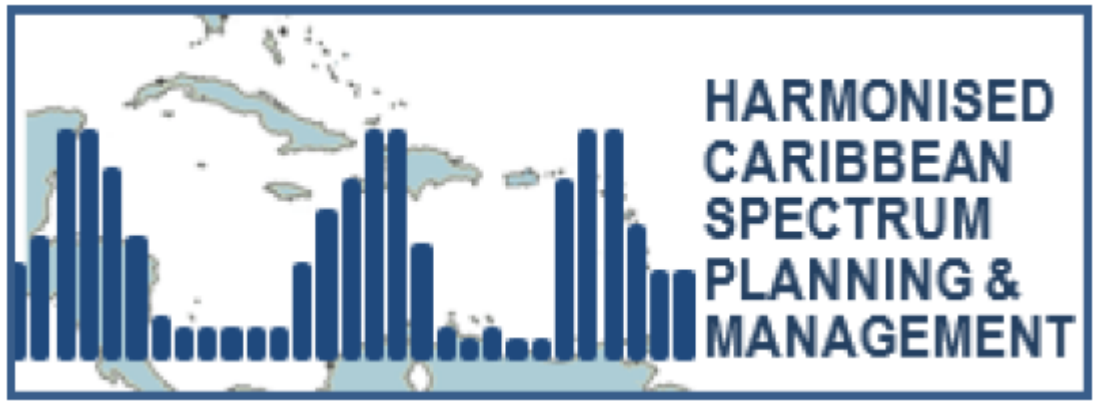
MEETING OF THE CARIBBEAN SPECTRUM MANAGEMENT TASK FORCE



Martha Suarez, DSA President

May 16, 2024

DSA

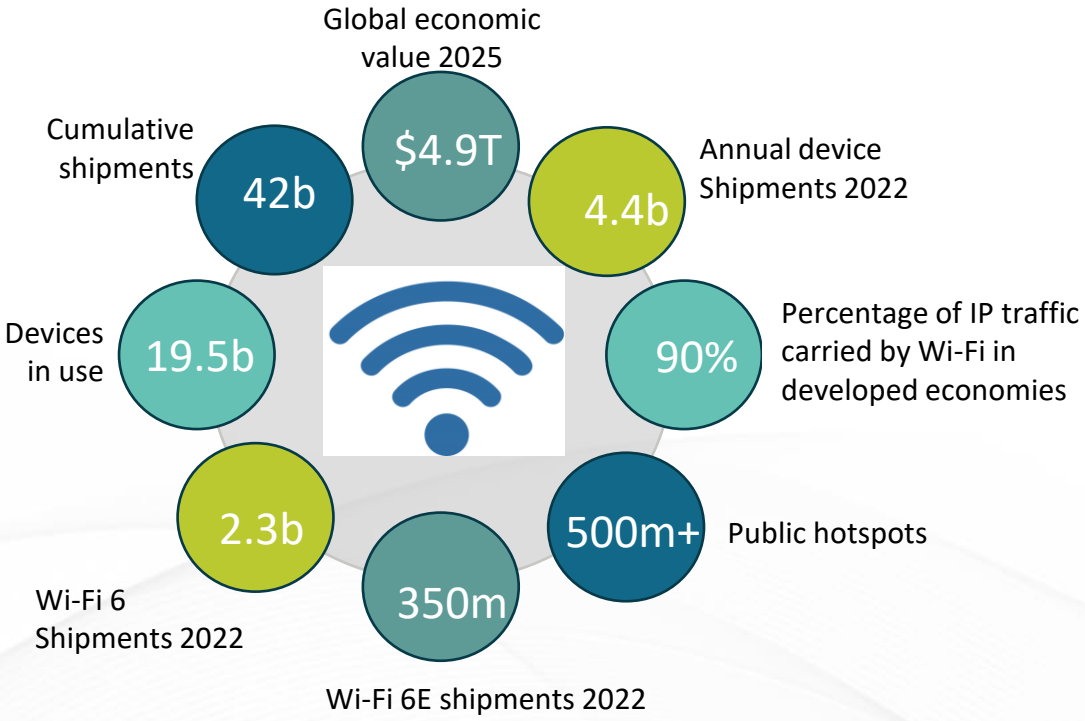
DYNAMIC • SPECTRUM ALLIANCE

Spectrum Sharing: 2 Broad Categories

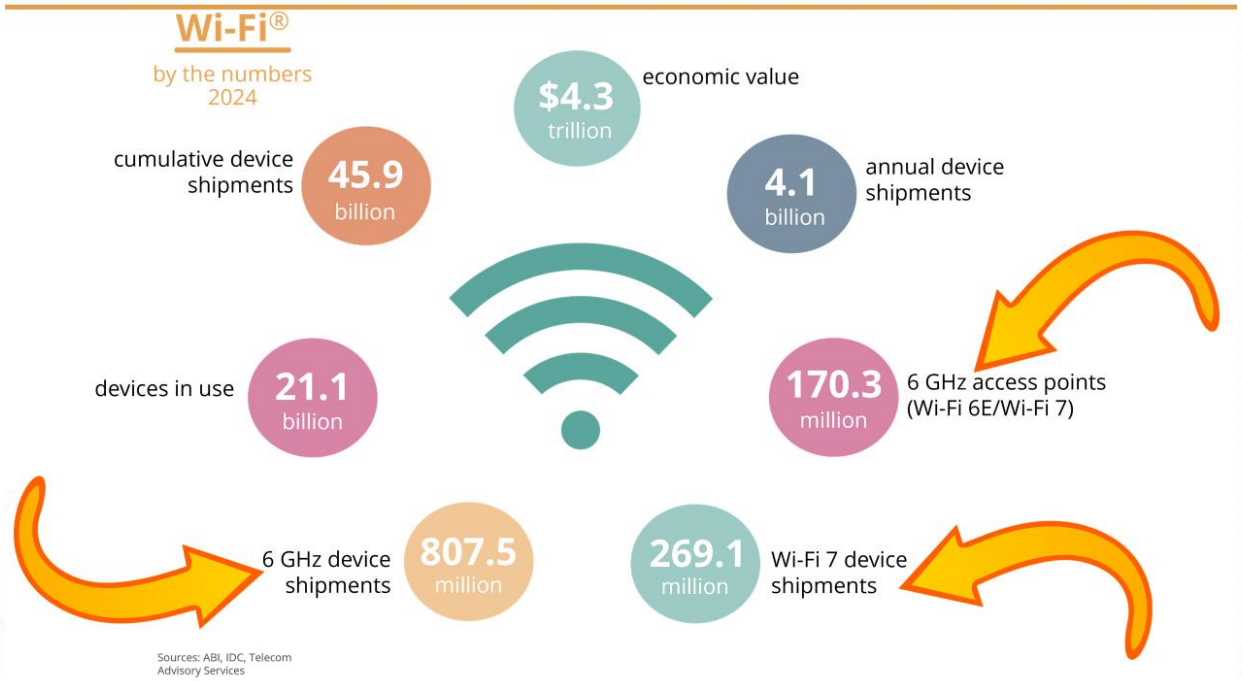
1. **Inter-Service Sharing**
   - **Historical Examples – clear delineation between operations (e.g. FS & FSS)**
   - **Emerging Methods – allows for closer interaction without interference**
     - **CBRS Spectrum Access System (SAS) dynamic coordination**
     - **Automated Frequency Coordination (AFC) for 6 GHz license exempt operations**

2. **Intra-Service Sharing**
   - **Historical Example – license exempt (i.e. unlicensed)**
     - **Opportunistic spectrum access based on Listen Before Talk / Contention-based access**
     - **25+ years of optimization**
   - **Emerging Methods – LTE and 5G shared spectrum**
     - **CBRS GAA**
     - **Local Licensing**

