Shared Spectrum Strategies to Increase Affordable Access in Rural Areas

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science & innovation
Department:
Science and Innovation
REPUBLIC OF SOUTH AFRICA

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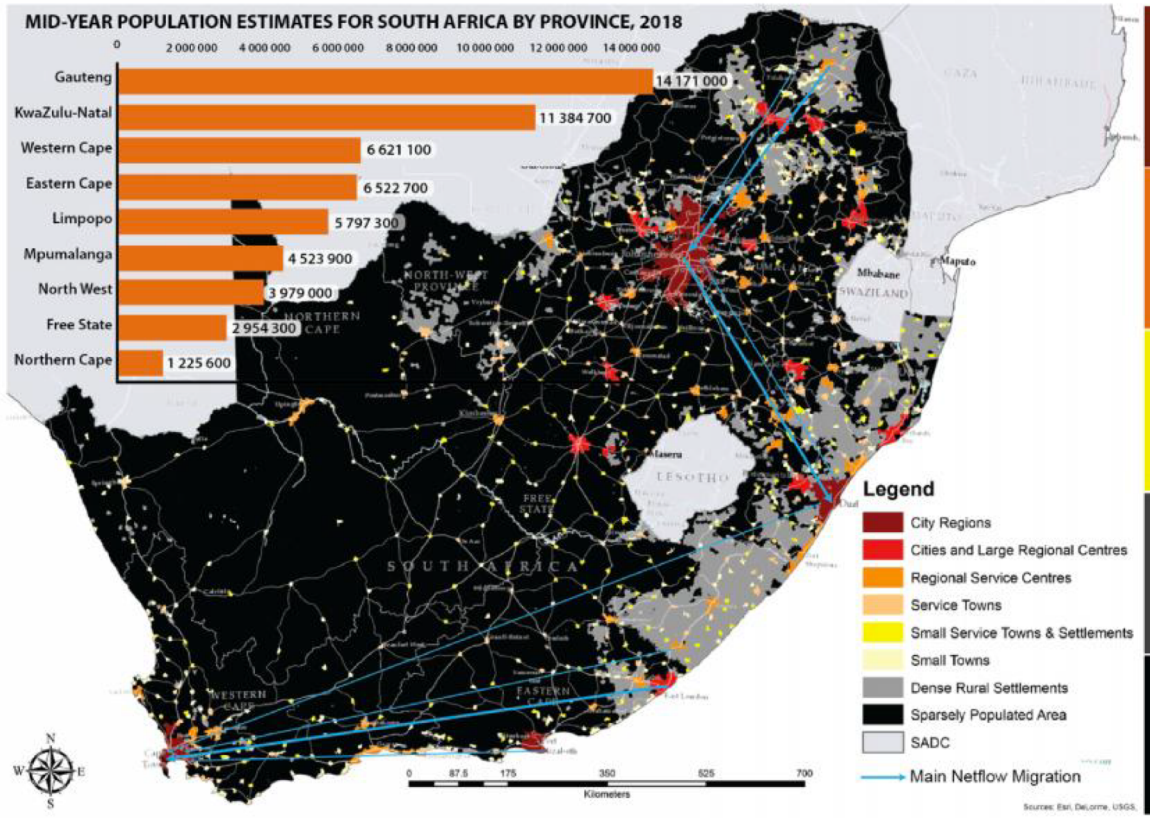
Contents

- Overview of CSIR and its TVWS activities
- Overview of TVWS activities across the continent
- TVWS Ecosystem development in South Africa
- CSIR's application of a Geo-Location Spectrum Database beyond TVWS

South Africa - Overview

SETTLEMENT TYPOLOGY DISTRIBUTION



Metropolitan Areas, Cities and Big Regional Towns
Total Population I **29 633 727**
53% of SA Population *(2016)*

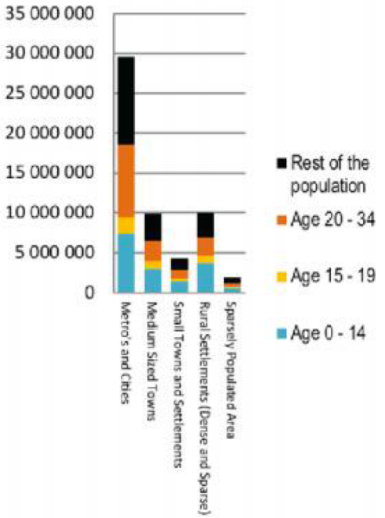
Medium Sized Towns with Regional Service Function
Total Population I **9 951 815**
18% of SA Population *(2016)*

