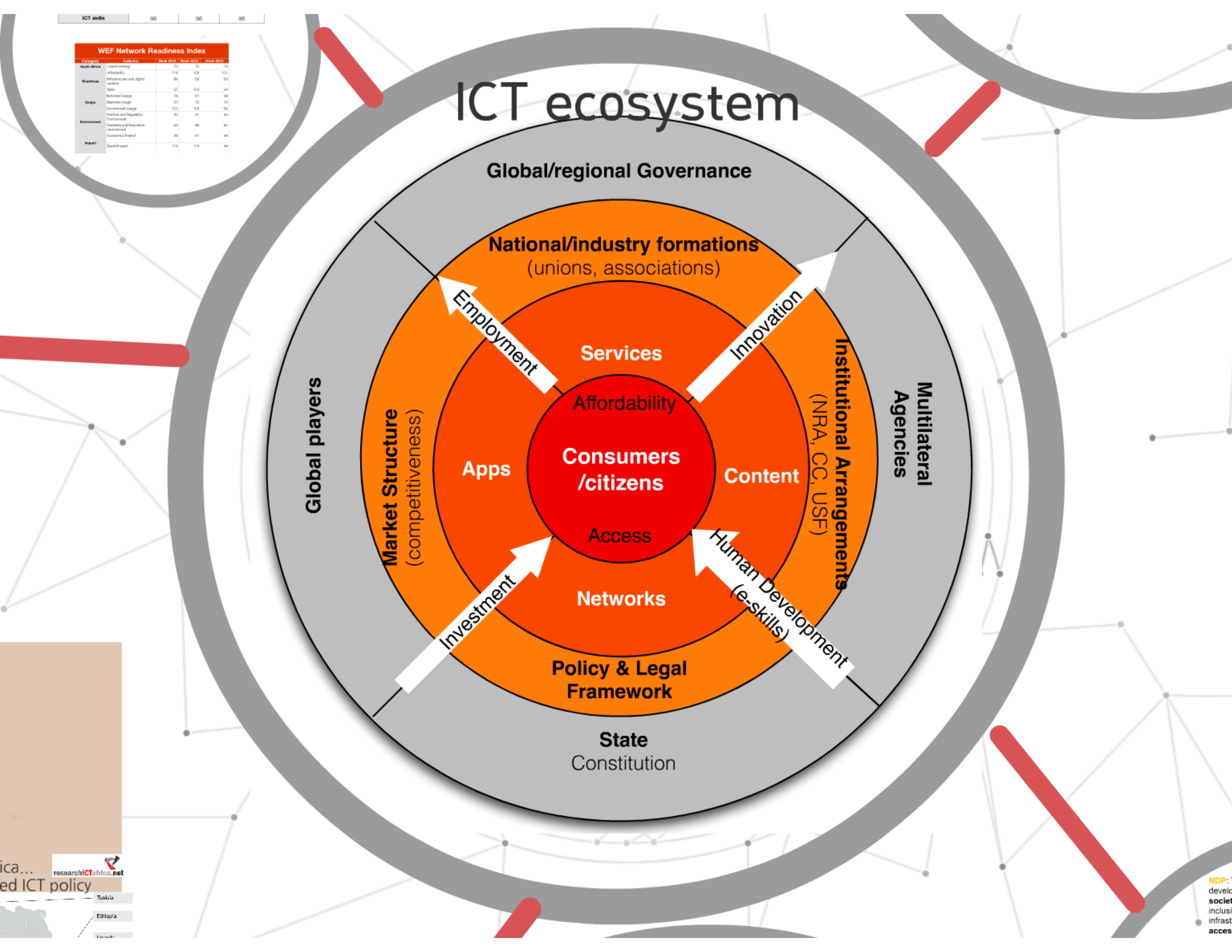
ICT economic growth & job creation
Access
Broadband ecosystem...more than just infrastructure
From POTS to PANS...
End of industrial age silos...
ICT ecosystem
Global/regional Governance
National/industry formations
(unions, associations)
Services
Affordability
Consumers /citizens
Apps
Content
Access
Networks
Policy & Legal Framework
State
Constitution
Employment
Innovation
Investment
Human Development
Global players
Multilateral Agencies
Market Structure
(competitiveness)
Institutional Arrangements
Sector performance as policy outcomes...
TRE results: Overall South Africa (2006/2009/2011)
ICT access in South Africa
Internet access and use
Internet use
Internet use and social networking
Mobile pricing
Data pricing
Value for Money Index
...buying airtime, not voice or data... business models shift from voice to data
Cost of not implementing the plan high....
What to do?
Stick to the plan... until it is properly reviewed...

Research ICT Africa…
for evidence-based ICT policy

researchICTafrica.net





ICT ecosystem
Global/regional Governance
National/industry formations
(unions, associations)
Global players
Market Structure
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WEF Network Readiness Index
ICT skills
researchICTafrica.net
ed ICT policy
Tunisia
Ethiopia

- **High input cost for business/ disincentive for investors**, negative impact on job creation – e.g. BPO
- Considerable **sector growth** despite economic downtu
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- Unintended, negative outcomes of policy – access/prici
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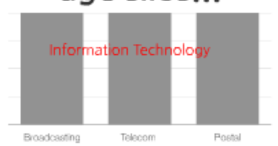
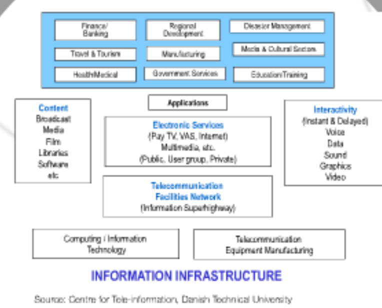
From POTS to PANS…

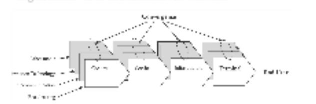
End of industrial-age silos…





Convergence

Offering of services across traditionally distinct broadcasting and telecommunications platforms as a result of digitalisation and liberalisation of markets



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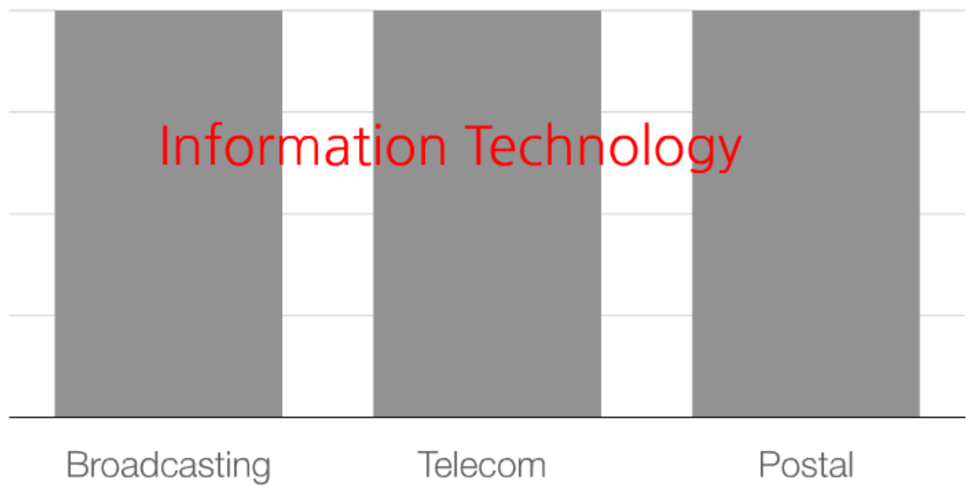

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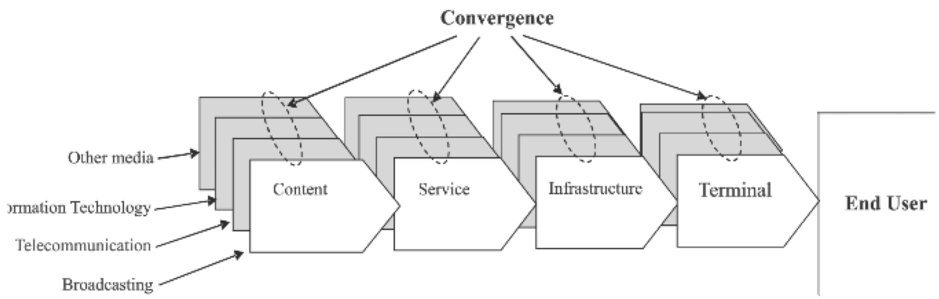