Wi-Fi: The Epitome of Sharing

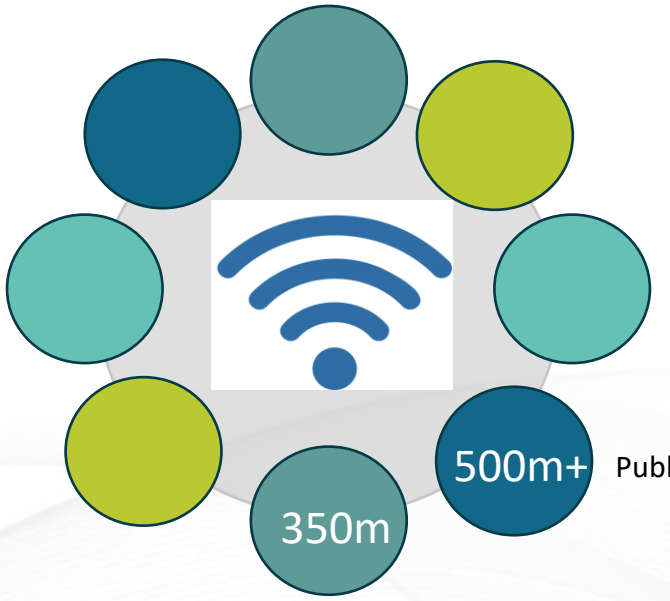


Sources: Wi-Fi Alliance



Wi-Fi: The Epitome of Sharing

2022



Public hotspots

Wi-Fi 6E shipments 2022

2024

Source: Wi-Fi Alliance

Automated Frequency **Coordination**

ID	Frequency	Emission Designator	Authorisation Date	T/R	Client	Licence	Site/Area
8274101	6.72 GHz	73M5D7WET	14/Apr/2022	R	Telstra Corporation Limited (39310)	1101510/2	Telstra Site DJAMBIDJIMBA NT 0872
8274100	6.72 GHz	73M5D7WET	14/Apr/2022	T	Telstra Corporation Limited (39310)	1101510/2	Telstra Radio Site Coonega, 24 km WSW of Mount Eclipse NT
8274065	6.019325 GHz	56M0G7W	05/Aug/2021	R	Optus Mobile Pty Limited (20017363)	11309311/1	Wellington Shire Council Site Mount Bodangora Near WELLINGTON NSW 2820
8274064	6.019325 GHz	56M0G7W	05/Aug/2021	T	Optus Mobile Pty Limited (20017363)	11309311/1	Optus Site Lulworth Park off Mitchell Hwy GEURIE NSW 2830
8274063	6.271365 GHz	56M0G7W	05/Aug/2021	R	Optus Mobile Pty Limited (20017363)	11309311/1	Optus Site Lulworth Park off Mitchell Hwy GEURIE NSW 2830
8274062	6.271365 GHz	56M0G7W	05/Aug/2021	T	Optus Mobile Pty Limited (20017363)	11309311/1	Wellington Shire Council Site Mount Bodangora Near WELLINGTON NSW 2820

ACMA Register of Radiocommunications Licences

Macro Trends Driving More Sharing

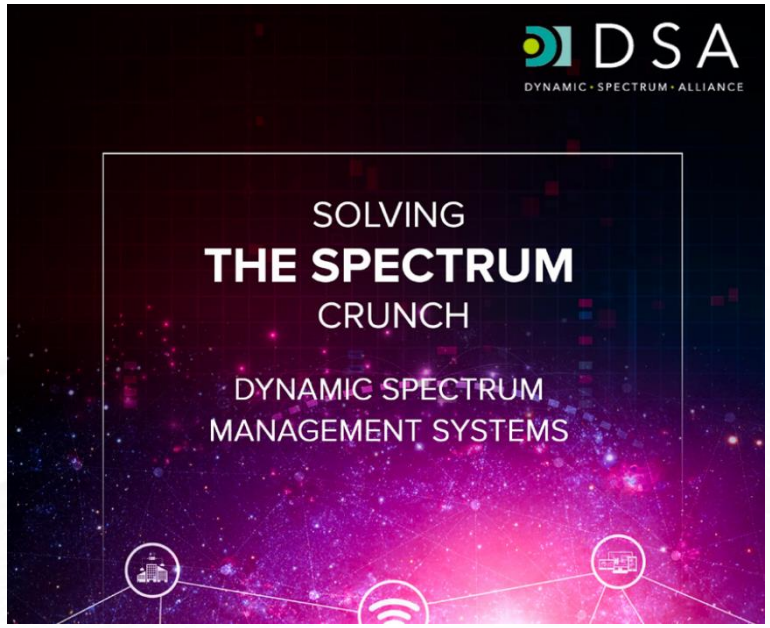
- Need to extend affordable access to close the digital gap.
- Network Densification
- Lower Power “Base Station / Small Cell / Access Point” Operations
- Private Cellular (Industrial & Enterprise)
- Neutral Host Requirements
- License-exempt Cellular (e.g. LTE-LAA, 5G NR-Unlicensed)
- Economics
- Growth of the satellite networks and applications

