



Mobile Solution Testing

Brand a New world

Ingénierie et Conseil en Technologies



High Tech

Mobile Solution Testing : Brand a New World

- Short introduction to Sogeti High tech
- Mobile landscape
 - ▶ Mobility changed our World
 - ▶ Enterprises mobile testing priority
 - ▶ Why mobile testing is so difficult
- Sogeti High tech Initiative in Mobile Testing
 - ▶ Mobile Testing Initiative
 - ▶ Centres of Excellences
 - ▶ World class dedicated infrastructures
 - ▶ Blue Via case



Short introduction to Sogeti High Tech

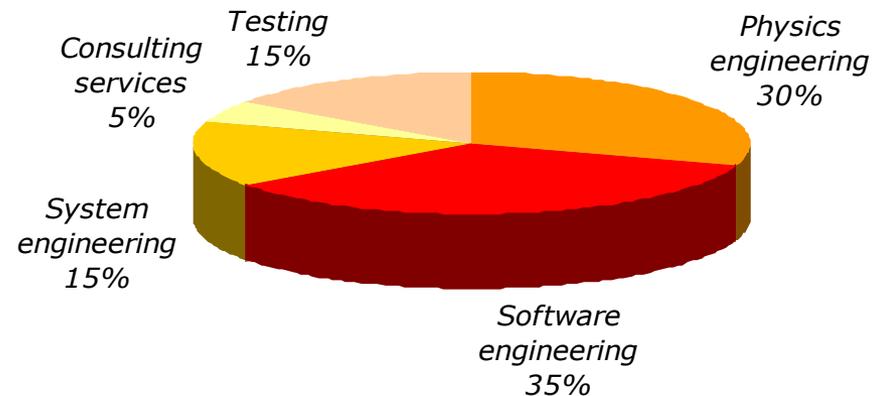
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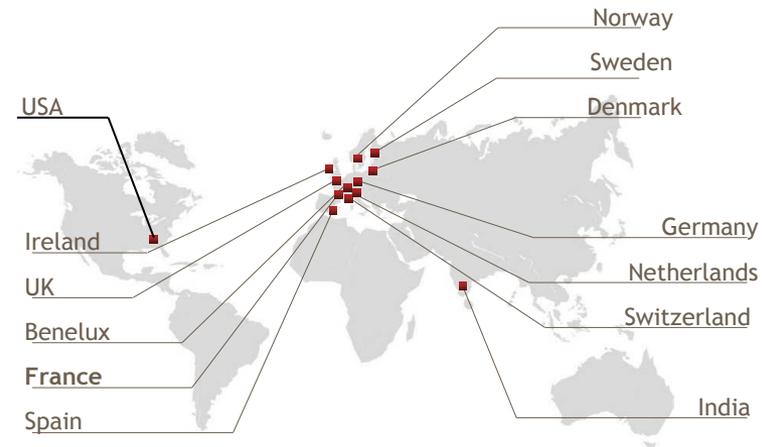
Sogeti High Tech, specialist in engineering and R&D services

- **Sogeti High Tech, leader in the Engineering and Technology Consulting services market**
 - ▶ An expertise of over 20 years to serve industrial companies
 - ▶ A community dedicated to R&D: iTech Labs
- **Sogeti : some key figures**
 - ▶ Local IT and engineering services
 - ▶ 20000 employees over the world
 - ▶ 2011 Turnover : 1,6 billion Euros
- **Subsidiary company of Capgemini group**
 - ▶ 2011 Turnover : 9,693 billion Euros
 - ▶ Global workforce: 119 707 people
 - ▶ « Cap Gemini S.A » listed on CAC 40 the Paris stock exchange