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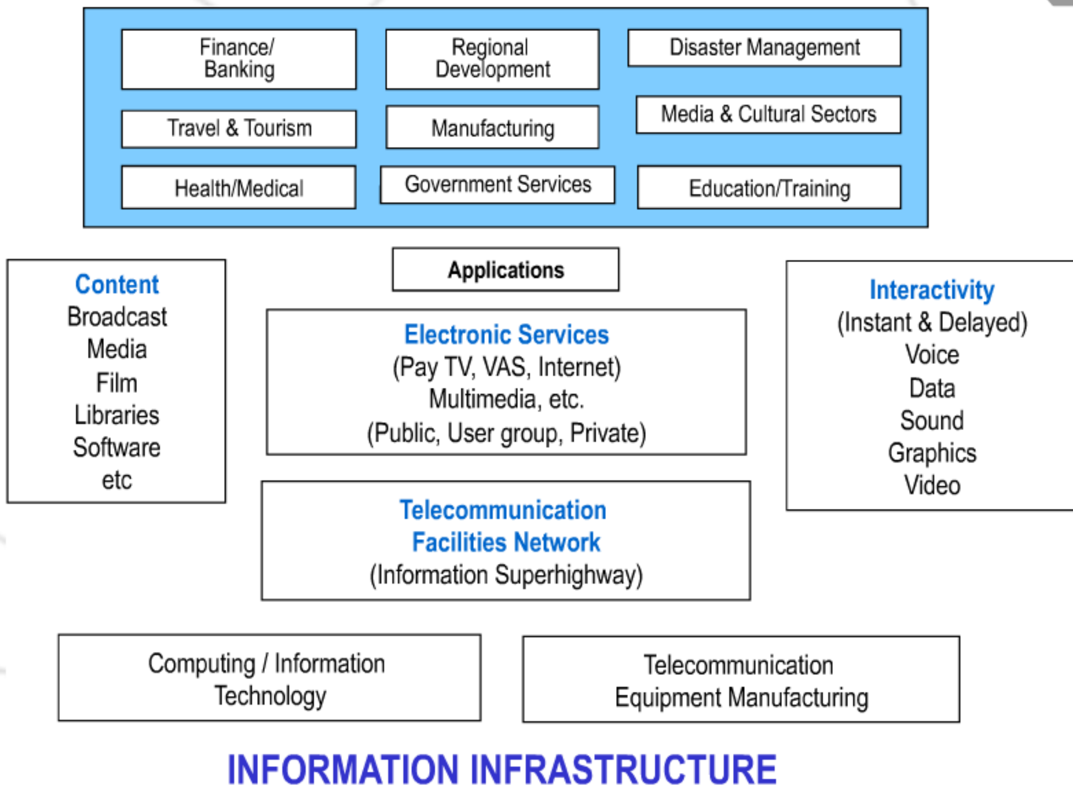

Source: Centre for Tele-information, Danish Technical University ality, freedom?

NDP Diagnostic Report - national inequalities and uncompetitiveness of markets reflected in ICT sector, but untapped potential for growth and job creation

- Lack of affordable always-available, high speed and quality bandwidth required by business, public institutions and citizens impacted negatively on the country's **development and global competitiveness**
- Significant sector in own right but key **service sector**
- **High input cost for business/ disincentive for investors**, negative impact on job creation – e.g. BPO
- Considerable **sector growth** despite economic downturn
- But **universal access** objectives not met
- Unintended, negative outcomes of policy – access/pricing
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ITU ICT Development Index, 2013, 2012, 2011

	Rank 2013	Rank 2012	Rank 2011
South Africa (overall)	90	89	85
ICT access	92	94	88
ICT use	82	83	81
ICT skills	86	86	86

WEF Network Readiness Index

Category	Indicator	Rank 2014	Rank 2013	Rank 2012
South Africa	Overall ranking	70	70	72
	Affordability	112	102	101
Readiness	Infrastructure and digital content	68	59	82
	Skills	97	104	94
	Individual Usage	78	81	96
Usage	Business Usage	30	33	34
	Government Usage	103	102	89
Environment	Political and Regulatory Environment	20	21	23
	Business and Innovation environment	53	55	50
Impact	Economics Impact	49	51	59
	Social Impact	113	112	98

ICT economic growth & job creation

- Waverman and Roller : GDP and fixed, mobile,broadband penetration issues of causality
- Christine Zhen-Wei Qiang 2009 (World Bank) 10% broadband penetration growth increased GDP growth by 1.4%.
- State of Broadband 2013: Universalising broadband http://www.broadbandcommission.org/Documents/bb-annualreport2013.pdf
- Pantelis Koutroumpis The Economic Impact of Broadband on Growth: A simultaneous approach.
- Raul Katz: Economic Impact of Broadbandhttp://www.itu.int/ITU-D/treg/broadband/ITU-BB-Reports_Impact-of-Broadband-on-the-Economy.pdf
- Emmanuelle Auriol and Alexia Lee González Fanfalone - Copenhagen ConsenusRead more at http://www.project-syndicate.org/commentary/broadband-access-lower-poverty-by-bj-rn-lomborg-2015-01#1hbPpa9l7ubvMXMl.99

- Uneven,inequality, freedom?

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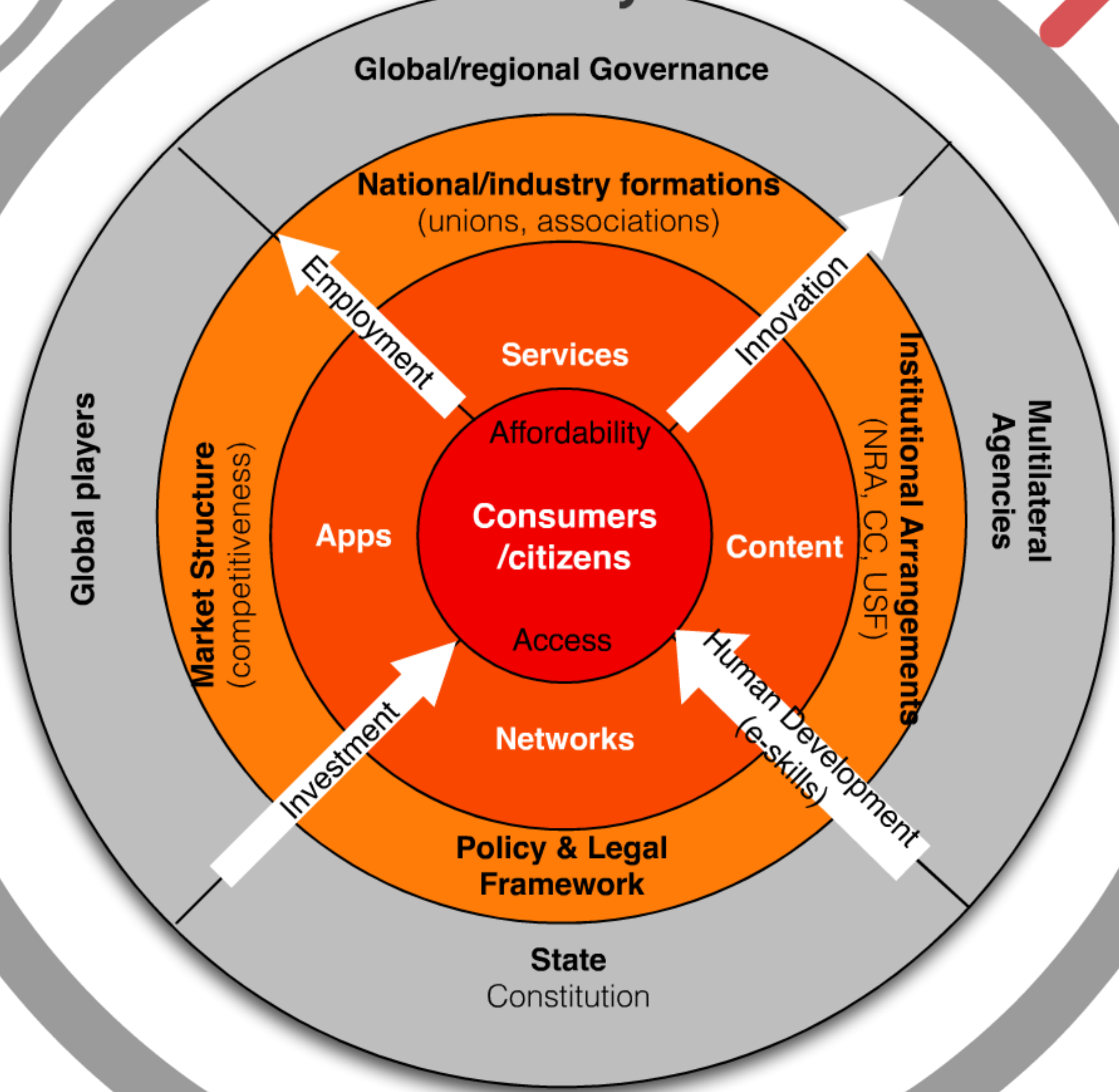
ICT ecosystem



WEF Network Readiness Index

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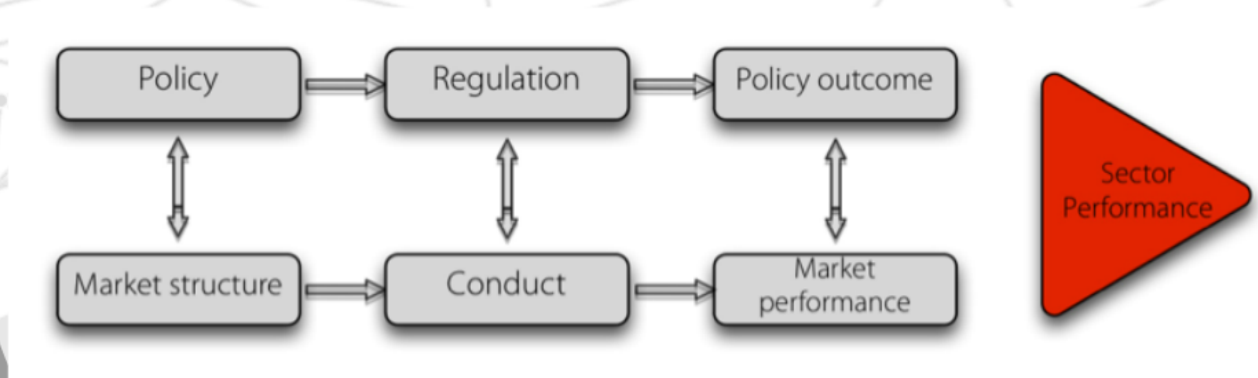
Sector performance as policy outcomes...



