



Spectrum Management Systems

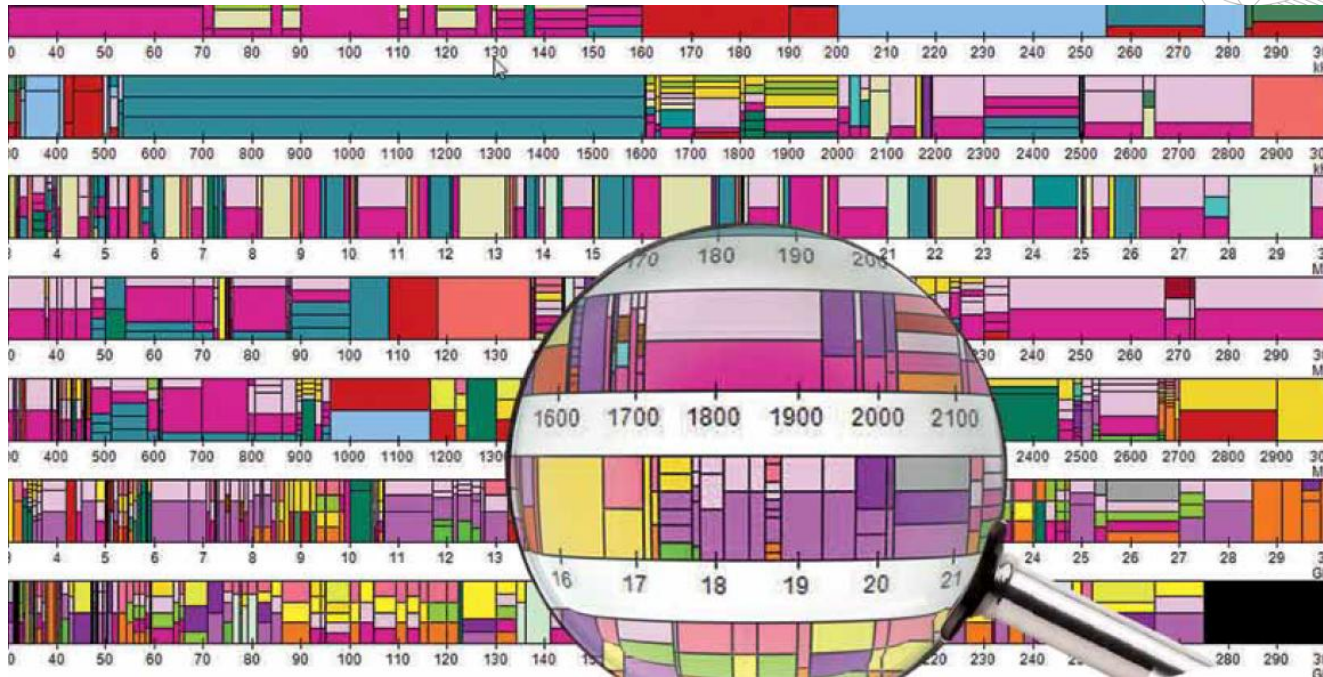
Some Implementation Principles & Guidelines

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ITU - NMHH Regional Workshop, Budapest, 5 - 7 May 2015

