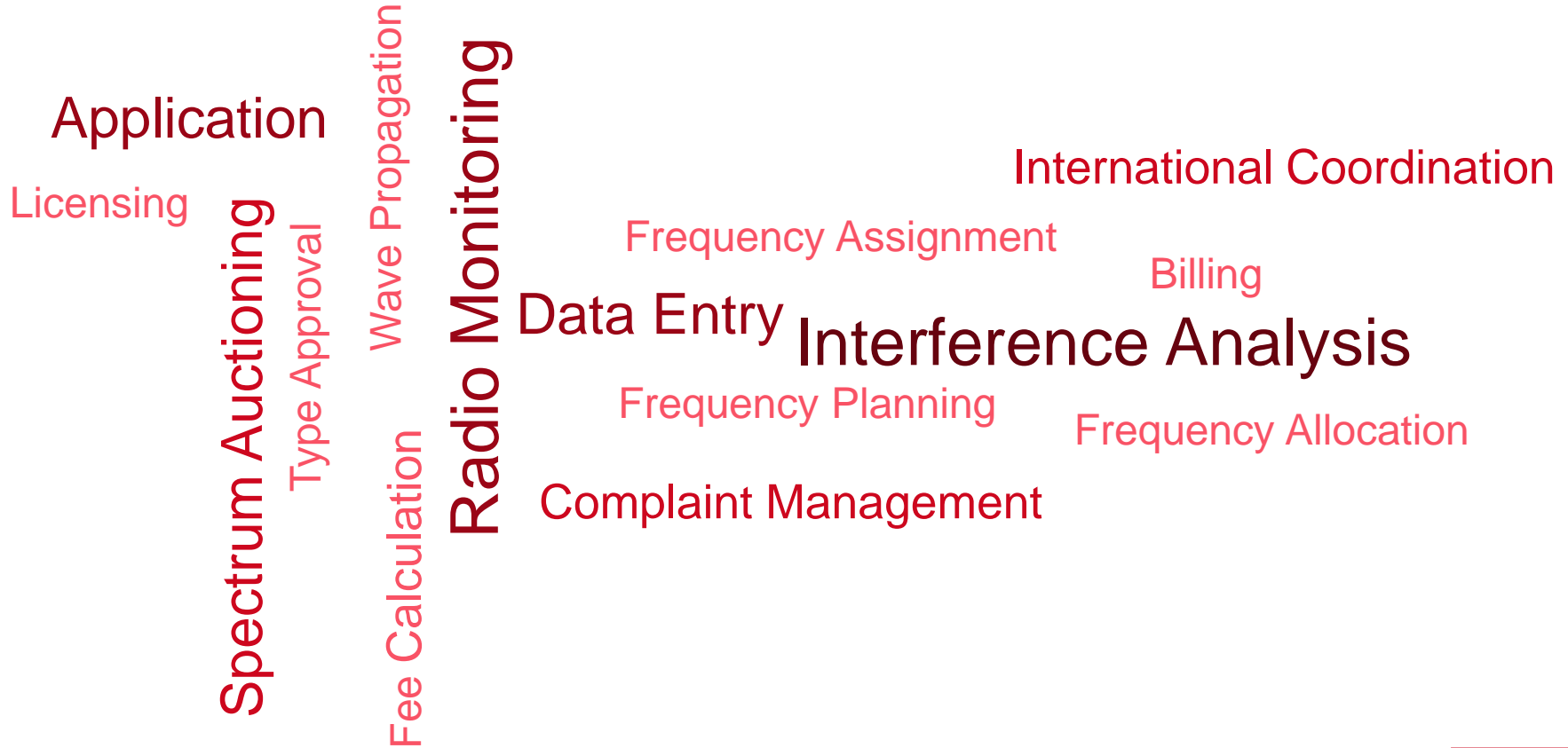




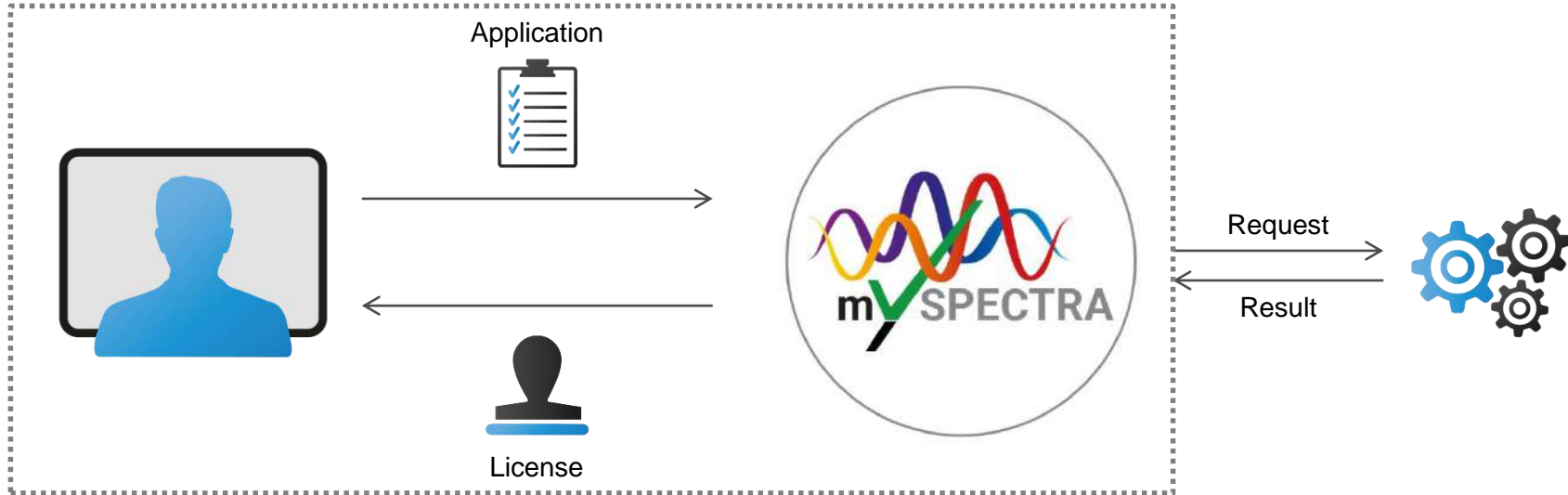
mySPECTRA

Presenter: Dragan Muškinja, Netra LTD

**mySPECTRA – Web-based, workflow-driven, automated spectrum management**

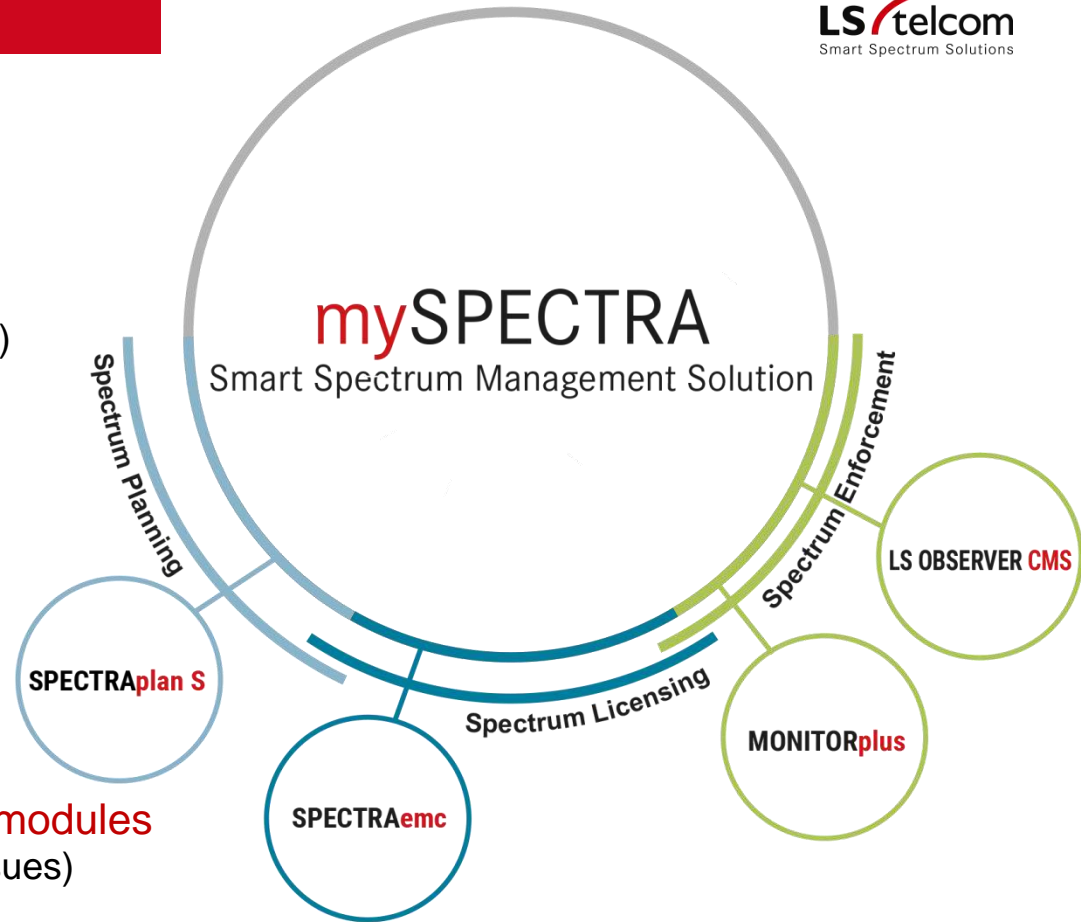


User interface



- Processing requests without user interaction
- Manual processes only for problematic applications

- **Fully & natively web-based**  
(no other supportive tools required)
- **Cloud ready**  
(private & public clouds, on-site installations)
- **Truly business-process-driven**  
(BPMN controlled)
- **Allows a high level of automation**
- **Easily Adaptable**  
(Configuration instead of customization)
- **Real service oriented architecture**
- **Seamless integration with traditional modules**  
(for usage by experts or for configuration issues)



portal



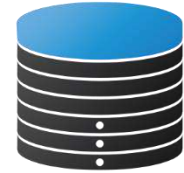
office



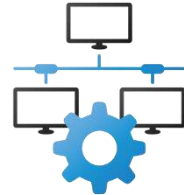
info



engineering  
tools



data  
management



administration

## mySPECTRAportal e-licensing for external users



Account  
Management



User  
Settings



Dashboard



Applications



Licenses



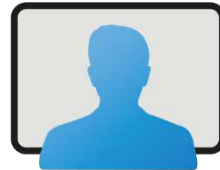
Complaints



Contact  
form

# mySPECTRAoffice

## Spectrum Management for internal employees



User  
Settings



Dashboard



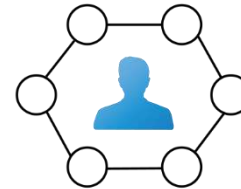
Applications



Licenses



Complaints



Stakeholder



Reporting



Coordination  
/ Approval

## mySPECTRAinfo (limited) public information portals / data access



frequency



site location



open data



# Business Process-driven spectrum management

- All standard tasks within **one environment**
- Technical results** presented automatically to the user by calculation services (based on preconfigured technical workflows)



