The OCTAVE platform and its possible users

The Integrated Solution of OCTAVE

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Next Generation User Authentication by Voice Biometrics?
Ready to Market!
Florence, 27 June 2017

#Cybersecurity facts

83% of financial institutions suffer over 50 attacks per month
Ponemon Institute

44% of retailers suffer over 50 attacks per month
Ponemon Institute

50% of CEOs do not feel prepared for a cyber-attack
KPMG Study

80% of CISOs feel unprepared to comply with new Data Protection Regulation
IT Governance

24% recorded increase in security budgets in 2015
PWC Survey

Rio 2016 Cyber security trends in the current market

IT security events processed during Games period

- 80M — Athens 2004
- 201M — Beijing 2008
- 255M — London 2012
- 510M — Rio 2016

Atos Worldwide IT Partner

$445B annual cost of cyber-crime
Intel Security Study

$7.7M average cost of a security breach
Ponemon Institute

718M leaked data records in 2015
IT Governance UK

36% increase in cyber-attacks targeting IoT devices
PWC Survey

205 days on average before a breach is detected
Mandiant Report

- **To integrate improved speech technology**
  - For Speaker Verification
  - Anti-spoofing
  - Optimised in t

- **Define overall TB**

> **Focused to define the elements and technologies to support the integration of various systems and components to build the TBAS platform**

  - For applicatio   n the project
  - Interface for integration of other authentication methods (multifactor) and alternative voice biometrics engines

- **Changes to existing solutions and/or to develop new features**
  - Privacy compliance, as required
  - Following best practice with reference to standards and security

Platform components

- **Three complementary systems and components**

  - **User Authentication** (UA) system and platform
    - based on the ValidSoft product **UA System**
    - provides the voice authentication platform and the mechanisms for user authentication

  - **Identity Access Management** (IAM)
    - software solution integrated in the OCTAVE system based on existing product
    - includes functionalities related to Security, Privacy and Trust (SPT) and IT (Information Technology) security domain **OCTAVE IDM**
  - OCTAVE **Identity Management** (IDM) gateway
    - acting as an intermediate layer between the UA and the Identity Access Management
    - under the umbrella of IT (Information Technology) security

Technology baseline

- **User management**
  - component which provides the interfaces **API REST**
  - interface OCTAVE IDM gateway (OIG) - User management based on CRUD functionalities (Create, Read, Update, Delete) → acting as a proxy for voice biometric authentication
- Identity Access Management / Identity management
  - Integration of **ForgeRock OpenAM** (https://forgerock.org/openam)
  - "all-in-one" open source access management solution that includes Authentication, SSO, Authorization, Federation, Entitlements, Adaptive Authentication, Strong Authentication, and Web Services Security, in a single, unified product, Mobile support out of the box with full OAuth 2.0 and OpenID Connect support
- Service and network protected access using **HTTPS** protocol (+ certificates, token mechanism)
- Reference implementation of a basic **web application** and **Android App** to login and verification of the user and sample for developers

"Privacy by design"

- **Review Privacy by Design principles**
- **How they will be applied in the context of the OCTAVE phases**
  - Design
  - Development
  - Testing
  - Acceptance/Trial
- **Set some success criteria to guarantee good practice**

Information Technology

Accountable business practice

Physical Design

Privacy by Design
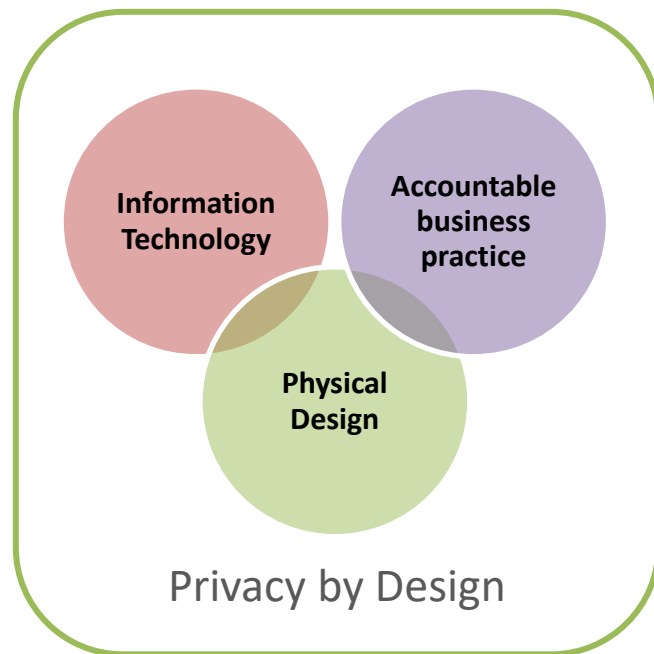
Challenges

- **Integration of speech technology enhancement faces a number of challenges → specific integration strategy**