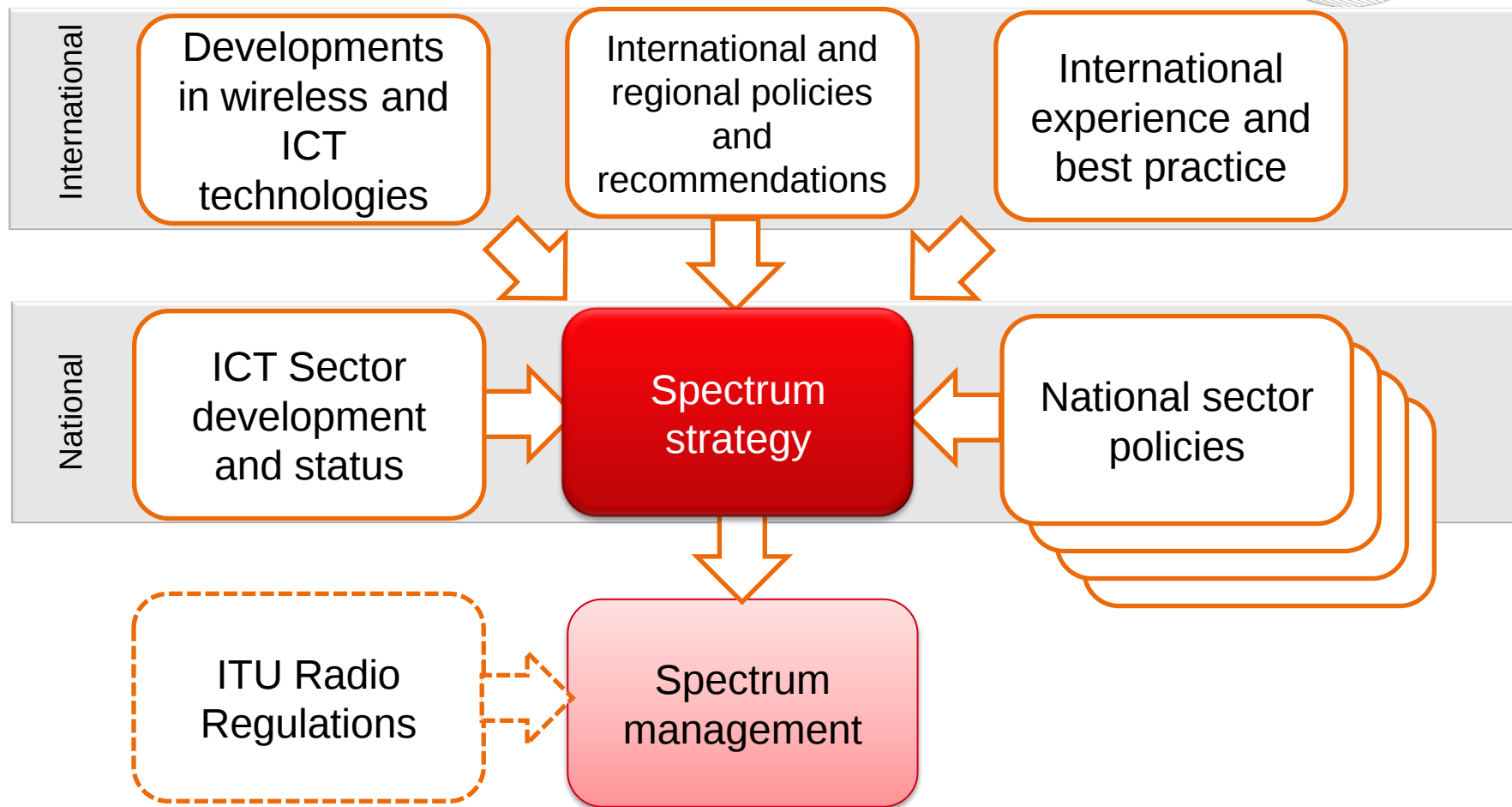
- Licensing of radio spectrum has become a major source of revenue
- Radio spectrum is a key enabler of today's fully connected society
- Provision of radio spectrum is the basis for socio-economic growth
- Today's economic drivers in spectrum management
 - Radio technology
 - IT technology
 - Spectrum policy and economics
 - International regulations





Spectrum Management Systems

Developing Spectrum Strategy

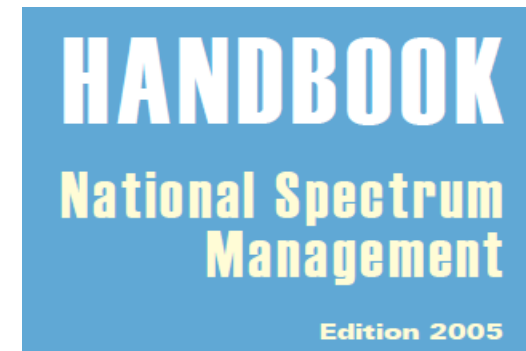
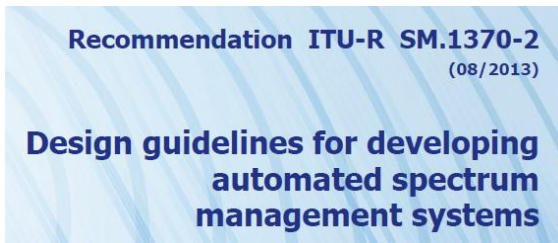


