

PTC

Radio Spectrum Re-Farming A Change of Paradigm

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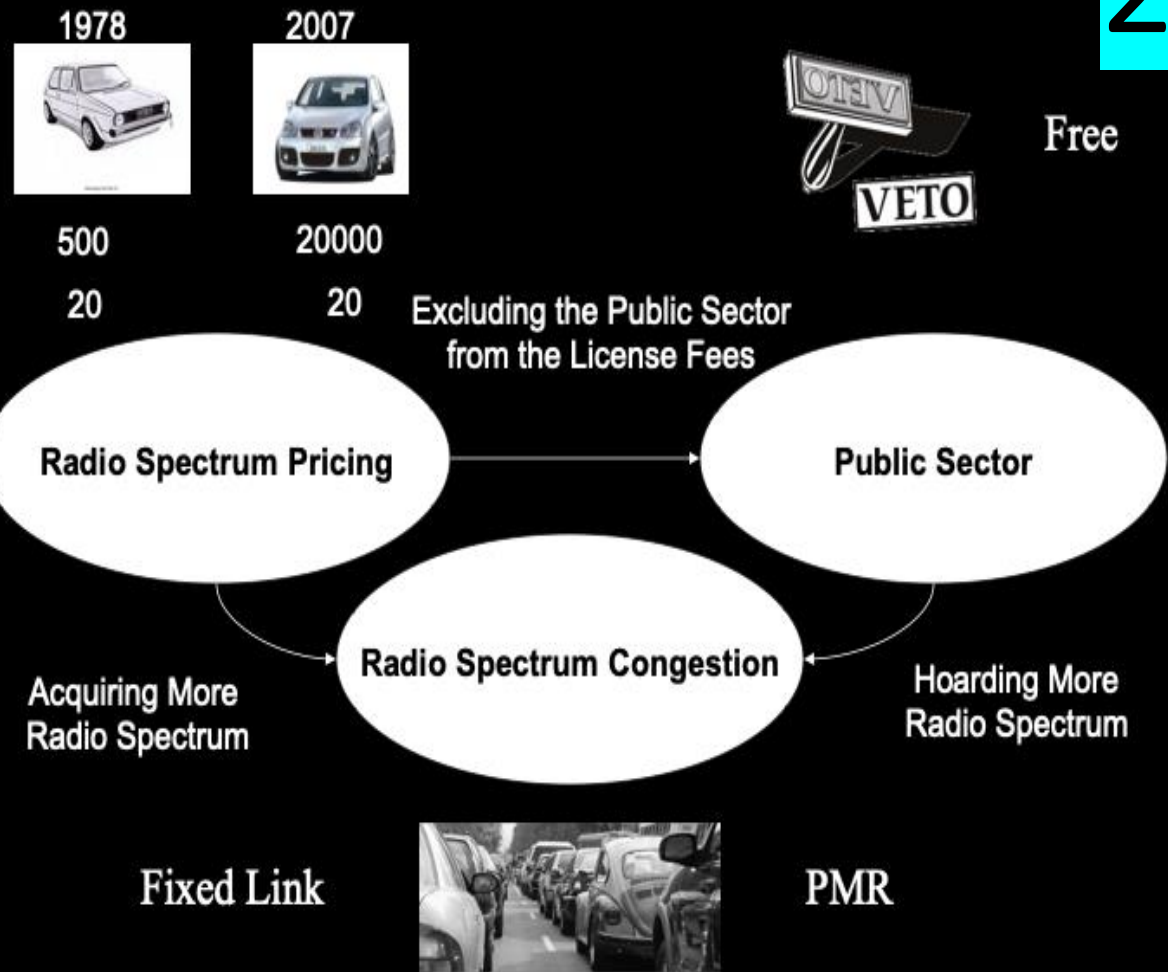
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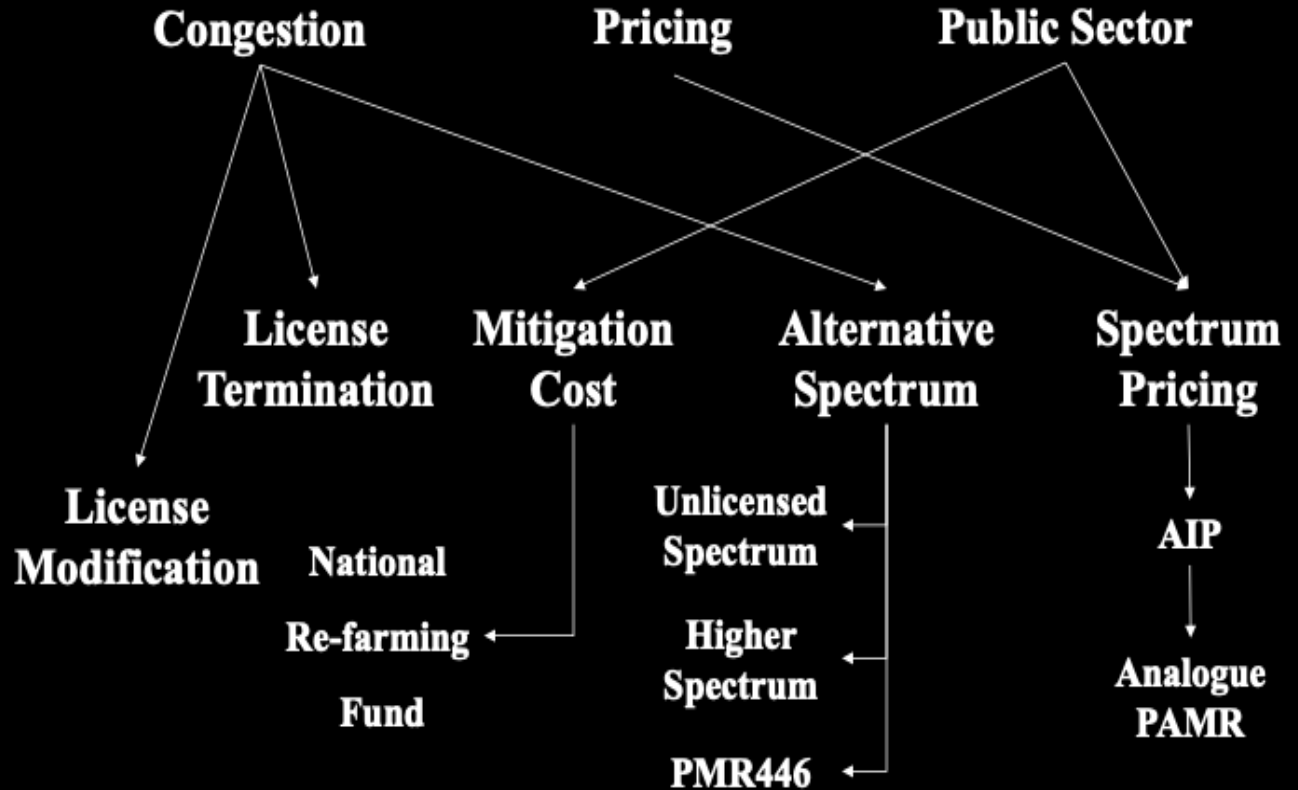
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Radio Spectrum Challenges

