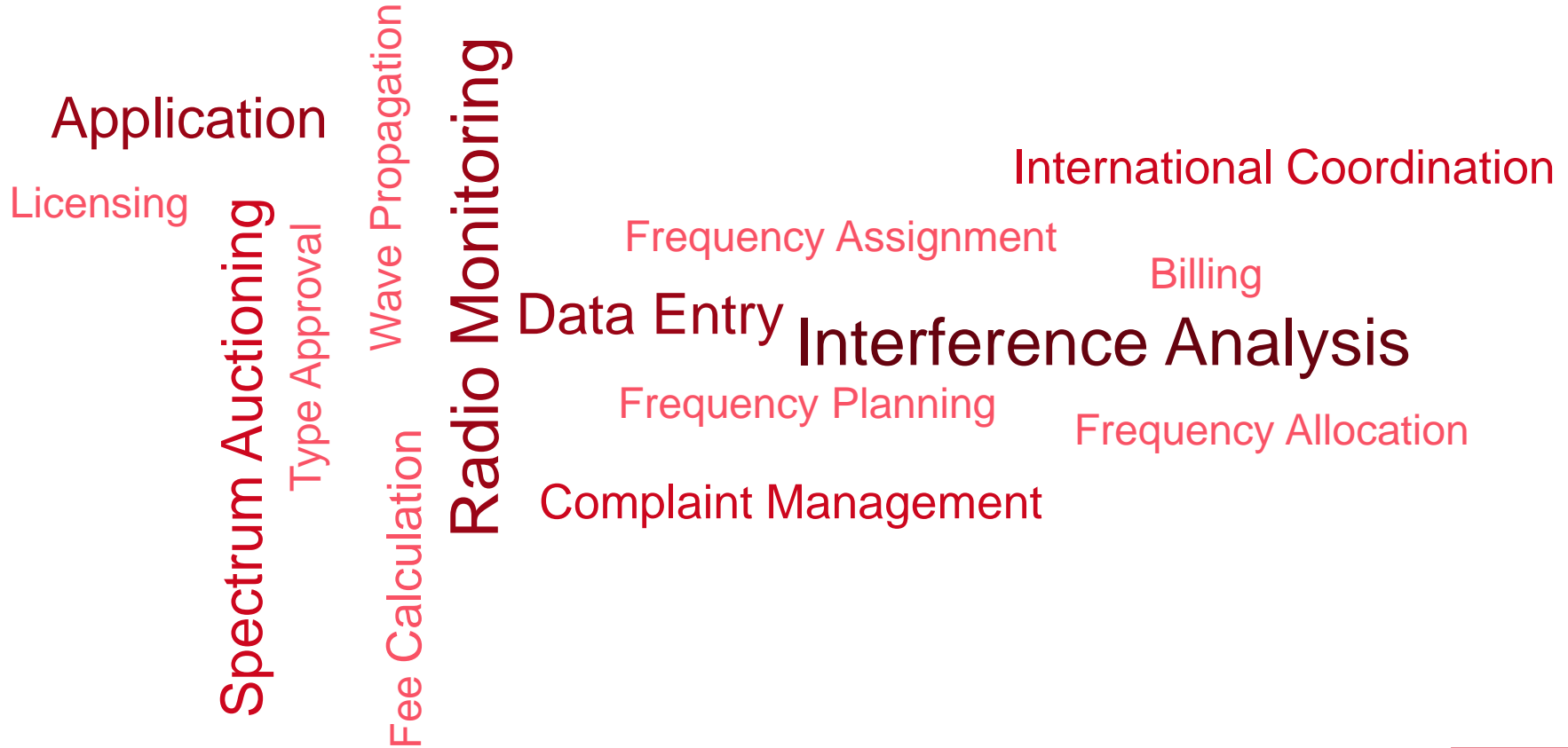
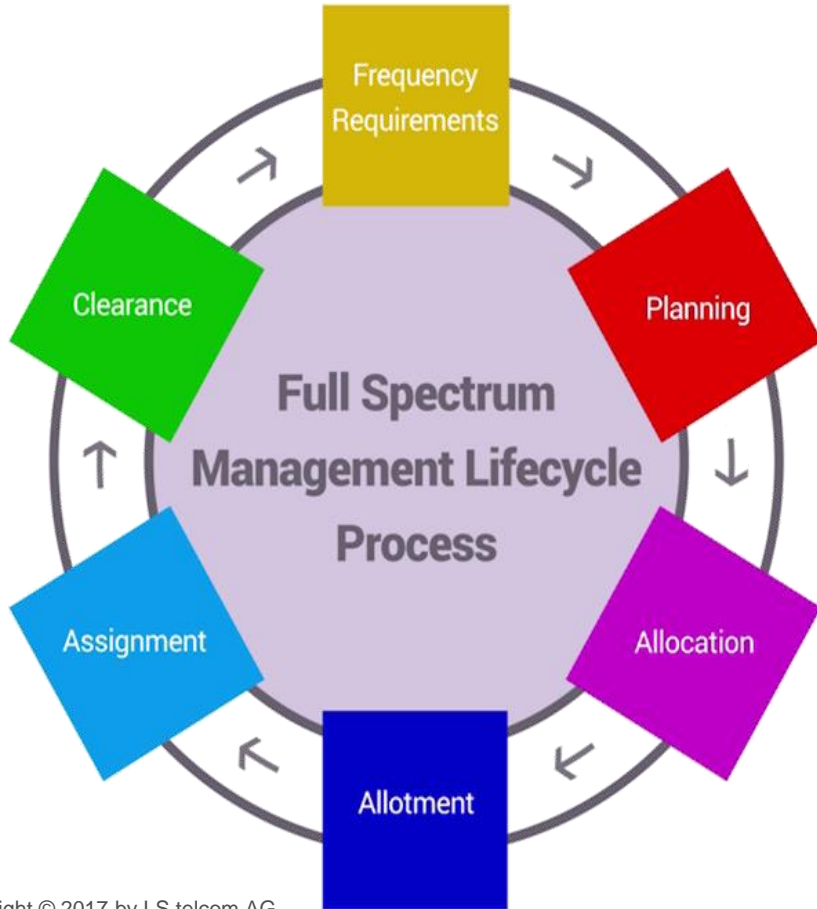


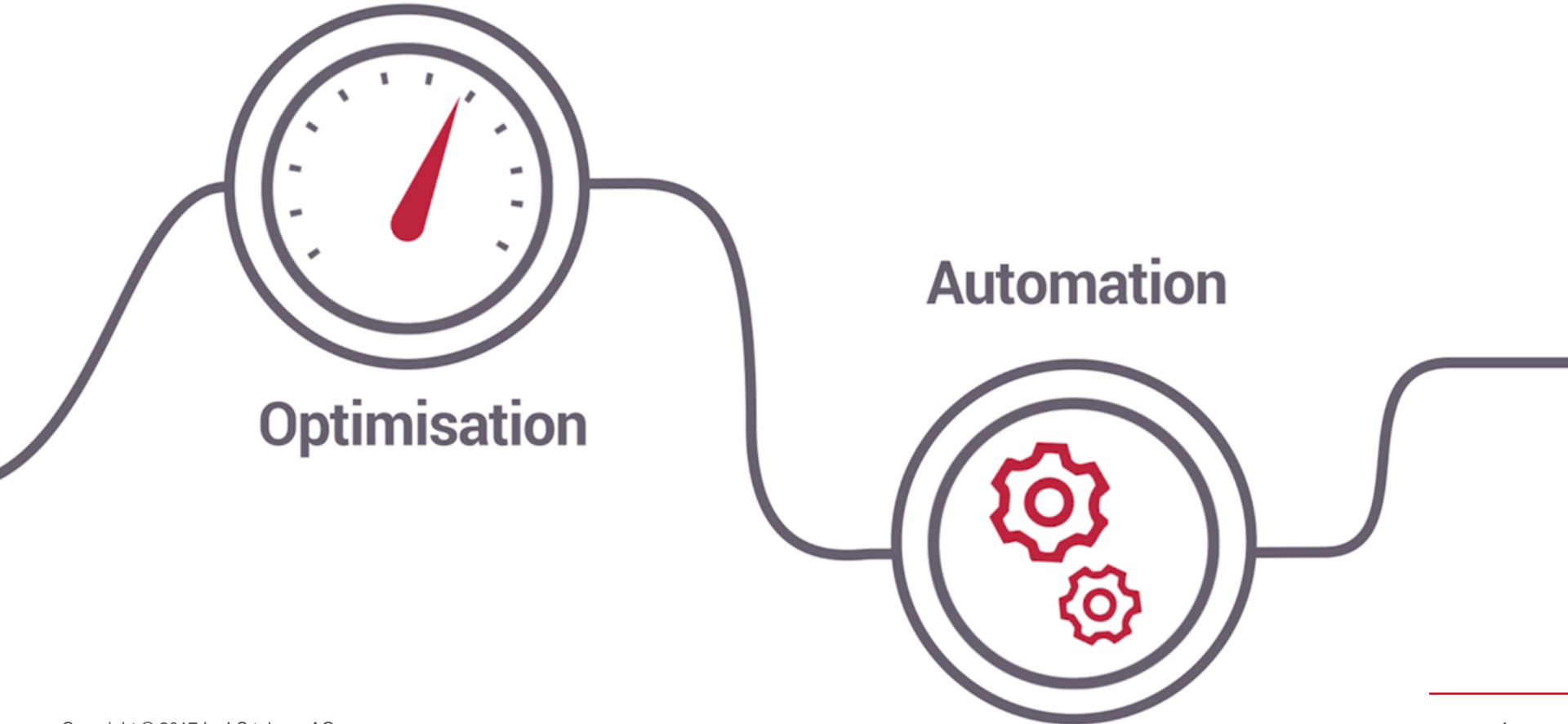
Mathias Lauterbach – 26.09.2017, Infofest, Budva (MNE)