Overall Objectives

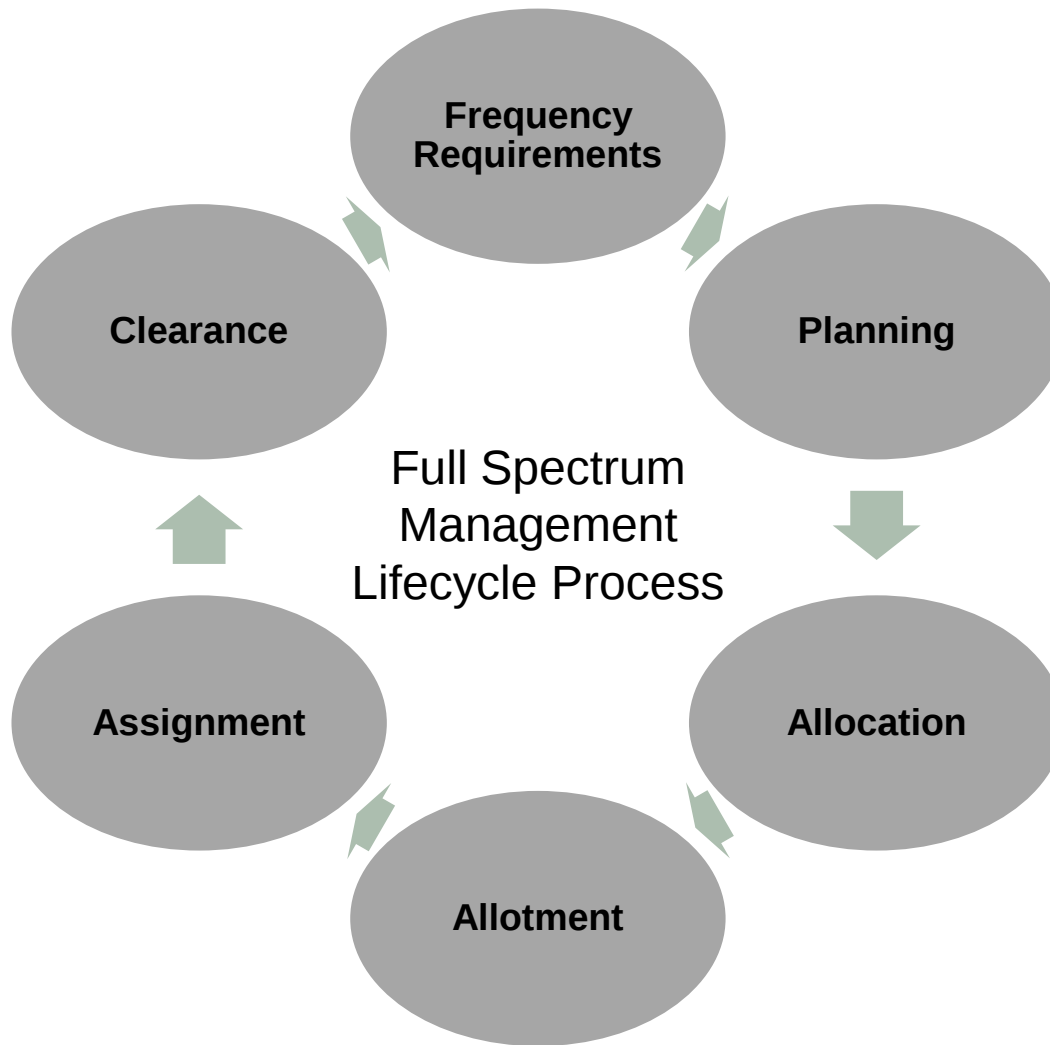
System Implementations



- Implementation & Control of Systematic Spectrum Management Processes
- Integration of various Business Processes / Units
 - Administrative and Technical Spectrum Management
 - Financial
 - Radio Monitoring
- Most efficient Use of Spectrum Usage
- Provision of best possible Services to the Spectrum Users
- Exploitation of full Economical Value of Spectrum



SM System should cover ...



SM System Requirements I



- Centralized data management
- Technical analysis and administrative processes
- Modular system philosophy
- Scalable system approach
- Based on COTS application
- Adaptable to support client specific processes
- Compatibility with 3rd party systems
 - Standard interfaces available to ITU BR IFIC, EFIS, FACSMAB, etc.
 - Client specific interfaces for SAP, Siebel, etc.



