



# European Cloud Computing Strategy

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# What is at stake?



## Cloud as a growth engine

### Boost GDP :

- €940 bn cumulative impact for 2015-2020
- €250bn in 2020

### Boosts productivity and efficiency:

- Up to 90% of cost savings for public administrations and private companies

### Business creation:

- 400.000 new SMEs

### Potential for job creation:

- 3.8 million cloud-related jobs



## Political Recognition of Cloud's Importance:

### European Council Conclusions: 24/25 October 2013

*"Several strategic technologies such as **Big Data and Cloud Computing** are important enablers for **productivity and better services**.*

*Cloud computing should improve access to data and simplify their sharing. Big Data aims to process, collect, store and analyse large amounts of data.*

*EU action should provide the **right framework conditions** for a single market for Big Data and Cloud computing, in particular by promoting **high standards** for secure, high-quality and reliable cloud services.*

*The **European Commission and the Member States**, with the support of the **"European Cloud Partnership"**, should continue to make every effort to put Europe at the **forefront of cloud adoption**.*

*The European Council calls for the establishment of a strong **network of national digital coordinators** which could play a **strategic role in Cloud, Big Data and Open Data** development."*

[http://www.consilium.europa.eu/uedocs/cms\\_data/docs/pressdata/en/ec/139197.pdf](http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/139197.pdf)

# Almost all users see cost savings (2012)

European  
Commission



# But.... Need for Trust, Regulatory Certainty and Openness

European  
Commission

**Legal  
jurisdiction**



Where does legal  
jurisdiction of  
the service  
reside?  
And jurisdiction  
of the data?  
I don't want any  
of my data being  
hosted in the  
US...

**Security and  
data protection**



Who protects my  
data?  
Who backs it  
up?  
Security  
breaches?  
Who is  
responsible  
when something  
goes wrong?

**Trust**



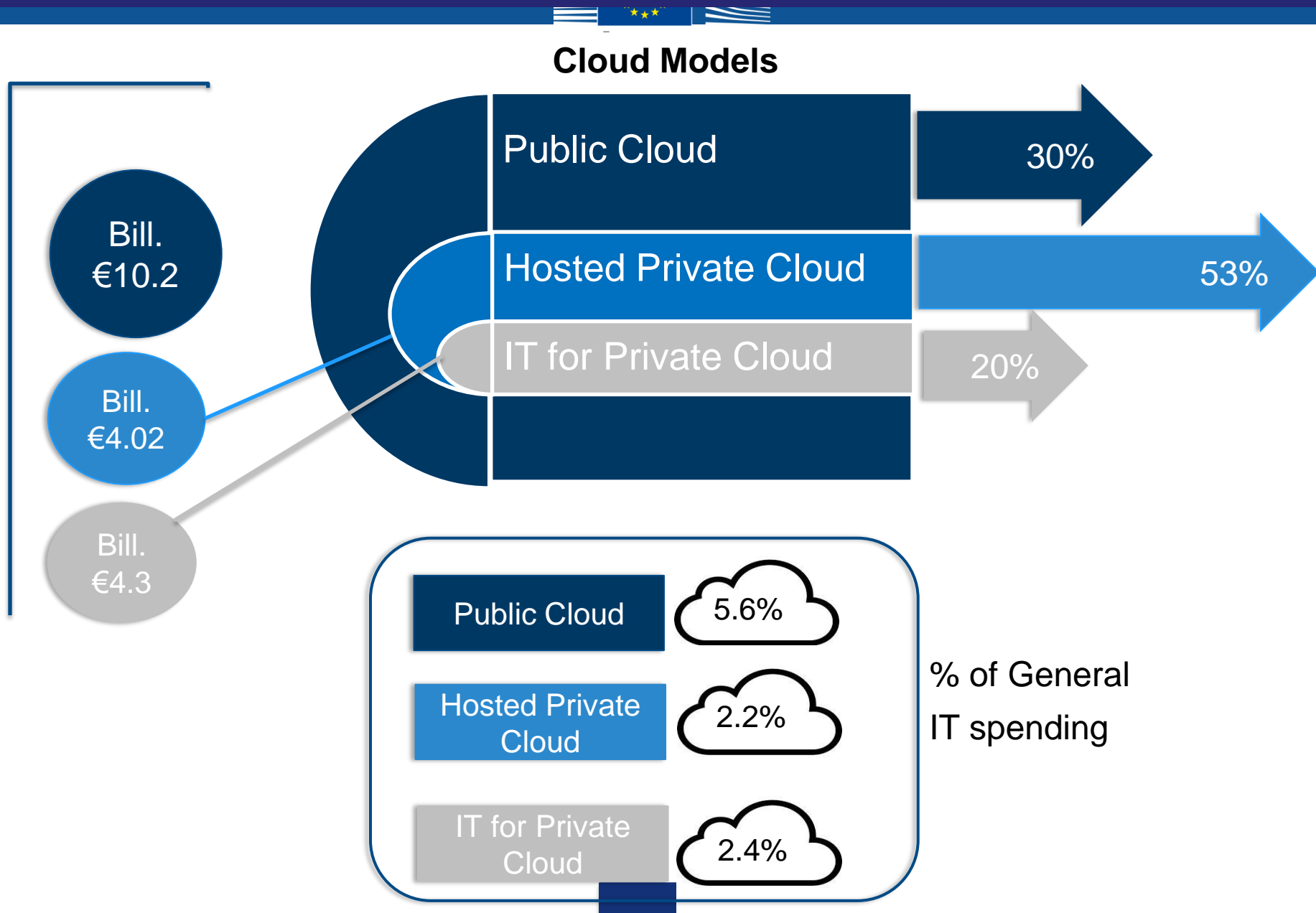
How do I tell  
which services  
are  
trustworthy?  
Who  
guarantees the  
data integrity?  
Availability?