Macro Trends Driving More Sharing

- Shared spectrum models enable efficient and effective use of spectrum
  - Incumbent services can be protected using database and location identification technologies (Research report here)
    - Where sharing is possible, alternative regulatory frameworks should be considered
  - Unlicensed and lightly licensed approaches enable new competitive services and private wireless networks
    - WISPs, industrial users (verticals, IoT, utilities…), and other innovative new uses
  - Increases competition and expands the broadband ecosystem

Whitepaper about Dynamic Spectrum Management Systems (DSMS)

- Solving the Spectrum Crunch - Dynamic Spectrum Management Systems
- International Overview about different technologies/opportunities for Spectrum Sharing



DSA Policy Recommendations for NRAs that consider **adopting a DSMS approach in any underutilized band** (e.g., 6 GHz, 3.7-4.2 GHz) where coordinated sharing is appropriate and practical to implement.

Available at
https://www.dynamicspectrumalliance.org/whitepapers-reports/

Thank you

www.dynamicspectrumalliance.org

Assessing the Economic value of unlicensed use of the 6 GHz band in the Caribbean

The objective of this study is to provide an assessment of the economic value to be derived by opening the 6 GHz spectrum band to unlicensed use in the Caribbean. The analysis estimates the impact on service quality, coverage, affordability, and focuses on specific applications and use cases likely to be introduced in the enterprise and consumer markets through devices and favorable technical rules. Total accumulated value is $ 79.84 billion USD.

Economic value for the 6 GHz band in the Caribbean countries (2022-2031) (in US$ billions)

Fuente: Análisis Telecom Advisory Services

Country	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Barbados	$0.12	$0.23	$0.36	$0.48	$0.64	$0.85	$1.08	$1.37	$1.74	$2.11
Belize	$0.11	$0.22	$0.34	$0.45	$0.61	$0.81	$1.02	$1.30	$1.64	$2.00
Dominican Republic	$0.28	$0.57	$0.86	$1.15	$1.54	$2.06	$2.60	$3.31	$4.18	$5.09
Guyana	$0.12	$0.24	$0.36	$0.49	$0.65	$0.87	$1.10	$1.40	$1.77	$2.15
Jamaica	$0.14	$0.28	$0.42	$0.56	$0.75	$1.01	$1.27	$1.62	$2.04	$2.49
Trinidad and Tobago	$0.16	$0.31	$0.47	$0.63	$0.85	$1.13	$1.43	$1.82	$2.30	$2.80
ECTEL countries	$0.12	$0.24	$0.36	$0.48	$0.65	$0.86	$1.09	$1.39	$1.75	$2.13

Assessing the Economic value of unlicensed use of the 6 GHz band in the Caribbean

Source	GDP contribution	Producer surplus	Consumer surplus
Enhanced coverage and improved affordability	Improve affordability associated with broadband provision and increase access sharing in the Wireless ISP sector		Faster speed of access for Wireless ISP subscribers
Increased broadband speed by reducing Wi-Fi congestion	Benefits of eliminating router bottleneck in high-speed connections by increasing speed of residential Wi-Fi		Consumer surplus from increasing speed
Wide deployment of Internet of Things	Spillovers of IoT deployment on productivity of key sectors of the Caribbean economy (e.g., automotive, food processing, logistics, etc.)	Margins of ecosystem firms (Hardware, software, services) involved in IoT deployment in the Caribbean	
Reduction of enterprise wireless costs		Cost reduction of enterprise use of wireless communications	
Deployment of AR/VR solutions	Spillovers of AR/VR deployment on the Caribbean economy	Margins of ecosystem firms involved in AR/VR deployment in the Caribbean	
Enhanced deployment of municipal Wi-Fi	Increase in GDP due to enhanced broadband adoption		Consumer surplus from faster data download rate as enabled by faster broadband
Deployment of Free Wi-Fi Hot Spots	Increase in GDP due to enhanced broadband adoption		Consumer surplus from faster data download rate as enabled by faster broadband

Assessing the Economic value of unlicensed use of the 6 GHz band in the Caribbean

Aligning spectrum decision with that of other advanced economies	Potential opportunity of creating a Wi-Fi equipment manufacturing sector	Benefits of economies of scale of aligning the Caribbean countries with the regions of lower equipment prices	
Enhancing the capability for		CAPEX reduction derived from offloading wideband	
cellular off-loading		wireless traffic to carrier grade Wi-Fi hot spots	
Increasing production of residential Wi-Fi devices and equipment		Margins of ecosystem firms involved in manufacturing Wi-Fi enabled equipment in the Caribbean	Consumer surplus from using Wi-Fi enabled residential devices and equipment

