

Economic Value of Wi-Fi Bands in India: 2020-2025 (Current and Potential)

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Drivers for Assessing Economic Value of Delicensed Bands

- DoT's concern regarding delicensing 6GHz, given that it had recently delicensed nearly 600 MHz in the 5.8 GHz band, existing incumbent users
- The 5.8 GHz delicensing was late as compared to several countries
- To drive the policy process, important to be able to understand the different drivers of value and trade-offs between various bands
- Given the criticality of unlicensed spectrum, how to assess Economic Value, since no price paid for spectrum by operators and often users
- Country specific assessments are relevant. Since patterns of usage of spectrum bands depends on existing regulation (whether the specified band is unlicensed), technology ecosystem in the country and adoption profile
- To our knowledge, first of a kind of study in India. Role of BIF as a think tank

Economic Value of Unlicensed Bands(2020-2025)

- Unlicensed spectrum: Since no price paid for spectrum by operators and often users, how to calculate economic value. Therefore, we use Economic Value as sum of:
 - Economic Surplus
 - Consumer + Producer Surplus for mobile data offloading
 - Contributions to GDP (current price):
 - Higher internet speeds in the access services and
 - Device ecosystem
 - (SRD for V Band)
 - M2M and IoT for Wi-Fi 6E

• Caveats:

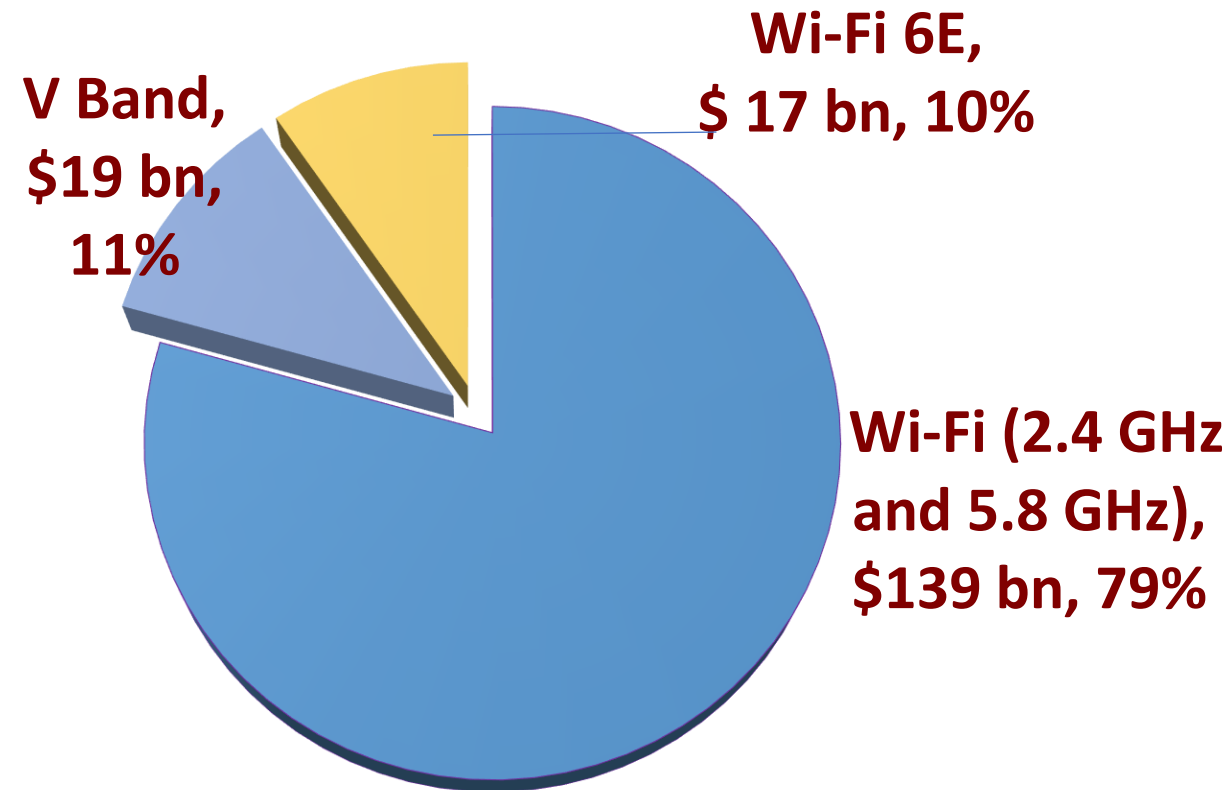
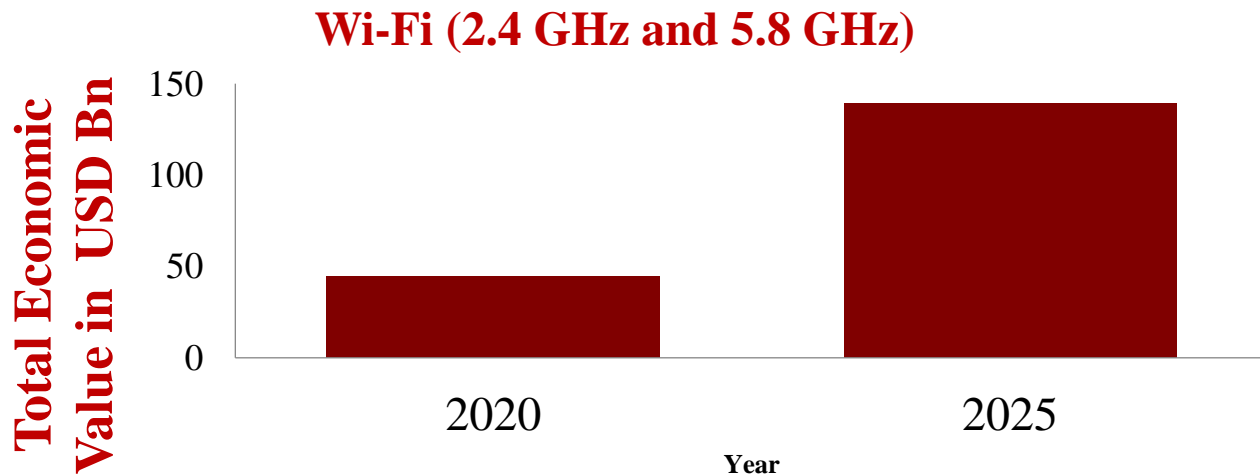
- Model
- Parameter values
- Use cases scenario dynamic, economic value of RFID band emerged after its use in the retail sector.