  - **User experience**: sub second processing → CPU optimisation is a critical aspect

  - **Concurrency**/thread safe

  - Security, following **Privacy by Design** principle (e.g. no temporary data save in flat files)

  - External library dependency: encouraged to use open source solution with commercially **friendly license** (e.g. openBSD or LGPL)

  - **Quality and assurance**: validation of the biometric performance as critical part of the development life cycle

  - **Modularity**: not all steps of a biometrics processing can be isolated as an independent "pluggable" module

Main achievements

- Adopted, as a **technology baseline**, the voice **biometric UA** (User Authentication) platform provided by the OCTAVE partner **ValidSoft**

- **Integrated speech technology components** from academic partners for an advanced UA

- Designed and implemented the **TBAS as a multi-provider system chain** encompassing an **Atos-developed IDM** and the UA

- Defined an ad hoc set of **REST API for using the web services** provided by the TBAS

- Prototyped some **client applications** including GUIs (Android App, Web App) for technological and preliminary validation of the TBAS

→ **In overall: a new service platform for Service Providers to resort to user verification services on the cloud (Platform ready for Pilot)**
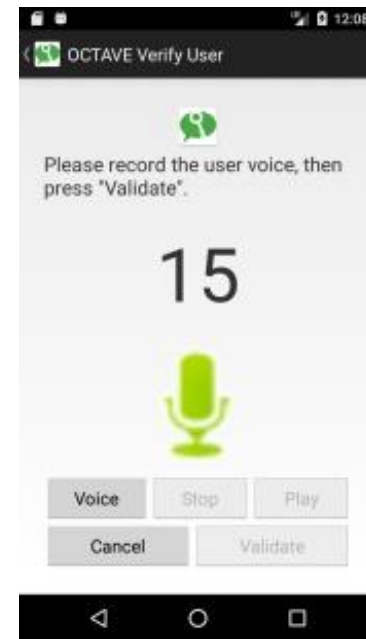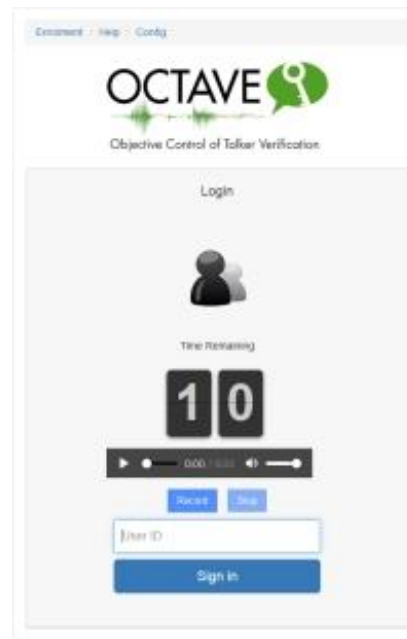
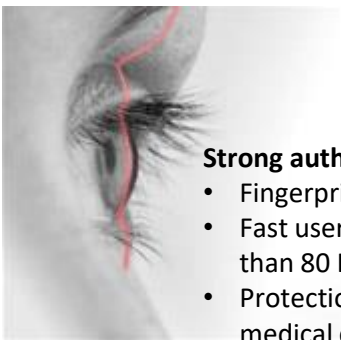Ref. https://octave-web-app.atosresearch.eu/octave-home/main.html

Atos solutions on biometrics

- Recognised security solutions and many years of experience in the field of biometrics
- Authentication and control mechanisms for high-security business applications and national security bodies

Strong authentication
- Fingerprint, Iris, Smart cards
- Fast user switching in more than 80 Hospitals
- Protection for sensitive medical data in the context of access to the clinical information system

Automated Border Control
- Homeland security suite - biometric data acquisition for eID

Biometric identity documents
- eGate - efficient and secure border crossing
- Immigration on the move

Ref. http://uk.atos.net/en-uk/home/we-do/cyber-security/biometric-authentication.html

Atos research on biometrics

- **Automated facial recognition for vehicle control at the Spanish border**

  - Facial recognition is now part of Atos license plate monitoring solution provided to Spain's Authorities