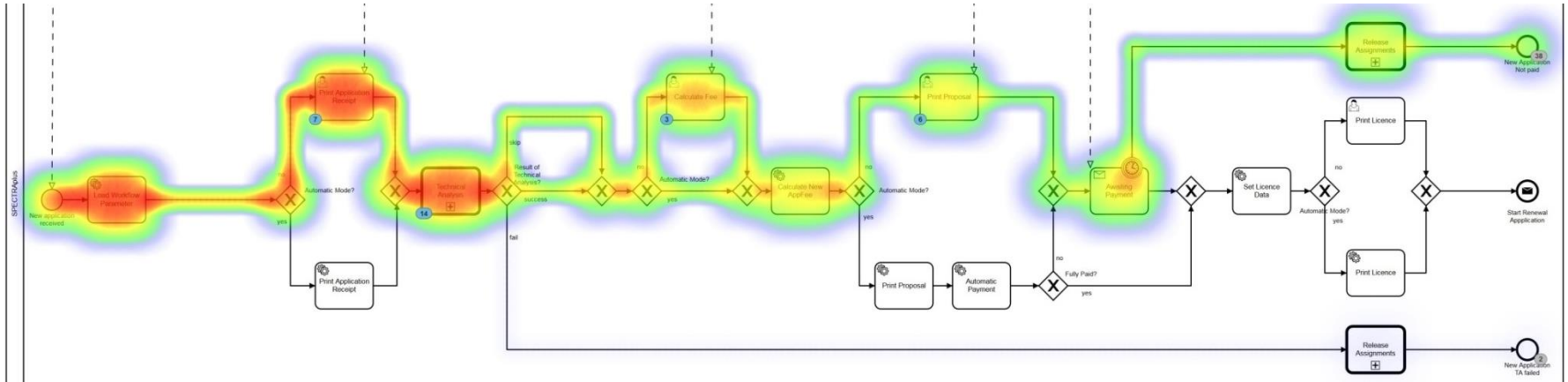
Boosted E-Licensing & E-Government using smartflow-based Spectrum Management Software