Rural Service Centres & Small Towns
Total Population I **4 328 976**
8% of SA Population *(2016)*

Dense & Scattered Rural Settlements
Total Population I **10 006 387**
18% of SA Population *(2016)*

Sparse Settlements
Total Population I **1 871 207**
3% of SA Population *(2016)*

POPULATION, YOUTH AND TYPES OF SETTLEMENTS



Population Characteristics and Settlement Dynamics Based on StatsSA, 2011, 2018; Quantec 2016, CSIR Town Typology 2018, Vulnerability and Migration Indicators – See Annexure A

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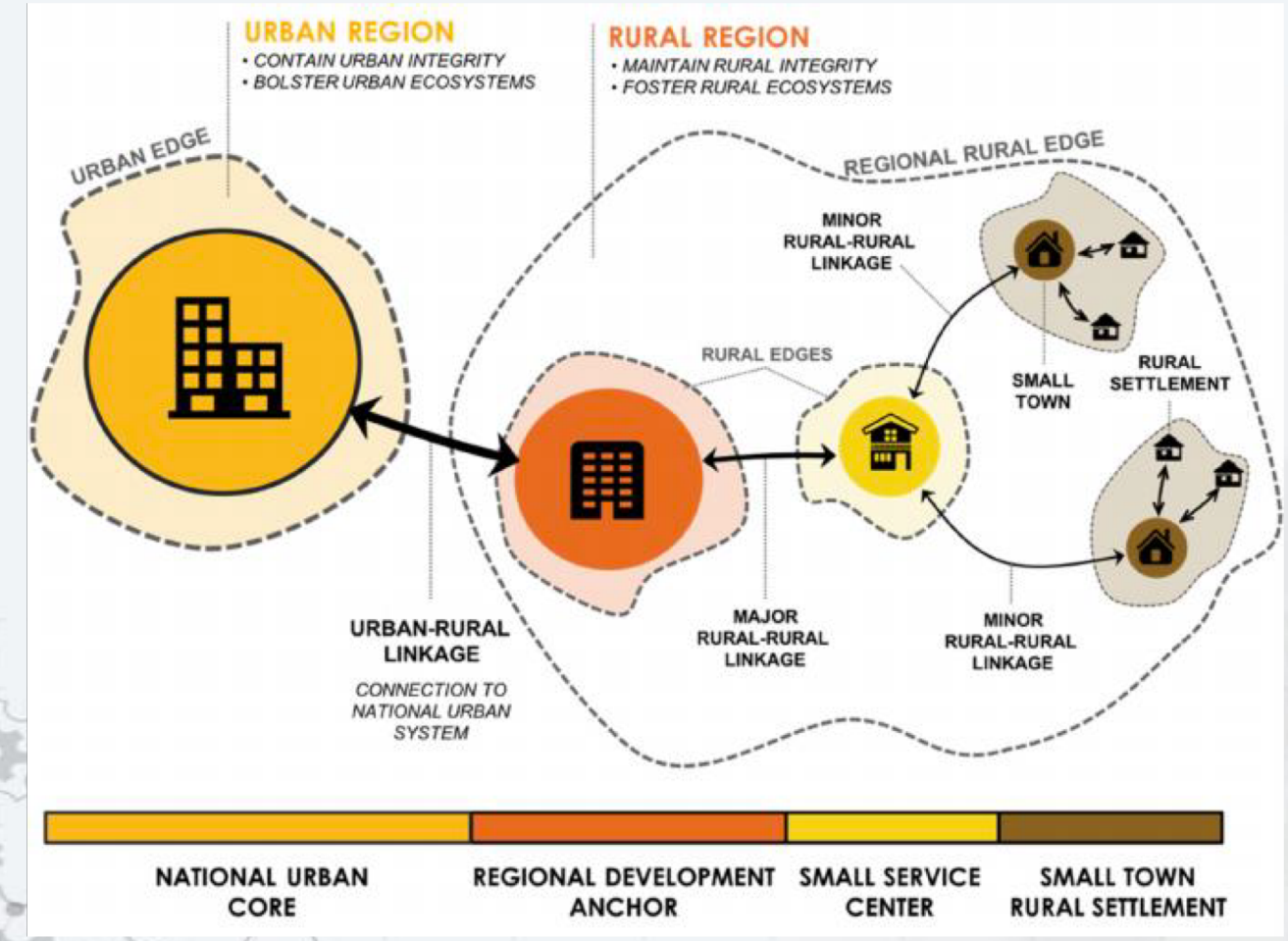
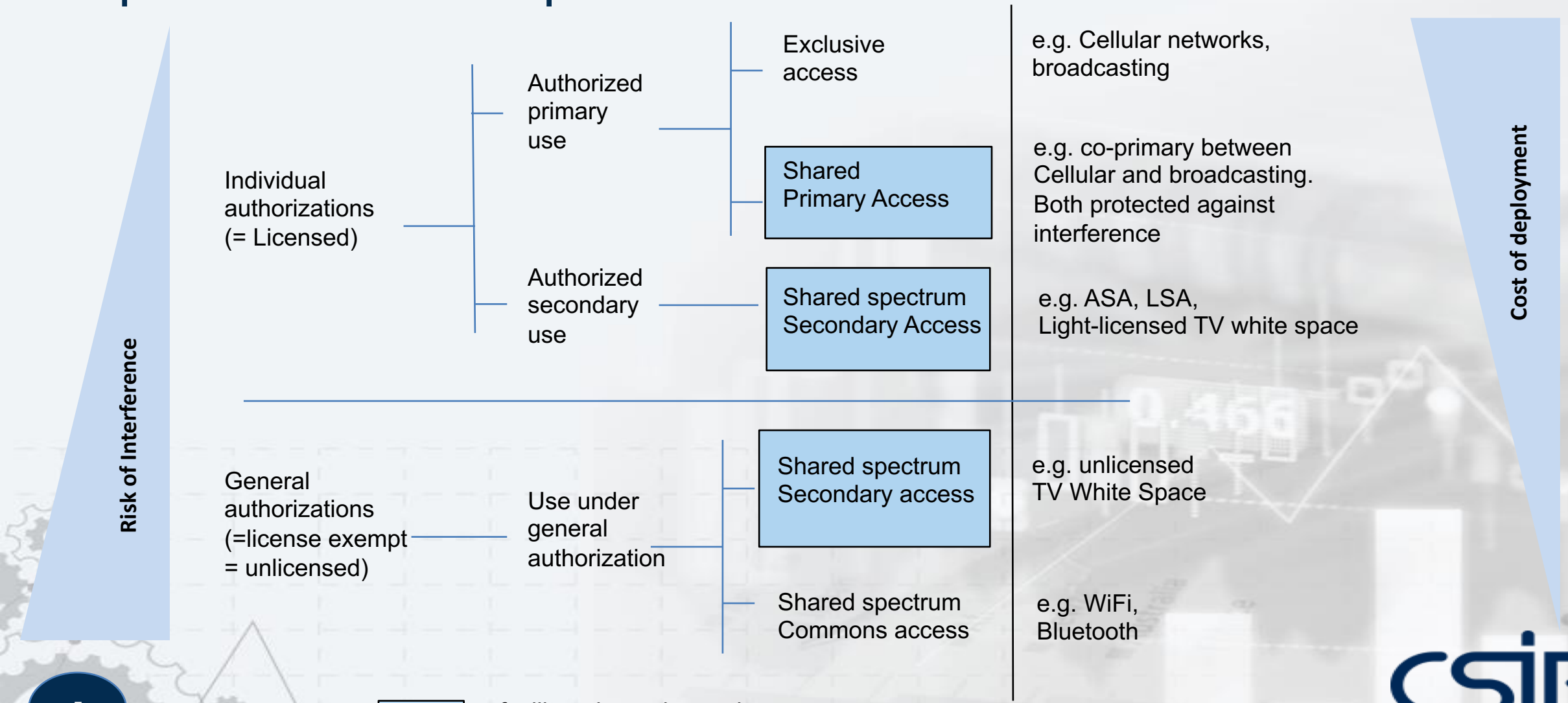
Regional rural development model
(Differentiate between urban and rural solutions)