SM System Requirements II

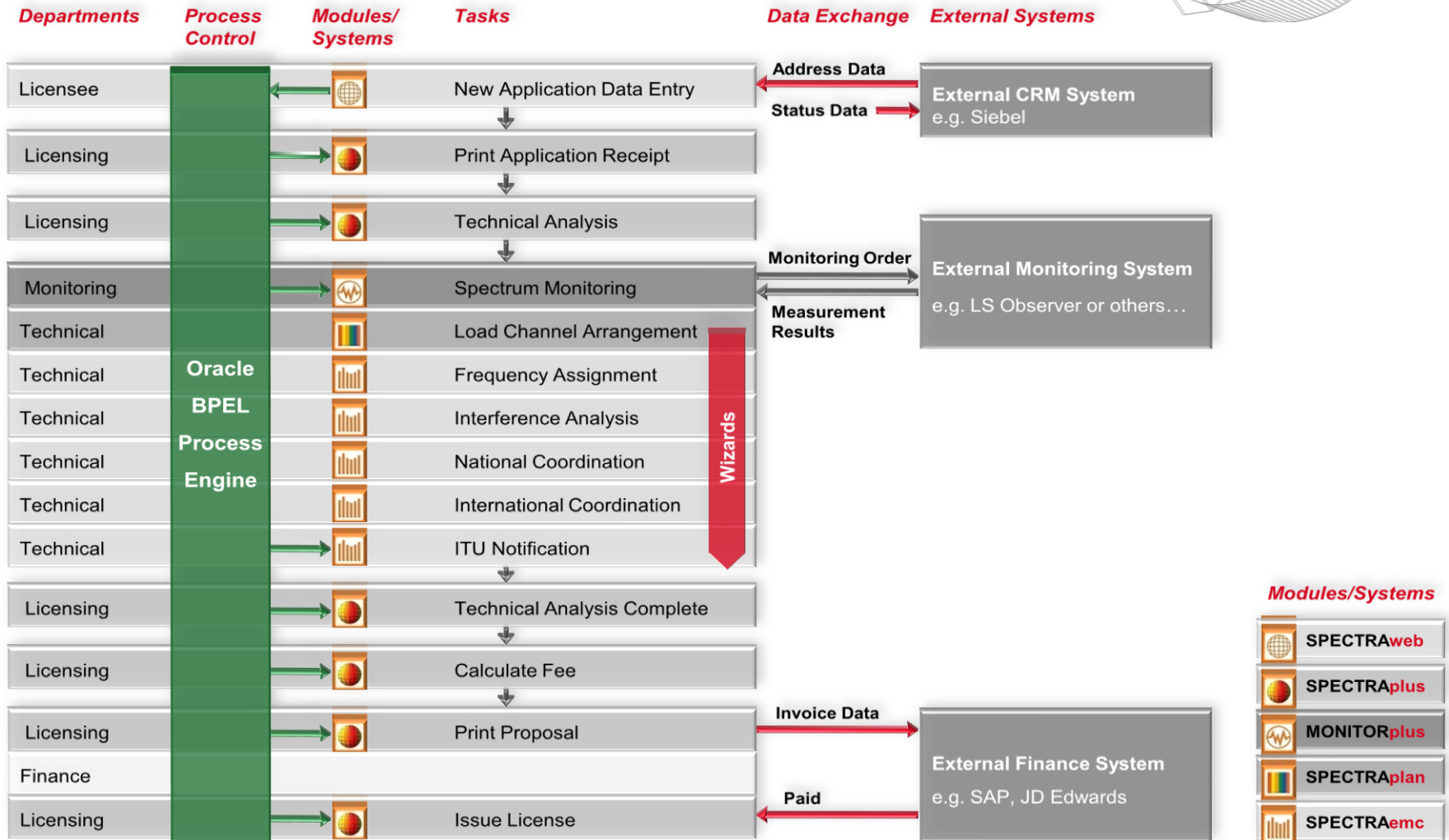
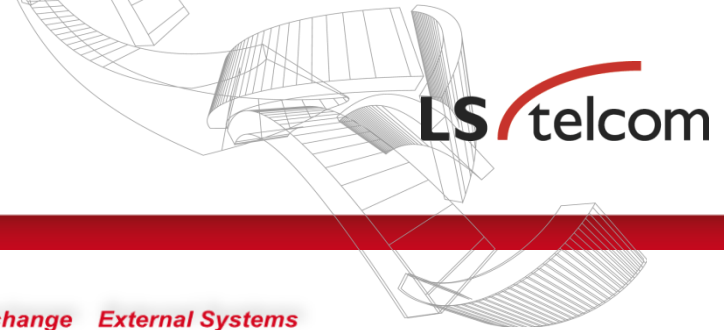


