sucre

Improving public services and healthcare provisioning in Europe through Open Clouds: Challenges & Benefits

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Introduction

- Demand for Cloud-based services across Europe is increasing

- European Cloud and Open Source Software (OSS) communities have been working to deliver high-quality solutions that address the technical challenges

- This trend must be **further strengthened** in order to bring about financial and societal benefits to the European countries

About the SUCRE project

- **CSA-SA 318024** (started in October 2012, duration 27 months)

- Key project goals are to:

  - Investigate and suggest means for reinforcing the **adoption of Open Cloud solutions** by key stakeholders

  - Facilitate **interaction** between academia and industry as well as among industry players

  - Set up a focused **supporting mechanism** available to all EU-funded projects in the areas of Cloud computing and OSS
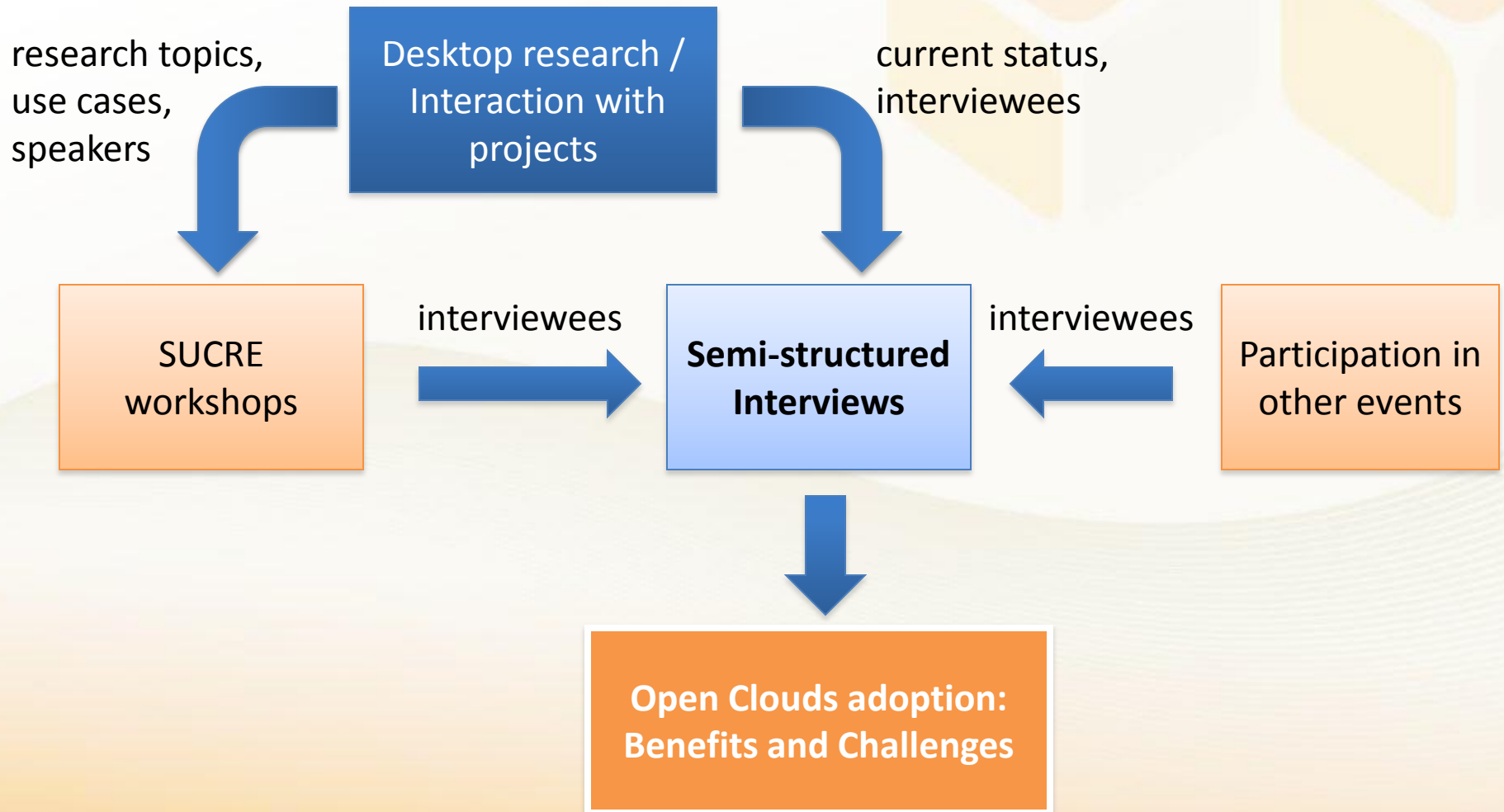
The SUCRE Consortium
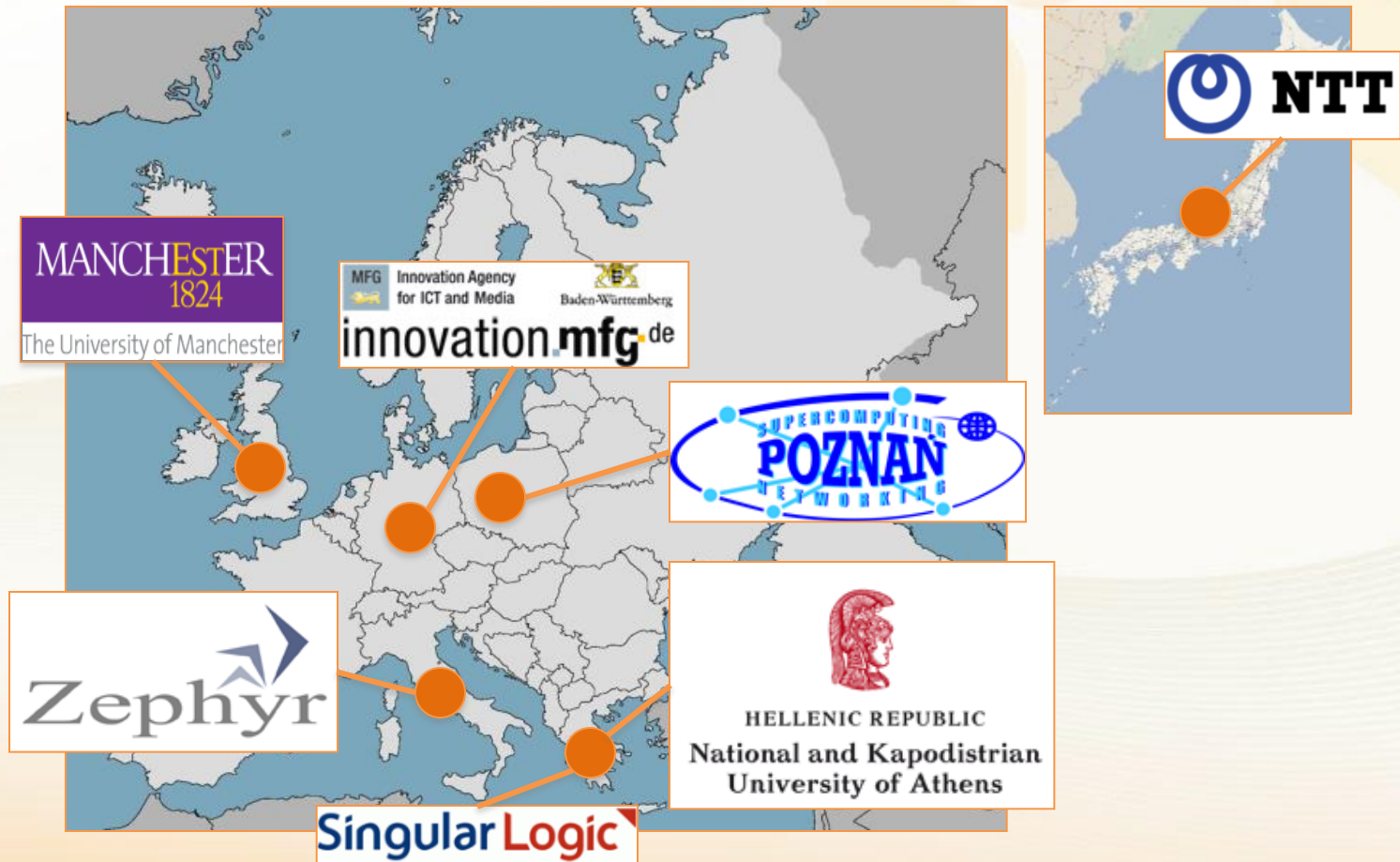
SUCRE Use Cases

- Investigate the level of adoption and usage of Open Clouds in two high-impact domains
    - Public sector (administration, ministries, education, etc.)
    - Healthcare service provisioning industry (mostly private sector)

- Objectives
    - Highlight and promote the benefits of Open Clouds for the two investigated domains
    - Identify the challenges being faced by pertinent institutions upon migration to the Cloud