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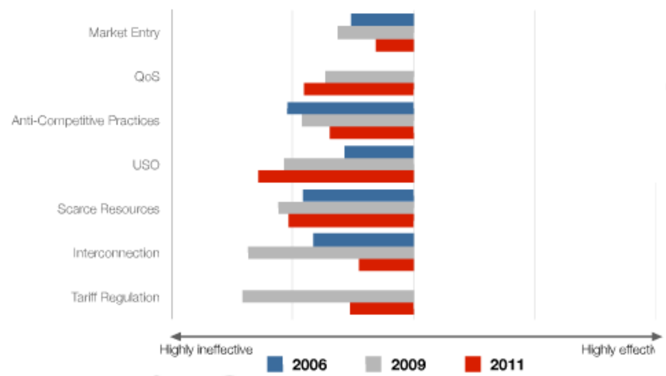
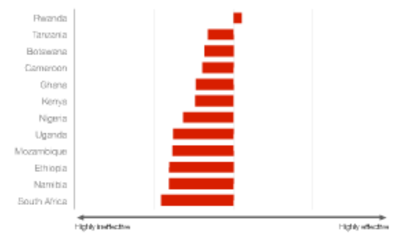
Telecommunications Regulatory Environment

Overall Comparative TRE 2011

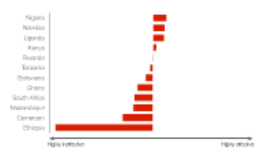
TRE results: Overall South Africa (2006/2009/2011)



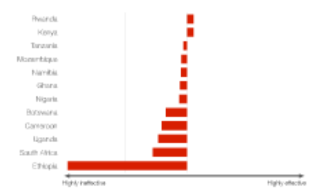
Quality of service



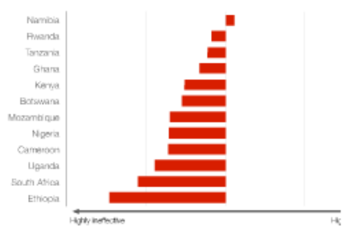
Market Entry



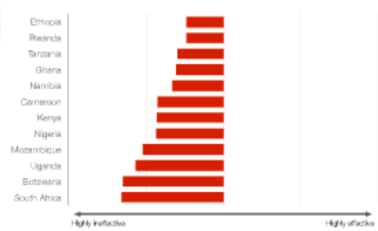
Interconnection



Access to scarce resources



Universal service obligations



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Urban VS Rural

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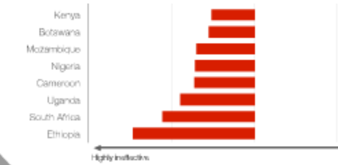
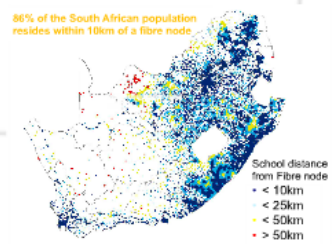
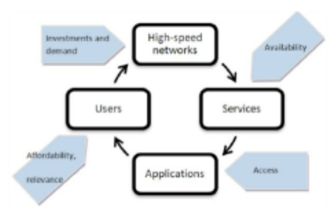


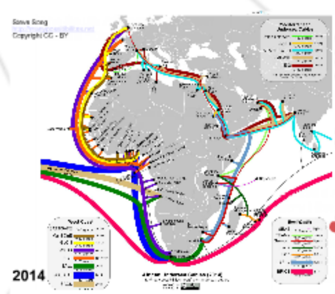


Source: CSIR for SA Connect 2014

Broadband ecosystem...more than just infrastructure



Source: Kim, Kelly, Raja (2010) InfoDev .



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– ITU Development Index,
F Competitiveness Index,

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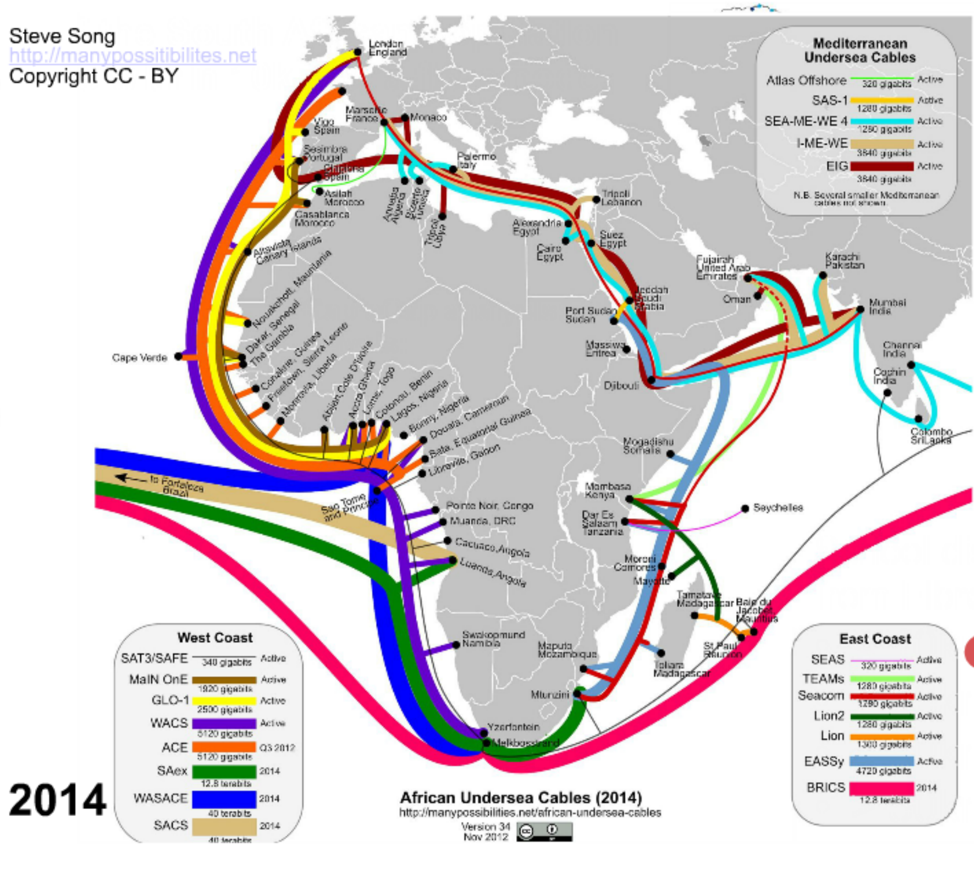
Policy

Market struct


Steve Song
http://manypossibilites.net
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2014
Mediterranean Undersea Cables
Atlas Offshore
SAS-1
SEA-ME-WE 4
I-ME-WE
EIG
West Coast
SAT3/SAFE
MaIN OnE
GLO-1
WACS
ACE
SAex
WASACE
SACS
East Coast
SEAS
TEAMs
Seacom
Lion2
Lion
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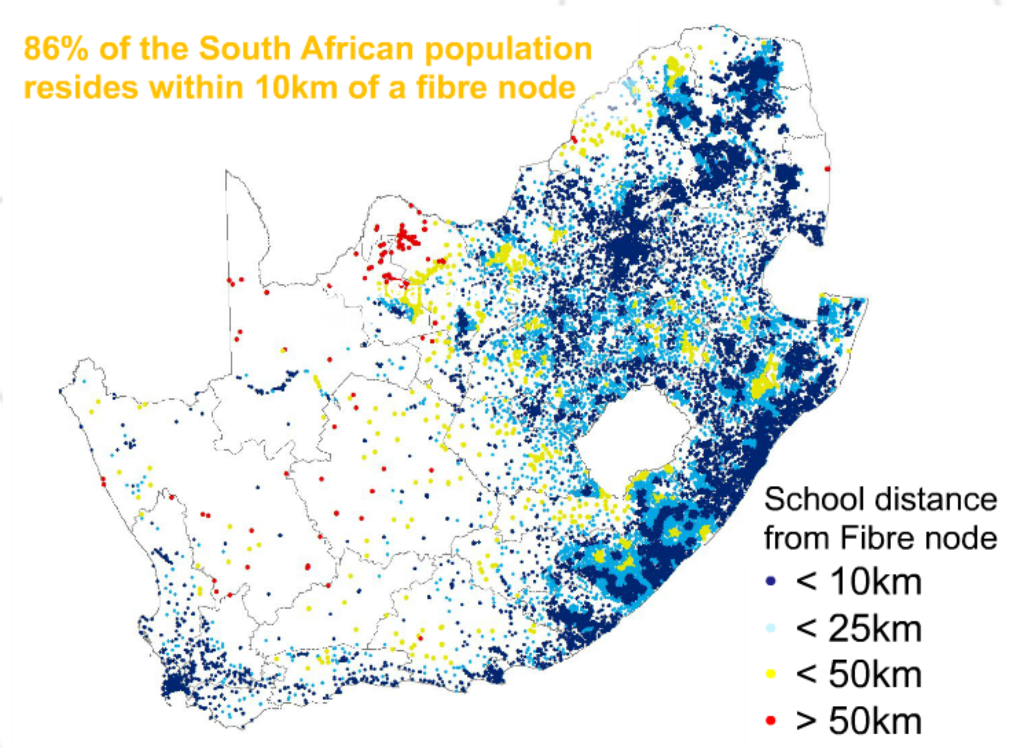
BRICS
African Undersea Cables (2014)
http://manypossibilities.net/african-undersea-cables