- Sustainable rural development
- Identification, development and strengthening of ‘regional development anchors’ in rural areas, to
  1) connect urban to rural areas in mutually-beneficial ways, and
  2) act as catalysts for regional-rural development
- Need to solve both access and backhaul

CSIR Solution starts with Spectrum Authorization Options



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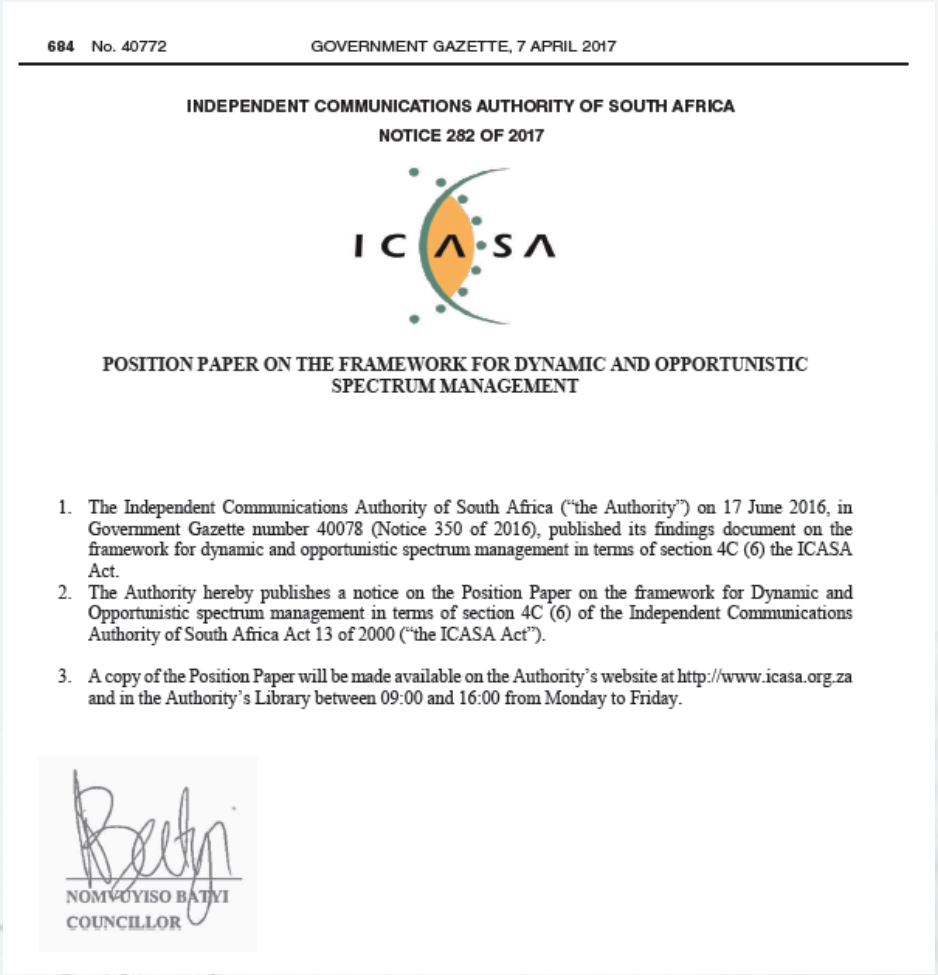
Position on Dynamic Spectrum management



684 No. 40772 GOVERNMENT GAZETTE, 7 APRIL 2017

INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA

NOTICE 282 OF 2017

POSITION PAPER ON THE FRAMEWORK FOR DYNAMIC AND OPPORTUNISTIC SPECTRUM MANAGEMENT

1. The Independent Communications Authority of South Africa ("the Authority") on 17 June 2016, in Government Gazette number 40078 (Notice 350 of 2016), published its findings document on the framework for dynamic and opportunistic spectrum management in terms of section 4C (6) the ICASA Act.
2. The Authority hereby publishes a notice on the Position Paper on the framework for Dynamic and Opportunistic spectrum management in terms of section 4C (6) of the Independent Communications Authority of South Africa Act 13 of 2000 ("the ICASA Act").
3. A copy of the Position Paper will be made available on the Authority's website at http://www.icasa.org.za and in the Authority's Library between 09:00 and 16:00 from Monday to Friday.

