VOICES Project - The m-Health pilot in Senegal

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• **VOIce-based Community-cEntric mobile Services** for social development
  – EU funded project (2011-2013) involving 12 partners
  – improve **access to content** and mobile ICT services by building a toolbox for the development of voice services that will be made available to African local communities and entrepreneurs as **Open Source**.
  – deliver tool support and methodology that facilitates the local creation of content in **African languages**.
  – provide a **sustainable architecture and business model** co-developed with local partners.
  – enhance **uptake** through community-building (mobile ICT training lab) that offers **education** for local partners and entrepreneurs.

• Two pilots: Agriculture and **Health**
The m-Health pilot

• Explore how disease surveillance and medical laboratory technicians training in Senegal could benefit from mobile and speech technologies

• Deploy and test mobile and speech based m-health services in Senegal to demonstrate that it is possible:
  – to strengthen the transmission of epidemiologic data from peripheral laboratories to the national health authorities
  – to enhance medical laboratory technicians skills

• Partners involved: Orange, ESMT, the Senegalese National Network of Laboratories (RNL) and Fondation Mérieux.
The m-Health pilot

- Orange
  - coordinate the pilot and provides the technical platform (Emerginov)

- ESMT: Multinational High School of Telecommunications
  - role in the project: develop the applications

- Fondation Mérieux
  - NGO whose mission is to enhance local medical capacities in developing countries to reduce the impact of infectious diseases
  - role in the project: support the RNL

- The National Network of Laboratories (RNL)
  - created by the ministry of health in partnership with Fondation Mérieux
  - collects epidemiological data from peripheral laboratories and delivers training to laboratory technicians
  - role in the project: end-user (+ laboratory technicians)
Methodology

• Field work in Senegal
  – determine end-users’ needs
  – meetings and workshops with stakeholders and end-users (laboratory technicians, RNL staff, medical doctors in health centers, the head of the disease surveillance department)
  – visits to three laboratories (two district laboratories and one regional laboratory)
  – interviews with laboratory technicians and head doctors of health centers

• Co-elaboration (with RNL and Fondation Mérieux) of four use cases
Major Outcomes

- Use case #1: Disease surveillance (current situation)

  Department of epidemiological surveillance

  Network of Laboratories

  Regional Laboratories

  District Laboratories

  Nine watched diseases: Cholera, Shigelloses, Meningitis, Tuberculosis, Malaria, Syphilis, HIV, Measles, Poliomyelitis.
**Major Outcomes**

- **Use case #1:** Disease surveillance (m-Health scenario)

  Laboratory technicians enter and send data by mobile phone (voice user interface or graphical interface)

  1. GSM
  2. Internet

  Emerginov

  RNL

  • Data transmitted daily
  • Smartphones will be provided to lab technicians for this task

  **Illustration of a voice interaction pattern**

  **Comparative testing**
Major Outcomes

• Use case #2: To enhance technicians’ skills through Quizzes

The RNL creates and bordcasts quizzes

1

Emerginov

Internet

2

GSM

Laboratory technicians receive a notification and take the quizz by dialling a phone number

3

Internet

The RNL tracks the usage of quizzes

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Major Outcomes

• Use case # 3: **Information of the Month.** To enhance technicians’ skills through the delivery of educational content.

Quaterly bulletin sent by the RNL to laboratories
Major Outcomes

• Use case # 3: **Information of the Month**. To enhance technicians’ medical knowledge through the delivery of educational content.

  The RNL creates and broadcasts an educational content

  Laboratory technicians receive a notification and listen to the content by dialling a phone number

  The RNL tracks the usage of the content
• Use case # 4: **Expert support.** To enable technicians to post questions to the RNL via a voice service. Could contribute to the development of lab technicians’ skills.

1. Laboratory technician submits a question in the form of a voice message
2. RNL treats the question
3. RNL provides an answer in the form of a voice message
4. Laboratory technician listens to the answer
Major Outcomes

• Web interface for the RNL
Conclusion and perspectives

• Usability tests of the applications (except expert assistance) conducted recently in Dakar
  – the RNL and 6 technicians found the applications useful for their activities
  – for scenarios 2 & 3: Human voice was preferred to speech synthesis
  – need to improve the usability of the applications

• Next steps
  – fine tune the applications
  – deploy and test the services with six laboratories by the end of May
  – launch the second phase of in-situ testing by July with 14 labs
  – define a “business” model that ensures long-term sustainability of the services.
  – other issues: network coverage, integration to the health systems, maintenance and upgrading of the applications, etc.
Thank you for your attention!