Our 5 Business lines



Sogeti located in 15 countries



Innovative industrial markets

Aeronautics



Space



Defence



Energy

Automotive



Railway



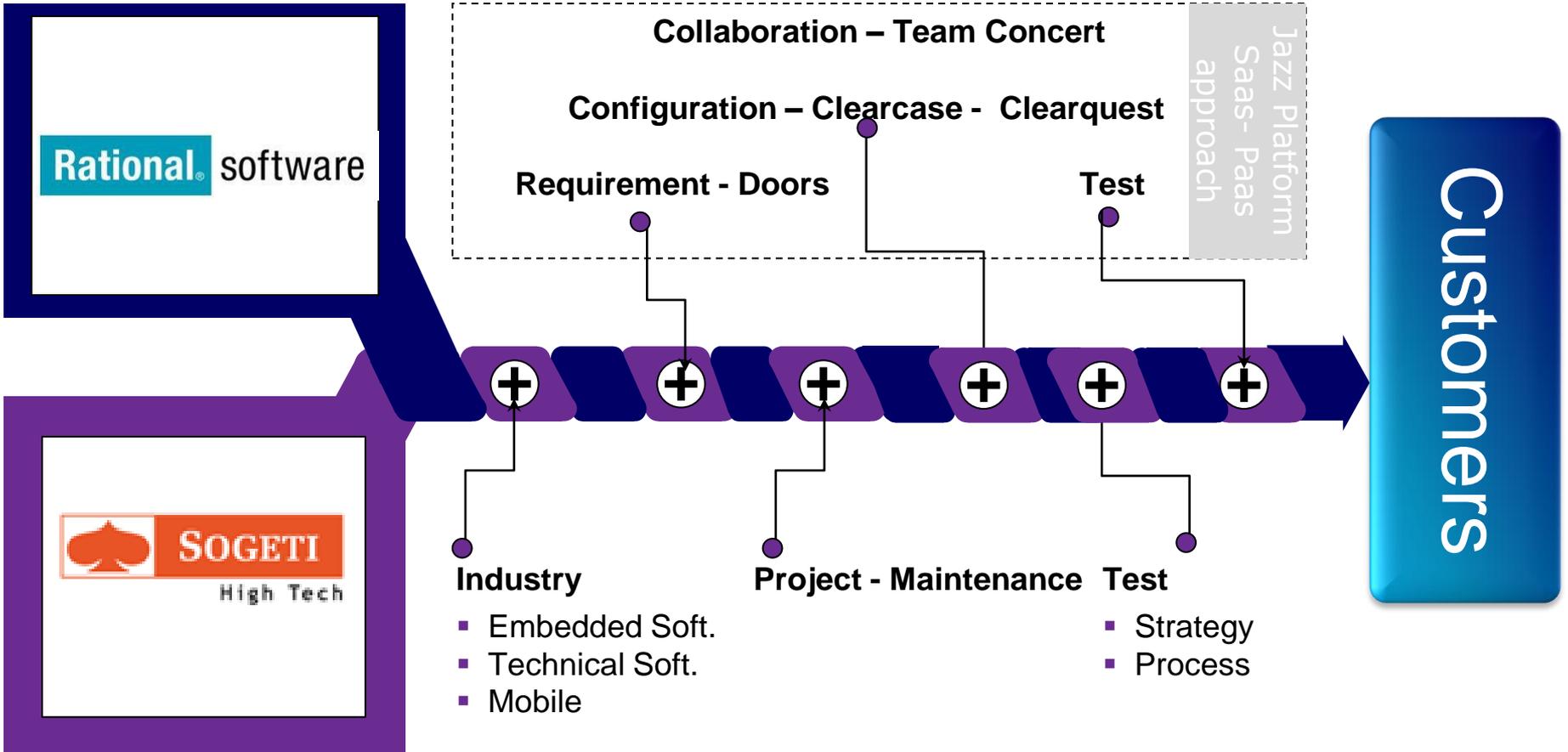
Other industries



Telecom



How can we Innovate to new challenge?



A strategic know-how in the field of Testing

- **Consulting**

- ▶ Audit of process improvement (TPI)
- ▶ Testing strategy (TMap®, TEPS methods)
- ▶ Test automation (TAKT)
- ▶ Model Based Testing (MBT), Virtual Testing

- **Implementation**

- ▶ Test plan
- ▶ Test procedure
- ▶ Instrumentalization, realization
 - Functional tests (FT)
 - Integration tests (IT)
 - Unitary tests (UT)
 - Code analysis
 - Physical testing
- ▶ Analysis
- ▶ Return on design



“Ovum ranks Capgemini group number 1 for
outsourced testing services”

- **Industrialization**

- ▶ Testing services centre, Managed Testing Services (MTS)
- ▶ Rightshore model for unitary tests
- ▶ Tests for mobile applications

Sogeti, European leader on the Testing market

Sogeti High Tech

Our added value

- Recognized methodological approach (TMap®, TEPS®)
- Software testing
- Physical testing
- Testing means





Mobile Landscape

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Mobility changed our world

- The mobile market will hit more than \$17 billion by 2015*
- Top device manufacturers heading 50M smartphones sold per quarter
- About 1M Apps
- Mobile Apps and smartphones changed our life as consumers and professionals:
 - ▶ Smartphone users: 1.08 Billion
 - ▶ 57% of corporate employees are mobile worker

Behind the figures



*Source: Forrester–Mobile App Internet Recasts The Software And Services Landscape, February 2011

Enterprises breakthrough

Enterprises are asking: "how can we extend our capacities through mobility?"