SPECTRA



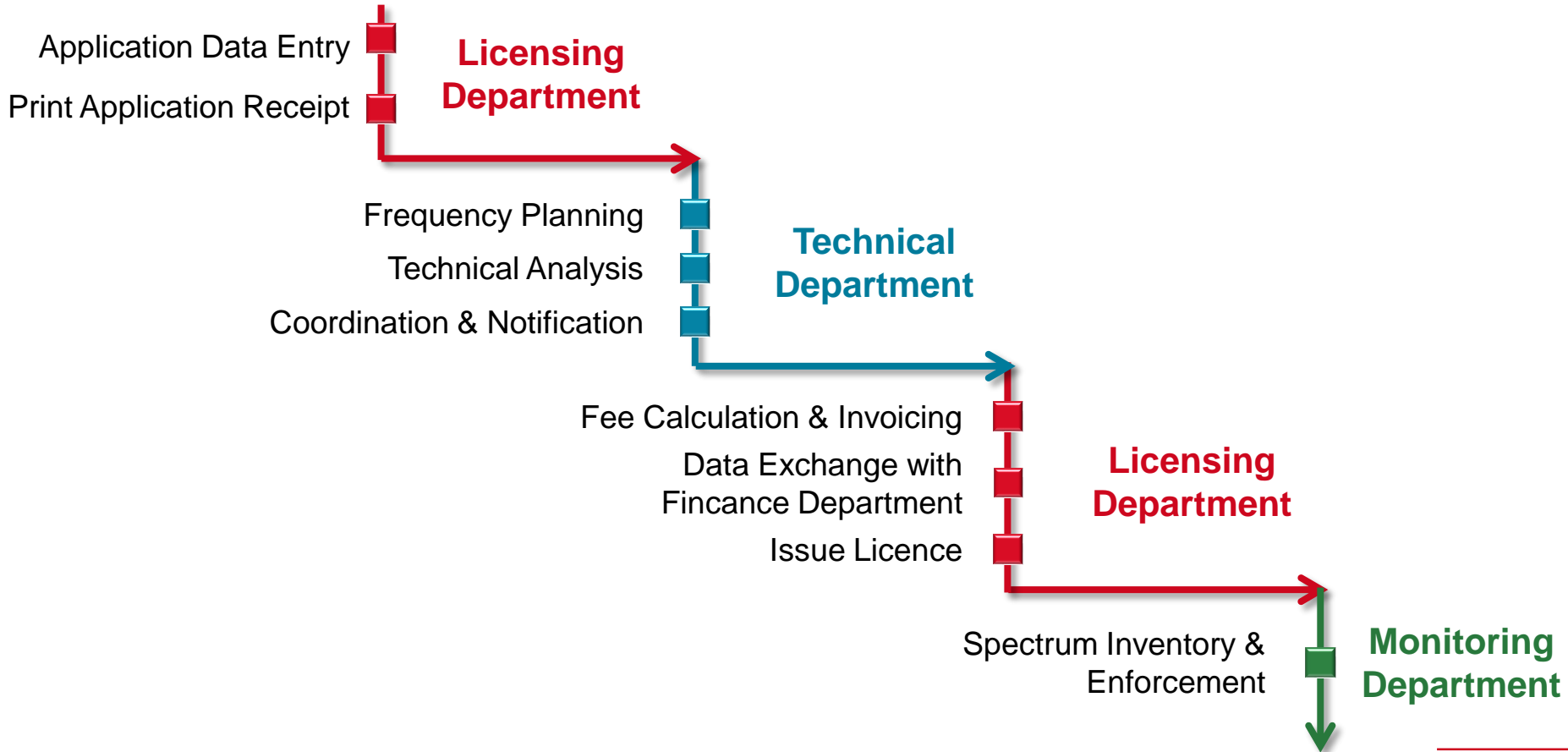


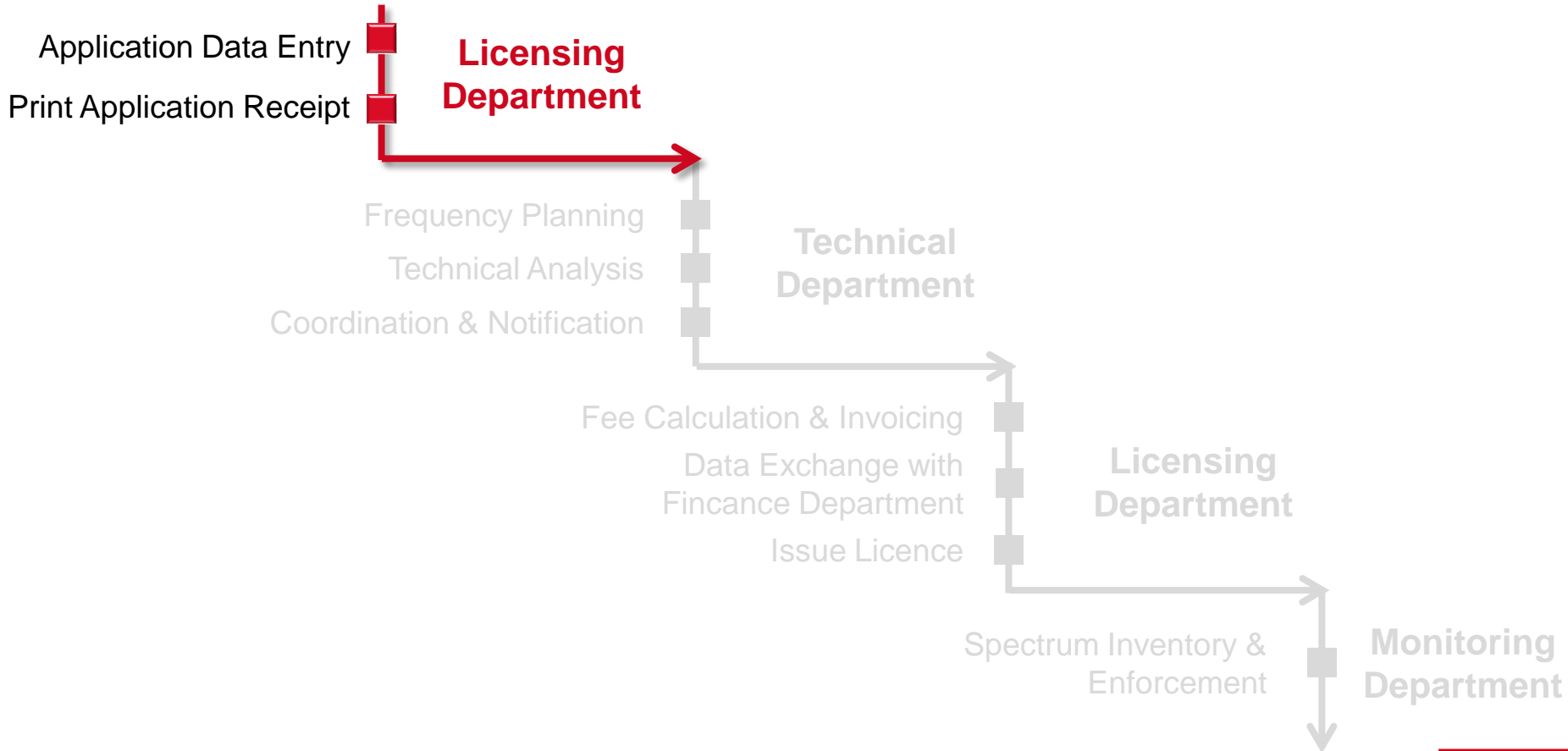
Camunda BPMN for automation of processes

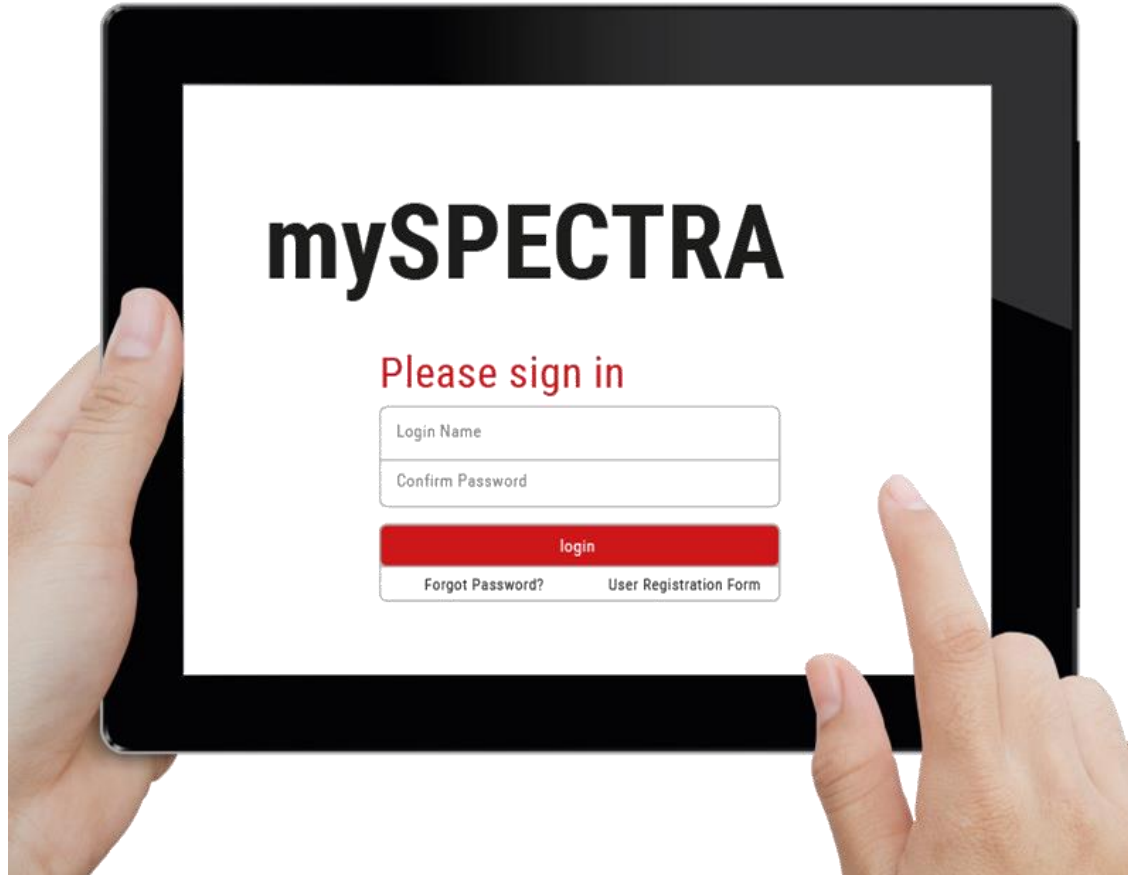
- Boost the licensing process
- Configurable smartflows based on the standard language BPMN
- Standard workflows easy adjustable
- Event Logging & Statistics about completed transactions
- Transparency for the management about status of licenses