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< 10km
< 25km
< 50km
> 50km

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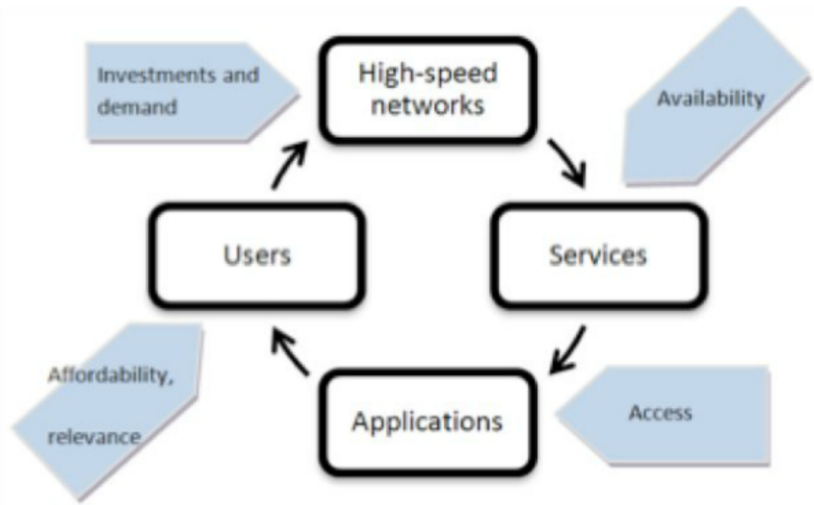

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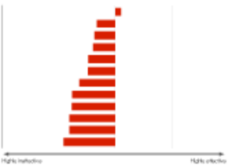

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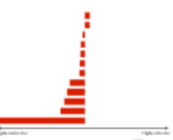


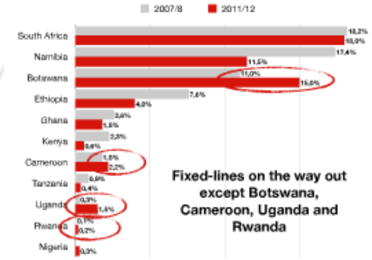
ICT access in South Africa

Census vs RIA ICT Survey data

	Census		RIA	
	2006	2011	2007	2012
Household with fixed line	18,5%	14,5%	18,2%	18%
Household with computer	15,6%	21,4%	14,8%	24,5%
Household with ratio	76,5%	67,5%	77,7%	62,3%
Household with TV	65,5%	74,5%	71,1%	78,2%
Household with internet		35,2%	4.8% (household) 15% (individual)	19.7% (household) 33.7% (individual)
Cellphone ownership (household)	72,7%	88,9%	62,1%	84,2%

Source: 2012 RIA ICT Survey; StatsSA 2011

Share of households with fixed-lines



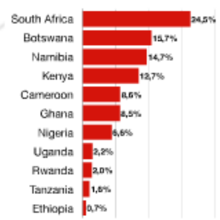
Internet access and use

Urban VS Rural

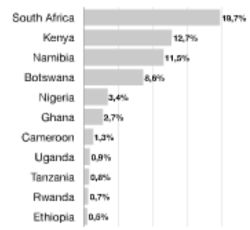
Internet acces and use	National	Urban	Rural
15+ using the internet	33,7%	41,3%	21,4%
Used the internet first on a computer	65%	64,2%	67,2%
Used the internet first on a mobile	35%	35,8%	32,8%
Are you signed up for any social network?	74,9%	78,9%	60,8%

Source: 2012 RIA ICT Survey

Share of households with a working computer

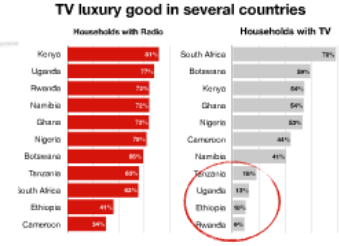


Share of households with a working Internet connection



Less than a quarter of households have a computer and even fewer Internet access

Radio still main source of information
TV luxury good in several countries



Internet use

Gender disaggregation

Internet acces and use		National	Male	Female
15+ using the internet (2012)		33,7%	40,6%	28,6%
Why individuals do not use the internet	Don't know how to use it	69,1%	67,6%	70,6%
	no computer/internet connection	66%	66,6%	65,5%
	Don't know what the internet is	64,4%	60,5%	68,2%
	Too expensive	55%	53,8%	56,1%
	no interest/not useful	38,3%	38%	38,5%
	too slow, limited bandwidth	13,4%	15,9%	11,2%

Source: 2012 RIA ICT Survey

Internet use and social networking

Income disaggregation - BoP vs RoP in South Africa

Internet acces and use	BoP	RoP	Difference
15+ using the internet	18,4%	40,3%	21,9%
Used the internet first on a computer	52,5%	70%	17,5%
Used the internet first on a mobile	47,5%	30%	-17,5%
Are you signed up for any social network?	52%	78%	26%

Source: 2012 RIA ICT Survey

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Sector Performance

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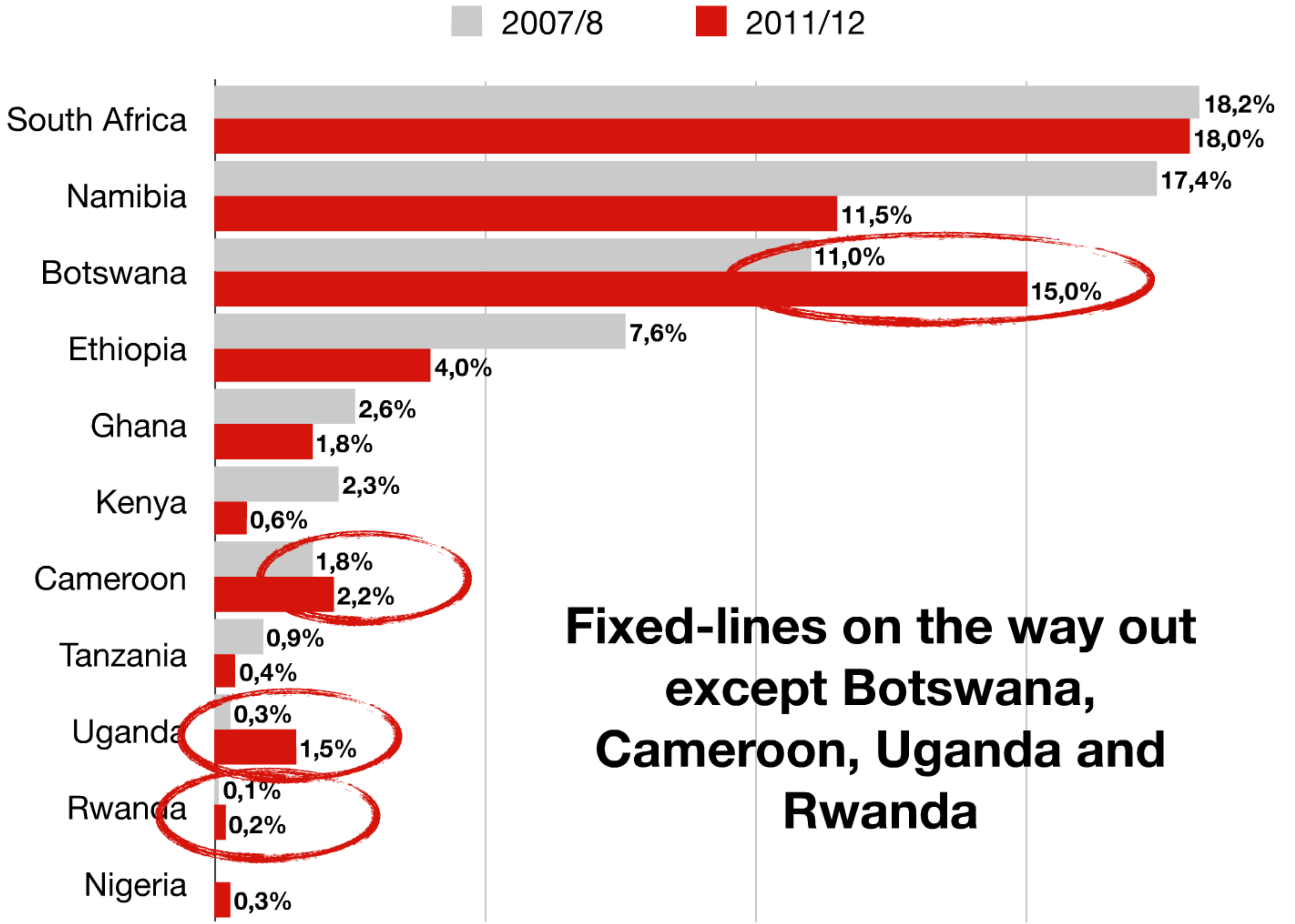