Information Collection Methodology

research topics, use cases, speakers

Desktop research / Interaction with projects

current status, interviewees

SUCRE workshops

interviewees →

Semi-structured Interviews

interviewees ←

Participation in other events

Open Clouds adoption: Benefits and Challenges

SUCRE Interaction with Stakeholders

- (Co)organization of **eight events**

  - SUCRE-OCEAN workshop in Brussels during Collaboration Days 2012
  - Public Sector Workshop in Poznan at the I3 Conference 2013
  - Cloud Booth in Dublin at FIA 2013 event
  - Young Researchers Forum in Karlsruhe, Germany, 2013
  - Networking Session in Athens at Pre-FIA 2014 event
  - Healthcare Workshop in Athens at the e-Health 2014 Forum
  - SUCRE-OCEAN EU-JP Workshop in Brussels, 2014
  - OCEAN-SUCRE EU-JP Workshop in Tokyo, 2014

- Participation in **more than 15 events** since Oct 2012
  - Delivery of five SUCRE-related presentations

- **Communication** and **collaboration** with most Call 5, 8, 10 projects of the Unit

OPEN CLOUDS IN THE PUBLIC SECTOR

Information collection

- Interact with more than 15 **EU-funded projects** and **national initiatives**
    - ARTIST, OPEN-DAI, MODAClouds, PaaSage, SOCIETIES, etc.
    - Okeanos, Deutsche Wolke, G-Cloud, etc.

- SUCRE workshop
    - **Title: Open Source Clouds in the Public Sector**
    - Held in Poznan, Poland, April 17-18, 2013
    - Part of the I3 Conference (~350 participants and 40 presenters)
    - Attended by ~50 participants

- **More than 20 interviews** with pertinent stakeholders from **five countries** (Germany, Greece, Italy, Poland, UK)
    - ICT managers in public institutions
    - Cloud service providers for the public administration
    - Policy makers in the public sector

Key Benefits as Derived from Interviews

- Improved scalability

- Prompt reaction to periods of increased demand

- Reduction of management overhead costs

- Enhanced transparency of processes

- Compliance to standards and interoperability between administrations

- Enforcement of centralized control (e.g. policies, security, backup)

- Optimized usage of available IT resources

- Less data centers to be maintained and managed

Identified Challenges

- Political and financial concerns impeding the migration process

- Insufficient network infrastructure to accommodate the new Cloud ecosystem

- Sensitivity of particular services (e.g. healthcare, financial) and privacy concerns

- Limitations of legacy applications (e.g. lack of portability, interoperability)

Conclusions

- Cloud computing is essential for a variety of services provided by the public sector

- The migration of a public organization to the Cloud is not a straightforward process, while it has many legal and political angles

- The use of OSS and Open Clouds in the public sector seems ideal, as OSS requires low (or no) investment and can remedy the vendor lock-in problem

- Still, free technical support is limited and the IT staff needs to be well trained in order to set up, maintain, and manage an Open Cloud ecosystem

OPEN CLOUDS IN THE HEALTHCARE SERVICE PROVISIONING INDUSTRY

Information collection

- Interacted with more than 10 **EU-funded projects** and **national initiatives**
  - VISION, MIDAS, CELAR, MODAClouds, ClouT, PINCLOUD, etc.
  - TClouds, National Patient Data Library in Finland, etc.

- SUCRE workshop
  - **Title: Can Cloud Computing change the healthcare landscape?**
  - Held in Athens, Greece, May 2014
  - Part of the eHealth Forum
  - Attended by ~55 participants

- **Approximately 20 interviews** with pertinent stakeholders from **six countries** (Germany, Greece, Italy, Poland, Slovenia, UK)
  - ICT managers
  - Cloud vendors
  - Policy makers

Key Benefits as Derived from Interviews

- Cost savings

- Reduction of IT management overheads

- Focus on key business processes

- Provision of more efficient services to users

- Ubiquitous access to data

- Rapid development and offering of new services

Identified Challenges

- Privacy concerns

- Lack of legal frameworks to protect and guide healthcare institutions

- Lack of financial resources for initial investment (for owned Clouds)