Create



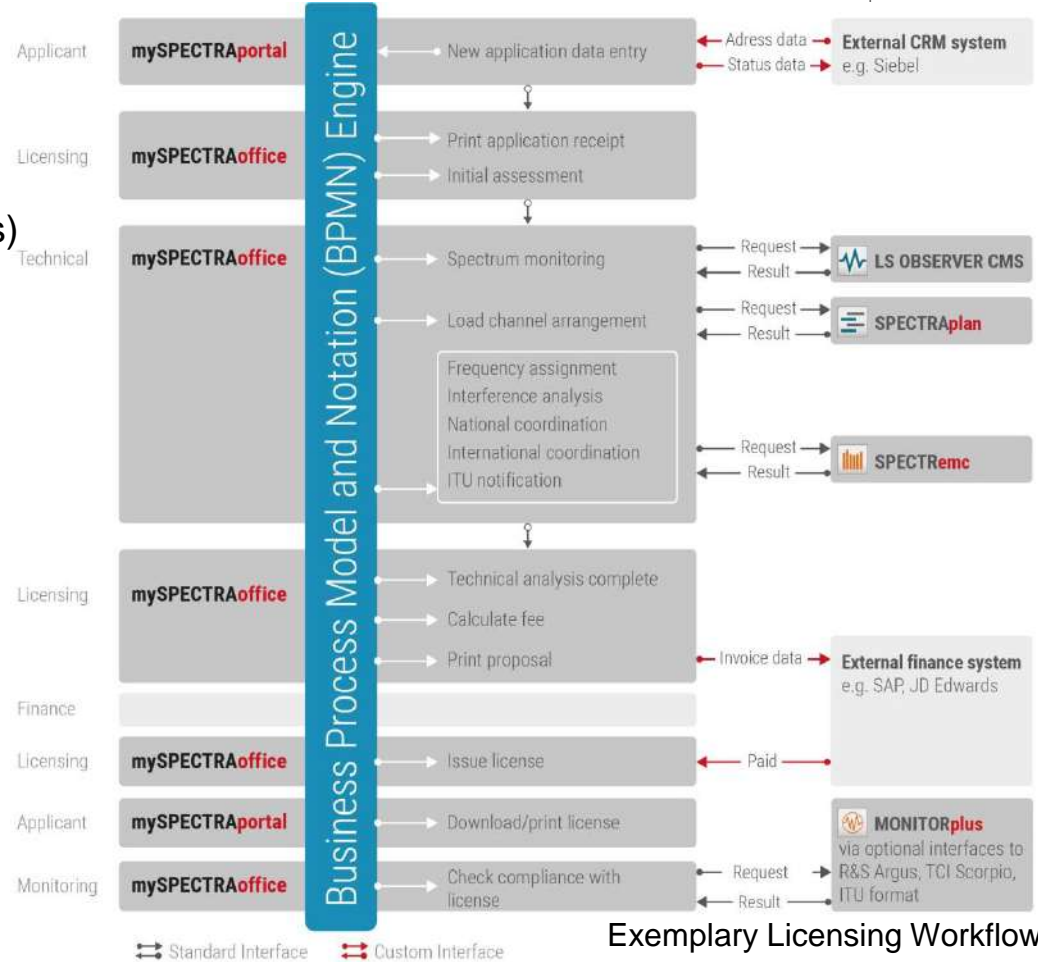
Cancel



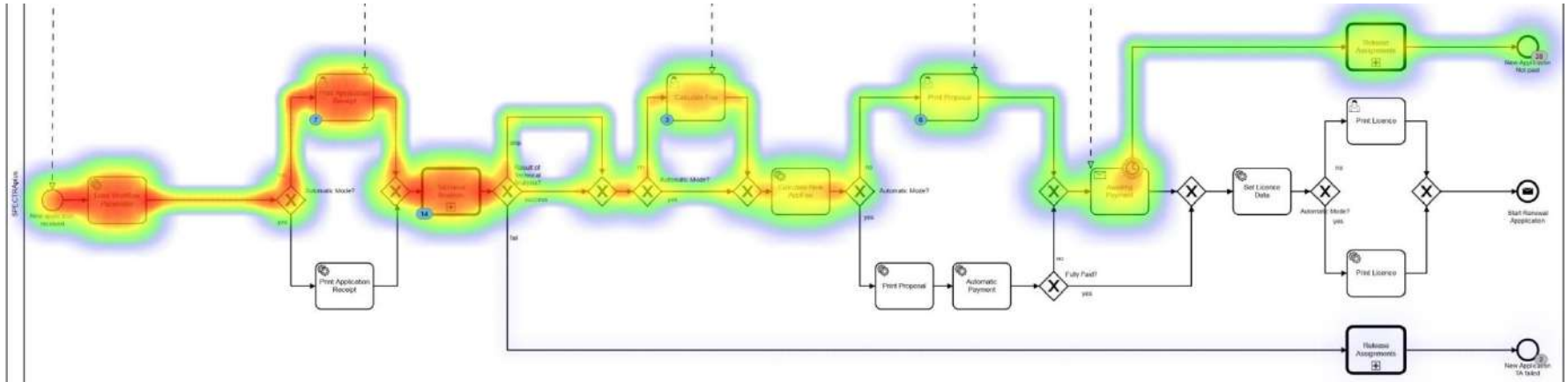
Modify



Renew



Exemplary Licensing Workflow

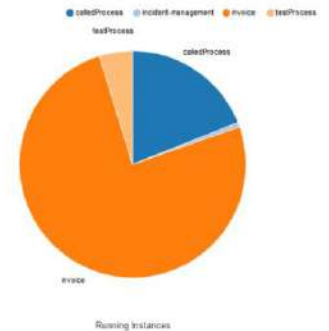


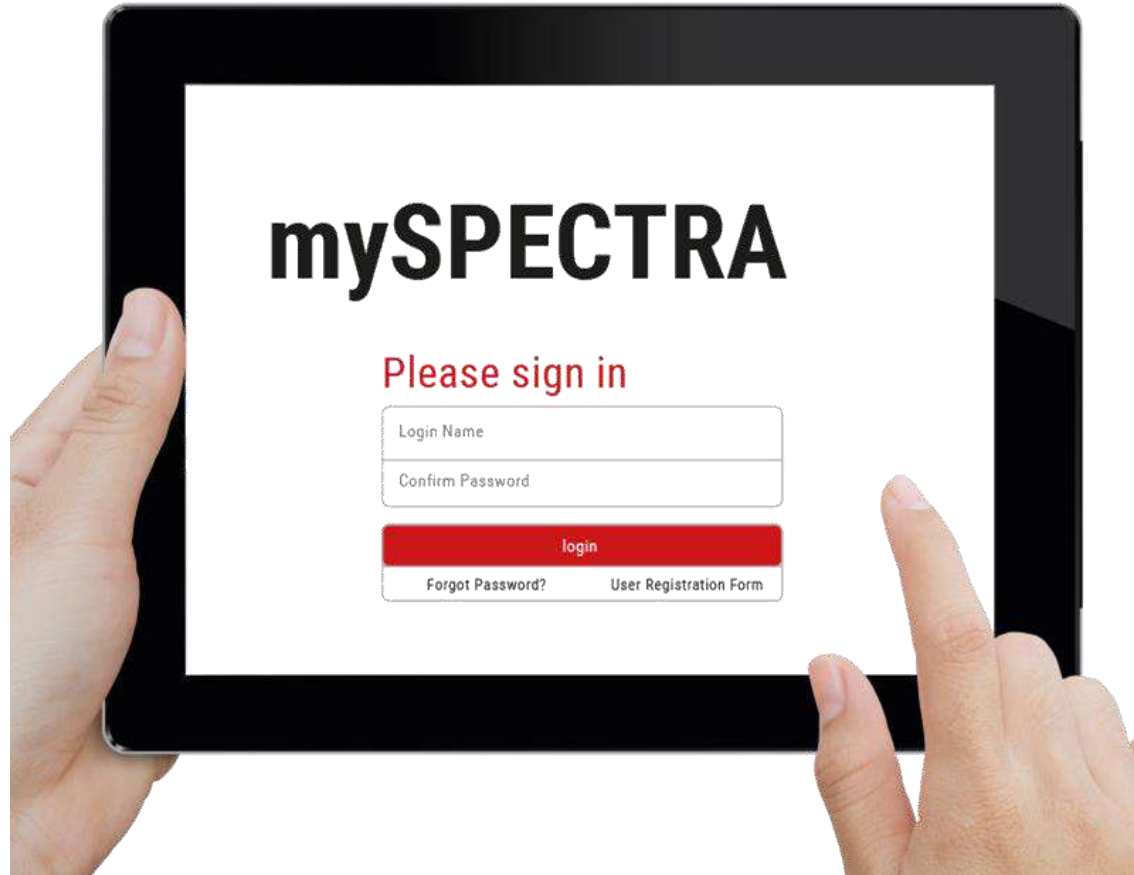
## BPMN Workflow Management System

- Configurable workflows using the standard language BPMN
- Event logging & information about completed transactions
- Dashboards for statistics and analysis
- Special reports based on BPMN