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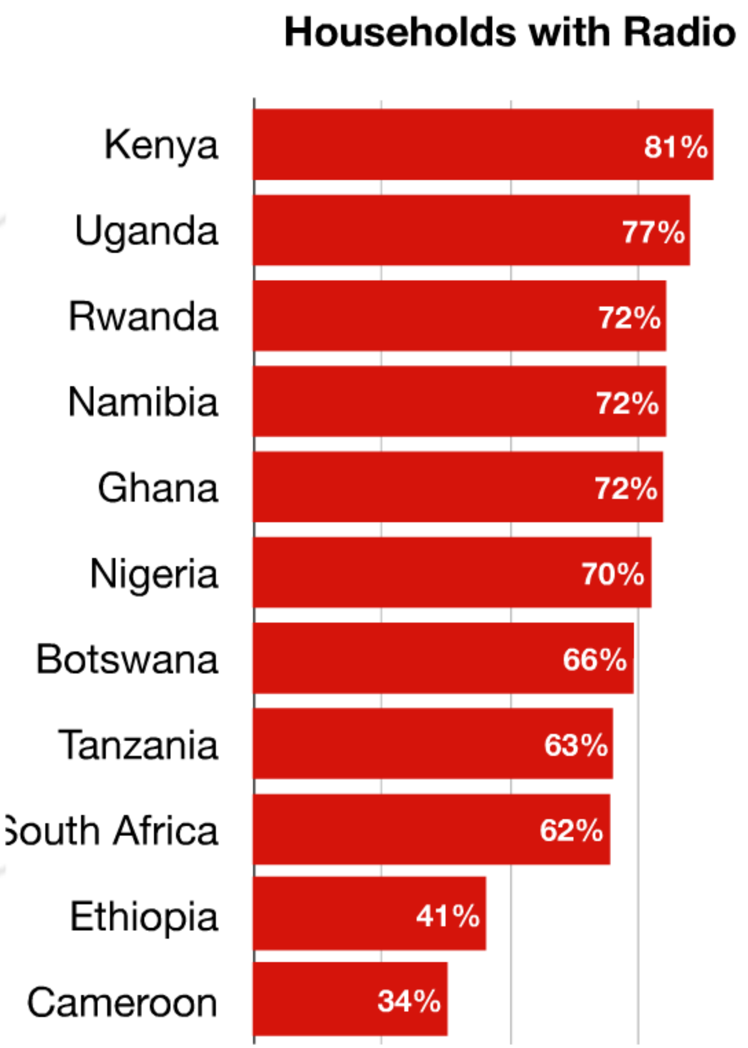