- End-to-end processing of license requests
- Process automation by application of workflows
- Automatic generation of license, invoice, etc.
- Document management and Integrated reporting capabilities
- Provision of online spectrum management services
- E- and mobile licensing
- Spectrum auctioning and license trading
- Virtualization of IT environment



Overview

Departments, Tasks & Modules



Before Implementation

Some issues to be considered



- Analyze existing processes inside your organization
 - Are processes that were introduced maybe some time ago still suited for software based solutions
 - If possible do a pre-study
- COTS versus fully customized individual solutions
- Adjust the SM system to the size of your organization and specific requirements
 - There are often demands for full automatic solutions and workflow management but which are in conflict with daily work processes
 - Only technical analysis tools
 - Licensing system only or also coordination
 - Customer portal, E-licensing
 - Connection to monitoring
- Tenders for SM systems are sometimes written by external consultants and are then evaluated on a 'compliance only' principle

During Implementation

Some issues to be considered



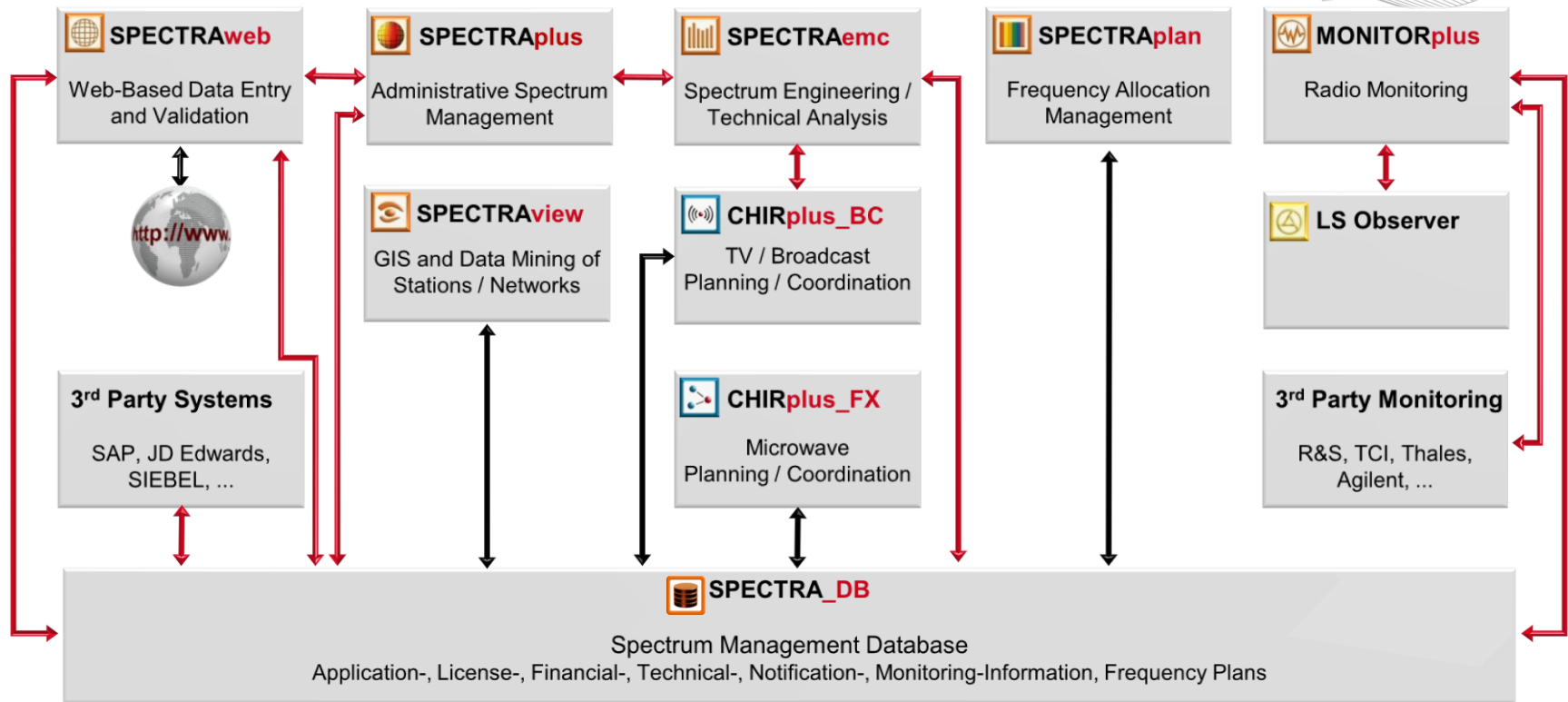
- Data migration
 - Technical and administrative data
 - Very often a lot of different data sources exist (paper, excel sheets ...)
 - Quality and completeness of data
 - → use the transition to a SM system to 'cleanup' your data
- Define reasonable data exchange formats with customers/clients
 - Use (or stay close to) agreed international formats (ITU, HCM ...)
- Do a stepwise system introduction
 - for a specific radio service
 - or for a specific organizational unit
- Do not underestimate 'connections' to other systems (CRM, financial ...)
- Involve the right people inside your organization
- Training