NOMVUYISO BATYI
COUNCILLOR

The Authority's Position

- That the DSA concept is applicable across the Radio Frequency band, and
- That TVWS is the first phase of the DSA implementation in the TV band

TVWS timeline in South Africa

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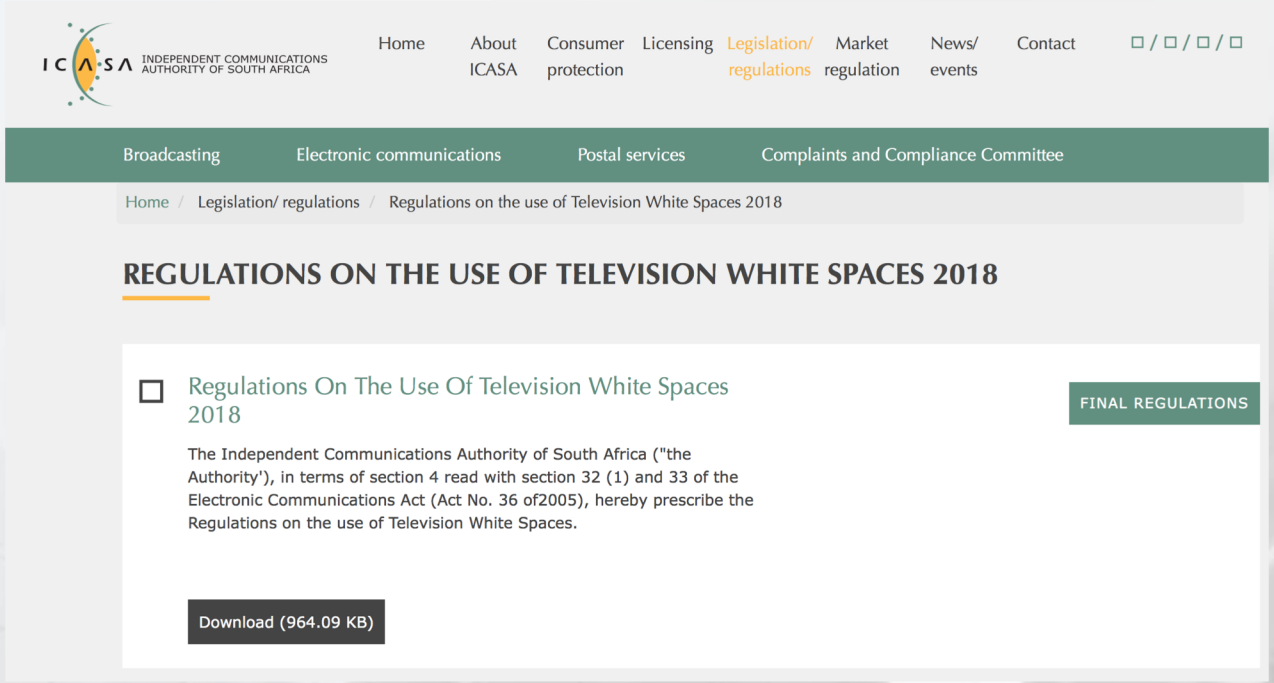
TVWS Regulations in South Africa

"The DSA is excited that TVWS regulations are being considered in a number of other countries in Africa including Botswana, Ghana, Kenya, Malawi, Nigeria, Mozambique and Tanzania, and we believe South Africa's actions will spur more regulators in the region and around the world to move rapidly," added Gude.

https://www.icasa.org.za/legislation-and-regulations/regulations-on-the-use-of-television-white-spaces-2018