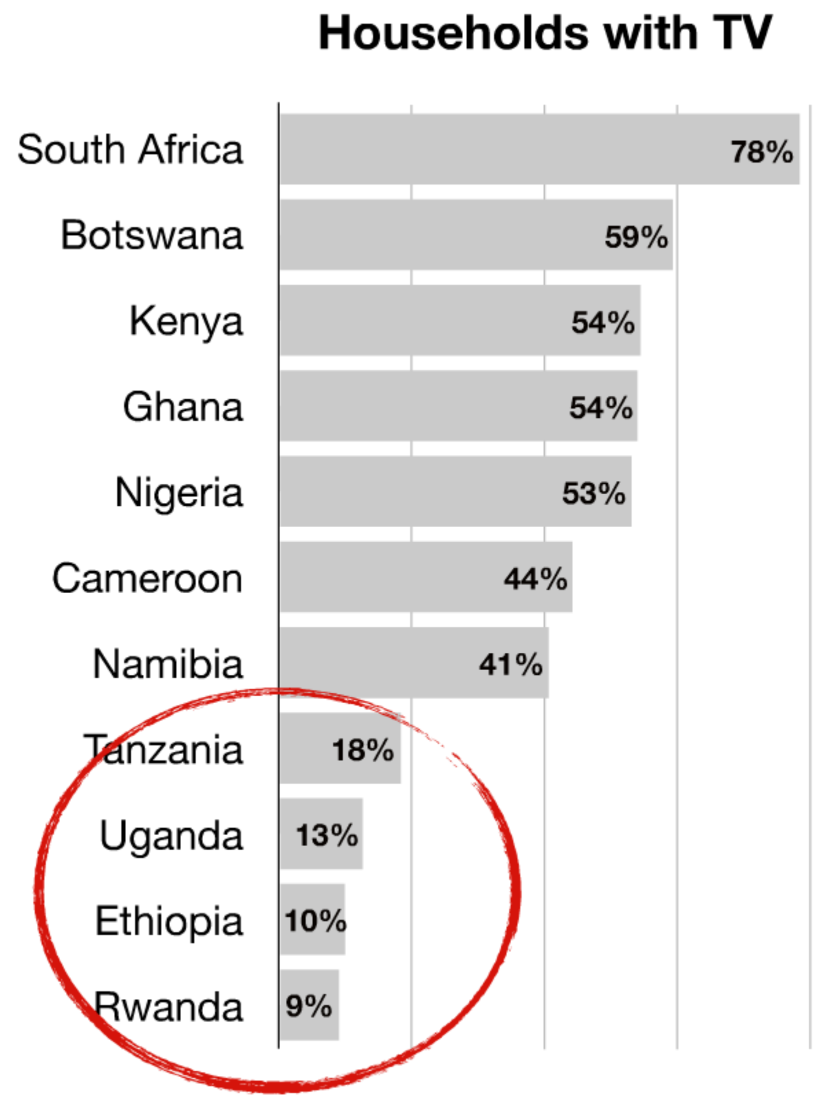

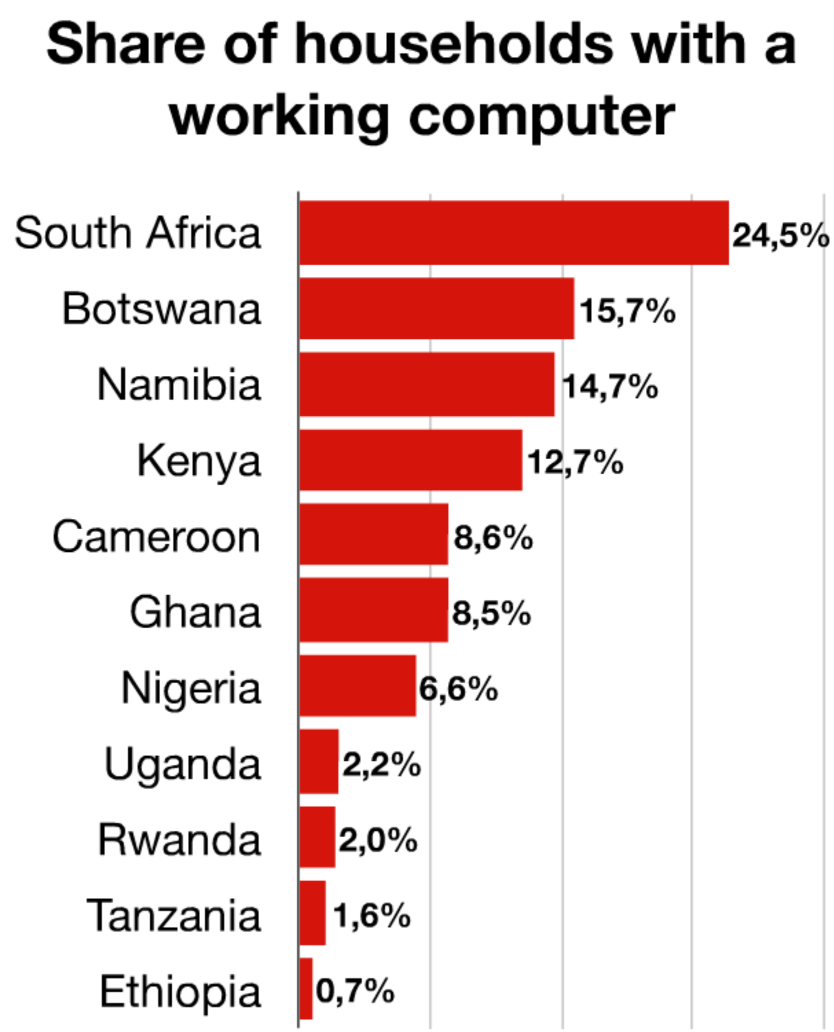

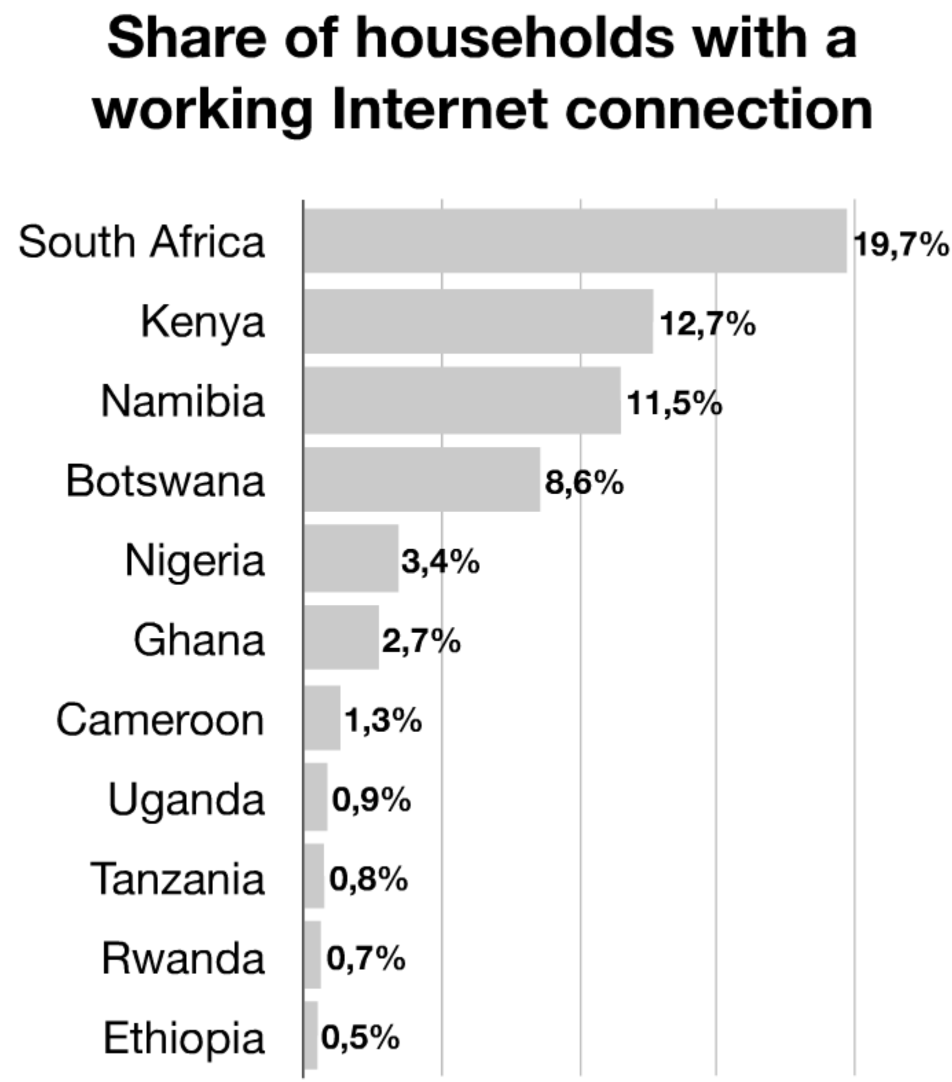

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Rwand
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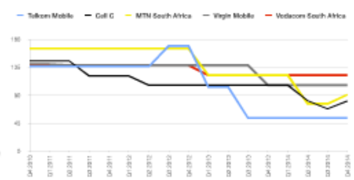
Source: 2012 RIA

Mobile pricing

Country name	Cheapest product: dominant operator USD	dominant operator Rank	cheapest in country USD	cheapest in country Rank	% cheaper than dominant
OECD mobile baskets, 2010 definition, 40 calls. Mostly call distribution, minutes and SMS					
Kenya	0.98	1	0.98	1	Dominant is the cheaper
Egypt	2.69	2	2.69	3	Dominant is the cheaper
Sudan	2.83	3	1.06	2	63%
Ghana	3.58	4	3.11	4	13%
Ethiopia	3.8	5	3.8	6	Dominant is the cheaper
Mauritius	3.9	6	3.9	7	Dominant is the cheaper
Rwanda	4.28	7	4.28	8	Dominant is the cheaper
Tunisia	5.43	8	5.27	12	3%
Tanzania	5.7	9	4.7	10	18%
Algeria	5.91	10	5.91	14	0%
Nigeria	6.8	11	5.1	11	25%
Libya	6.97	12	6.97	17	Dominant is the cheaper
Uganda	7.71	13	6.69	16	13%
South Africa	7.82	14	4.54	9	42%
Namibia	8.62	15	7.53	19	13%
Sierra Leone	9.66	16	9.66	21	Dominant is the cheaper
Mozambique	10.06	17	10.06	22	Dominant is the cheaper



Data pricing

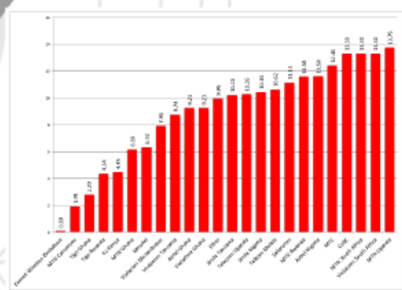


Figure X: Q4 2014 USD Prices 1GB basket

Value for Money Index

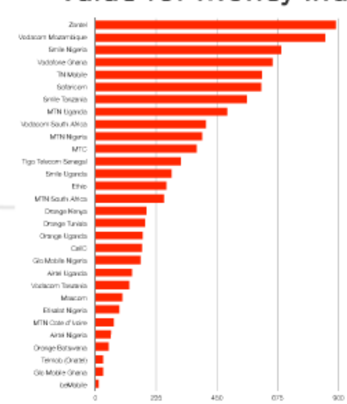


Figure X: Value for Money Index Q2 2014 (average speed in Mbps/1GB cost in USD)

...buying airtime, not voice or data... business models shift from voice to data

NDP: The ICT sector by 2030 will underpin the development of a **dynamic and connected information society** and a **vibrant knowledge economy** that is more inclusive and prosperous. A seamless information infrastructure will be **universally available and accessible**...

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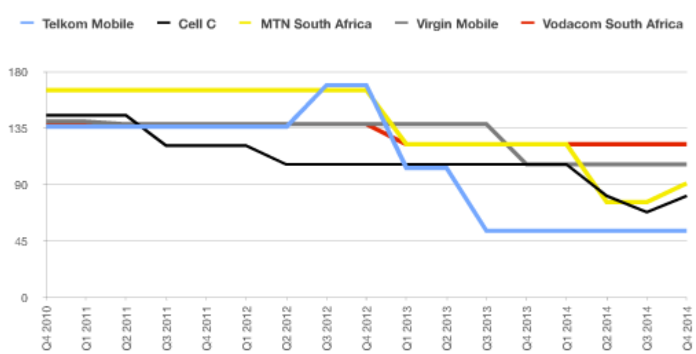
Strategic Integrated Project (SIP) 15: Expanding Access to Communication Technology which "to ensure **universal service and access to reliable, affordable and secure broadband services** by all South Africans, **prioritising rural and under-serviced areas** and **stimulating economic growth**."

Mobile pricing

OECD mobile baskets, 2010 definition, 40 calls. Montly call distribution, minutes and SMS					
Country name	Cheapest product				% cheaper than dominant
	dominant operator		cheapest in country		
	USD	Rank	USD	Rank	
Kenya	0,98	1	0,98	1	Dominant is the cheaper
Egypt	2,69	2	2,69	3	Dominant is the cheaper
Sudan	2,83	3	1,06	2	63%
Ghana	3,58	4	3,11	4	13%
Ethiopia	3,8	5	3,8	6	Dominant is the cheaper
Mauritius	3,9	6	3,9	7	Dominant is the cheaper
Rwanda	4,28	7	4,28	8	Dominant is the cheaper
Tunisia	5,43	8	5,27	12	3%
Tanzania	5,7	9	4,7	10	18%
Algeria	5,91	10	5,91	14	0%
Nigeria	6,8	11	5,1	11	25%
Libya	6,97	12	6,97	17	Dominant is the cheaper
Uganda	7,71	13	6,69	16	13%
South Africa	7,82	14	4,54	9	42%
Namibia	8,62	15	7,53	19	13%
Sierra Leone	9,66	16	9,66	21	Dominant is the cheaper
Mozambique	10,06	17	10,06	22	Dominant is the cheaper



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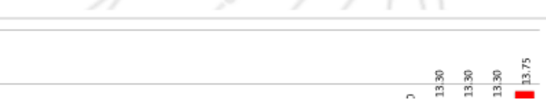