- Poor network connectivity

- Resistance to change

- Lack of strategy

- Delays due to involvement of the entire management structure (especially in the case of public healthcare organizations)
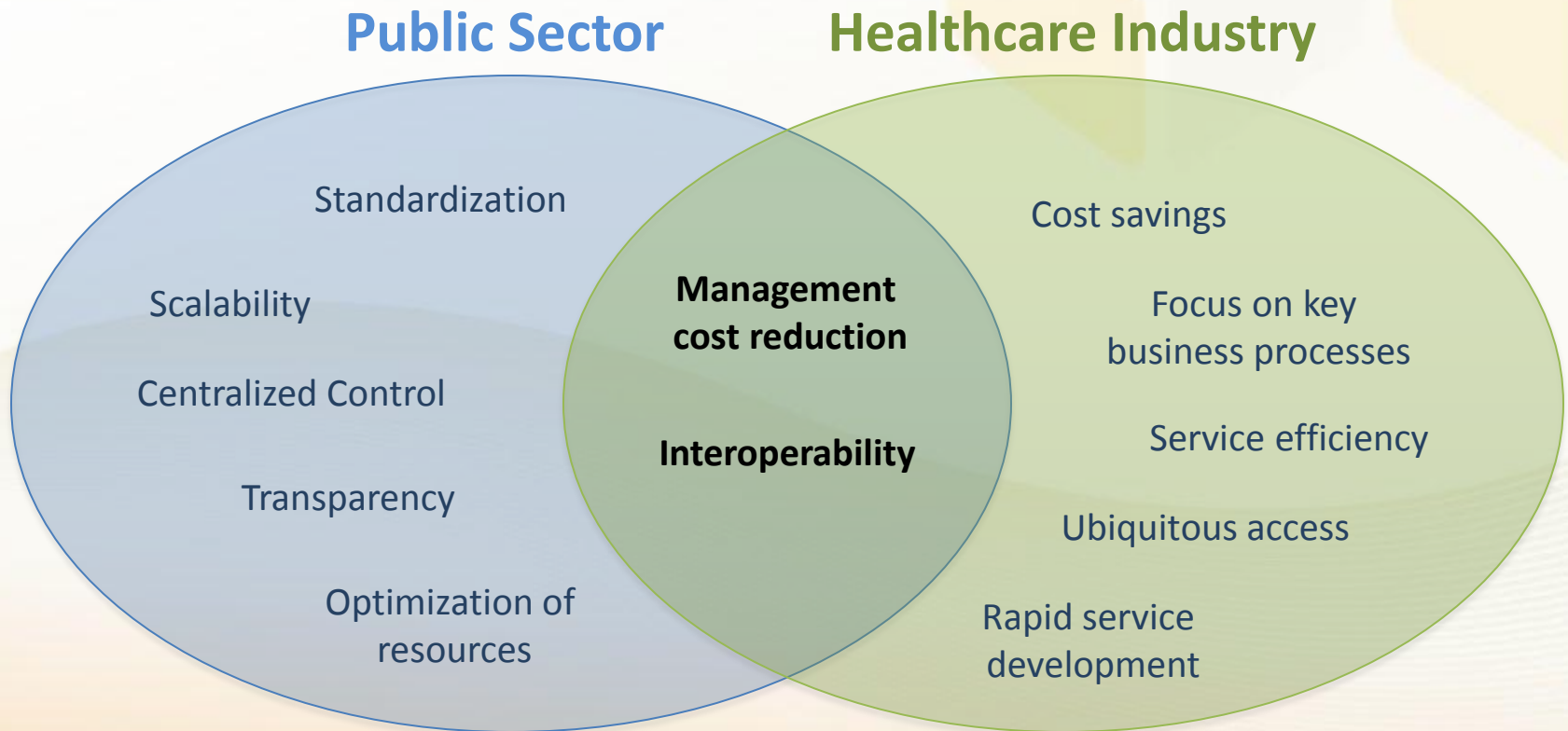
Conclusions

- A variety of Cloud services for the Healthcare domain are already in the market, and the technical know-how in general exists

- Stakeholders have a positive attitude towards the adoption of Cloud technology, and acknowledge the many benefits it brings about

- Privacy of patient data and the subsequent legal issues are the most important reasons why stakeholders in the domain are reluctant on the adoption of Open Clouds