- One of Europe's largest travel operators generates 200 million Euros per year in mobile channel
- Mobile bookings reaches 15% of total bookings by the end of 2012

Source: Wall Street Journal

- Business travelers: the past 12 months, 26% of business travelers have used an app to check flight schedules, and 11% have used an app to book flights(*)
- ... mobile testing is about securing revenue streams and cost savings through verifying tangible and intangible aspects of quality

(*Source: Forrester Research)



Mobile testing, market priorities

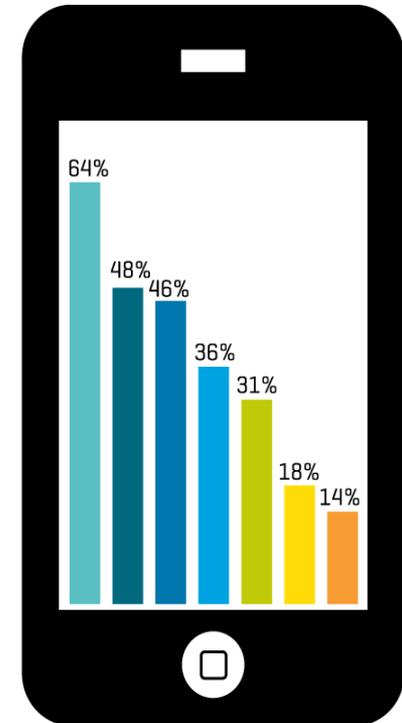
The hottest spot: efficiency of performance

WQR 2012\2013 Survey:

- Performance testing is a market priority (64% of respondents)

How to ensure App performance?

- +1 second delay: Up to 8 % of consumer stops the Apps
- 85% of users expect the mobile experience to be better than or equal to online using a laptop or desktop computer (*).

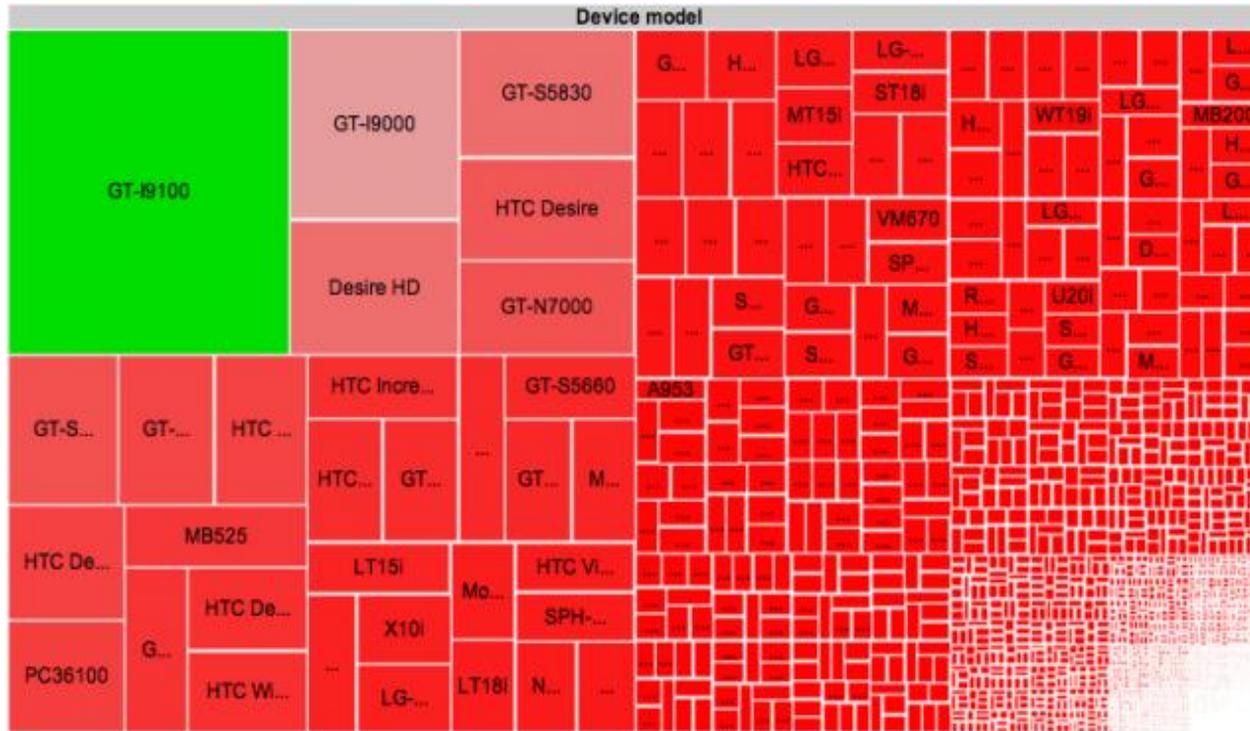


Mobile apps is "Everywhere and IMMEDIATLY"