Results: Wi-Fi (Unlicensed Bands)

- The lower values (as compared to Wi-Fi in 2.4 and 5.8 GHz) from the potential bands arise as we consider introduction these bands from 2023 only. The penetration is assumed to go from 10% of Wi-Fi in 2023 to 45% of its base value in 2025.

The Economic Value of Wi-Fi is nearly 6% of the projected GDP in 2025.

Total Economic Value (USD bn)



Recommendations

- **Wi-Fi Penetration**

- Low Wi-Fi penetration in India: Huge Economic Value that is not being leveraged.
- (By 2018, India had only 35% Internet penetration, with around 500 mn users). This gives lot of scope for developing a parallel ecosystem to provide last mile connectivity on unlicensed spectrum.
- An urgent need to bring in a policy to push an accelerated deployment of Wi-Fi across the country.

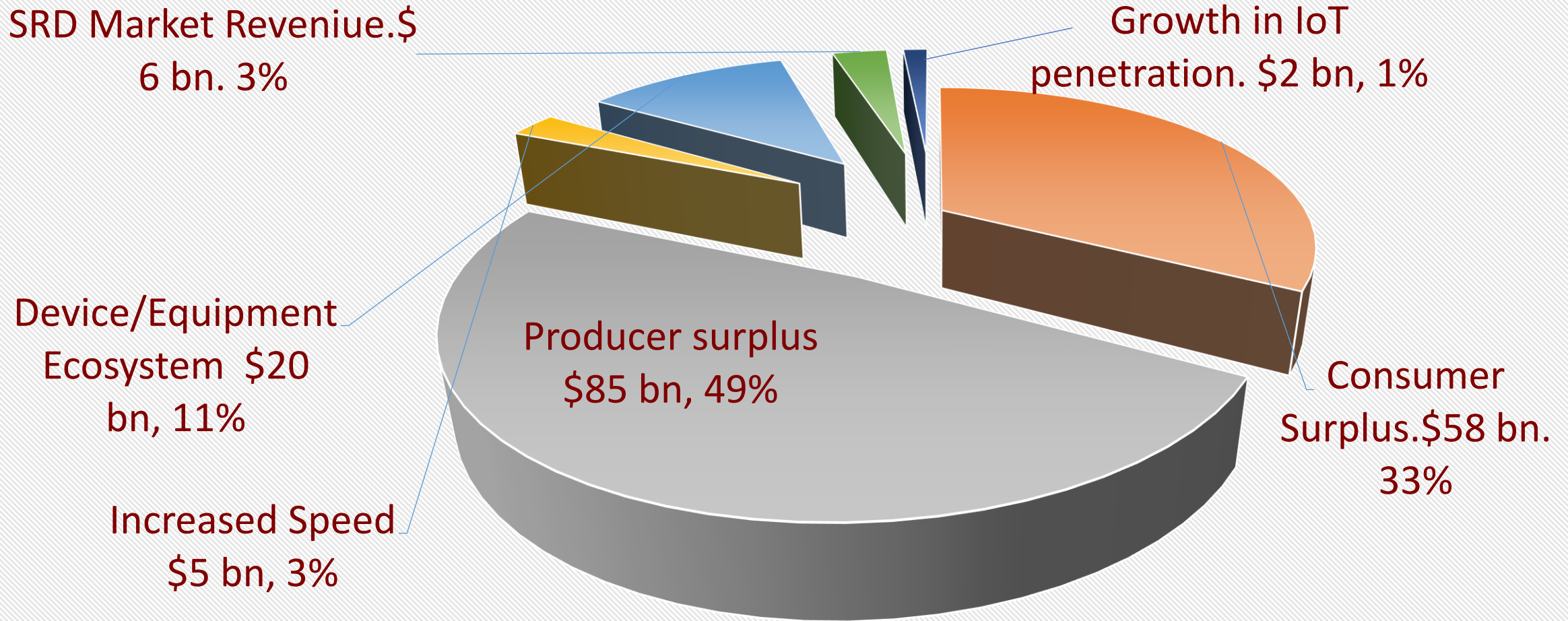
- **Last Mile Connectivity**

- India has major issue of last mile connectivity, especially in the case of high-speed data. Unlicensed spectrum could be a cost-effective mechanism for providing rural connectivity. Government must come up with a policy decision to support these deployments, as in absence of Last Mile Connectivity there is a huge capacity being left unutilized.