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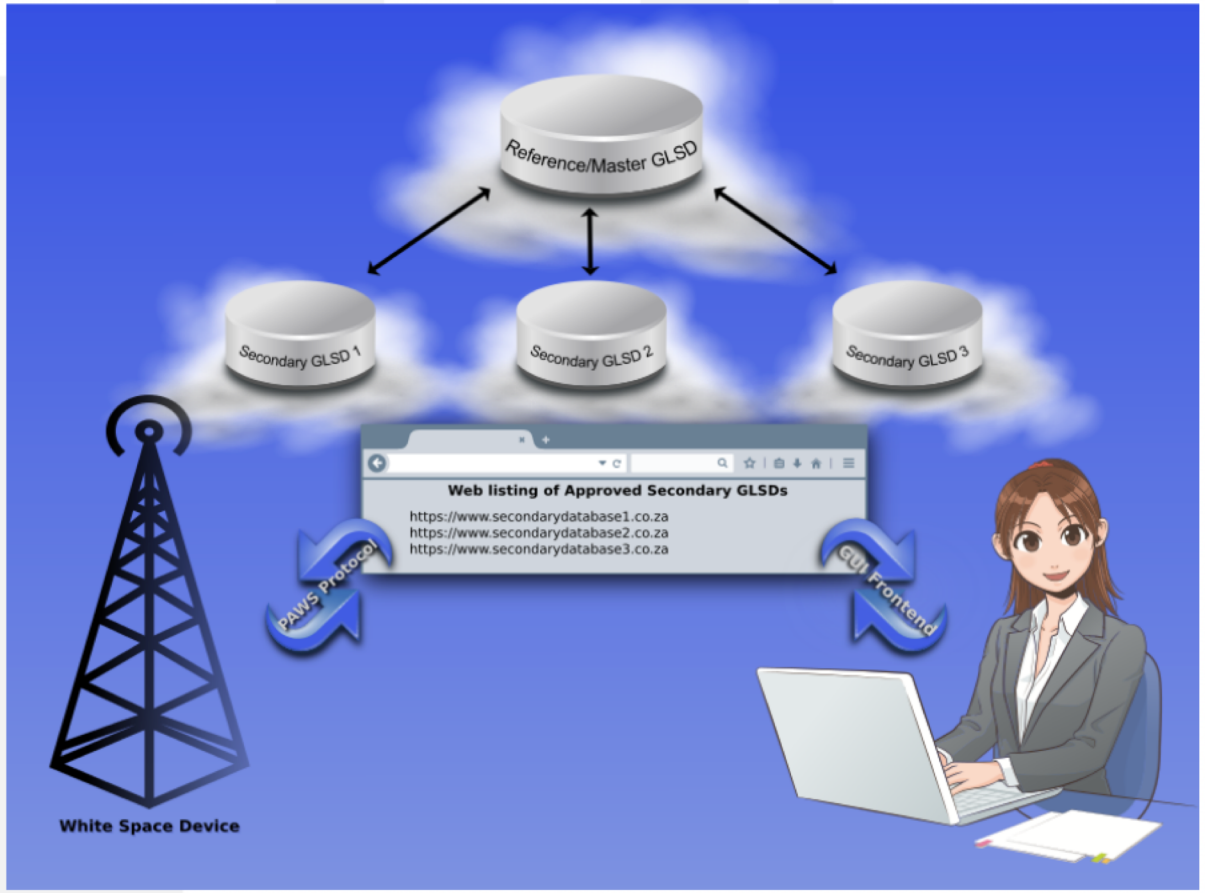