*Source: Harris Interactive Mobile Transactions Survey, 2011

Mobile testing, market priorities

Segmentation nightmare



3,997 Models:
Android
Fragmentation

(opensignalmaps.com study, May
2012)

- 52% of firms does not have the device readily available (WQR 2012\2013)
- Firms consider portability testing almost as important as functional testing (46% vs 48%)

Mobile testing, market priorities

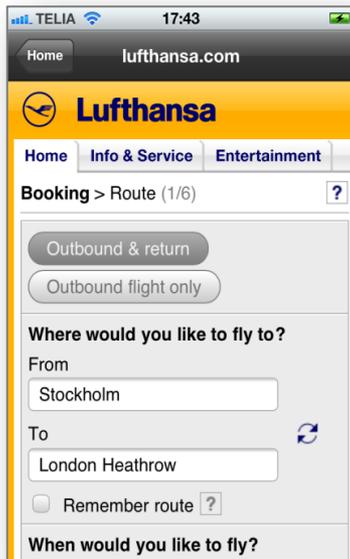
WQR Survey: User Experience is the mobile testing priority number 4 for firms.

As usual:

- Functionality
- Layout & Design
- Interaction

App's user expectation:

- UI design for mobile devices
- Distinctive
- Enjoyable

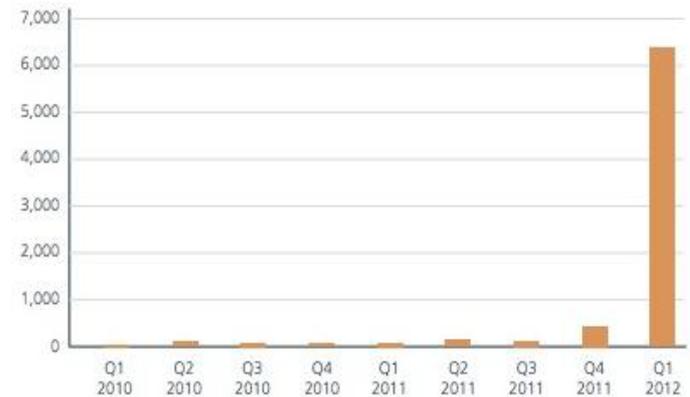


- 47% expect the mobile experience to be better than the in-store experience
- 80% expect the mobile experience to be at least as good as the in-store experience
- 85% expect the mobile experience to be better than or equal to online using a laptop or desktop computer

Mobile testing, market priorities

WQR Survey: Will Security became the first priority in 2013?

- The explosion of mobile applications presents an entirely new set of security challenges :
 - ▶ including lost or stolen devices,
 - ▶ mobile malware,
 - ▶ targeted attacks on devices



New Mobile Malware - McAfee

- Security issues
 - ▶ Confidentiality: Does your app keep your private data private?
 - ▶ Integrity: Can the data from your app be trusted and verified?
 - ▶ Authentication: Does your app verify you are who you say you are?
 - ▶ Authorization: Does your application properly limit user privileges?
 - ▶ Availability: Can an attacker take the app offline?
 - ▶ Non-Repudiation: Does your app keep records of events?

Mobile Testing, reality of the field

Why Mobile Testing is difficult?

Touching the device	New way of interacting: touch, swipe, pinch, rotate, move
Diversity in platforms, OSs and devices	Complexity of consumer products purchasing, continuous devices update, and race to innovation
Automation challenges	Sophisticated user experiences involve touch, gestures, GPS location, audio, sensors (accelerometers) and physical actions (touching the handset to NFC readers). Such interactions can't be fully scripted or simulated, and may involve manual testing on real devices
Network performance	Land network performance is matter of expertise's and of heavy investments, adding cellular network and mobile devices rises level of expertise's and investment to new skyscraper standards.
Application complexity and sophistication	At mobile age, front-ends are no more a flat display, keyboard and mouse. At mobile age, front-end are complex point of complex technology convergence: touch screen, 3D, GPS, accelerometer, NFC, Bluetooth, WiFi, multi GSM bands and generations,. Greater sophistication implies more complex testing
New OS versions often break applications	Developers have no control over when new OS versions will appear, and when or whether users will upgrade. Thus, it's common for new OS releases to break existing native applications
Bug-fix latency	Some app stores have a submission latency of one to two weeks, meaning that bugs cannot be corrected rapidly, making application quality more important

Mobile Testing, reality of the field

Why Mobile Testing is difficult?