Statistics & Analytics

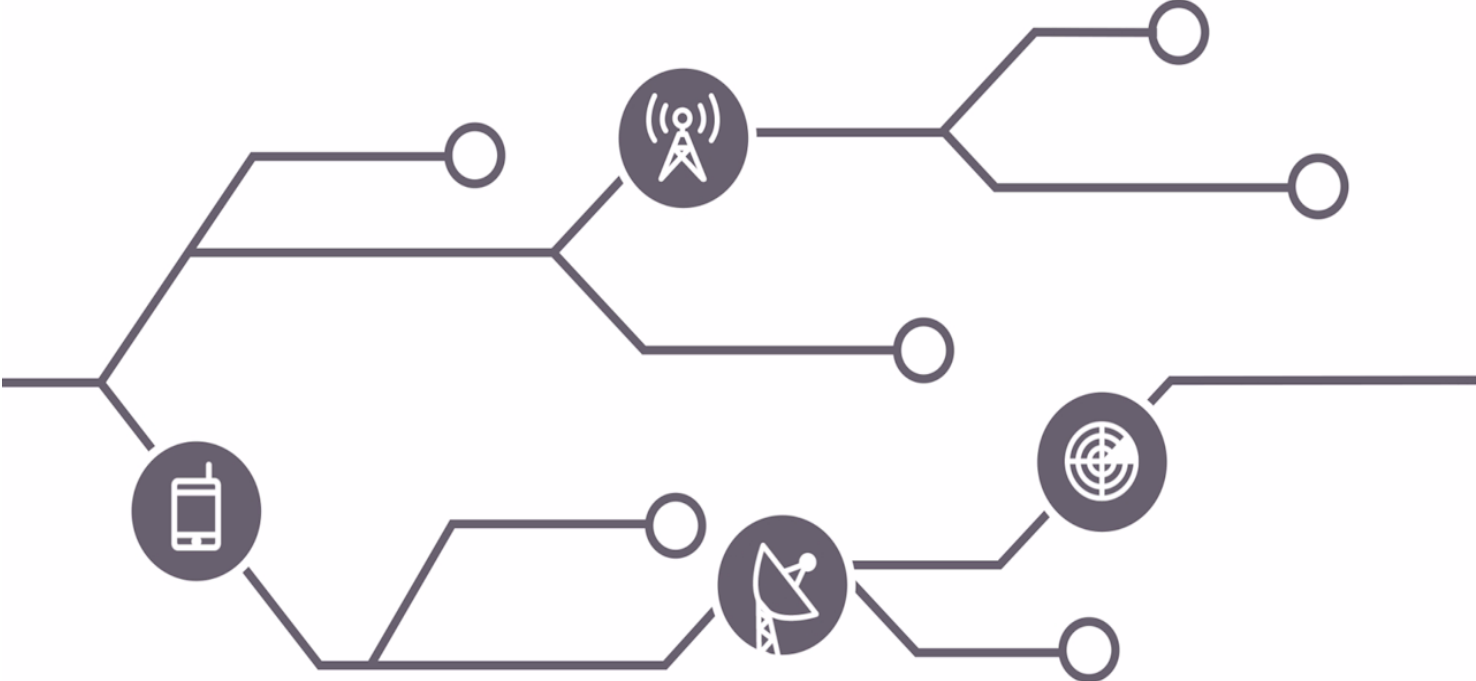




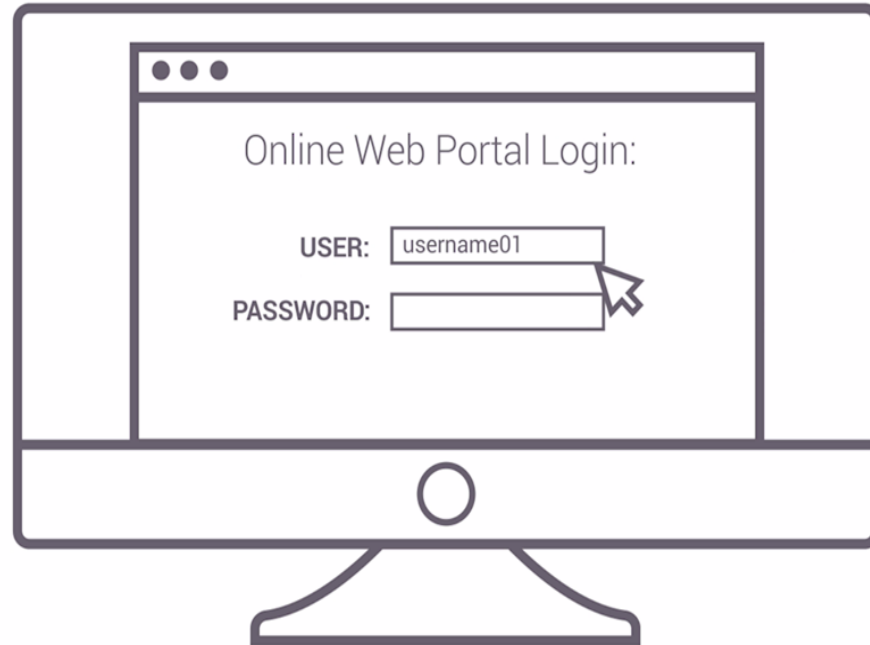




- Modul for administrative spectrum management
- Modular system approach allows for
- **small and very much standardized** as well
- **large and very much customized** solution
- Web based software
- Easy and intuitive operation due to a user-friendly graphical user interface