- **Unlicensing More Spectrum Bands**

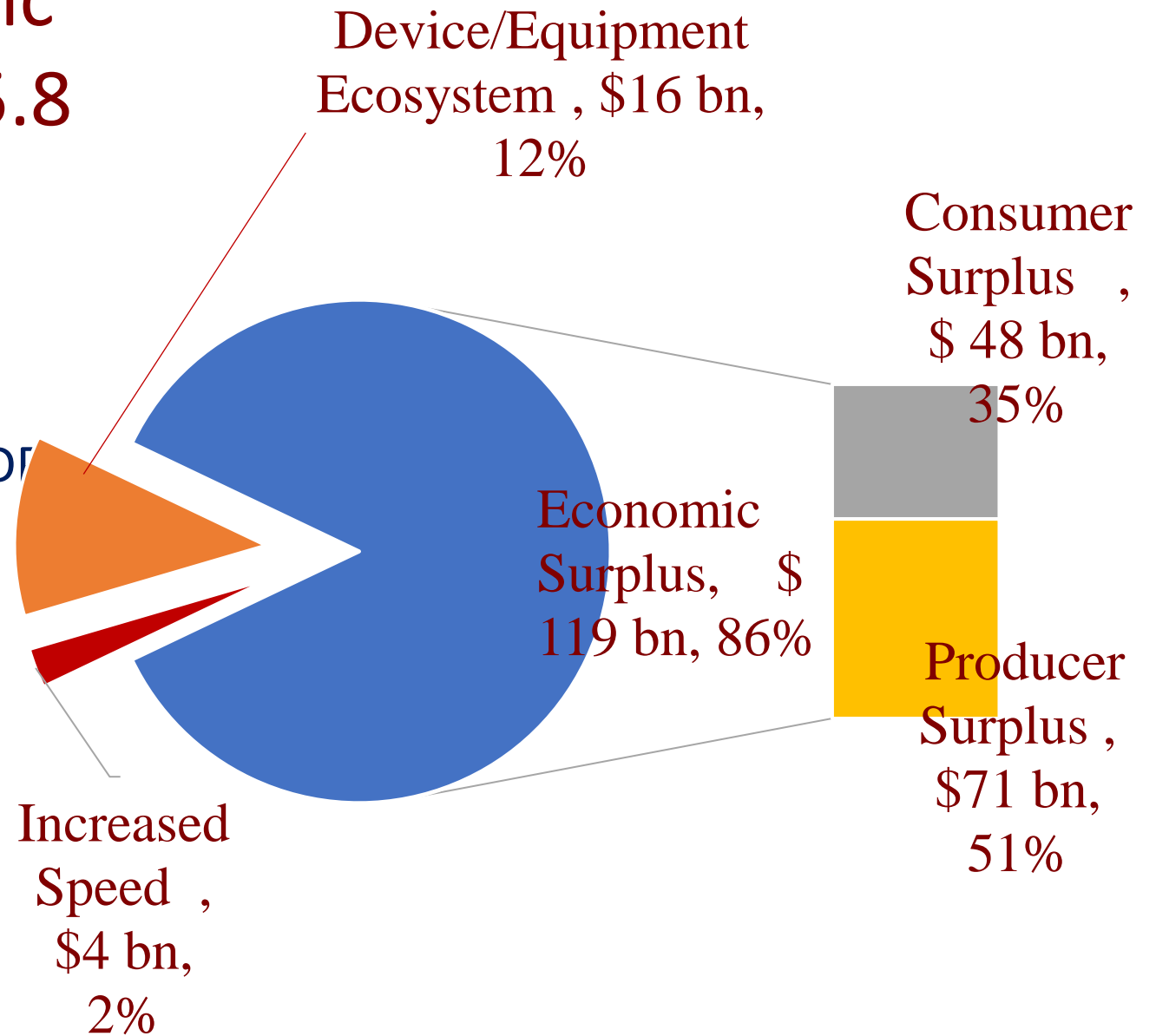
- India still has very little unlicensed spectrum available for use (relative to other countries. Need for a policy review. (6 GHz, 64-71 GHz, 902-928 MHz) Strong ecosystems exist or likely to evolve.
- While unlicensing of several bands and consequent adoption of new applications add to the higher Economic Value of Unlicensed spectrum, V-band characteristics and their deployments elsewhere indicate a high potential scenario for India.

Components of Total Economic Value of Wi-Fi (Unlicensed) Bands (USD bn,%)