New technology risks	Mobile is at the leading edge of new technologies, such as HTML5, that are not yet well-understood in terms of testing
Performance variations	There is a performance difference of greater than one order of magnitude across devices in the smartphone installed base. An app or HTML5 website that runs well on a top-end device may not be acceptable on a low-performance handset
Operator intervention	Operators may modify mobile Web content to optimize network performance so that desk-based testing may not show what a real-world handset user experiences
Contextual issues	Mobile applications and websites are used in a wide range of contexts, which raises many new testing challenges. Applications dealing with critical or regulated data may demand much more rigorous testing
Peripherals	Smartphones are acquiring a growing range of add-on devices, such as Bluetooth peripherals, that are generally not accessible to testing tools
Testing user opinions	Many applications will be distributed via public app stores, where user reviews and attitudes play a large part in determining whether an app is downloaded. Understanding user reactions to an app and its store collateral before it's published may be Valuable

Mobile Testing, reality of the field

Mobile tooling, important investments to be leveraged within Managed testing Services

Example

Configuration:

- 20 devices
- 4 script developers
- Capacity to use 3 devices in parallel

- Non intrusive solutions
- Scripts executed on real devices
- Devices costs not included

	Supplier A	Supplier B
Software licences	178 000 USD	21 360 USD
Hardware licences	50 000 USD	169 000 USD
Yearly total	228 000 USD	190 360 USD

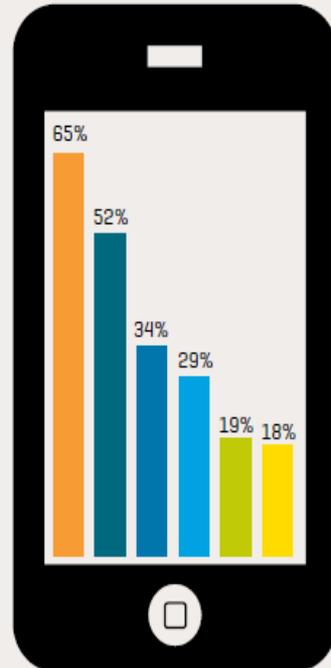
Mobile Testing, reality of the field

Mobile Testing, behind the curve

CHALLENGES TO MOBILE TESTING

FIGURE 7

- DO NOT HAVE THE RIGHT TOOLS TO TEST
- DO NOT HAVE THE DEVICES READILY AVAILABLE
- DO NOT HAVE THE RIGHT TESTING PROCESS/METHOD
- NO MOBILE TESTING EXPERTS AVAILABLE
- DO NOT HAVE IN-HOUSE TESTING ENVIRONMENT
- NOT ENOUGH TIME TO TEST