GENERAL CONCLUSIONS

Open Clouds: Common benefits for the two domains

Public Sector

Healthcare Industry

Standardization

Scalability

Centralized Control

Transparency

Optimization of resources

Management cost reduction

Interoperability

Cost savings

Focus on key business processes

Service efficiency

Ubiquitous access

Rapid service development

Open Clouds: Common challenges for the two domains

Public Sector

Healthcare Industry

Limitations of
legacy apps

Political concerns

Privacy issues

Financial concerns

**Insufficient network
connectivity**

Lack of legal
framework

Resistance to change

Lack of overall
strategy

Delays in decision
making process
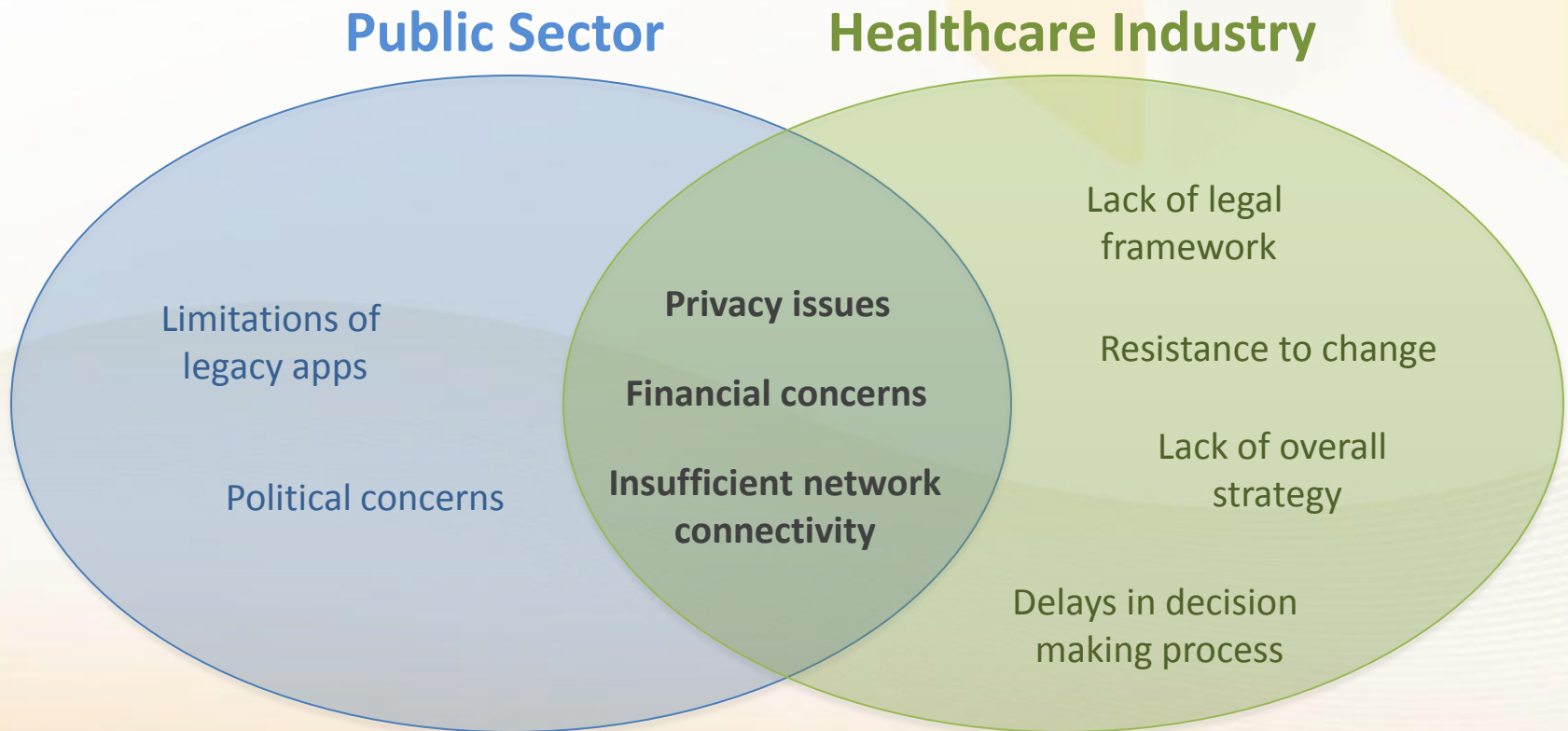
Adoption of Open Clouds in Europe

- Transition of public services and healthcare solutions to the Cloud is indeed happening, though **at a slower pace** than expected

- Progress is **not the same** across all countries in the EU
  - Infrastructure, legal, and political aspects are the main reasons for such differentiation

- There is a **need for common, integrated EU policies** for:
  - Raising awareness of Open Clouds in Europe
  - Addressing legal issues
  - Certification of available Cloud solutions
  - Standardization of the migration procedures

Recommendations for speeding up the adoption

- Additional effort should be put to the following:

  - Educate decision makers and potential users on the merits of Cloud computing

  - Formulate more adequate legal frameworks, both at national and European level

  - Set up a common certification policy and framework to overcome inconsistent regulations and help establishing a pan-European market of Cloud services

  - Standardize adoption methods through success stories and migration guides

SUCRE Video on Cloud Adoption in the Healthcare Industry

- https://www.youtube.com/watch?v=-KNk-y0j8ao

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