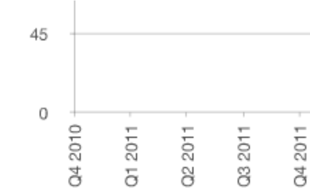

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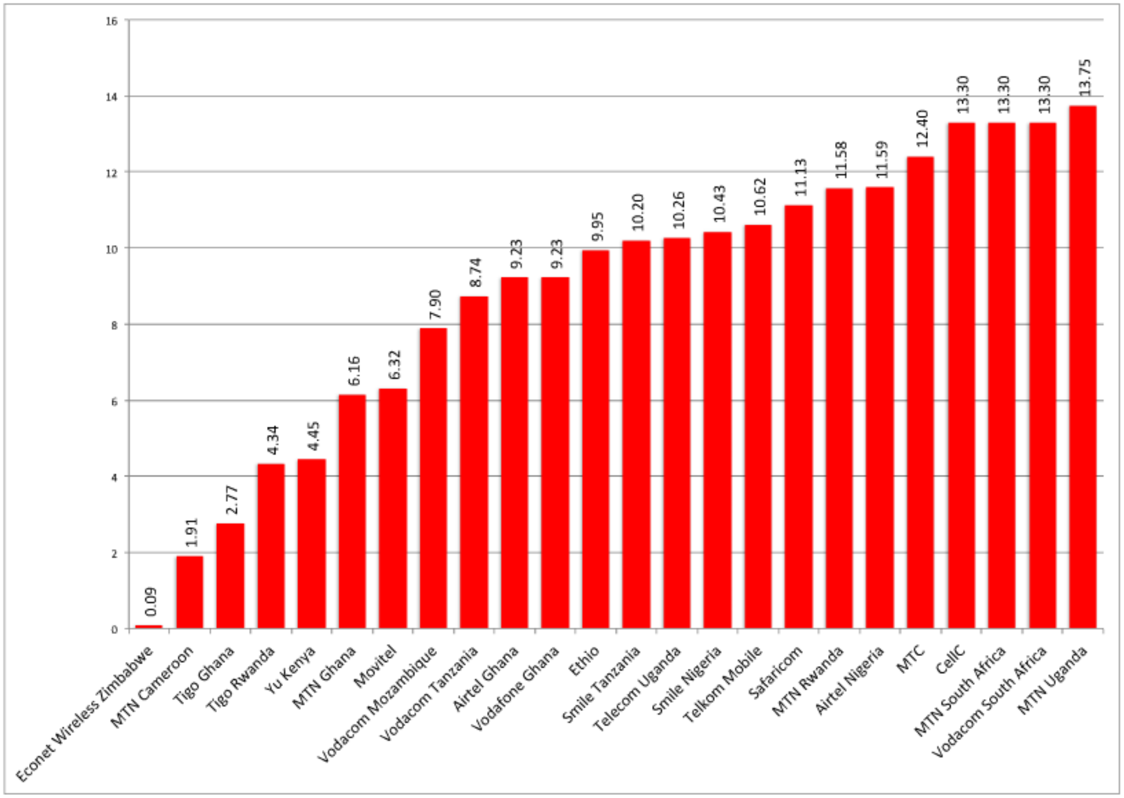

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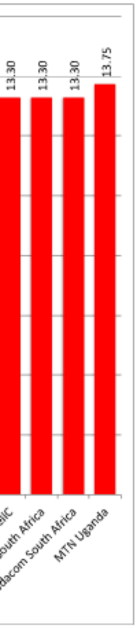
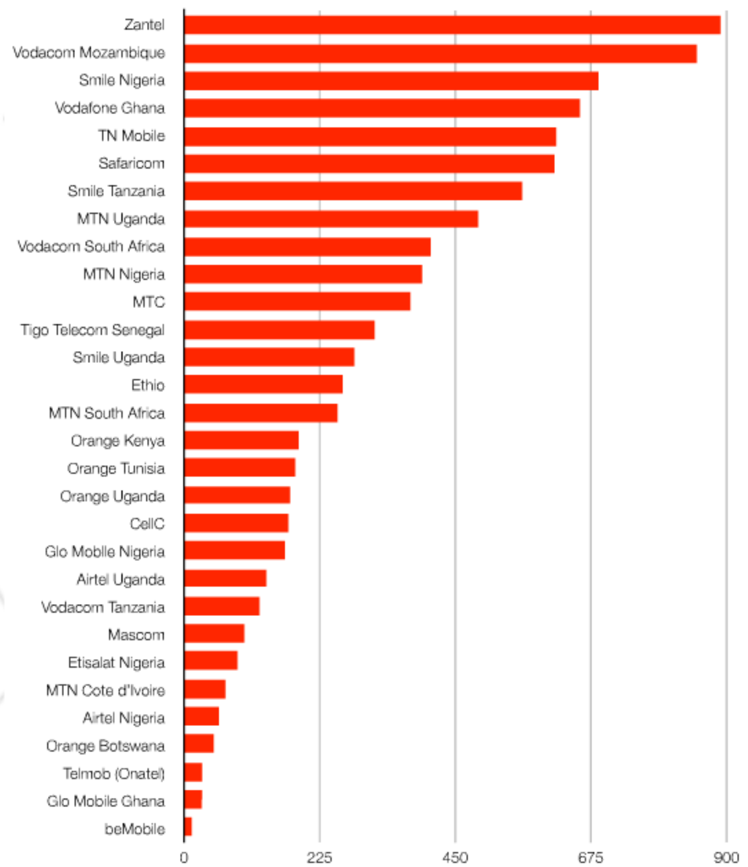


Value for Money Index



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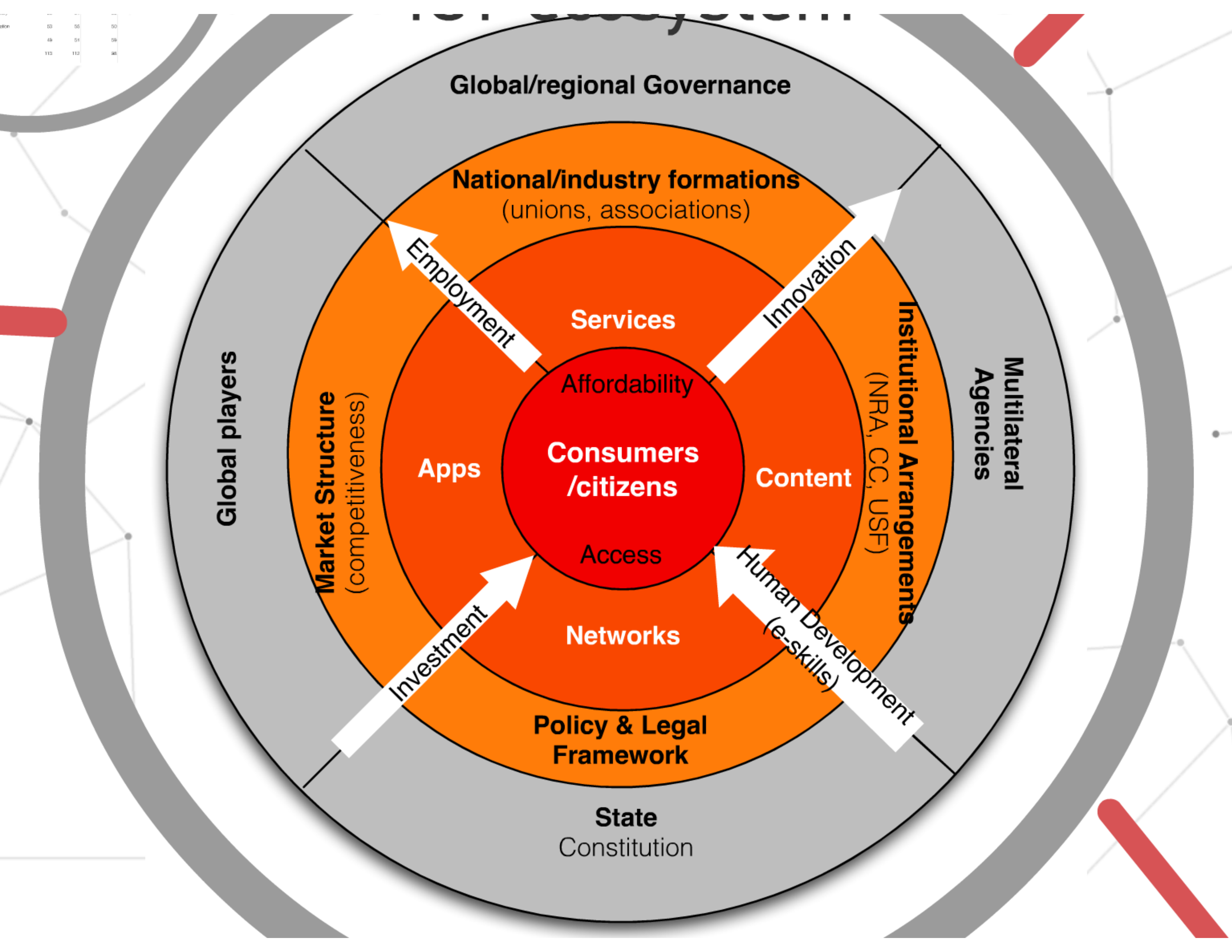
Global/regional Governance
National/industry formations
(unions, associations)
Services
Affordability
Consumers
/citizens
Apps
Content
Access
Networks
Employment
Innovation
Investment
Human Development
(e-skills)
Global players
Market Structure
(competitiveness)
Institutional Arrangements
(NRA, CC, USF)
Multilateral
Agencies
Policy & Legal
Framework
State
Constitution