### Statistics & Analytics

Overview | [Timing](#) | [Durations](#) | [Feedback](#)





Client Server Technology  
with Support of **Off-Line  
Usage**

Hierarchical Central  
Database with **Holistic  
View**

**Fully Integrated &  
Automated Modular  
System**

**Adaptable** to Specific  
Requirements

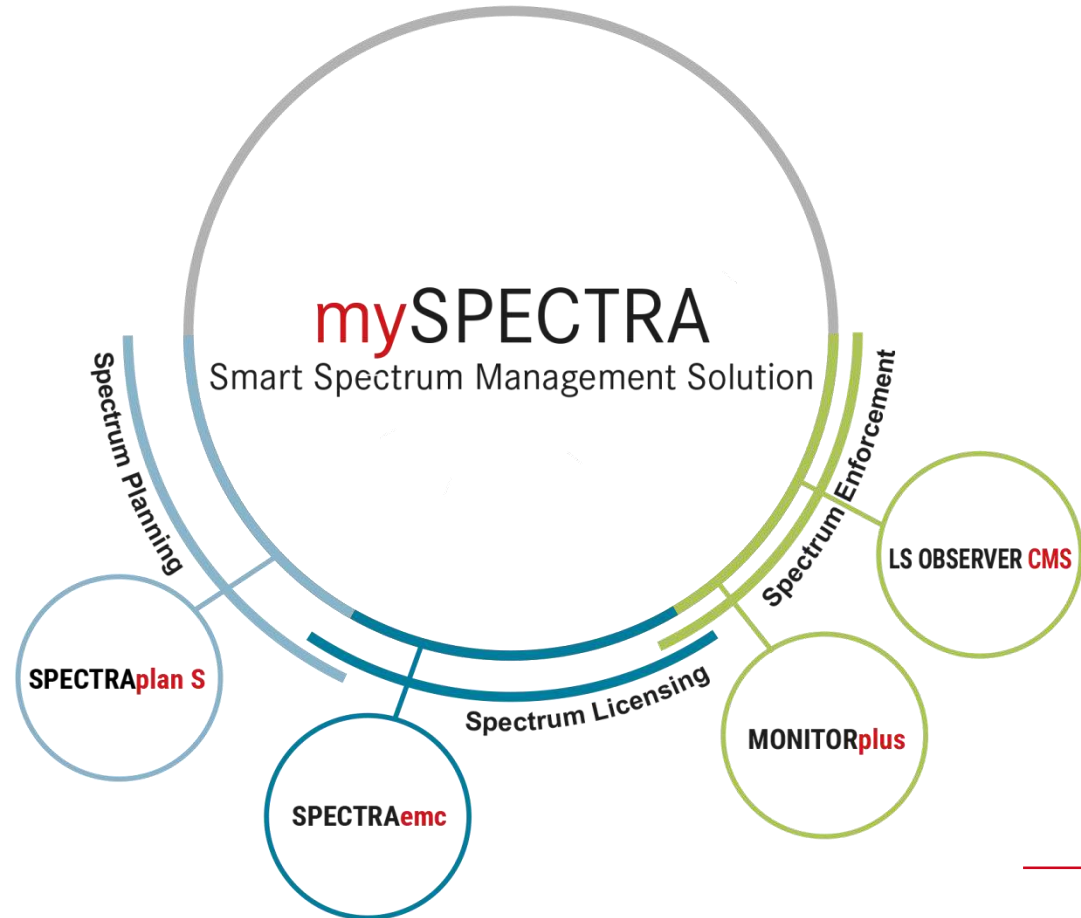
**Automation** of  
Frequency & Spectrum  
Management  
Processes & Tasks  
(Paper-Free)