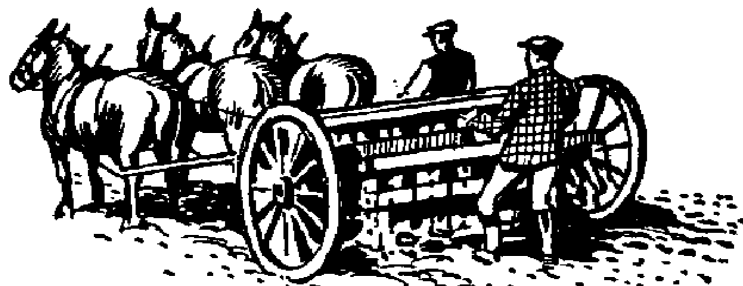


2007

Radio Spectrum Re-Farming



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Radio Spectrum Re-Farming (2025)

- Re-Farming: Redeployment – Repurposing – Re-allocation and more...
- License Termination (Use it or lose it) – Incentive Pricing vs. Alternative Spectrum – Mitigation Cost
- Lengthy process: 13 years to re-farm the 700 MHz (1996-2009)
- Incentive Auction (two-sided auction).
- Special measures during COVID-19: Leasing, temporary assignments

1st Paradigm: *Cellular Mobile Technologies*

- 2G: very lengthy, License expiration
- 3G – 4G: Technology Neutrality
- 3G: Auction fees
- EU: Revocation of GSM Directions
- US: overlay or secondary license
- 2G-3G Sunsets
- 5G: Dynamic Spectrum Sharing (DSS)



2nd Paradigm: Regional Mobile Allocation

- GE-06 (470-862 MHz)
- Replanning of the Broadcasting service (Repacking)
- 1st Digital Dividend (800 MHz – WRC-07)
- 2nd Digital Dividend (700 MHz – WRC-12)
- C-band v.s. Ka - Ku
- Replanning of the Satellite Service (Migration)
- 3400-3600 MHz – Primary Mobile Allocation plus IMT Identification - Footnotes
- 3600-3800 MHz – *Regional* Primary Mobile Allocation without IMT Identification - Footnotes

3rd Paradigm: *Sharing*

- TVWS: Two Tiers – Incumbent + Secondary
- LSA/ASA: Two Tiers – Incumbent + Primary
- CBRS: Three Tiers - Incumbent + PALS + GAAS
- 3.8-4.2 GHz: Verticals
- 5925-7125 MHz: AFC - LPI

4th Paradigm: *Unilateral*

- 600 MHz: US vs. Region 1 & Region 3
- 24.125 – 27.5 GHz: FCC vs. NOWA vs. NASA
- 27.5-29.5 GHz: US vs. ITU
- 3.7-3.98 GHz: FCC vs. FAA & Mobile vs. Aerauntical Navigation
- 12 GHz: Dish vs. Starlink

Discussions

- **Influence of Re-farming Paradigm on spectrum prices:** CBRS vs. C-Band & 3G v.s. 4G – Technology Neutrality.
- **Influence of International Regulations on re-farming decisions:** IMT vs. Mobile - WRC Triggers- Multiple tiers of Sharing - National vs International Interference perspective - IMT Label – IMT in fixed bands.
- **Future Paradigms of Spectrum Re-farming:** Open Access – Hybrid Sharing – Receiver Performance

Final Remarks

- Exclusivity vs. Sharing
- Re-Farming: A Zero-Sum Game?
- Spectrum Divide