

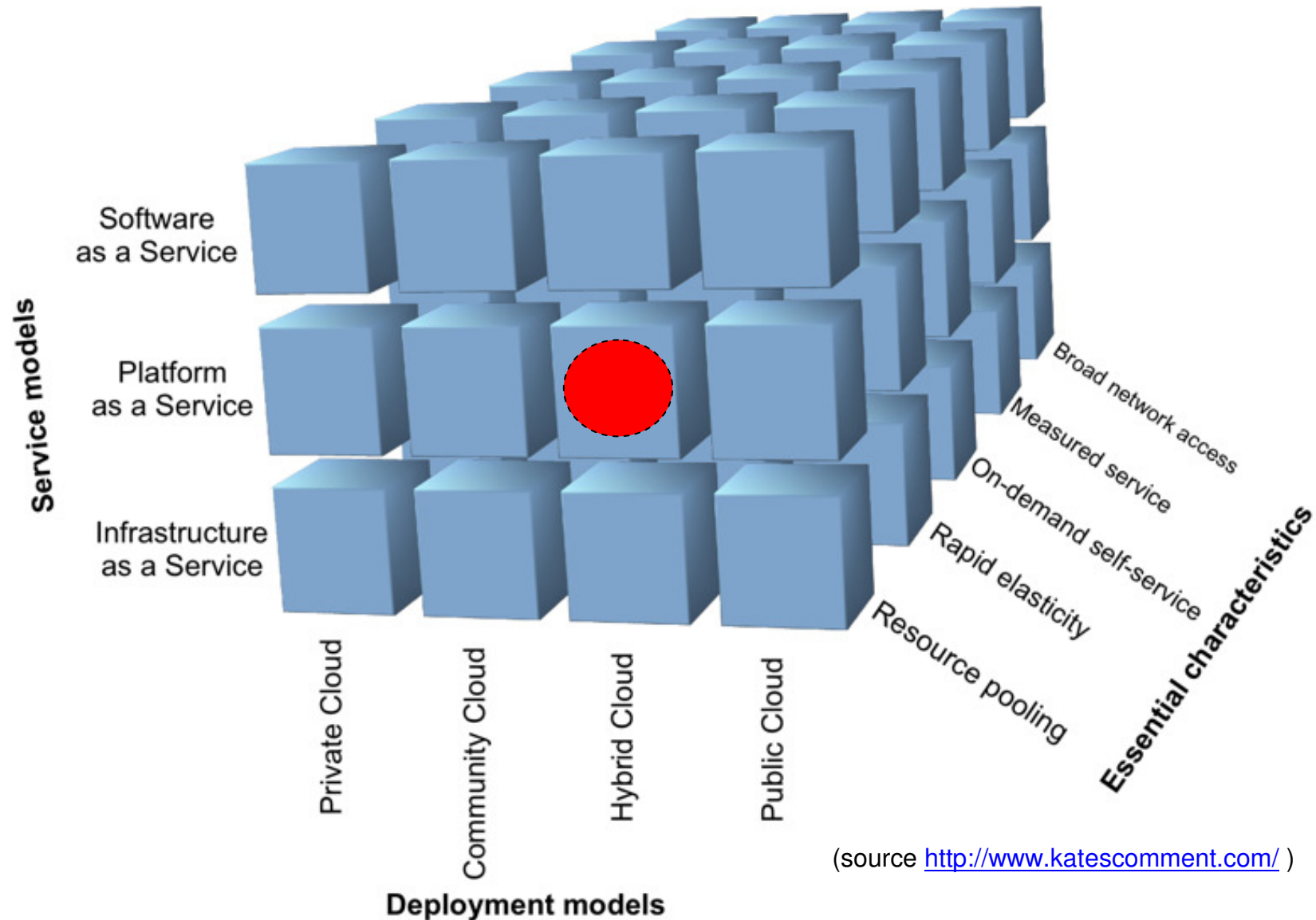
# VENUS-C

## Sustainability perspectives for Scientific Clouds

Andrea Manieri  
VENUS-C Project Director



# The cloud def. in one picture



# SWOT for e-Science

## Strengths:

- Suitable for research loads
  - (peaks, not continuity)
- Efficiency in service provisioning
- Easy to use
- Focus on scientific applications not  
-In ICT