Application of COTS  
Software Ensuring **On-  
Time Implementation**

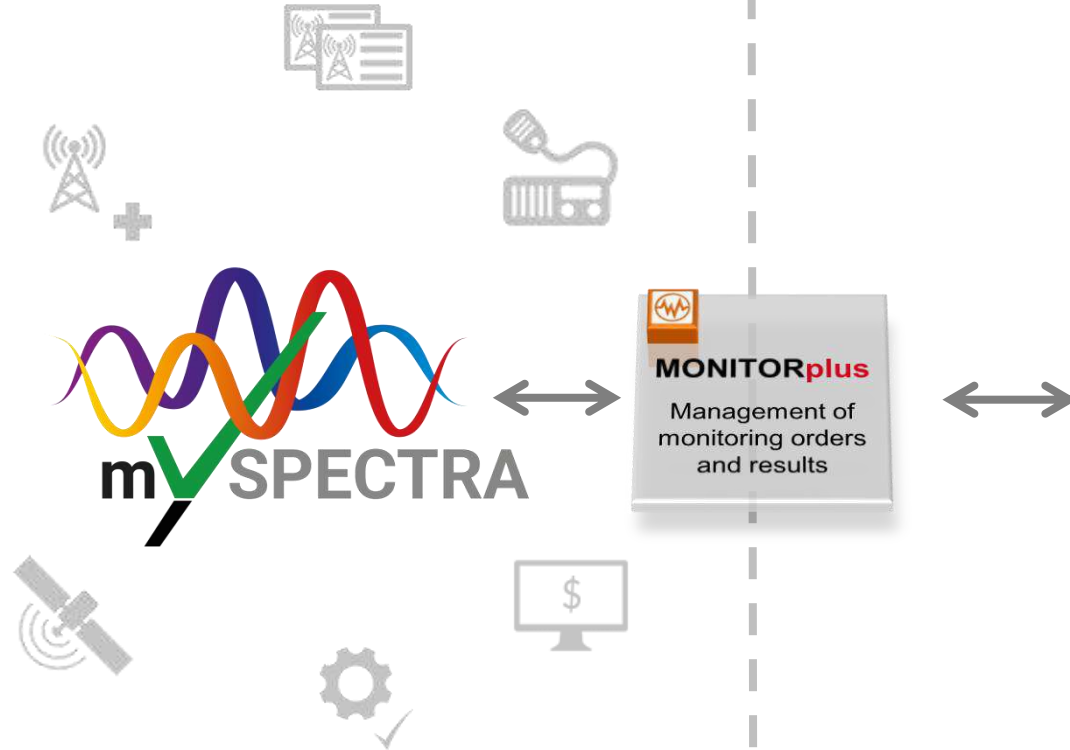
**Data Integration** with  
National and International  
Partners

Support of all Frequency  
Bands

- **Web-based**
- **Workflow driven**
- **Automatable**
- **Scalable**
- **Adaptable**
  