SPECTRA

Integrated & Automated
Spectrum Management Solution

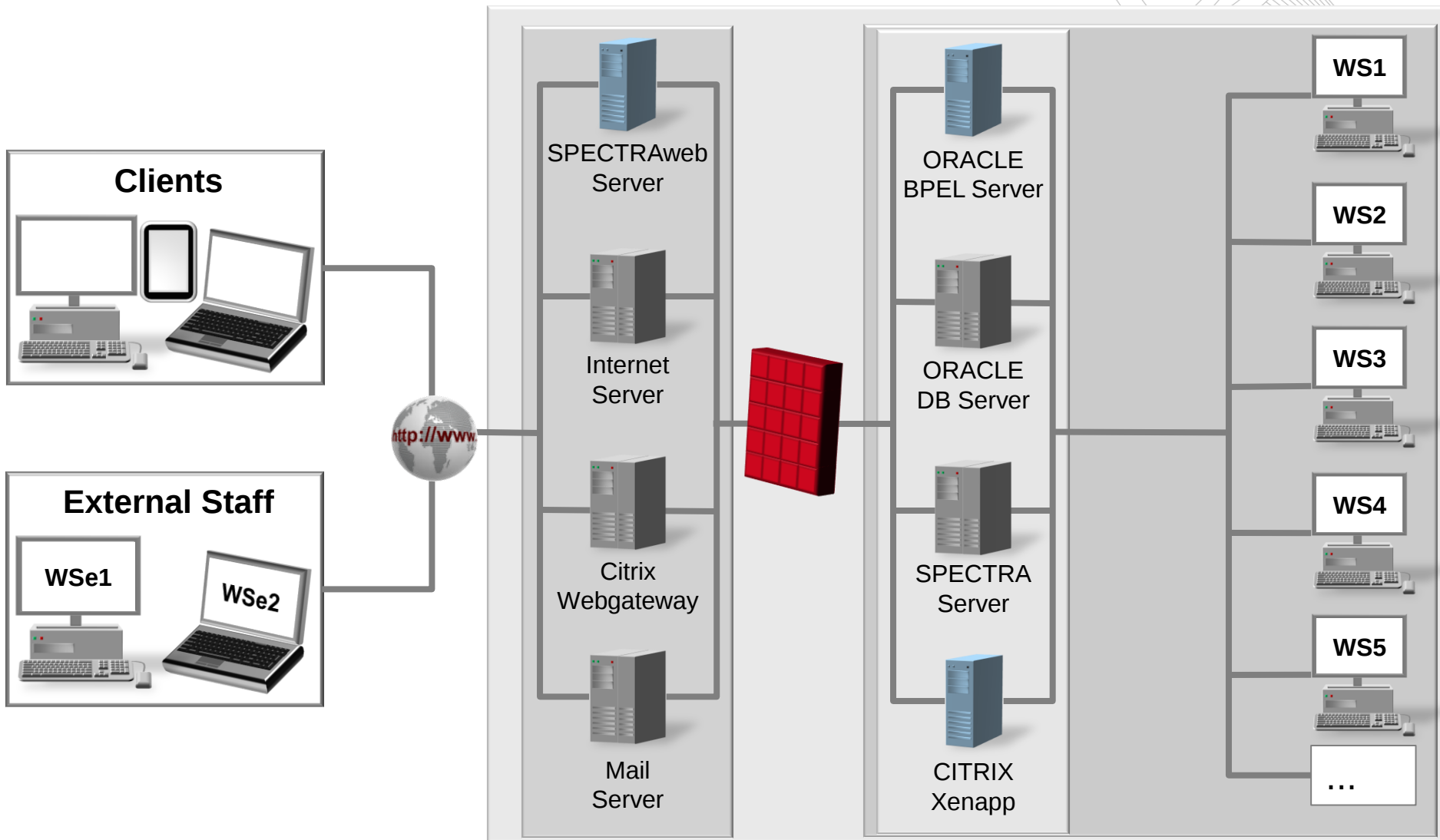
Spectra System Enterprise Solution



Automatable Interfaces (via Web-Services, Workflows, Wizards, ...)
 Manual Interfaces