Base: 485 Respondents

70% of firms(*) experience difficulties for conducting mobile testing



(*) 70% of WQR 2012-2013 respondents



Sogeti High Tech Initiative Around Mobile Testing Solution

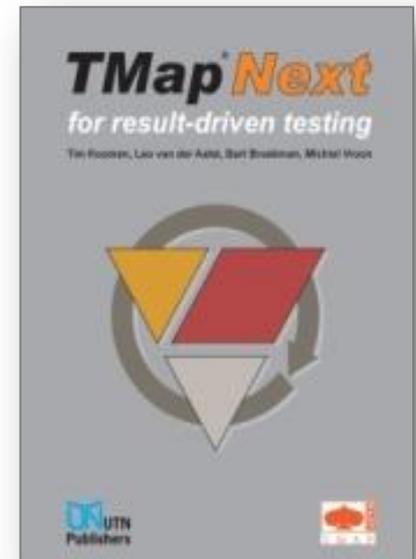
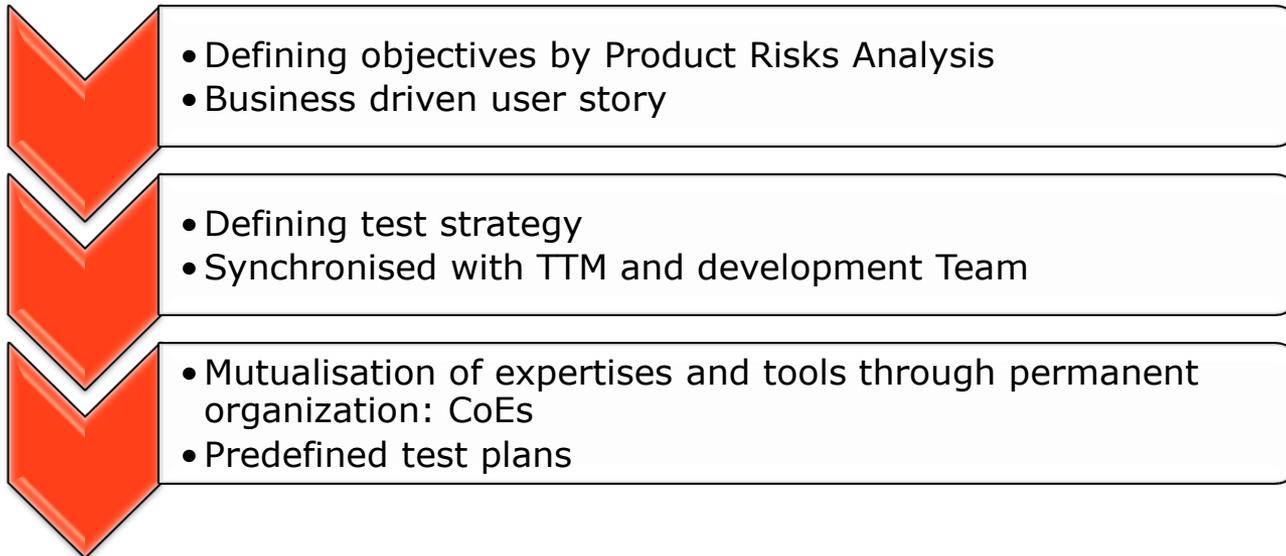
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Mobile testing, Method

We accompany your mobile journey, with method

- Mobile Testing project are managed as any other testing project
- According to Sogeti TMap Next methodology



Mobile testing, Method

Example of business drivers and factors

Business drivers	Key factors
Performance	Device only, Cellular network, Back-end, End-2-End Profiling, Number Virtual users
Functional	Services provided by the applications, devices features used by the application (GPS, accelerometer, camera, multi-touch, NFS,...)
Segmentation	Targeted audience, number of devices, targeted platforms and technologies, legacy variants, prototypes
User experience	Targeted audience, objective of the application, application of same nature already on the market

Mobile Application Testing Services

9 years of mobile testing delivery, expertises and method



- A Managed Testing Services
- Delivering TaaS
- Focused on mobile Apps testing
- Established in 2003, at Grenoble, France
- Worldwide activities

- More than 20 000 rounds of tests performed
 - ▶ Up to 350 manual tests requests per month
 - ▶ Up to 2000 unattended tests per month

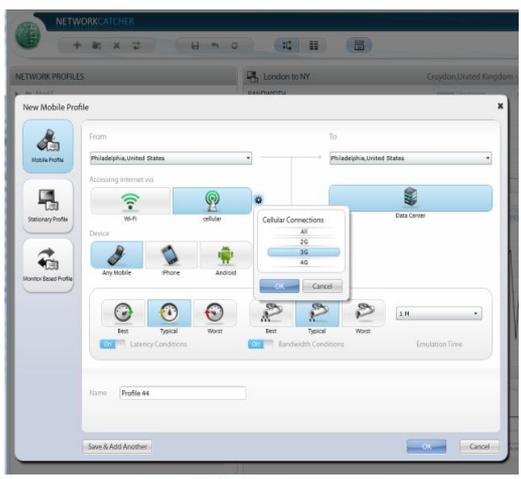
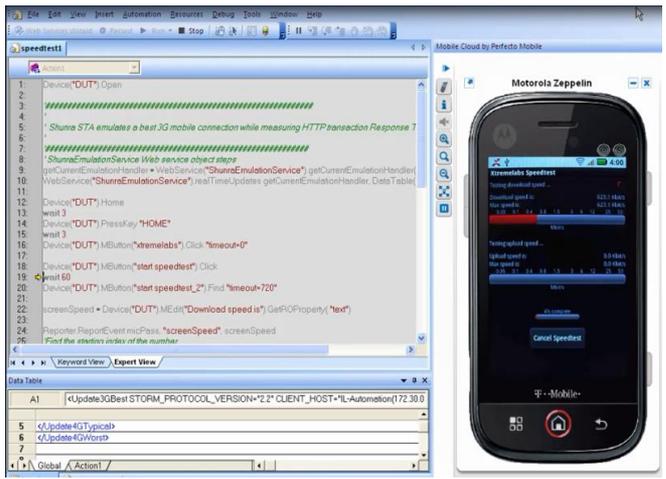
India Mobile Testing CoE