**Data Access  
and Portability**



Can we  
interoperate  
with other  
systems?  
Can we move  
from one  
service to  
another?

# IDC Western European Cloud Forecast 2014



## The Cloud Computing Strategy

The European Commission's strategy 'Unleashing the potential of cloud computing in Europe'

Adopted on 27 September 2012, it is designed to speed up and increase the use of cloud computing across the economy

## Cloud strategy's key actions

Cutting through the jungle of **technical** standards

Development of model 'safe and fair' contract terms and conditions

A European Cloud Partnership to drive innovation and growth from the public sector.

## Groups working on implementing the strategy

ETSI: Cloud Standards Coordination

Launched on 4-5/12/2012

The Cloud Select Industry Group on Certification Schemes

Launched on 21/02/2013

The Cloud Select Industry Group on Code of Conduct

Launched on 10/04/2013

The Cloud Select Industry Group on Service Level Agreements

Launched on 21/02/2013

The Cloud Computing Contract Group

Launched on 19/11/2013

Steering Board

Launched on 19/11/2012

The European Cloud Partnership

Cloud for Europe

To be launched in 11/ 2013

# European Cloud Computing Strategy

- Identification of relevant standards (ETSI) for security, service level agreements(SLAs) and interoperability (Dec 13)
- Objective catalogue of security certification schemes (ENISA) (Feb 2014)
- Commitments to adhere to Data Protection rules (Code of Conduct) (Feb 2014)
- European Cloud Partnership Vision Paper (March 2014)
- Common terminology and metrics for SLAs and contract terms (Mid 2014)





# Key action 1-1



## ETSI CSC - Main conclusions

NO  
Jungle of  
Standards

Enough  
Standards  
to start with

Despite new  
standards  
coming,  
some gaps  
identified

Foster  
collaboration  
to ensure no  
fragmentatio  
n happens

## Cloud-CERT Solutions - ENISA

- **Listing certification schemes**
  - Objective list of security certification schemes related to cloud
  - <https://resilience.enisa.europa.eu/cloud-computing-certification>
  - Who governs the scheme, who audits, what is the standard
  - A process for adding/updating schemes
- **Meta-framework to be developed by ENISA**
  - High level security objectives
  - Detailed auditable security measures
  - Security measures divided in levels
  - Mapping to existing schemes
  - Close collaboration with CERT-SIG
  - First draft due mid 2014

## Cloud Computing Certification

### Cloud Certification Schemes List - CCSL

Welcome to the Cloud Certification Schemes List (CCSL) - a listing of different certification schemes for cloud computing customers, developed and maintained by ENISA in tight collaboration with the European Commission and the private sector (see below).

#### What is a cloud certification scheme?

Before buying a cloud service, customers want to know if the service is secure and reliable. But cloud computing services are complex and built up from many different ICT components (cables, large data centers, software, et cetera), so it is not really feasible for customers to check all the technical details by themselves. In a cloud certification scheme one fixed set of security requirements is checked, once for all customers. In this way a certification can simplify the procurement of cloud services by customers.

#### How to use this list?

CCSL gives an overview of the different existing certification schemes which could be relevant for cloud computing customers. CCSL also shows which are the main characteristics of each certification scheme. For example, which are the underlying standards, who can perform the certifications, who audits the cloud services. CCSL also provides links and references to each certification schemes for further reading.



[Background Work](#)

[Tool Manual](#)

[Cloud Certification List](#)

[Login \(for partners\)](#)

Click on the icons of each certification scheme below, to view the characteristics of each scheme. Note that in the future more schemes may get listed here.