SPECTRA - System Chart

Example incl. Citrix Web-Gateway





System
Integration
Integration
system



Radio Monitoring



Spectrum
Management Systems
Management Systems
spectrum



Strategic
Consulting
Consulting
strategic



Training Academy

Products & Services

**We have the knowledge, the experience,
and the human capital to fulfil your needs
and wishes in all fields of business!**



Network
Planning Tools
Planning Tools
Network

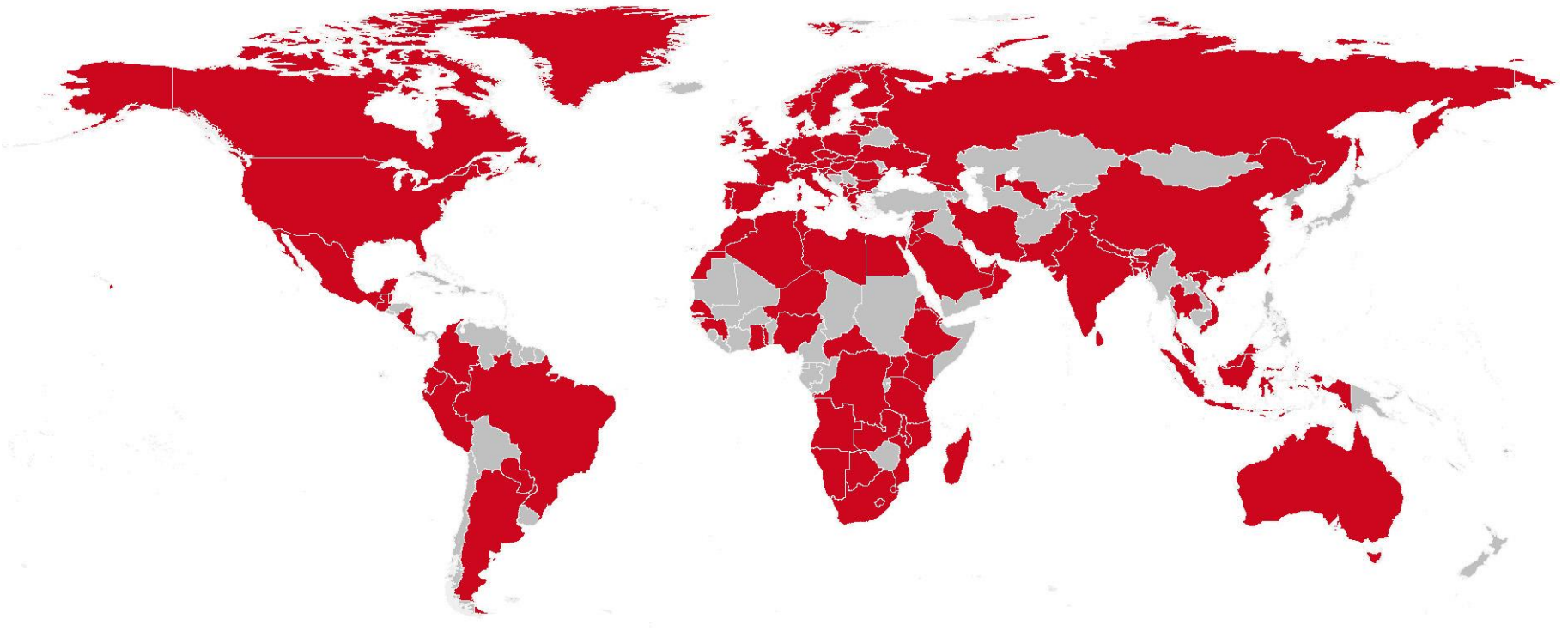


Radio Engineering



Airborne
Measurement
Measurement
Airborne

Benefit from our Global Experience



Our customers in **more than 100 countries** attest to our strength and reliability!



Thank you for your attention!





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