## Weakness

- Service reliability/SLA
- Data confidentiality
- Tailored contracts
- Jurisdiction issues

## Opportunities

- Speed-up the research,
  - hence innovation
- Reduce up-front investment
- Improving data sharing
- Enhancing experiment  
• reproducibility

## Threats

- Data and apps lock-in
- Cost in migrating to clouds
- Auditability for PA

# The (changing) Legal and Economic framework

- EU Digital Agenda 2020
  - Content and applications delivered on-line
  - Disruptive role of Cloud Computing
- Identification of enablers and (removal) of barriers of cloud adoption
  - Updates of Directive(s) on Privacy and Service provision
  - Harmonisation of Member States adoption of Directives



# VENUS-C usages and business models

Research Institution

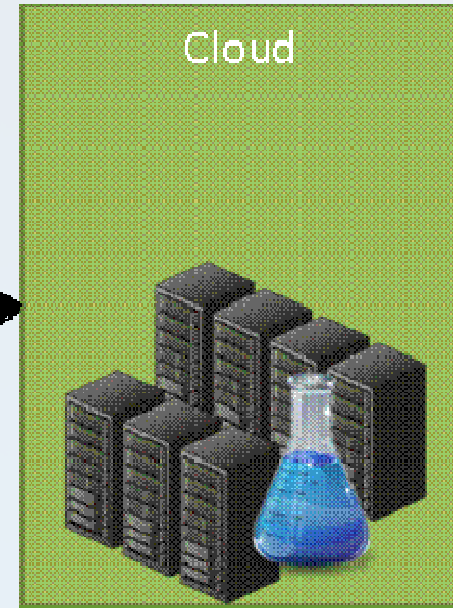
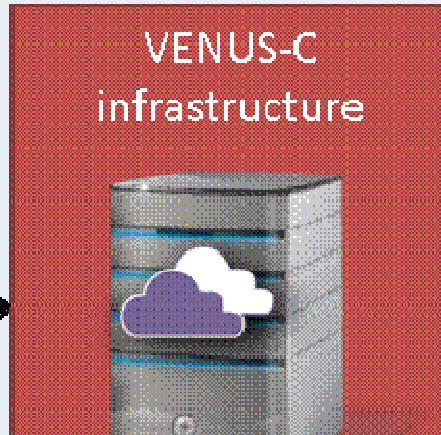
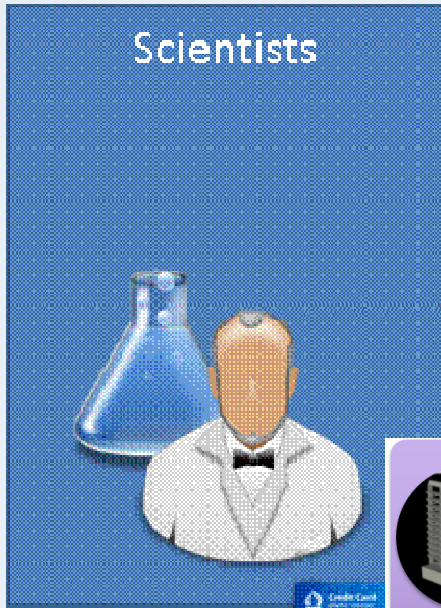
Service Provider