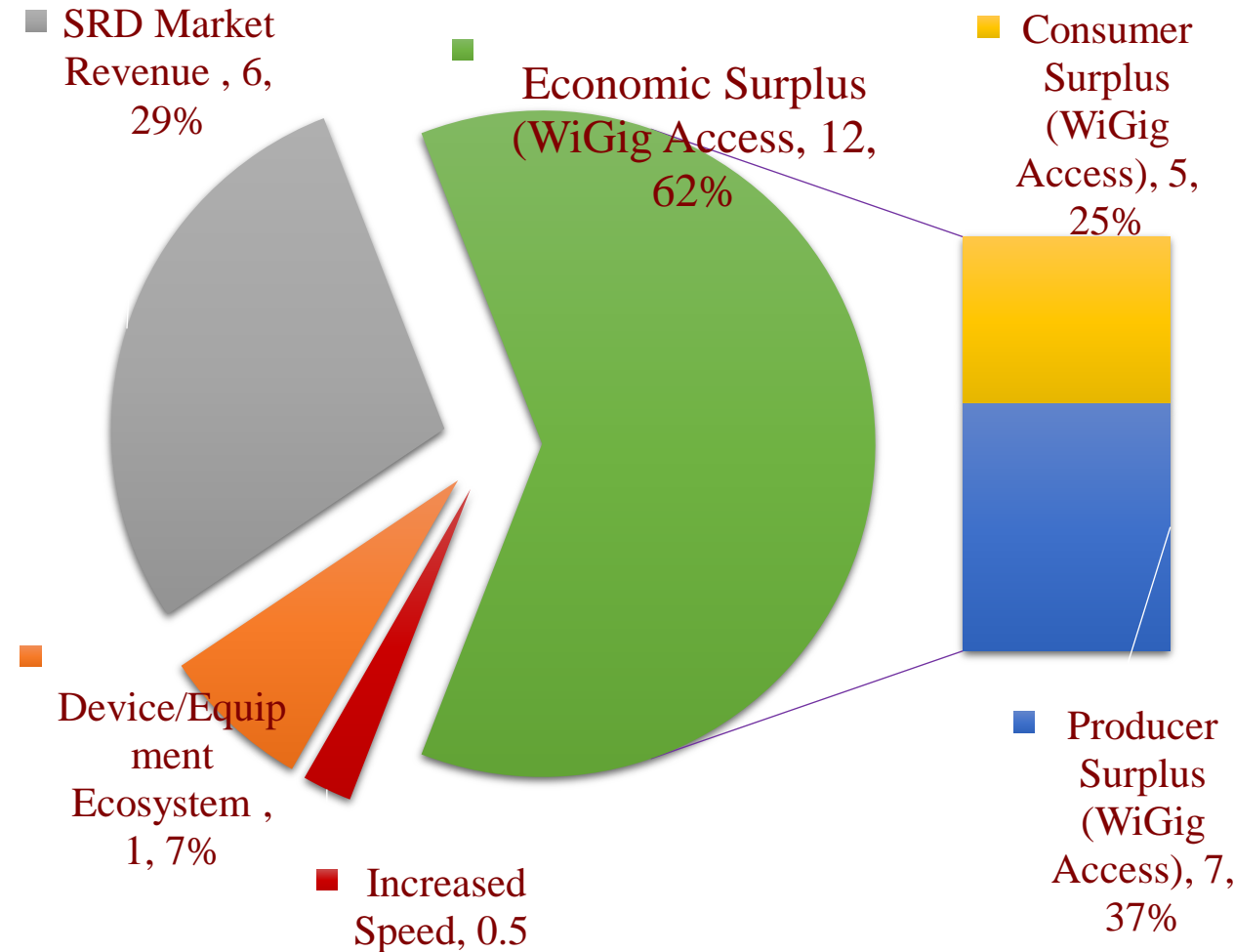
Components of Total Economic Value of Wi-Fi (2.4 GHz and 5.8 GHz)

- Mobile data offloading accounts for nearly 81 % of the total Economic Value.
- Contribution of Wi-Fi routers in 5.8 GHz GDP due to Increase in Internet speed is higher than 2.4 GHz.
- This should allay DOT's concern about the contribution of 5.8 GHz band that was recently unlicensed, to the GDP..