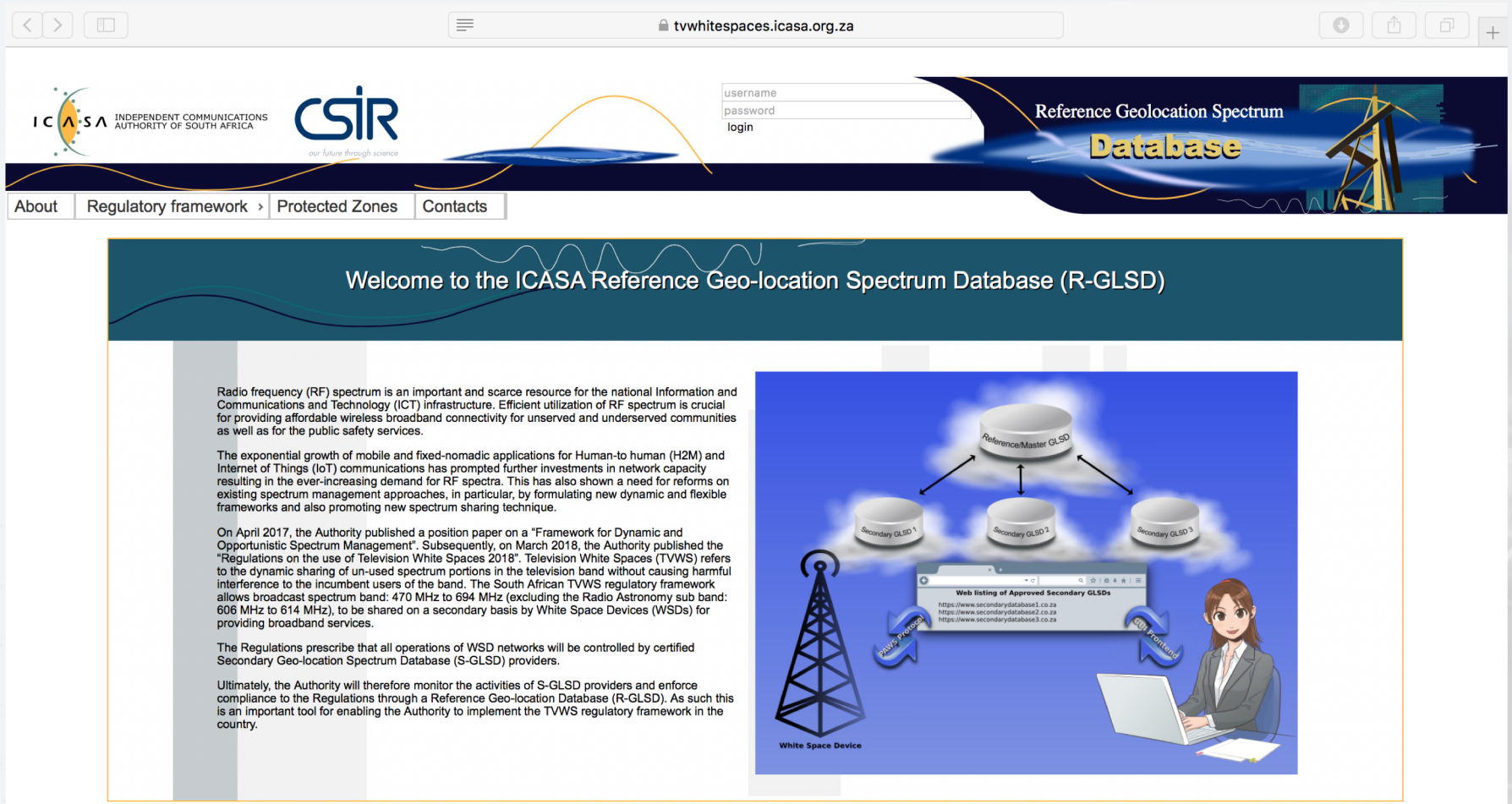
TV Whitespaces ecosystem – South Africa progress