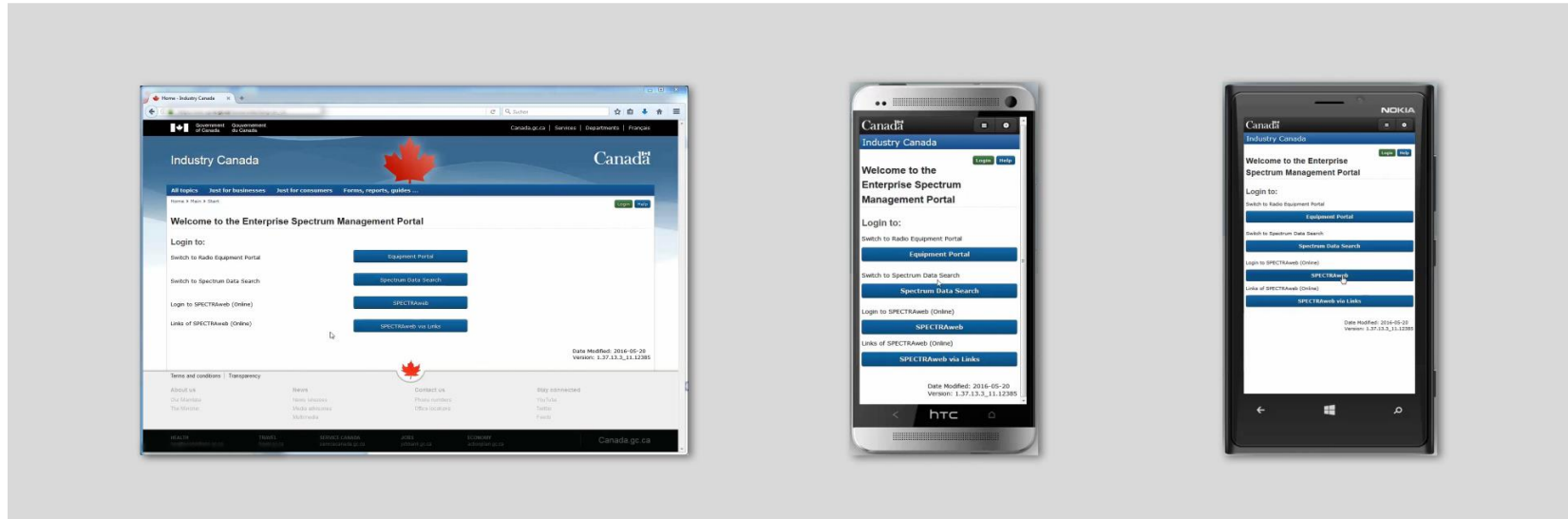








Supporting Latest Web and Mobile Technologies

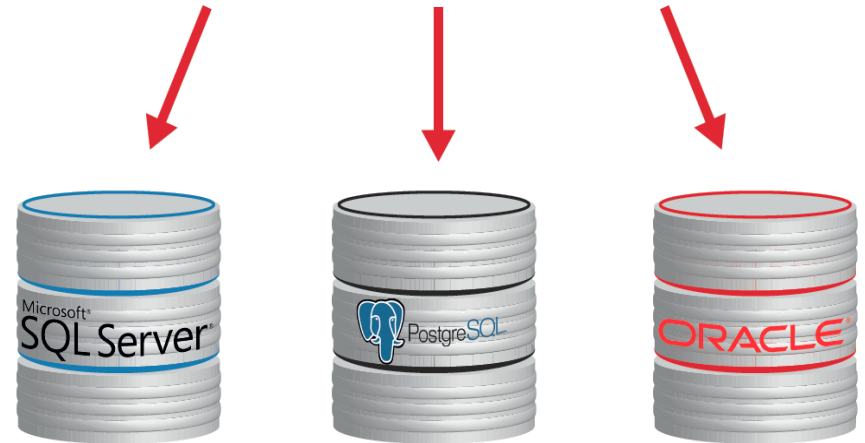


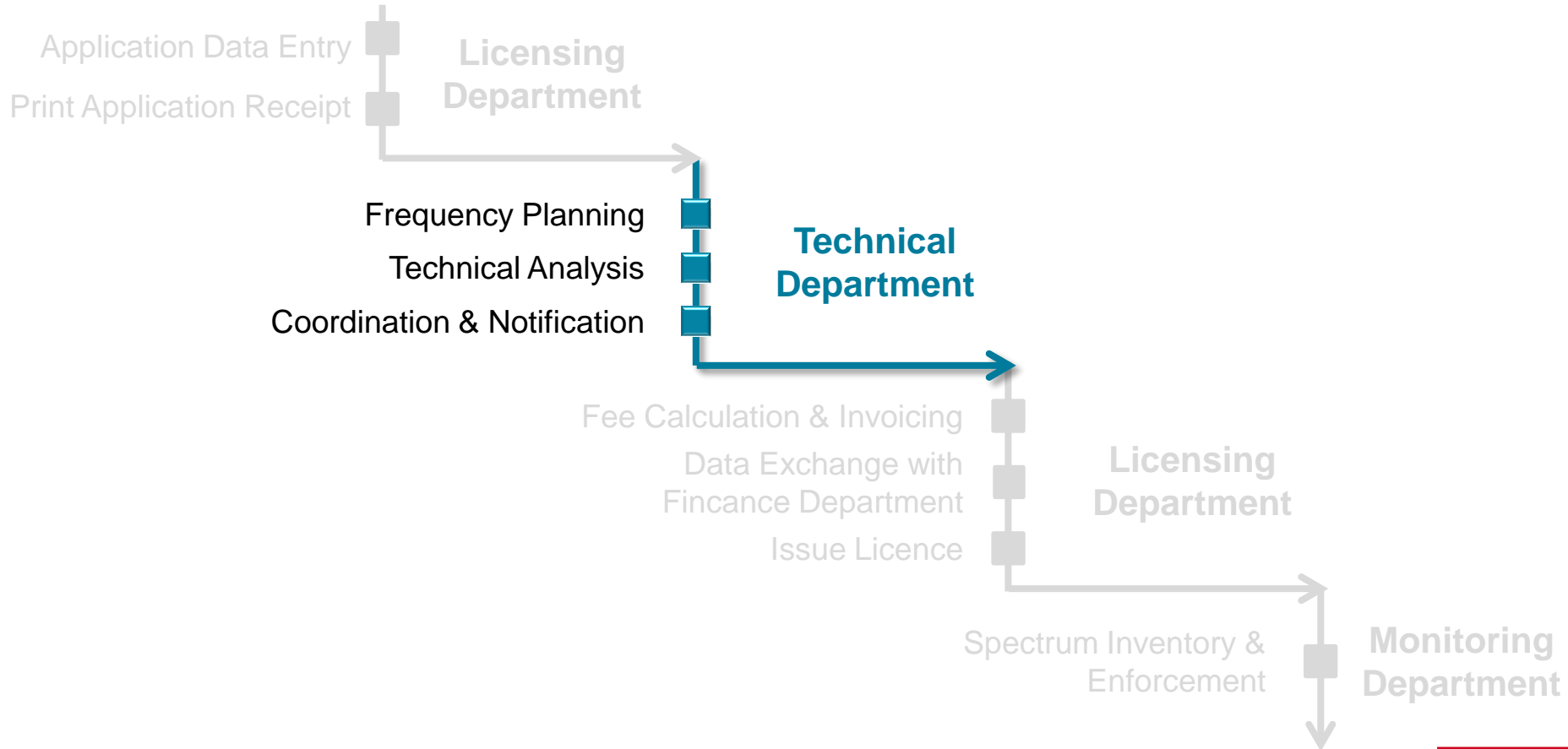


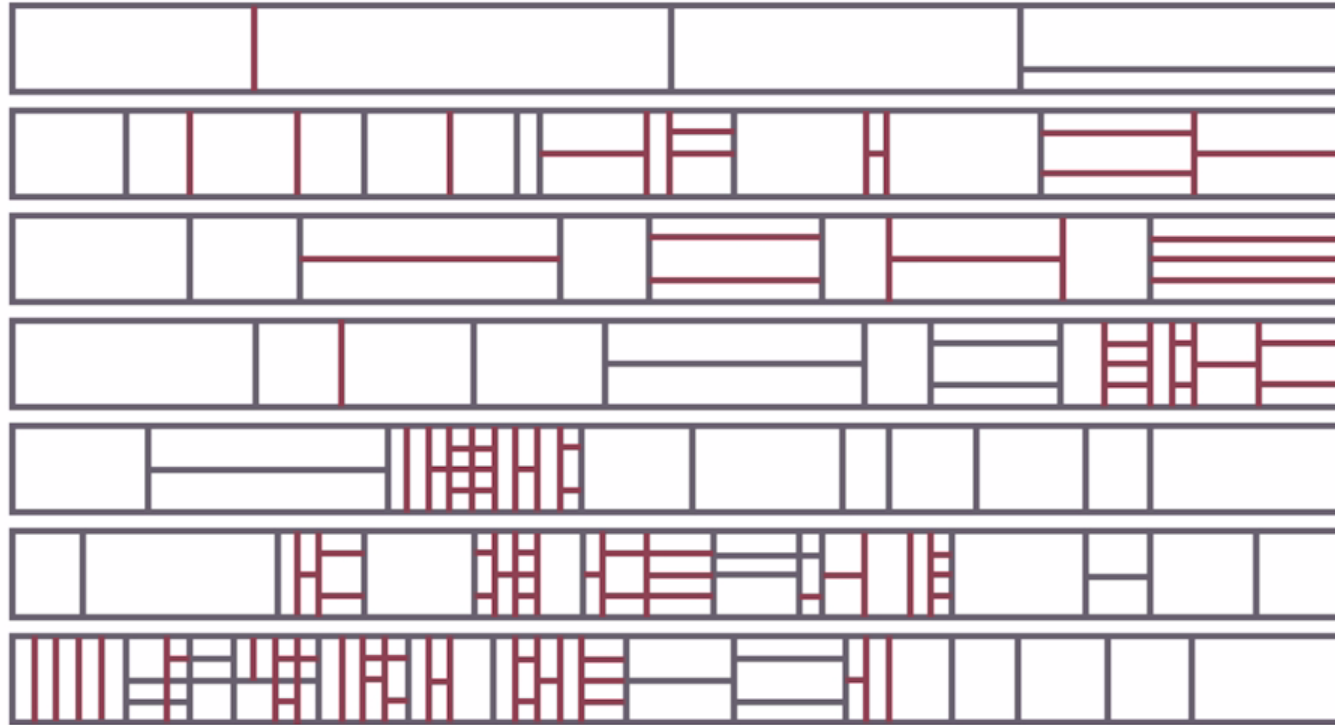
Heart of the System

- Centralization of
 - All Frequency Plan Data
 - All Application Data
 - All License Data
 - All (needed) Technical Data + Default Technical Data
- Provision of Consistent Up-to-Date Data
- Hierarchical Data Management
 - Task oriented Information Access