- **Service-based architecture**

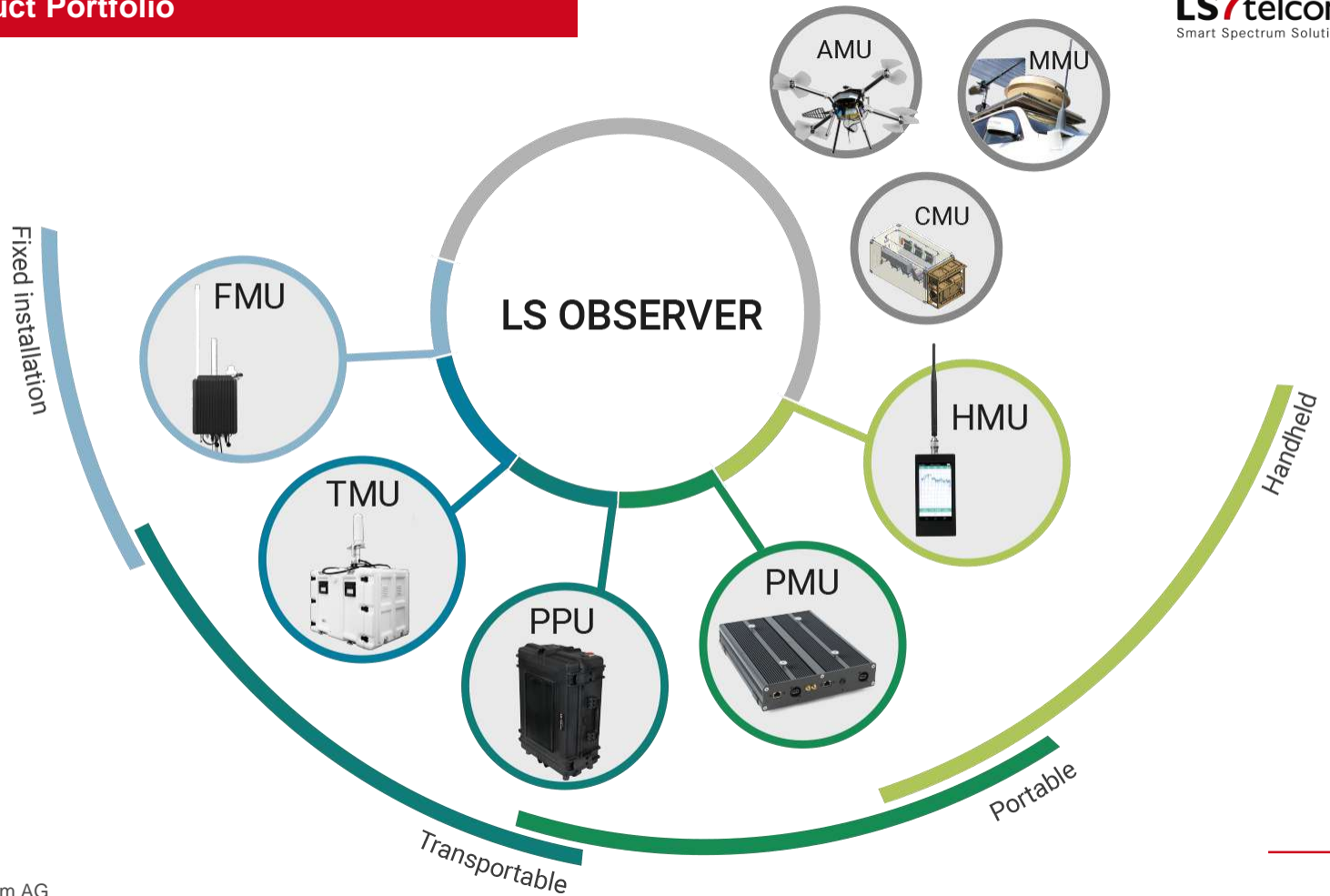


## Spectrum Management



## Spectrum Monitoring





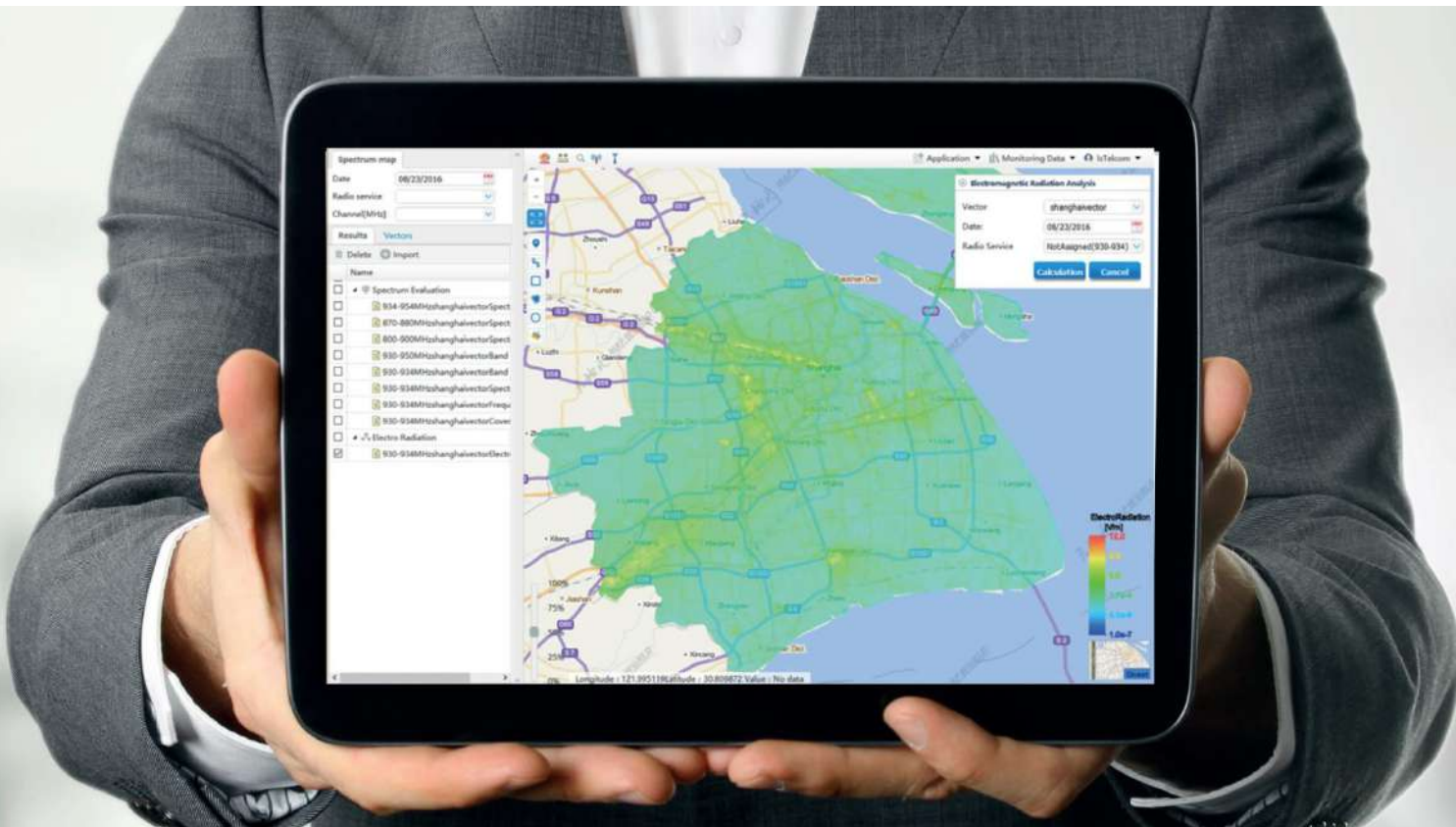
Fully **integrated** and **automated** radio monitoring system consisting of fixed, portable, mobile and flying units