  - **CENTINELA** manages Spanish border crossing points in an automatic way

  - Analysing the information of incoming vehicles, their owners, and now, thanks to the new module, performing facial recognition and identification of vehicle occupants
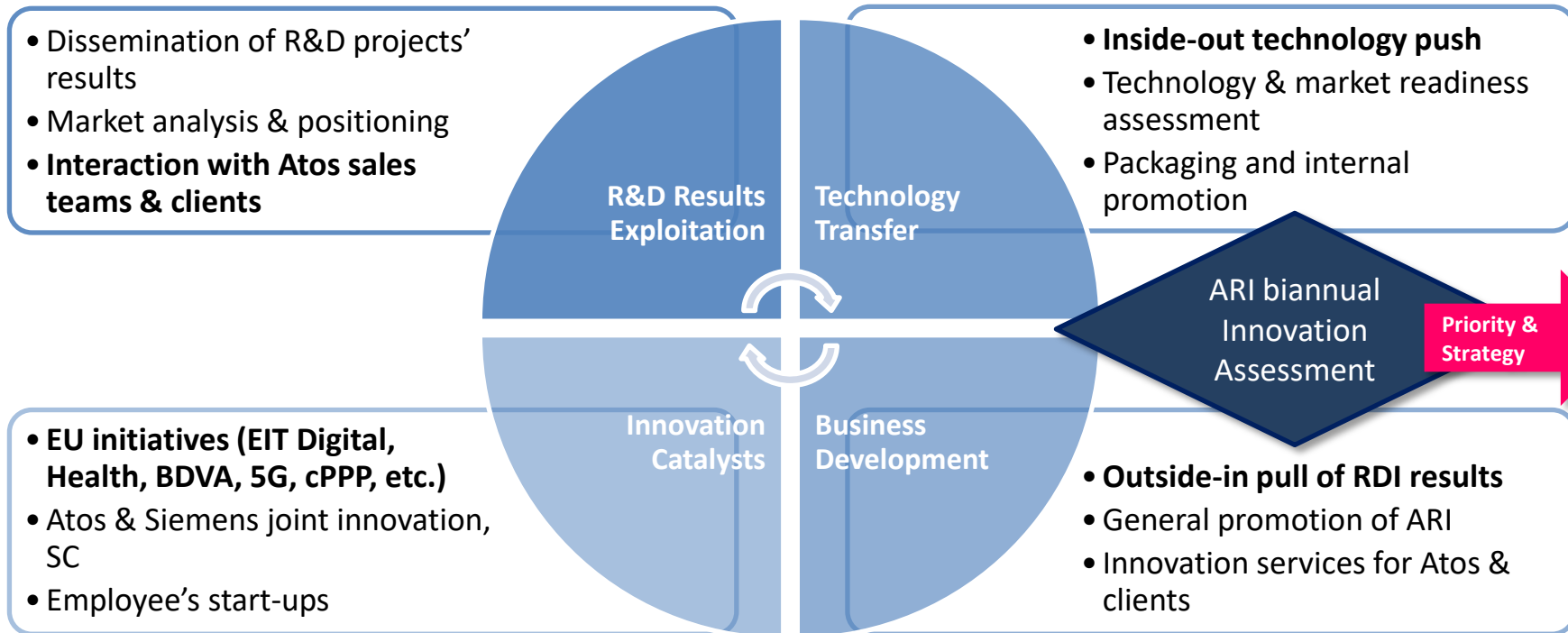
- On-going FP7-SEC project

- Automated Border Control Gates for Europe

- Multibiometric fusion (fingerprint, facial)

Ref. https://www.biometricupdate.com/201609/atos-integrates-automated-facial-recognition-into-border-control-solution
Ref. http://abc4eu.com

ARI Innovation Approach

- Dissemination of R&D projects' results
- Market analysis & positioning
- **Interaction with Atos sales teams & clients**

R&D Results Exploitation

Technology Transfer

- **Inside-out technology push**
- Technology & market readiness assessment
- Packaging and internal promotion

ARI biannual Innovation Assessment

Priority & Strategy

Innovation Catalysts

Business Development

- **EU initiatives (EIT Digital, Health, BDVA, 5G, cPPP, etc.)**
- Atos & Siemens joint innovation, SC
- Employee's start-ups

- **Outside-in pull of RDI results**
- General promotion of ARI
- Innovation services for Atos & clients

Business opportunities & Prospects for OCTAVE

- **Future application of voice biometrics in Atos business opportunities**
    - Atos Call Center: voice biometrics to identify the user and automatize frequent operations, e.g. passwords reset
    - Digital onboarding/authentication of the final customer in many sectors (health, finance, utilities) via phone using voice biometrics
    - As a services company, consulting and customization services: knowhow in integration, design and development of interfaces among different third-parties systems; web apps and android apps development for users authentication

Thanks for Your Attention

Time for questions...

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