Cloud Provider

Scientists

VENUS-C infrastructure

Cloud



- 

T5.1  
Structural Analysis for Civil Engineering
- 

T5.3  
Data for Science - AquaMaps
- 

T5.4  
Civil Protection and Emergencies
- 

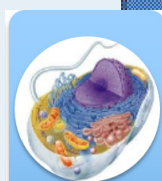
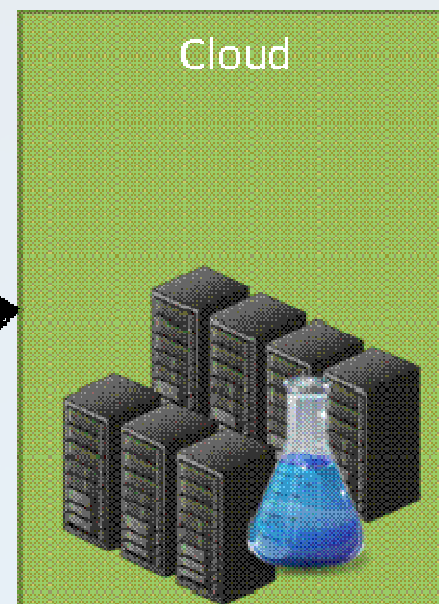
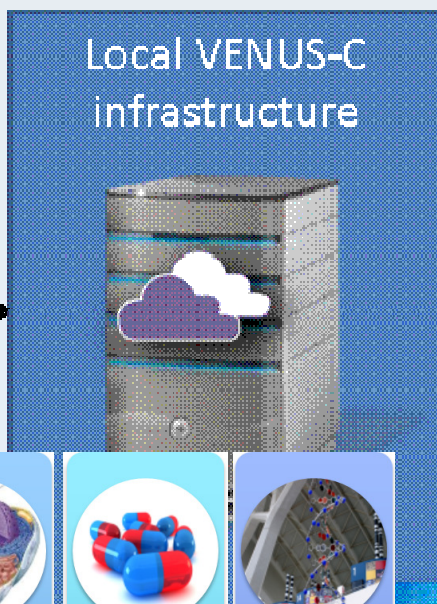
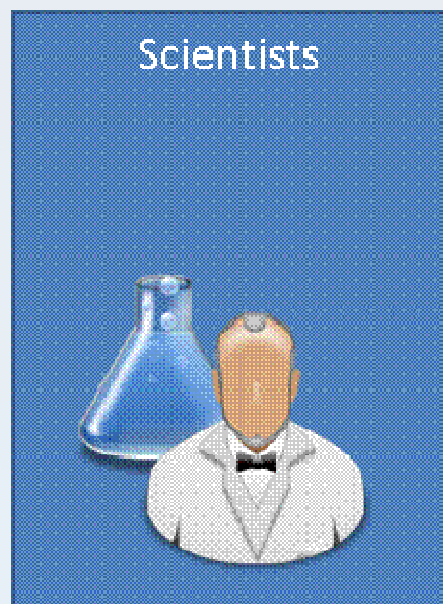
T5.2  
Building Information Management

Courtesy by Christian Geuer-Pollmann (EMIC)