Heavy infrastructures to deliver end-to-end mobile testing



- PerfectoMobile
 - Scripting and Clouds
- Shunra
 - Performance & Emulation
- To deliver:
 - Performance tests
 - Unattended tests
- To emulate cellular network
- To access to remote devices under life network around the world
- To gather devices and tests knowledge
 - Undocumented features
 - Scripts development and executions key indicators

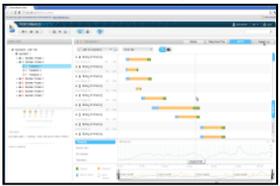
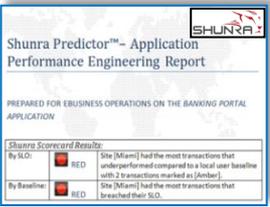
India Mobile Testing CoE



Mobile Profiling (SLA Compliance)

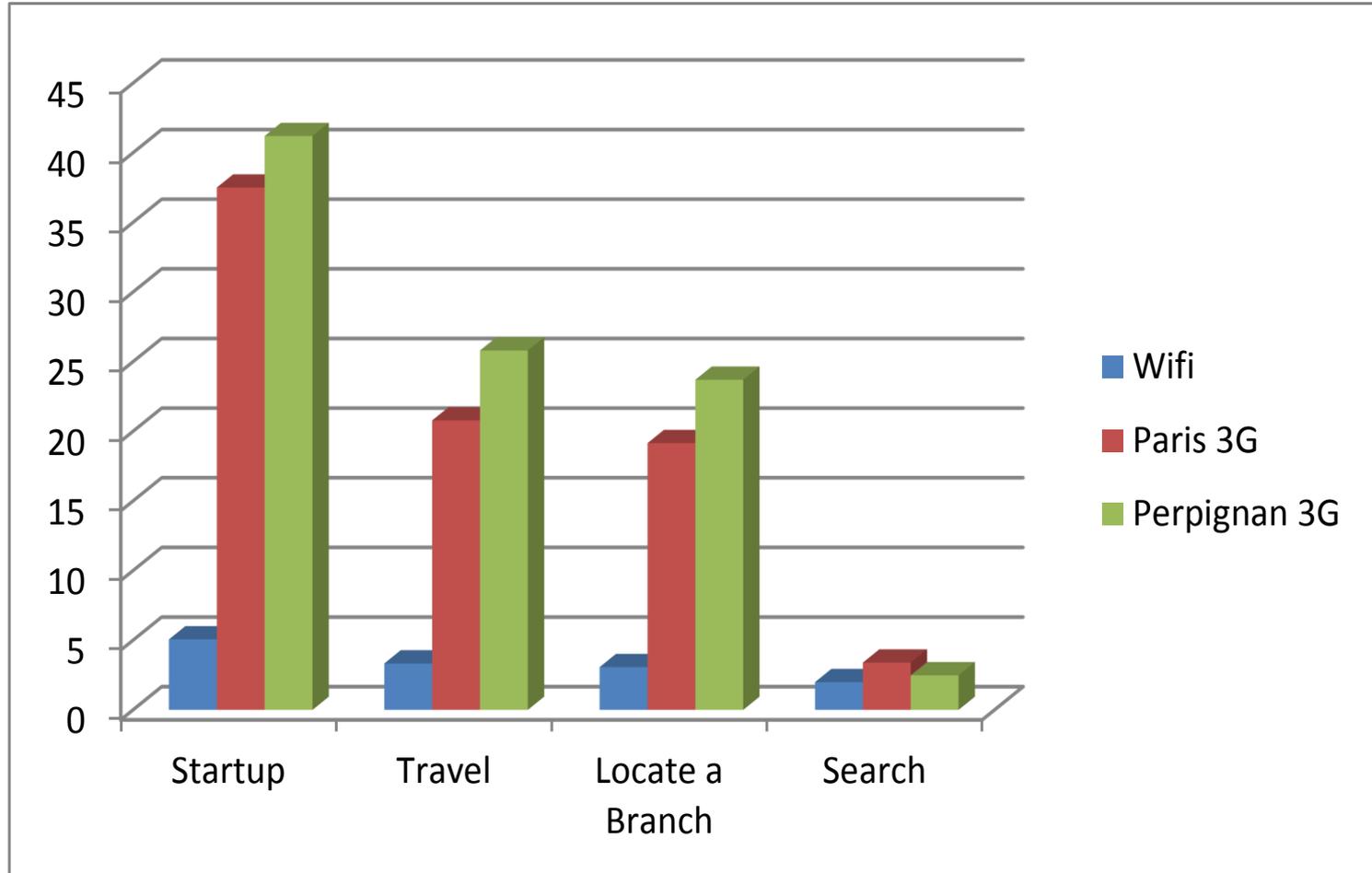
Packet Capture & Analysis

Optimization



Performance test results, user experience

Multiple user stories results



Unattended mobile testing, BlueVia case

How to test 50 000 apps per year?

