ASSESSING THE FEASIBILITY OF THE US CBRS CONCEPT BASED BUSINESS MODELS AND IMPLICATIONS FOR ACCESS TO AND VALUE OF SPECTRUM

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Megatrends in wireless

- Cloud, NFV and network slicing are transforming network infrastructure deployment
- Shared spectrum is ‘virtualizing’ the spectrum asset ownership, altering valuation and utility
- Localized edge services and ultra low latency, high reliability applications emerging with vertical needs

Business model innovation boosting as-a-Service models
This paper will introduce the framework for assessing the feasibility of the US CBRS concept based business models

Demand from private networks and implications for access to and value of spectrum

Options for business models that could potentially develop

Comparison with the sharing mechanisms elsewhere, in particular, Licensed Shared Access (LSA) in Europe.

CBRS concept and functional architecture

LSA architecture reference model

![Diagram of LSA architecture reference model]


Spectrum authorization concepts and their key attributes

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Spectrum acquisition for private LTE and 5G networks

Factors influencing spectrum valuation and prices
There are several problems related to spectrum market

**General causes of market failures**
1) Information asymmetry;
2) Externalities spill-over costs or benefits accrue to anyone not involved in a given interactions;
3) Monopoly power; and
4) Commercial and technical risks.

**Framing characteristics**
- Low availability, lack of information on available spectrum
- Low demand due to low achievable QoS
- Regulatory friction and complexity driven transaction costs
- Uncertainty regarding the future primary allocations (Option value)
- Risks of increased interference
- Coordination, harmonization, and controlling mechanisms
- Anti-competitive conduct
- Disruptive effects on end users
- Ability to achieve public interest objectives

**Spectrum valuation methods**

- **Upper bound**
  - Full enterprise value
- **Spectrum value estimate**
- **Lower bound**
  - Avoided cost
  - Benchmarking: Direct Adjusted Econometrics

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Developed exemplary business model and key business model elements

- **what** element represents offer, value proposition, customer segmentation and differentiation,
- **how** element describes key operations, basis of competitive advantage, mode of delivery, selling and marketing,
- **why** element sets base of pricing, way of charging, cost elements and cost drivers, and
- **where** defines location of all the preceding elements items and divides activities between internal and external involving partners.

Mass tailoring was found to leverage all the three forces of long tail

1) **Democratizing the tools of production** through access to “free” spectrum,
2) **Cutting the costs of consumption** by democratizing distribution with web-scale automatization, and
3) **Connecting supply and demand** via marketplace for resources, apps and services.
CBRS enables LTE and 5G access to long tail of non served vertical users.

- Designed alternative business model for locally deployed networks represent very different types of business opportunities and value propositions, as opposed to the presently dominant and homogeneous traditional MNO businesses.
- Sharing concepts enable operators gain faster access to lower cost QoS capacity spectrum locally driven by distinct use cases and business needs.
- Concepts can trigger new local business cases, e.g., for MVNOs, small businesses, venues, enterprises and verticals in connection with new ecosystem roles, e.g., in spectrum management and brokering, micro-operators.
- Mass-tailoring business opportunity was found attractive and feasible leveraging all the three forces of long tail.
Thank you
Questions/discussion?
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