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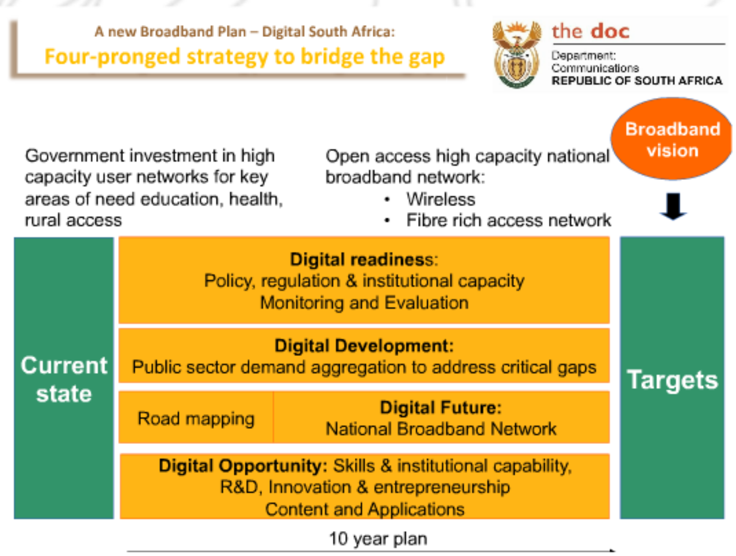

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South Africa has a Digitization Index of 33.4

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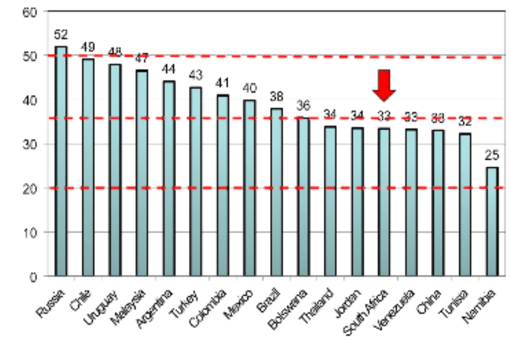
Department: Communications
REPUBLIC OF SOUTH AFRIC

SELECTED UPPER MIDDLE INCOME COUNTRIES: DIGITIZATION INDEX (20



Source: Own calculations using Katz, Koutroumpis and Callorda (2013b)

Cost of not implementing the plan high….

R38,500 million in GDP and 204,000 jobs/ year

SOUTH AFRICA: DIGITIZATION ECONOMIC IMPACT (2004-2012)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Digitization Index	20.15	21.89	23.58	24.18	24.55	25.61	26.75	30.61	33.40	-
GDP created (in Million Rands)	-	3,478	3,602	1,397	828	2,484	3,509	13,352	9,853	38,502
Jobs created ('000)	-	25	26	9	6	16	18	60	44	204

Source: Own calculations using Katz, and Koutroumpis(2013b)

If South Africa met the policy targets and the associated metrics, it would create R90,397 million in GDP and 400,000 jobs

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REPUBLIC OF SOUTH AFR

SOUTH AFRICA: DIGITIZATION CUMMULATIVE ECONOMIC IMPACT (2013-2020)

	2012	2015	2020 (Total)
Digitization Index	33.40	52.94	58.98
GDP created (in Million Rands)	-	R 69,055	R 90,397
Jobs/Year created ('000)	-	306	400

Source: Own calculations using Katz, and Koutroumpis(2013b)

An extrapolation of construction and spill-overs in a ten year period yields 427,000 jobs and 137 billion ZAR in output

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REPUBLIC OF SOUTH AFRICA

SOUTH AFRICA: DIGITIZATION CUMMULATIVE ECONOMIC IMPACT (2013-2020)

Impact		2015	2020
Digitization	GDP (R M)	69,055	90,397
	Employment	306,000	400,000
Speed	GDP (R M)	2,163	20,907
	Employment	-	-
Total	GDP (R M)	71,218	111,304
	Employment	306,000	400,000

What to do?

Stick to the plan... until it is properly reviewed...

- Deal with bottlenecks in infrastructure industry-imperfect competition
- Review institutional arrangements: Effectively regulated competitive markets
- Review market structure - open access for regulated competitive services and prevent duplication of infrastructure investment/deployment
- Manage incentives for investment in broadband network extension, spectrum management
- Reduce broadband prices ante wholesale regulation - peering, IP transit - with caution
- Address issues of net neutrality / safeguard 'free and open' internet
- Service neutral licensing, scrap excise duties add taxes for ICT
- Secure environment of e-services, privacy, security, surveillance
- Demand stimulation critical: Affordability and e-skills
- Open data, open government, stimulate localisation
- Infrastucture sharing, open access, one builds, ROW harmonisation
- Need for integrated development - informational development dependent on human development

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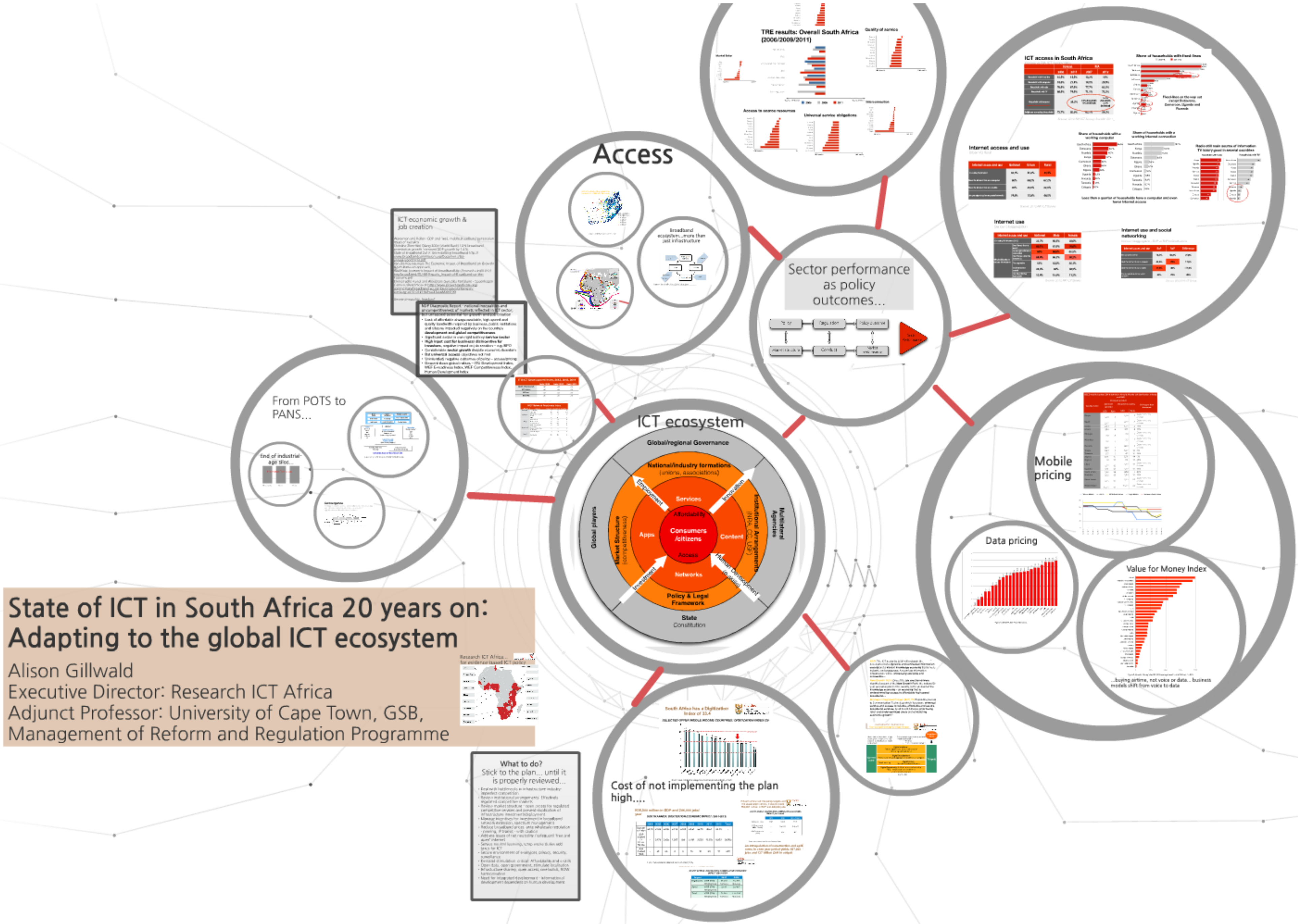
high



State of ICT in South Africa 20 years on:
Adapting to the global ICT ecosystem
Alison Gillwald
Executive Director: Research ICT Africa
Adjunct Professor: University of Cape Town, GSB,
Management of Reform and Regulation Programme
Access
ICT economic growth & job creation
From POTS to PANS...
End of industrial age silos...
Sector performance as policy outcomes...
ICT ecosystem
Global/regional Governance
National/industry formations (unions, associations)
Services
Affordability
Consumers /citizens
Apps
Content
Access
Networks
Policy & Legal Framework
State
Constitution
Global players
Market Structure (competitiveness)
Institutional Arrangements
Multilateral Agencies
Employment
Innovation
Investment
Human Development
TRE results: Overall South Africa (2006/2009/2011)
ICT access in South Africa
Internet access and use
Internet use
Internet use and social networking
Mobile pricing
Data pricing
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