# VENUS-C usages and business models

Research Institution

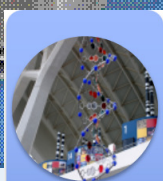
Cloud Provider



T5.6  
System  
Biology



T5.7  
Drug  
Discovery



T5.5  
Bioinformatics

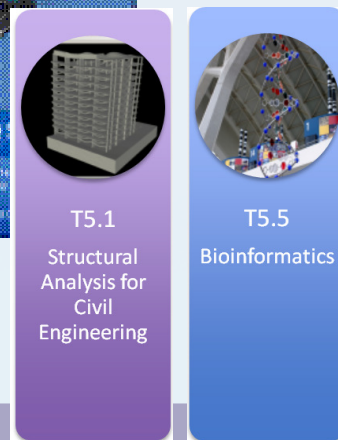
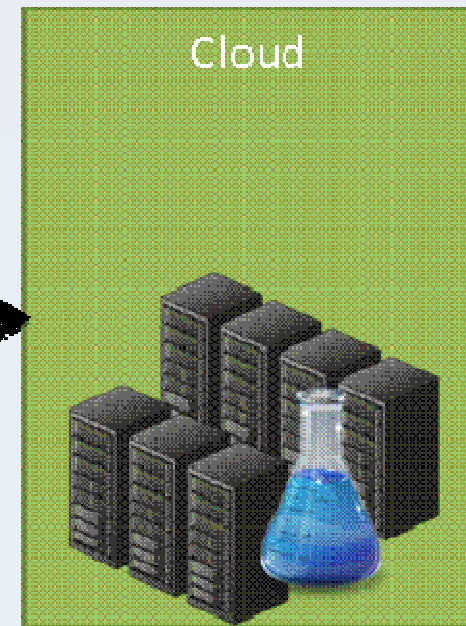
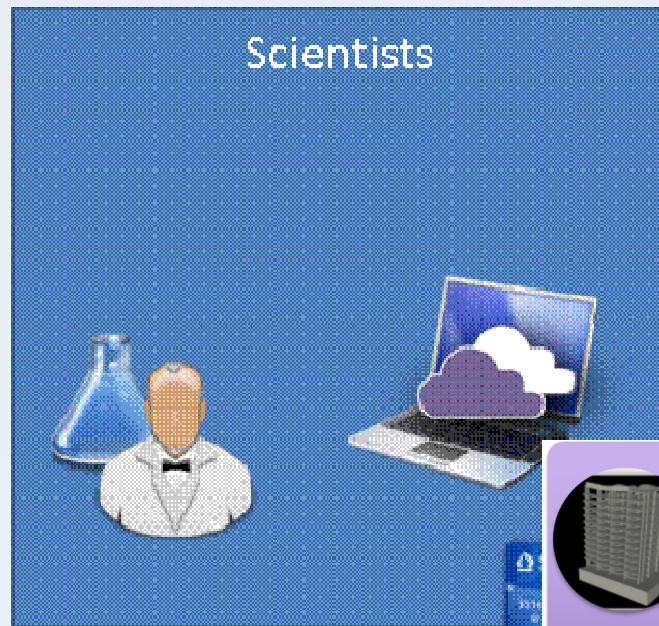


Courtesy by  
Christian Geuer-Pollmann (EMIC)

# VENUS-C usages and business models

**Researcher**

**Cloud Provider**



T5.1  
Structural Analysis for Civil Engineering

T5.5  
Bioinformatics

Two vertical panels. The left panel is purple and contains a circular icon of a building structure. The right panel is blue and contains a circular icon of a molecular structure.

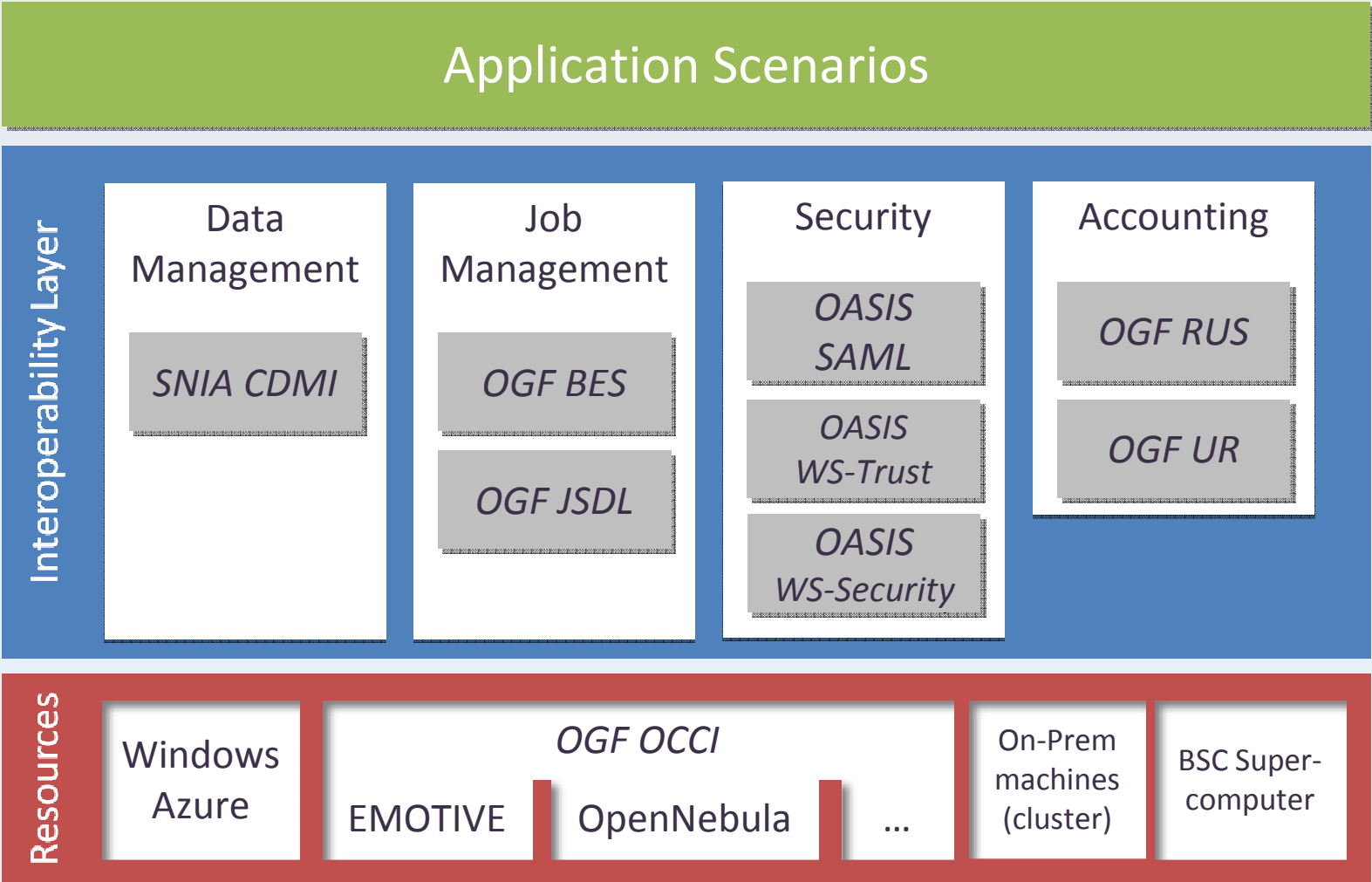
Courtesy by  
Christian Geuer-Pollmann (EMIC)