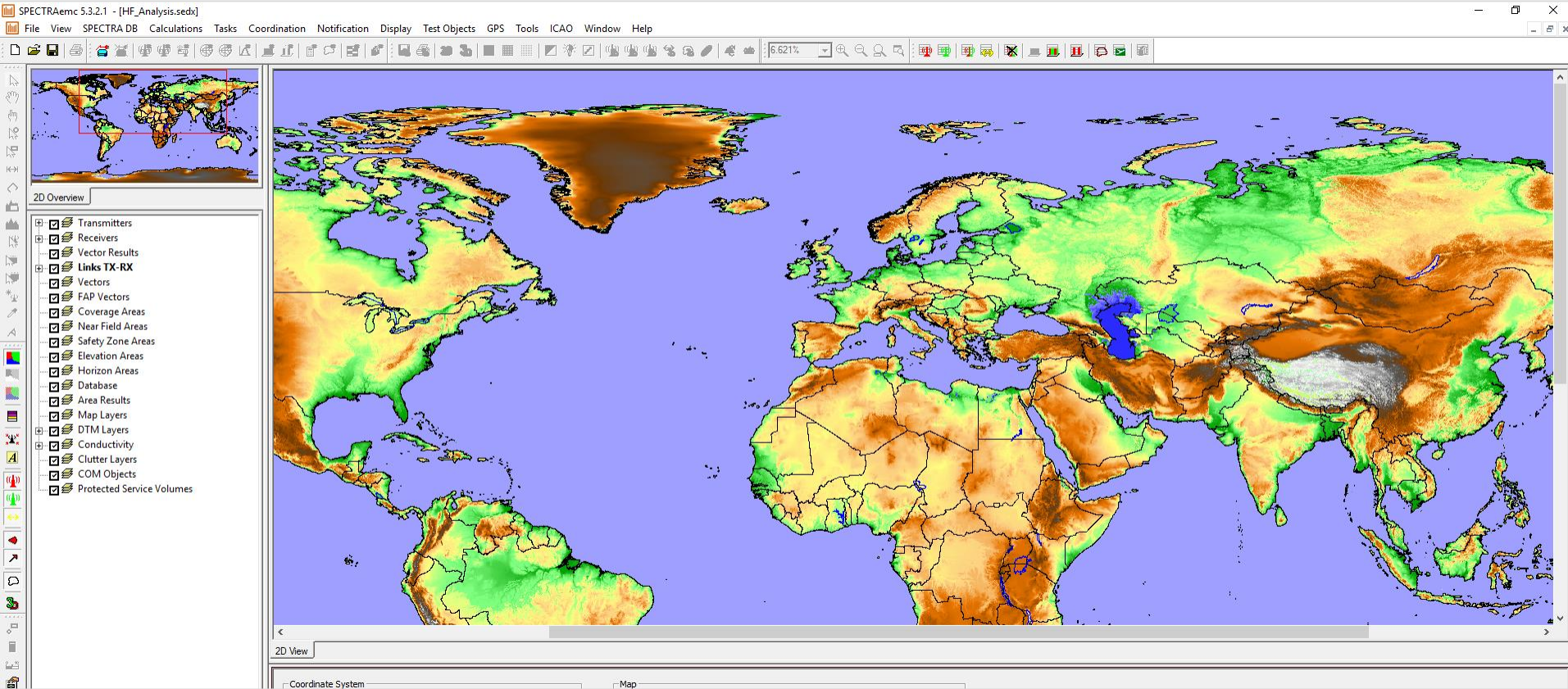
Your Choice

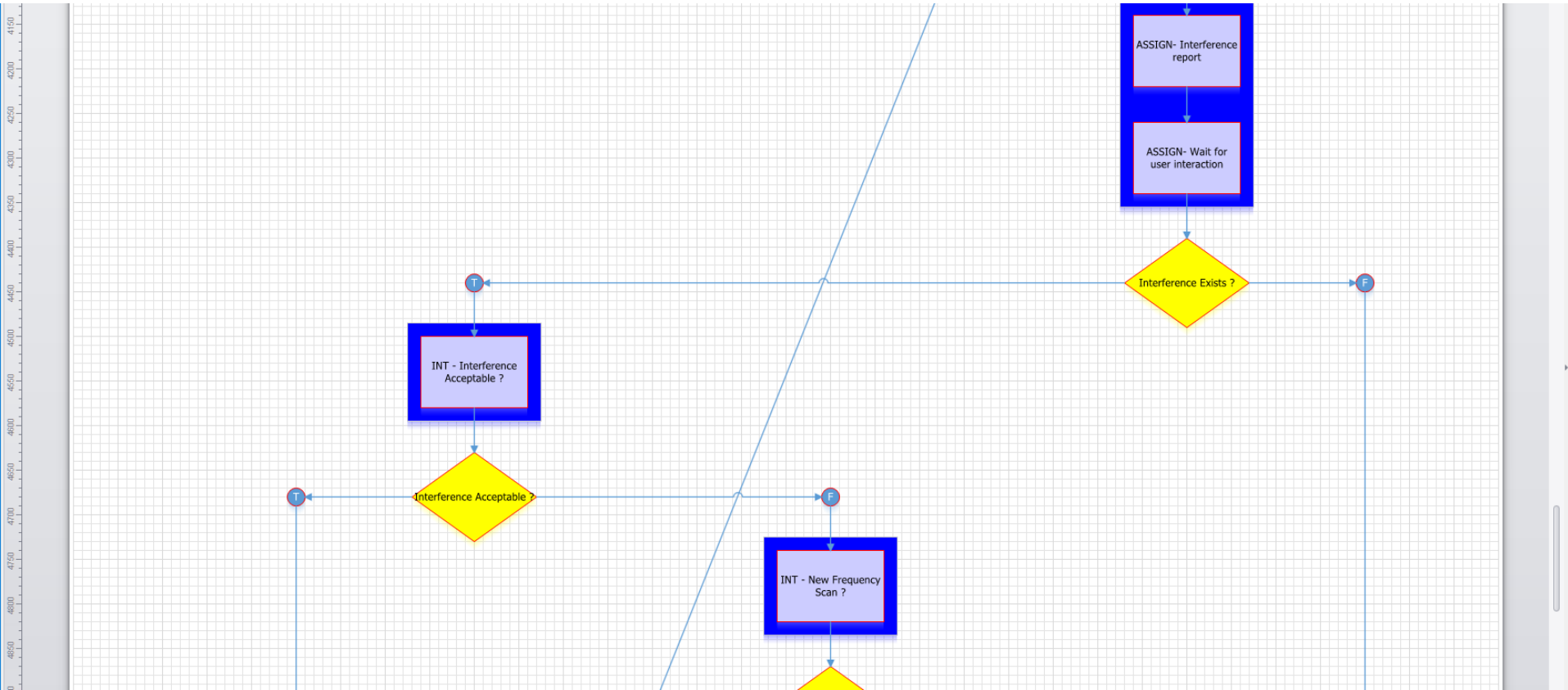










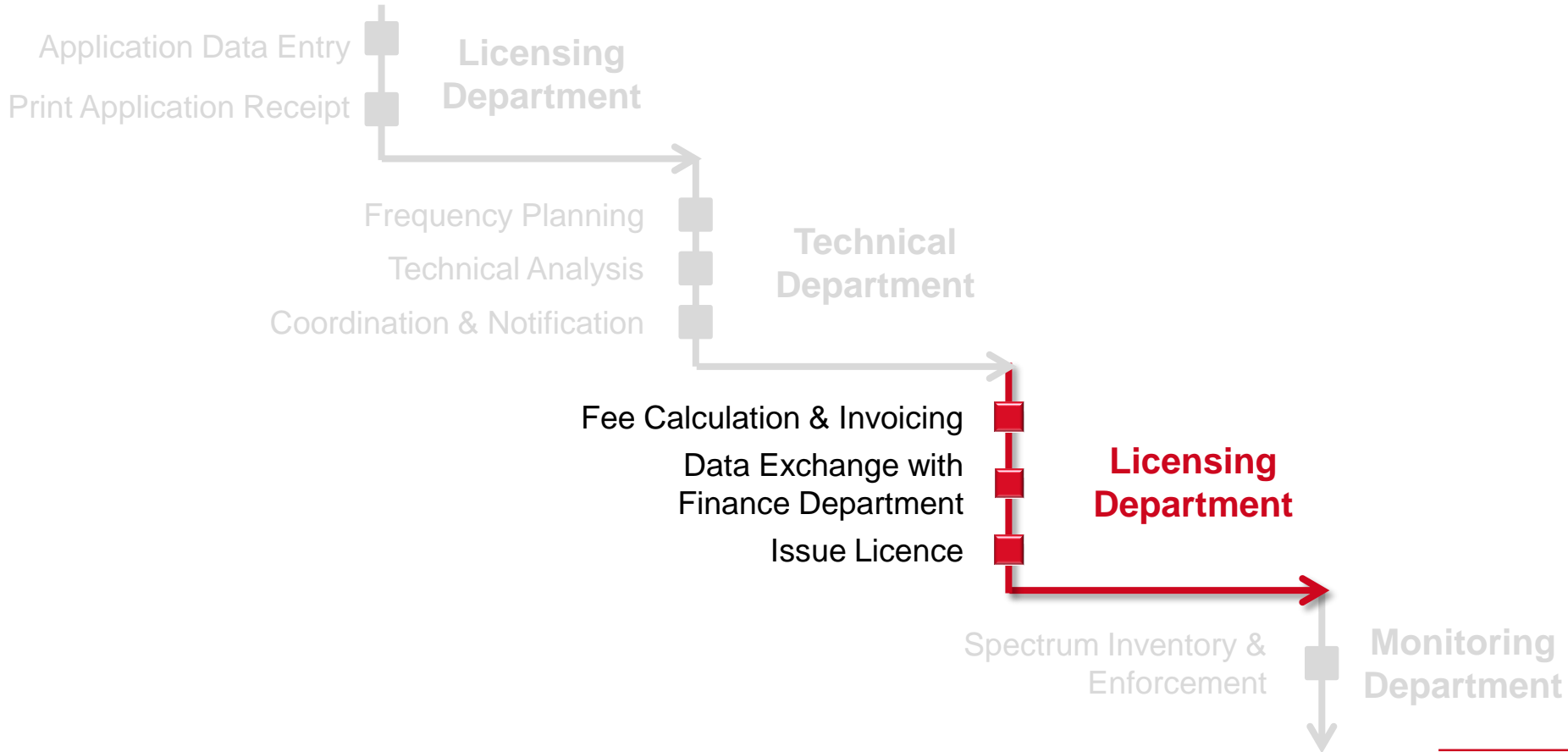


Technical Workflows

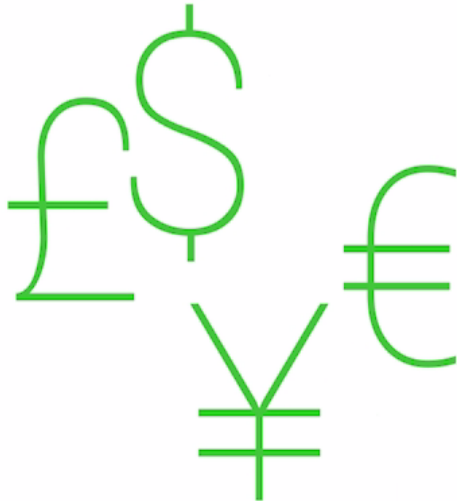
- XML based Wizard Workflow Technology
- Similar to Macros
- Completely Customizable
- Support of any Kind of Service / Frequency Range
- Manual Execution (Step-by-Step)
- Full Automation without Human Intervention Possible

```

<?xml version="1.0" encoding="utf-8"?>
<Wizard>
  <WIZARD_CONFIGURATION>
    <WIZARD_NAME>Frequency Assignment FX PP 18.0 GHz</WIZARD_NAME>
    <WIZARD_DESCRIPTION>Fixed Service Frequency Assignment Wizard for
    Frequency Range 17.700 GHz to 19.700 GHz</WIZARD_DESCRIPTION>
    <WIZARD_MODE>AUTO</WIZARD_MODE>
    <WIZARD_IS_WORKFLOW>NO</WIZARD_IS_WORKFLOW>
    <WIZARD_PAGE Block="Preparation">
      <WIZARD_PAGE_NAME>PREP- Preparation
      *****</WIZARD_PAGE_NAME>
      <WIZARD_PAGE_DESCRIPTION>PREP- Preparation
      *****</WIZARD_PAGE_DESCRIPTION>
      <WIZARD_PAGE_COMMAND>-wait</WIZARD_PAGE_COMMAND>
    </WIZARD_PAGE>
    <WIZARD_PAGE Block="Preparation">
      <WIZARD_PAGE_NAME>PREP- Load start configuration</WIZARD_PAGE_NAME>
      <WIZARD_PAGE_DESCRIPTION>PREP- Load start configuration
      </WIZARD_PAGE_DESCRIPTION>
      <WIZARD_PAGE_COMMAND>
      -openfile=S:\SPECTRAemc\Wizards\FrequencyAssignment_18GHz\ProjectF
      iles\FX_EHF_18GHz.sedx</WIZARD_PAGE_COMMAND>
    </WIZARD_PAGE>
    <WIZARD_PAGE Block="Preparation">