Business case

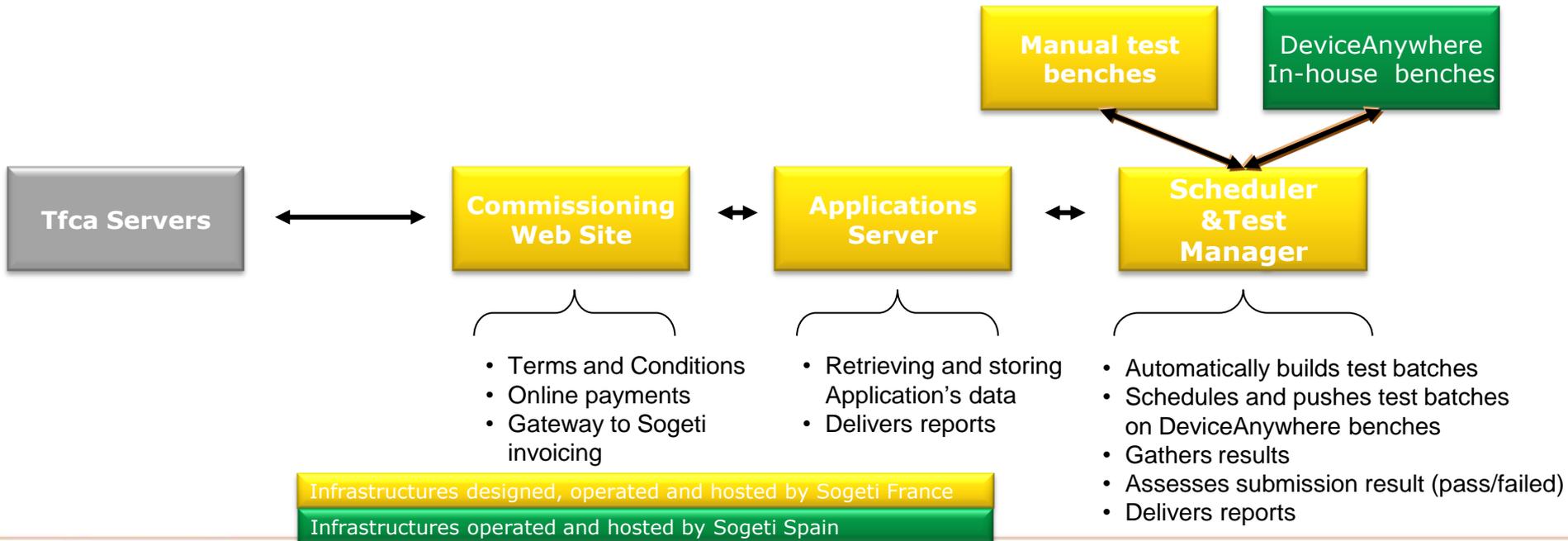
- Telefonica (200 millions customers across 25 countries)
- To test apps of all nature
- 200 000 apps to be tested within 4 years
- 130 different devices (features to smartphones, from all brands)
- Tests to be done under Tfca home network (Spain)
- To insure that
 - ▶ Tfca network is not jeopardized
 - ▶ Apps respect Tfca policies
- Testing fees should not be a showstopper for developers



Unattended mobile testing, BlueVia case

Sogeti Solution, a fully unattended TaaS

- Defining with Tfca Inputs/output
 - ▶ Defining 20 families to cover 130 devices
 - ▶ Reporting by video and results synthesis
- Designing a full unattended testing chain:



Thank you!

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