- Policy – NRFP published May 2018
- Regulations – March 2018
- Reference GLSD – Commissioned March 2019
- Secondary GLSD – To be announced soon
- White Space Device – Must be type approved (ETSI emission classes)
  - Proprietary – Adaptrum, Carlson Wireless
  - Standard – White Space Alliance?, 3GPP?
- CPEs

A Reference GLSD for ICASA



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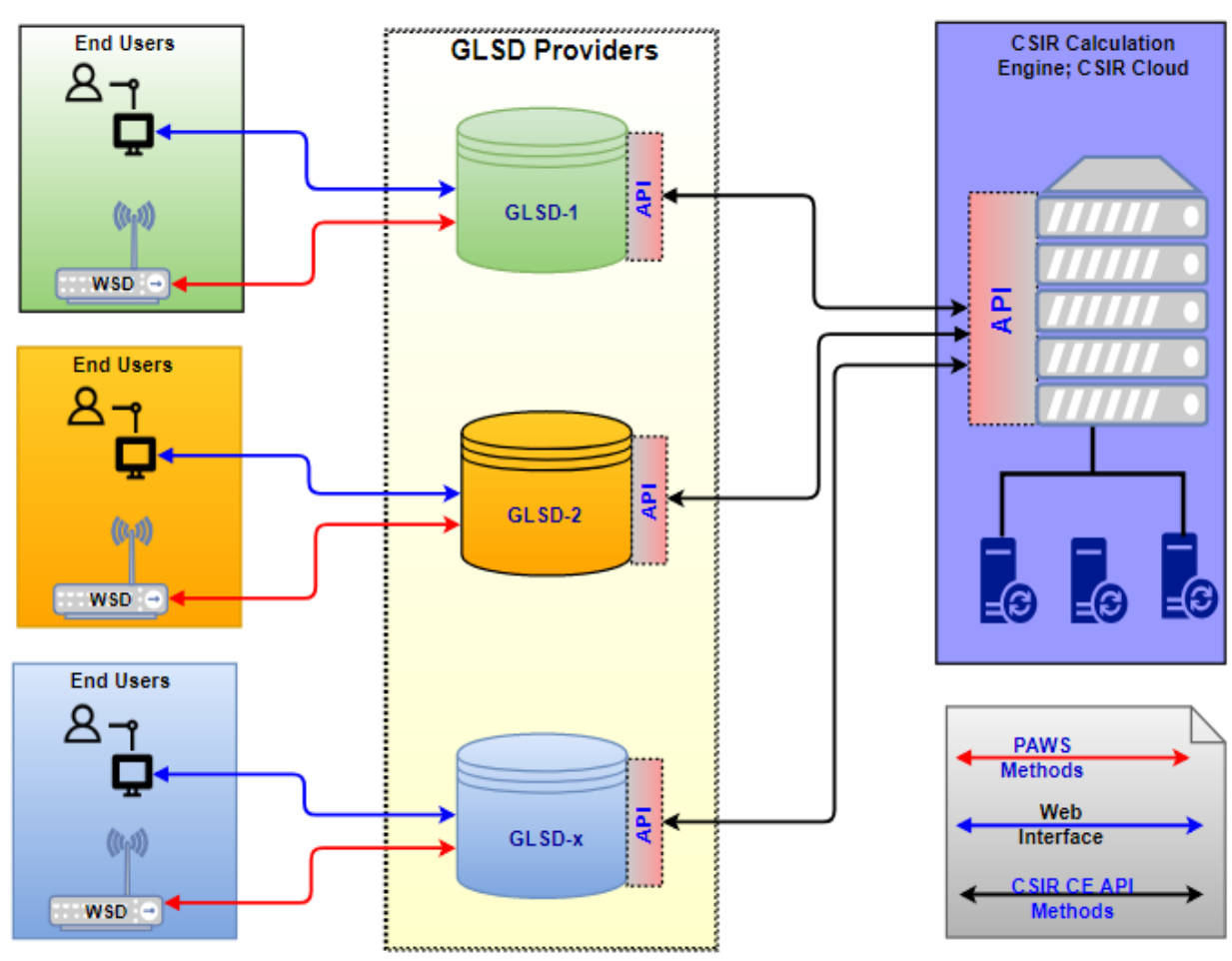
CSIR's TVWS GLSD – A key enabler



CSIR's GLSD is used in South Africa and has been exported to several countries:

- Botswana
- Cyprus (by invitation)
- Ethiopia
- Ghana
- Tanzania
- United Kingdom (Certified by OFCOM)

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Another Policy Enabler (National Radio Frequency Plan 2018)

STAATSKOERANT, 25 MEI 2018 No. 41650 239

INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA
NOTICE 286 OF 2018

ICASA

PURSUANT TO SECTION 34 (2) AND 34 (5) OF THE ELECTRONIC COMMUNICATIONS ACT 2005, (ACT NO. 36 OF 2005)

HEREBY ISSUES A NOTICE REGARDING THE FINAL NATIONAL RADIO FREQUENCY PLAN 2018.

1. The Independent Communications Authority of South Africa ("the Authority"), in terms of section 34 (2) and (5) of the Electronic Communications Act (Act No. 36 of 2005, as amended) hereby publishes a notice of the "National Radio Frequency Plan 2018".

RUBBEN MOHLALOGA
CHAIRPERSON

This gazette is also available free online at www.gpwonline.co.za

- Published 25 May 2018
- Section 34 (2) – "Minister must approve NRFP developed by the Authority … "
- Section 34 (5) – "… When updating and amending this plan due regard must be given to the current and future usage of the radio frequency spectrum"

Typical application for 470-694MHz lists Broadcasting, Radio Astronomy (606-614MHz) and SAP/SAB applications

Notes and Comments include "The use of TV white spaces is under consideration (subject to non-interference basis to users under primary allocation)

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Phase two of DSA in South Africa?

- Tiered spectrum sharing model (TSSM) in IMT bands
- Unlicensed 6GHz, including standard-power access points, under AFC control

Thank You!