      <WIZARD_PAGE_NAME>PREP- Load data of the link to be processed
      </WIZARD_PAGE_NAME>
      <WIZARD_PAGE_DESCRIPTION>PREP- Load data of the link to be
      processed</WIZARD_PAGE_DESCRIPTION>
      <WIZARD_PAGE_COMMAND>
      -spexchange_xml_file=S:\SPECTRAemc\Wizards\FrequencyAssignment_18G
      Hz\XML_Data\Link_to_process.xml</WIZARD_PAGE_COMMAND>
    </WIZARD_PAGE>
  </WIZARD_CONFIGURATION>
</Wizard>
  
```



Once the Technical Analysis
is complete...



...SPECTRA checks the Payment Status and issues the Licence



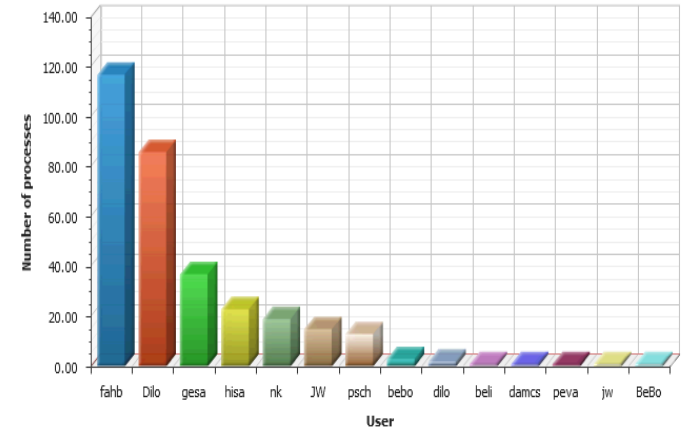
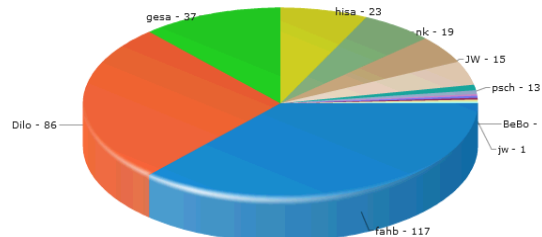
- Management Reports and KPIs
- Interactive Statistics on all integrated smartflow activities
 - Licensing / Billing
 - Frequency Assignment
 - National and International Coordination
 - Monitoring Inspections
- Querying
- Crystal Reports

Is heighest Wizard Step = 'Y'
 Latest entry in case of duplication(Per Workflow/Step ID) = 'Y'
 Wf Name = '-'
 Wf Status != 'ARCHIVE'
 Wf Status = 'INTERRUPTED'
 Wf User Assigned = '-'
 Wf User Assign Date between 01-MAR-13 and 31-MAR-13

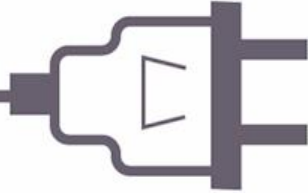
[Edit Chart](#)

Is heighest Wizard Step = 'Y'
 Latest entry in case of duplication(Per Workflow/Step ID) = 'Y'
 Wf Name = '-'
 Wf Status != 'ARCHIVE'
 Wf Status = 'INTERRUPTED'
 Wf User Assigned = '-'
 Wf User Assign Date between 01-MAR-13 and 31-MAR-13

[Edit Chart](#)



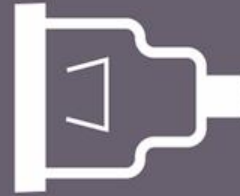
SPECTRA



Incorporates the latest:

