Wireless Usage Measurement: Research Needs and Support for National Policy and Rule Making

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Agenda

- Spectrum Sharing Imperatives and Implications

- Spectrum Measurement & Data: Research Needs

- National Spectrum Innovation Initiatives

- Spectrum Usage Measurement Today

- Spectrum Measurement and Usage Challenges Tomorrow

- Spectrum Data for Policy and Rule Making

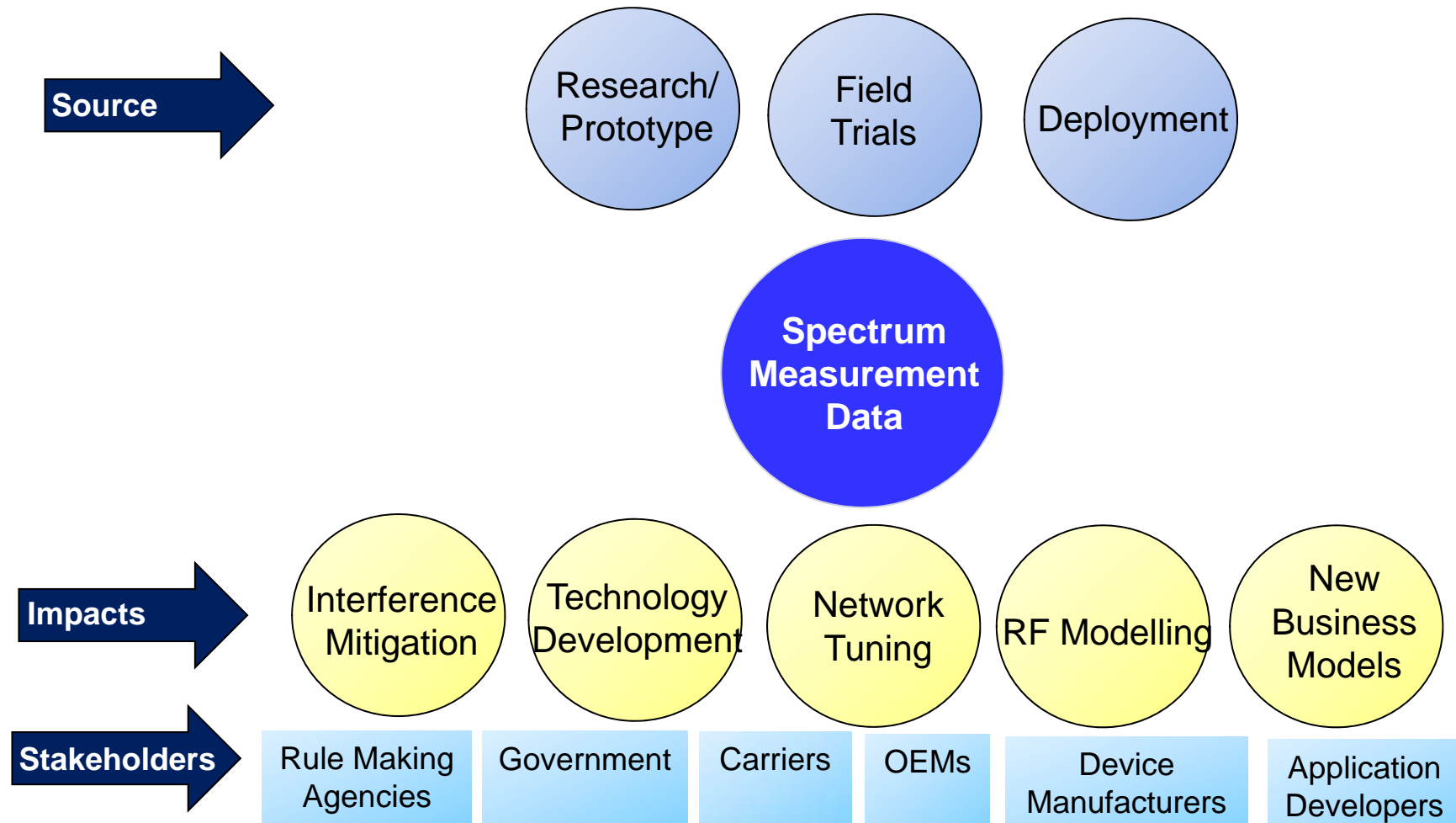# Spectrum Sharing Imperative and Implications

IMPERATIVES

- Continuously increasing demand for spectrum

- Lack of spectrum for new silo'ed allocations

- Need to optimize usage efficiencies

IMPLICATIONS

- Spectrum sharing in future is essential

- Need new technologies, interference & usage measurement data & analytics

- New paradigm, policies and spectrum rules

Spectrum Measurement & Data: Research Needs

Source ➤

Research/ Prototype

Field Trials

Deployment

Spectrum Measurement Data

Impacts ➤

Interference Mitigation

Technology Development

Network Tuning

RF Modelling

New Business Models

Stakeholders ➤

Rule Making Agencies

Government

Carriers

OEMs

Device Manufacturers

Application Developers

National Spectrum Innovation Initiatives

- Presidential memorandums

- PCAST

- WSRD, Workshops

- CSMAC

- NSF, DARPA Programs

- NTIA national spectrum sharing testbed

- New pilot program for measurements

| 1675-1710 MHz | 1755-1850 MHz | 3500-3650 MHz | Others.. |

Several National Initiatives are Either Advancing or Looking to Utilize Extensive Spectrum Usage Measurements and Data