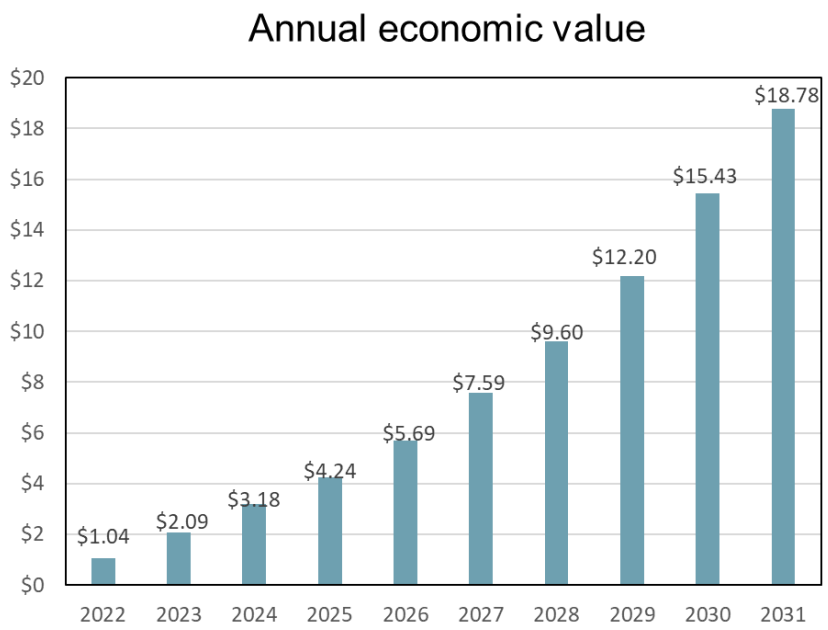
Source: Telecom Advisory Services analysis

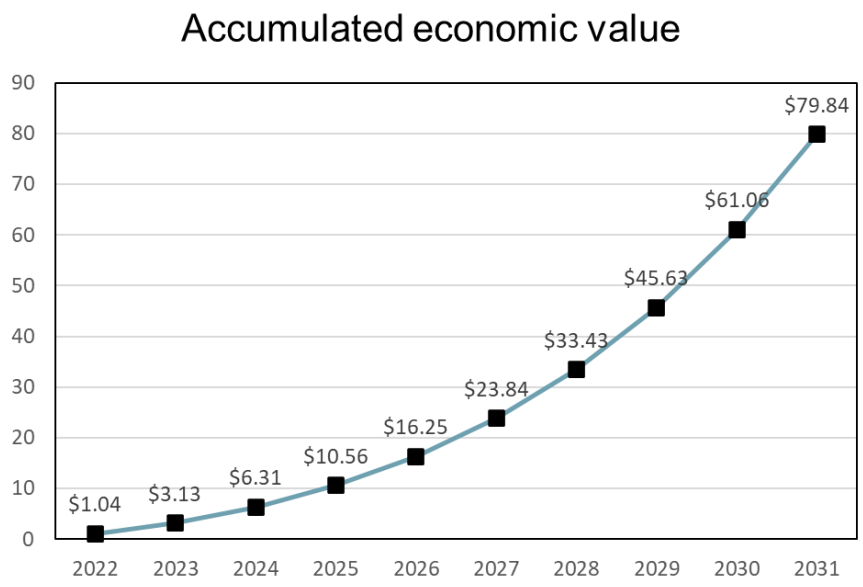
Study available at http://dynamicspectrumalliance.org/wp-content/uploads/2022/06/Assessing-the-economic-value-of-unlicensed-use-of-the-6GHz-Band-Caribbean.pdf

Assessing the Economic value of unlicensed use of the 6 GHz band in the Caribbean

Caribbean: Economic value of allocating 1200 MHz in the 6 GHz band (2022-2031) (in US$ billions)

Fuente: Análisis Telecom Advisory Services





Enabling unlicensed access to the full 1200 MHz of the 6 GHz band in the Caribbean will result in total cumulative value of $ 79.84 billion, while addressing the region's digital divide.

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