ISO 27001 Certification



Open Certification Framework



EuroCloud Star audit



TUV Certified Cloud Service

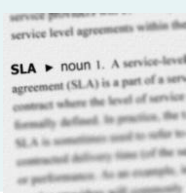
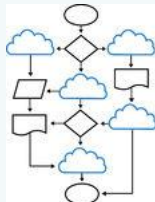



Security Rating Guide

# Key action 2-1



## SLAs: Creating A Common Vocabulary of Understanding

Purchaser's Dilemma	SIG SLA Support	
"Cloud Contracts are not comparable and use different definitions"	Template SLAs and Terms and Conditions	 A snippet of text defining a service level agreement (SLA). It states: "service level agreements within the SLA ► noun 1. A service-level agreement (SLA) is a part of a service contract where the level of service formally defined. In practice, the SLA is sometimes used to refer to contractual delivery times and the service performance. For example, a service provider will commonly..."
"I don't know which Cloud Delivery Options are right for my specific need"	Cloud Decision Flowchart	 A flowchart illustrating the decision-making process for cloud delivery options. It starts with a cloud icon, leading to a diamond-shaped decision node. From there, it branches into two paths: one leading to a cloud icon and another to a document icon. Both paths converge and lead to another diamond-shaped decision node, which then leads to a final cloud icon.
"I don't know if I have considered the most important aspects for this contract"	Cloud Contract Checklist	 A checklist for cloud contracts, organized into several sections with headings like "Service Level", "Data Protection", "Security", "Compliance", and "Other". Each section contains a list of items to be checked, with checkboxes provided for each item.



## Code of Conduct on DP: Background

- Directive 95/46/EC art 27 encourages adoption of codes of conduct and their endorsement by art 29 Working Party
- EC Cloud Computing Strategy of 29-09-2012

“Work with industry to agree a code of conduct for cloud computing providers to support a uniform application of data protection rules which may be submitted to the Article 29 Working Party for endorsement in order to ensure legal certainty and coherence between the code of conduct and EU law.”



## Data Protection Code of Conduct

- Code of Conduct Working Group  
Launched 10 April 2013  
Cloud Select Industry Group  
DG JUST & DG Connect Co-Chair
- Work progress
  - Code for data processors (B2B)
  - Draft sent to WP29 end February 2014
  - Aim for endorsement before end of this Commission
  - Working on governance structure to put into practice

# European Cloud Partnership

## Steering Board:

## Trusted Cloud Europe Report Consultation - March 2014



### Action: Identifying and creating best practices

Standards /  
Security

Code of Conduct

Fair Contracts

SLA

Including: support for cross border  
recognition of best practices

Encouraging  
voluntary  
adoption

Supporting  
self-  
certification

Supporting  
third party  
certification

### Action: Consensus building

Between  
industry  
bodies

Between  
citizens

Between  
Member  
States

Through consultation, workshops, studies,  
working groups

In order to better understand  
requirements for use cases

Data type  
requirements

Service type  
requirements

Need for  
enforcement

### Expected results:

Alignment of policies

Alignment of legislation

Pilots

### And ultimately: functioning Single Market:

Common  
understanding of use  
cases

Common  
understanding of  
requirements

Common application of  
best practices

# Key action 3-2



## Cloud-for-Europe

PREPARE PUBLIC SECTOR PROCUREMENT OF  
SECURE, RELIABLE, COST-EFFECTIVE CC SERVICES AVOIDING LOCK-IN

- Funded FP7 RTD programme (10m€ CSA/PCP).
- Umbrella initiative: builds on national initiatives
- Inclusive: (CSA) all interested countries can take part consultation, awareness raising, training.
- Cooperation public sector & industry (pre-commercial procurement)
- Industry briefing at CloudSecure2014 (Amsterdam) 31/3/14
- Further details: project coordinator Fraunhofer FOKUS ([linda.strick@fokus.fraunhofer.de](mailto:linda.strick@fokus.fraunhofer.de))



# What about research and innovation?

COM(2012)529 of 27 September 2012:

*- Make full use of other instruments, notably through **research and development** support under **Horizon 2020** on long term challenges specific to cloud computing as well as assisting the migration to cloud-based solutions*

Current status: significant resources allocated to support **cloud computing** research and innovation within the **H2020 LEIT ICT WP2014-2015**

Additional possibilities: under **Societal Challenges** and through other instruments e.g. **SME Instrument**



## FP7 ICT Work Programmes

**WP 2007-2008** (Call 1): Service and Software Architectures, Infrastructures and Engineering: €120 million

**WP 2009-2010** (Call 5): Internet of Services, Software and Virtualisation: €110 million

**WP 2011-2012** (Call 8): Cloud Computing, Internet of Services and Advanced Software Engineering: €70.0 million

**WP 2013** (Call 10): Software Engineering, Services and Cloud Computing: €41.5 million

**Total:** 94 projects (19 IPs, 1 NoE, 59 STREPs & 15 CSAs);  
Average size : €3.6 million/project

**Total EC funding** over 7 years for Software & Services and Cloud Computing: €341.5 million + parts of the Future Internet PPP

**Average EU budget: more than €50 million per year**

- 10 out of 12 research projects from FP7 Call 10 focused on cloud computing
- Research priorities have adapted to the fast evolution of cloud computing and related services