Spectrum Usage Measurement Today

- Adhoc

- Static

- Mostly standalone, distributed

- Reactive, need-based

- Non standardized

- Restricted usage

- Enforcement difficulties

Spectrum Measurement and Usage is Key to Advancing Technologies and Next Generation Paradigms

Spectrum Measurement and Usage Challenges Tomorrow

- Spectral diversity and characteristics

- Real time spectrum measurement data needs

- Network architecture

- Data models/ analytics/ standards

- Information derivatives

- Data obfuscation for various stakeholders

- Business models

- Rapid Innovation and funding

Spectrum Measurement and Usage is Key to Advancing Technologies and Next Generation Paradigms

Spectrum Data for Policy and Rule Making
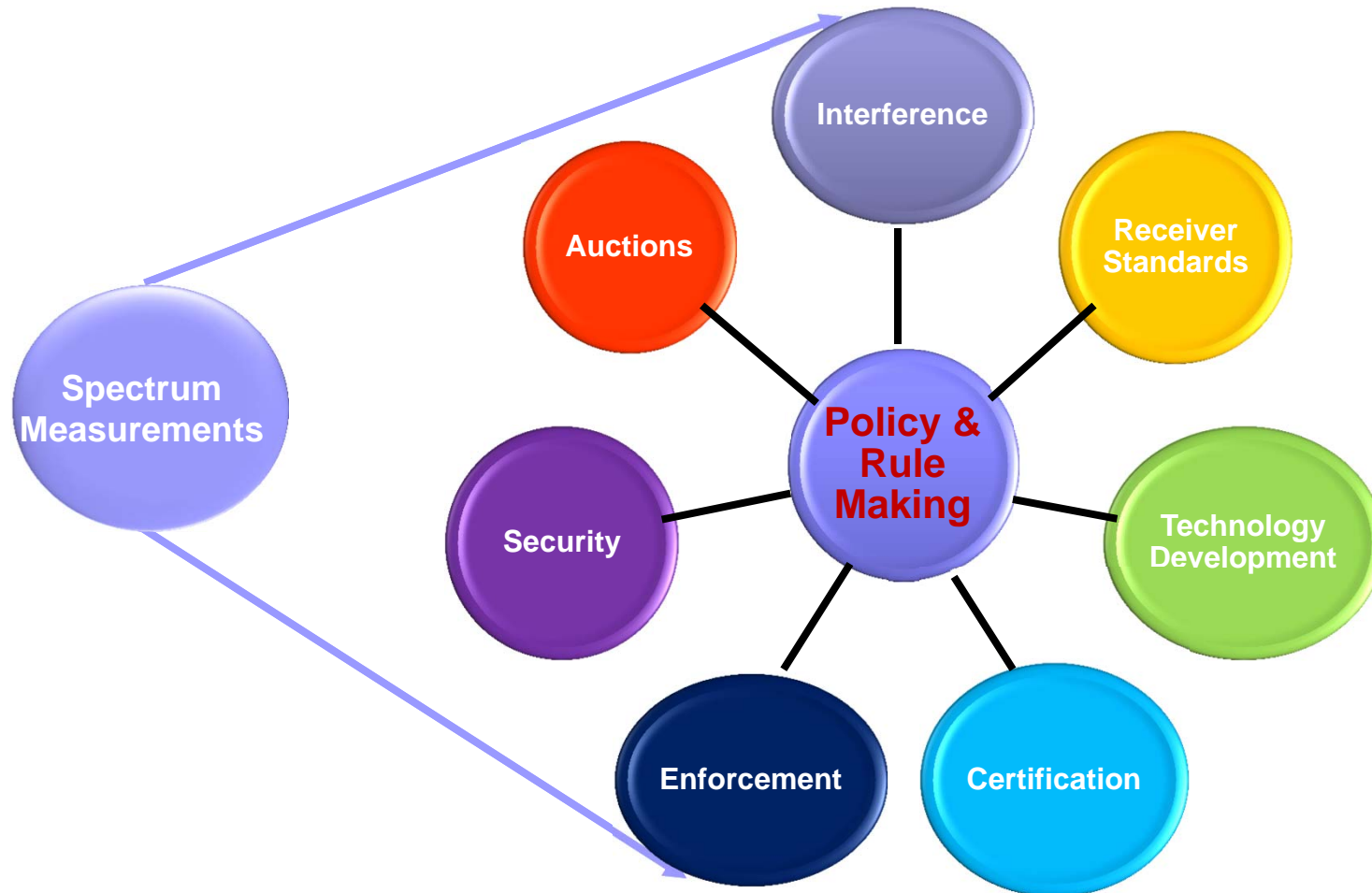
Spectrum Data is Critical to several aspects of Policy and Rule Making