**Continuous monitoring** and **storage** of radio emissions/spectrum data (24/7) and storage of noise-free data **up to 2 years** (possibility to “look back in time”)

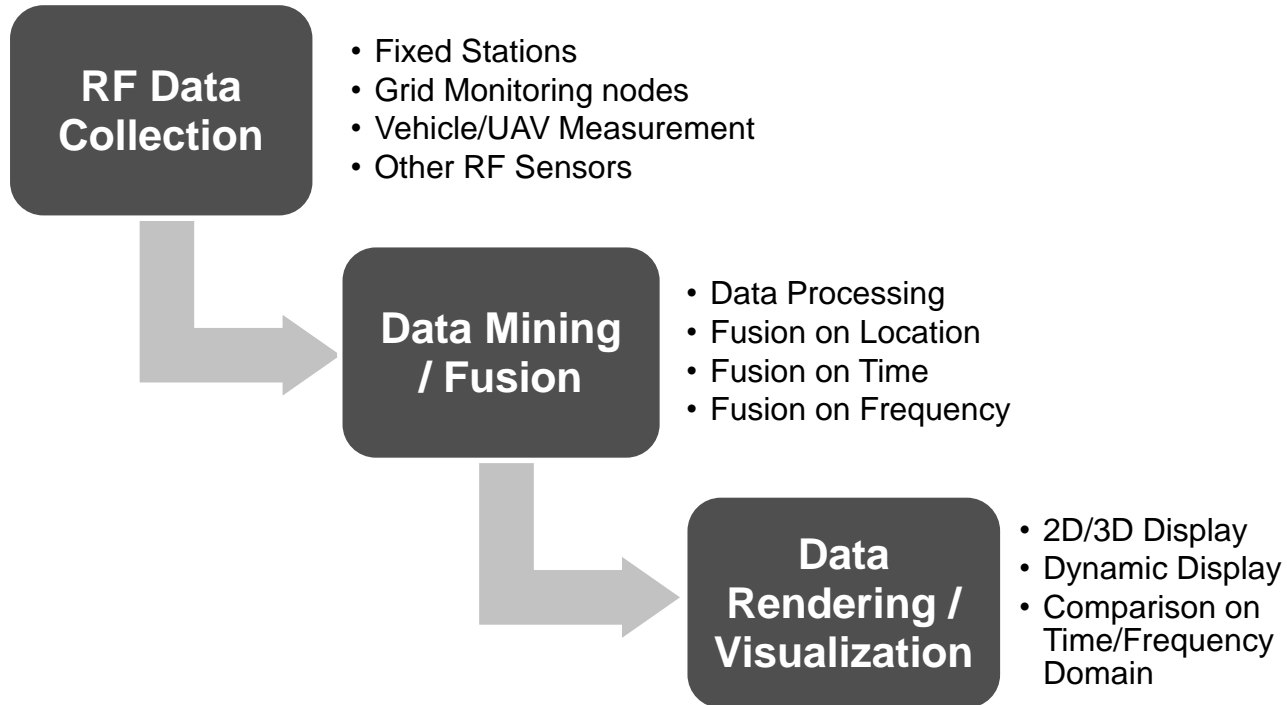
**Variety of applications**  
(radio monitoring, coverage measurements, spectrum inventory, geo-location and/or DF, detection of white spaces, EMF measurements, etc.)