- ITU Recommendations
- Other National / International Regulations

Third Party Products

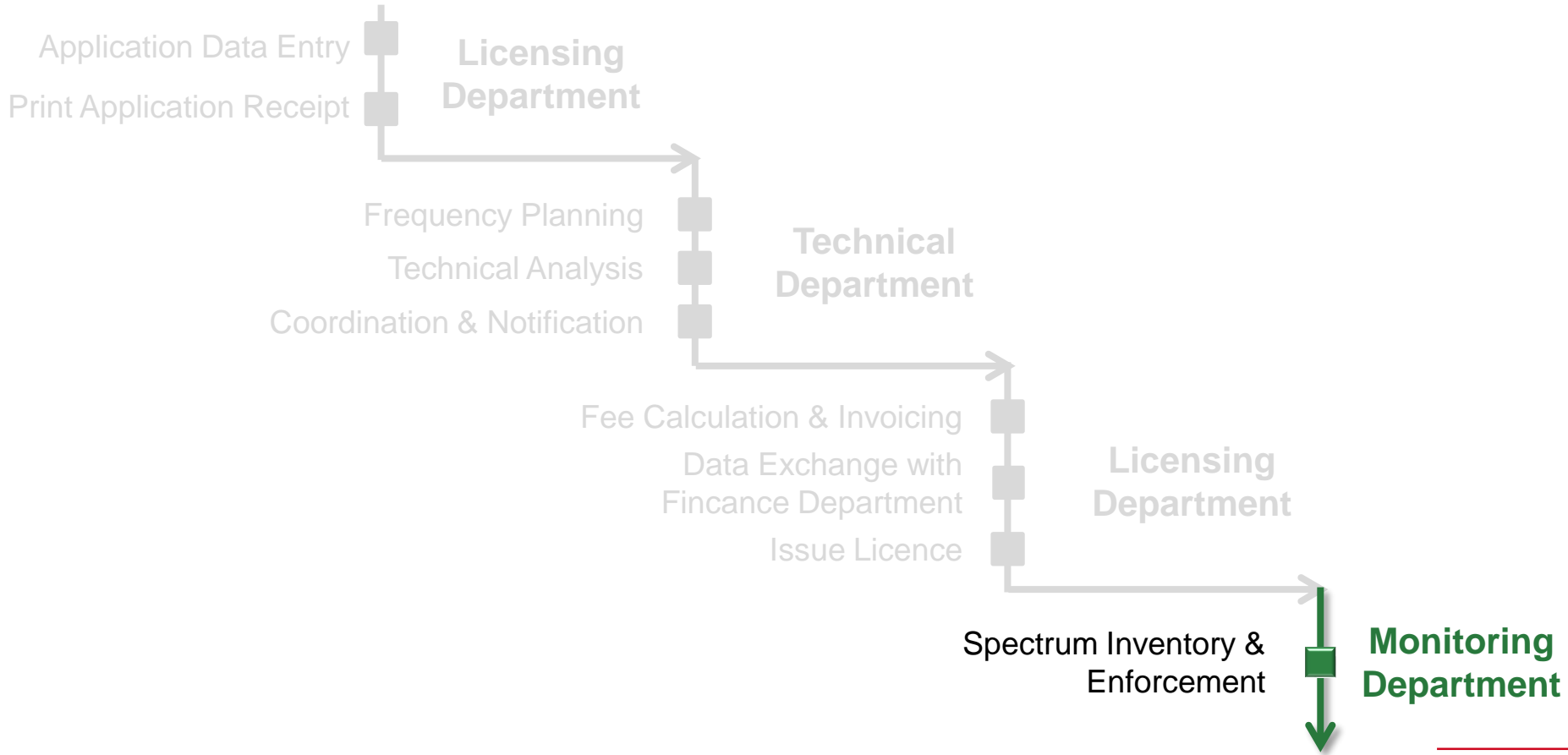


Financial Systems

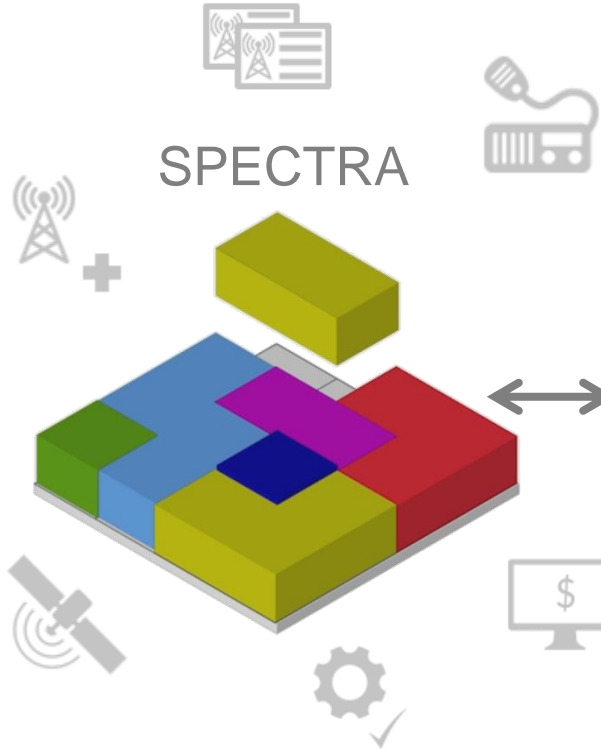
Customer Relation Systems

Document Management Systems

Legacy Spectrum Management Systems



Spectrum Management



 **MONITORplus**
Management of monitoring orders and results

Spectrum Monitoring

 **LS OBSERVER**
Monitoring Systems



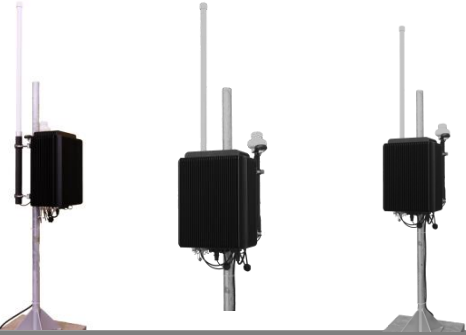
3rd Party Systems

R&S[®]ARGUS
TCI Scorpio
etc.

3rd Party Devices

- iCom IC-R8500, etc.
- R&S EB200, DDF255, etc.
- etc.

Continuous Monitoring



Transportable Monitoring



Portable Monitoring



Mobile Monitoring



Remote Control & Analysis Software

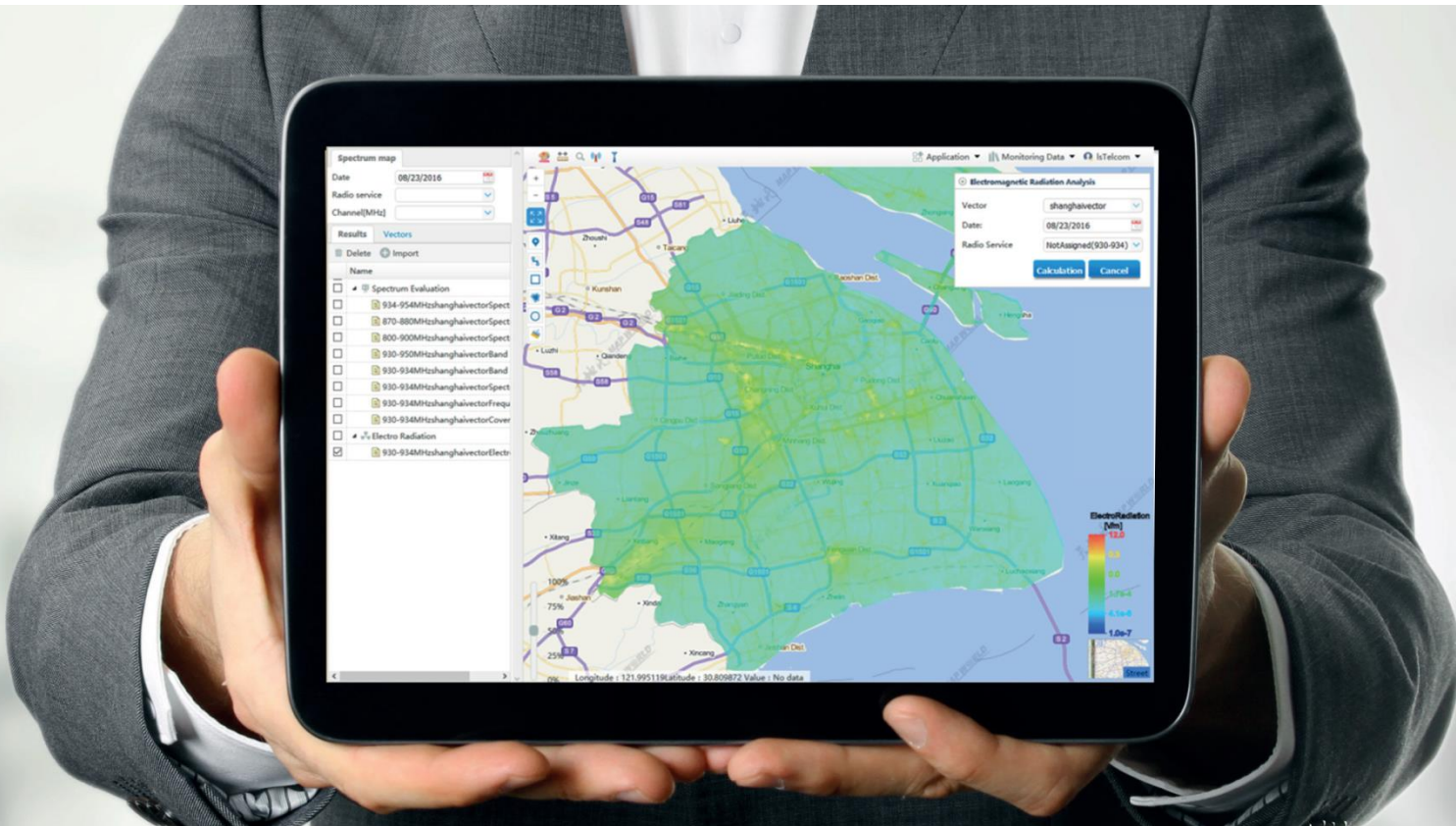


Ethernet,
LTE, WiMax

Ethernet, UMTS/LTE

3G-UMTS, 4G-LTE

WiMax, 3G-UMTS, 4G-LTE





Thank you for your kind attention

Mathias Lauterbach | MLauterbach@lstelcom.com

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