

**ITU Forum on Conformance and Interoperability  
Testing in CIS and Europe Regions  
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**Poland testing experience**

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**Agenda**

- Poland – view on telecom market
- Telekomunikacja Polska
- Orange Labs
- Aspects of testing
- Regulatory constraints
- Testing process phases
- Testing ecosystem
- Monitoring

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## Poland – view on telecom market

- Demography:
  - ◆ 38,44 M inhabitants
  - ◆ 12,1 households
- Penetration:
  - ◆ 57% total BB
  - ◆ 39% fixed BB
  - ◆ 65% PC in households
  - ◆ 125% mobile voice
- Services:
  - ◆ 7,2 M fixed voice
  - ◆ 47,5 M SIM cards
  - ◆ 5,5 M fixed BB
  - ◆ 2,6 M mobile BB
  - ◆ 11,4 M pay TV
- Mobile market:
  - ◆ ORANGE – 30,8%
  - ◆ T-Mobile
  - ◆ PLUS
  - ◆ PLAY
- Fixed telephony
  - ◆ TP – 67,2 %
  - ◆ NETIA
  - ◆ Others
- Broadband
  - ◆ TP/ORANGE – 34,8 %
  - ◆ CATV
  - ◆ ISP, small CATV, others
  - ◆ NETIA

TP own estimates

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## Telekomunikacja Polska

- Transformation:
  - ◆ 1947 Polish Post, Telegraph and Telephony
  - ◆ 1990 TP SA, state owned, 13,1 M fixed subscr.
  - ◆ 1998 listings in Warsaw
  - ◆ 2000 France Telecom as strategic investor
  - ◆ 2005 ORANGE rebranding for mobile
- Customers:
  - ◆ 14 M mobile tel.
  - ◆ 6 M fixed tel.
  - ◆ 2 M broadband access
  - ◆ 600 k TV
- Main factors of 2010:
  - ◆ 25 k employees
  - ◆ 15,7 bln PLN revenue
  - ◆ 5,77 bln PLN EBIDTA
- Directions:
  - ◆ New products
  - ◆ Network
  - ◆ Convergent bundles
  - ◆ Sales & Customer care
- First choice provider

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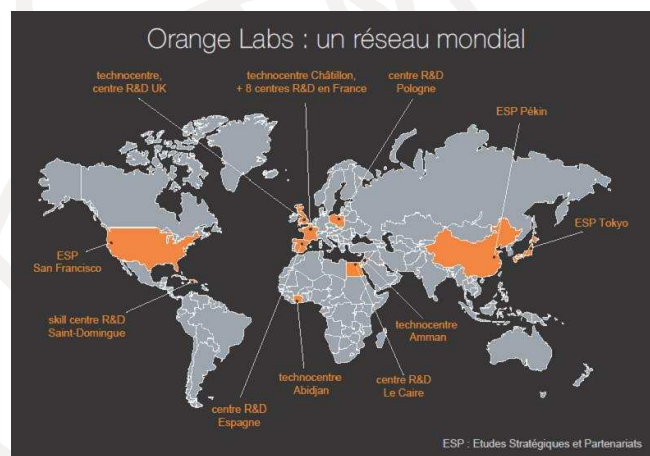
## Orange Labs Poland

- Mission to anticipate the future business and technological challenges, inspire and encourage employees and partners in innovation
- More than 400 people managing researches, development, validation and innovation processes to identify, create and prototype modern and high quality solutions for the benefit of customers

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## Orange Labs worldwide

- Orange Labs international cooperation



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## **Orange Labs goals**

- Development of innovative technologies, solutions and services
- Technical verification prior to commercial implementation
- Global validation and local integration
- Increase of effectiveness by cost optimisation and sustainable development
- Initiating of new processes and changes to successfully implement new solutions
- Maintaining operations of legacy network and services
- Prepare network to fulfill regulatory requirements
- Participation in standardisation activities

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## **Orange Labs Poland laboratories**

- Wireline access
- Wireless access
- Core network
- Core and service platforms
- Communication services
- Multimedia services
- End-user terminals and equipment
- Applications and software

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## Aspects of testing

- In the lab
  - Conformance
  - Functional
  - Interoperability
  - End-to-end
  - Performance
  - Stress/load
- In the network
  - Stability
  - Trial
- Scope
  - New hardware
  - New functionalities
  - New services
  - Non regression
- Type
  - Evaluation
  - Validation
  - Integration

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## Regulatory constraints

- Local loop unbundling (LLU)
- Wholesale line rental (WLR)
- Bitstream access (BSA)
- Reference interconnect offer (RIO)
- Legal interception
- Challenges:
  - Network interoperability
  - Equipment interoperability and compatibility
  - Variety of solutions and technical means

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## Testing process phases

- Operator Technical Requirements
- Test methodology
- Test plan
- Test cases
- Test realization
- Test report with recommendation
- Participation in implementation (opt.)
- Support for operations (opt.)

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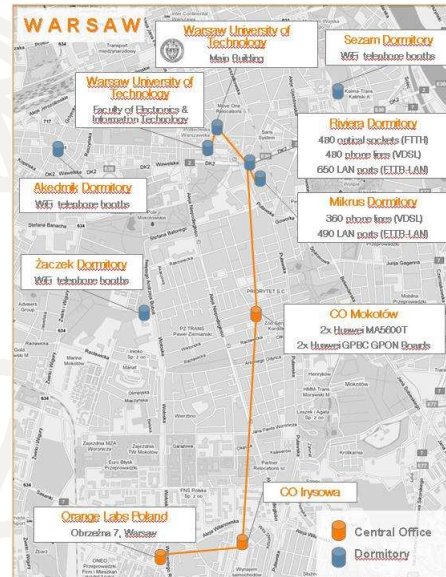
## Testing ecosystem

- Operator's r&d labs
  - ◆ Reconfigurable environment
  - ◆ Operational network replication
- Vendor's r&d labs
  - ◆ Conformance and stress tests
  - ◆ Evaluation of new solutions
- Universities
  - ◆ Common educational projects
  - ◆ Cooperation with vendors
- Scientific institutes
  - ◆ Research projects
  - ◆ New technologies and solutions

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## FUTure CAMPus

- Project with Warsaw Univ. of Technology
- FTTH+VDSL+LAN+ WiFi technologies
- 7 locations+ Orange Labs
- Over 2500 testers
- Real network and user's behaviour
- 6 campaigns in 2011 (FTTH, Orange Portal, FTTB+LAN, IPv6, WiFi booths, VDSL2)



## Monitoring

- Network versus services monitoring
  - Operator's perspective (QoS, SLA)
  - User perspective (QoE)
- Tools
  - Hardware and software probes
  - Embedded equipment functionalities
  - Software agents on endpoints
  - 3rd party solutions and own development
- External analyses
  - Regulatory audits
  - Independent labs results
  - Methods of results comparison

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Thank You 😊

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