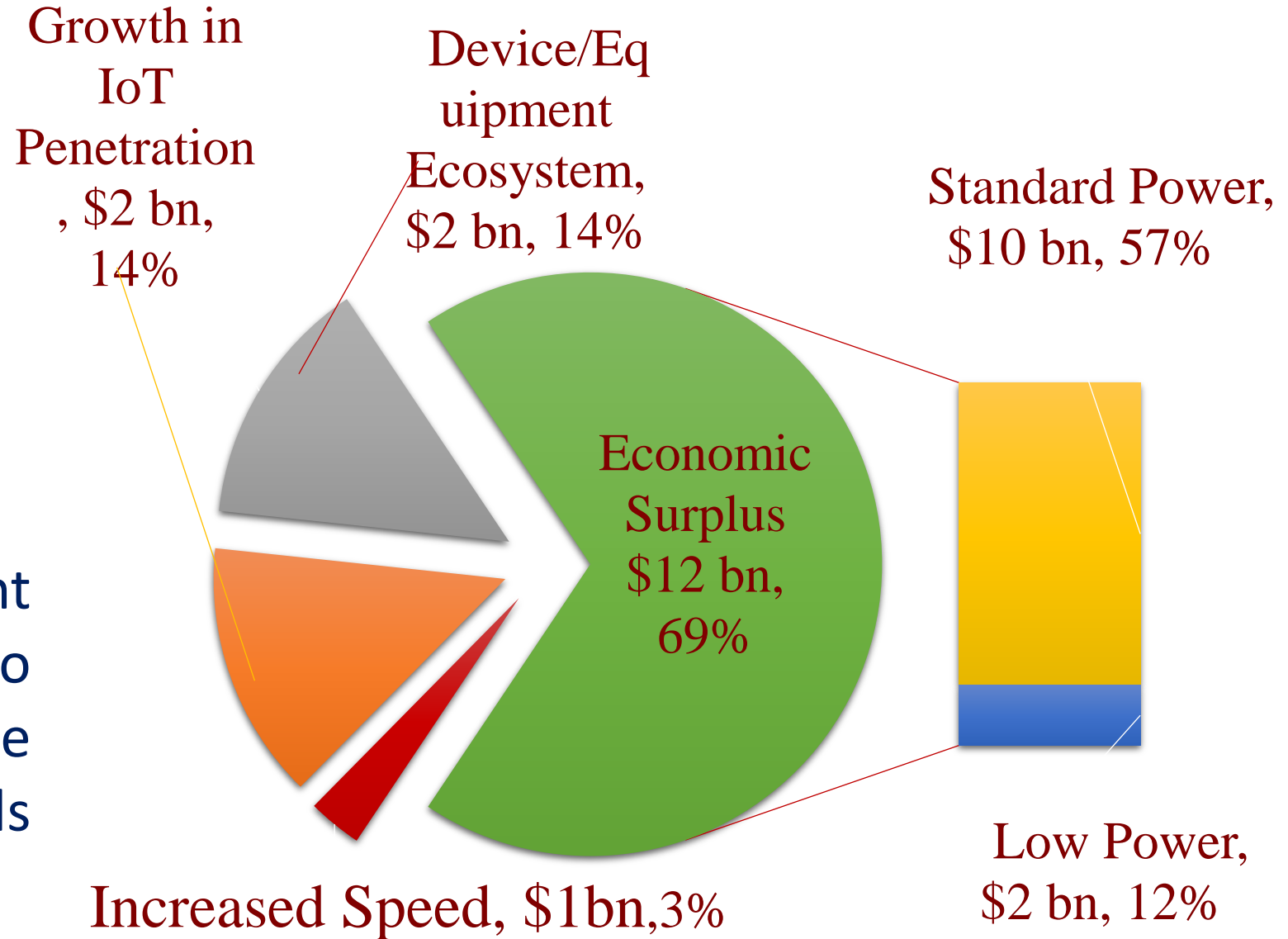
Components of Total Economic Value of V Band (USD bn,%)

- The potential economic value created by V-band is currently underestimated as not all application scenarios are visible since this band is not unlicensed.
- Possible usage of V Band in the
 - BharatNet implementation (dense-urban dense-rural, difficult terrain- hills, rivers, etc) deployment in comparison to fibre.
 - V-band access through WiGig and its use in VR headsets, etc are sources of potential economic value of V-band.
 - SRD Devices EV significant



Components of Total Economic Value of Wi-Fi 6E Band

- The growth in IoT contributes 14% to the Economic Value can be accelerated with liberal policy regime focusing on IoT penetration.
- Does not take into account the spillover effects due to higher quality user experience facilitated by higher speeds and bandwidth.



Recommendations

- Increase /Facilitate Wi-Fi Penetration: Develop an appropriate roadmap
- In the absence of such a framework, huge economic value not being leveraged
 - Currently about one-fourth of that in U.S. and about half of China's.
 - Globally the Wi-Fi penetration increased by 568% where as in India the growth was only 12%.
 - PM-WANI Public Wi-Fi Policy , December, 2020 is an excellent policy in this regard. However, there are several aspects that need to be ironed out for fast tracking implementation of the policy.
 - At Internet penetration of less than 60%, gives lot of scope for developing a parallel ecosystem to provide last mile connectivity on unlicensed spectrum
- **Need to Delicense Higher Bands**
- Higher speeds (on the higher frequency bands) contribute significantly to increased GDP. This rationale should be used to support progressive unlicensing.