**Flexible** and **scalable** system approach

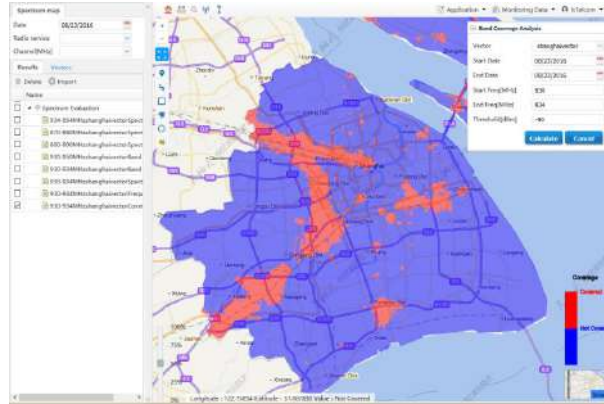
Fully **ITU compliant**



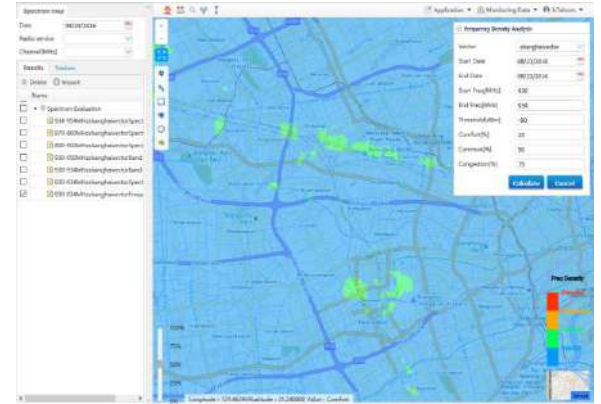
# Data Processing



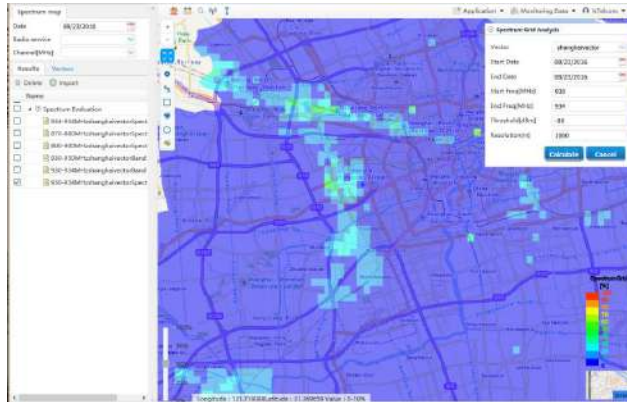
Coverage of  
a  
Frequency  
Band



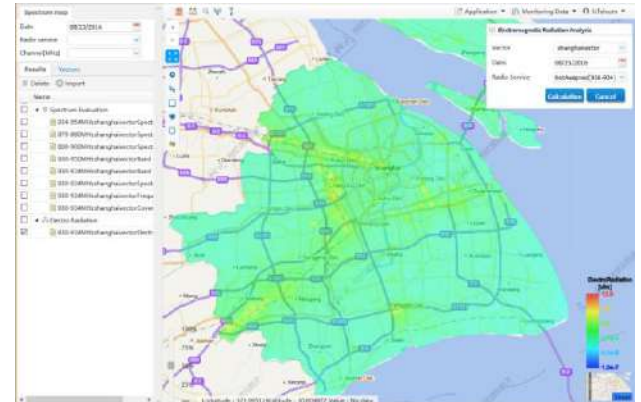
Spectrum  
Utilization

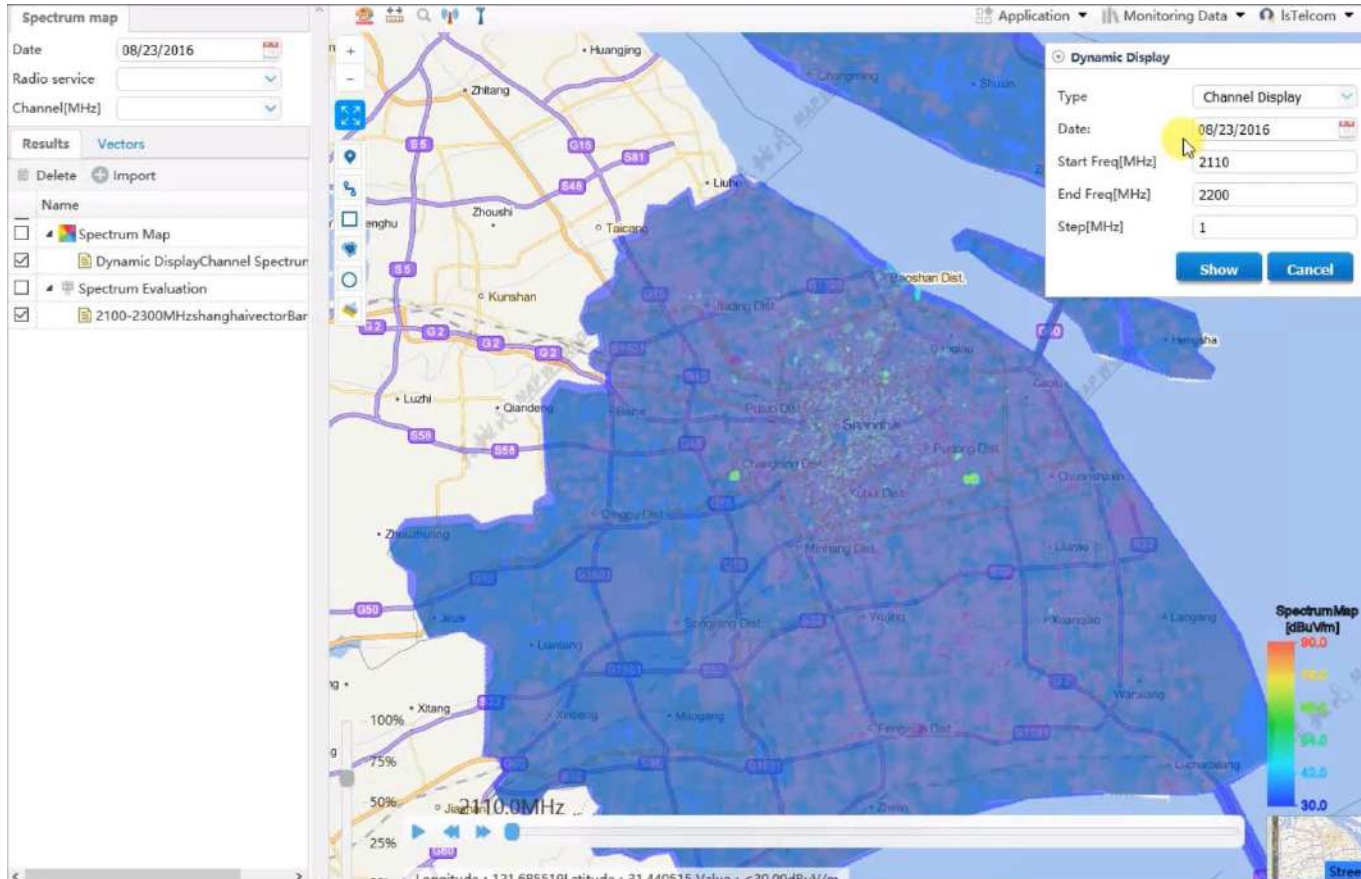


Band  
Occupancy



Radiation  
hazard





# Typical Applications

- **Evidence** for spectrum under (or over) utilization
- **Analysis** of spectrum use to re-use a band
- **Identification** of Whitespace opportunities by analyzing a band occupancy over time
- **Verifying** a Mobile Network Operators coverage against their license commitments
- **Location** of unlicensed or mis-licensed use
- **Validating** license conditions such as coverage or time of use commitments
- **Identifying** opportunities for co-use



mySPECTRA

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**Thank you for your attention**