## The reference community

- 7 Scenarios, representing 7 communities (partners, providing requirements and early adopting the platform)
- 15 Pilots (subcontractors, seed funding for access to training, for providing feedback and
- 5 Experiments (free access to resources)
- Further HPC sample scenario will be set up by BSC









**Users**

Scenario / Algorithm  
Programming Language

Architrave	COLB	CNR	AEGEAN	UPV.Bio	CoSBI	UNEW
C++	C++	Java	.NET	C++	.NET	Java

Type of workload

Batch	HTC	Parameter sweep	Data flow	Workflow	Map / Reduce	CEP
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**VENUS-C**

Execution Environments

EMIC Generic Worker	BSC COMPSs
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**Infra-structure**

Operating System

Windows	Windows Azure	Windows	Linux	BSC Super Computer (not in the cloud)
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Cloud Technology

On Premises (not in the cloud)	Windows Azure	OpenNebula	...	EMOTIVE	BSC Super Computer (not in the cloud)
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Cloud Paradigm

On Premises (not in the cloud)	PaaS	IaaS	BSC Super Computer (not in the cloud)
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Cloud Provider

Customer	MSFT	ENG	KTH	BSC
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# Openness of VENUS-C Platform and SDK

- VENUS-C Platform will be released
  - in bundles (addressing major deployment scenarios) (Jan 2012, Apr 2012, Jun 2012).
  - Under a unique Open Source license
  - Accessible through the VENUS-C.eu site
- Components and SDK will be available also separately:
  - Released by each VENUS-C partners (IPR, original license, extension licenses):
    - COMPs (BSC, Apache, TBD)
    - GW (MRL, MRL Research license, TBD)
    - Data Management (KTH, N/A, BSD 3 clause)
    - Accounting and Billing (ENG, LGPL, LGPL)
    - TRE (IIT, N/A, One of the OSS licenses)

## II year actions

- Finalise the OS license selection
- Analyse the broader scientific communities usage models (market analysis and segmentation)
- Complete TCO and Socio-economic Impact analysis (supported by ERINA+)
- Carefully define the Platform functionalities and limitations (positioning in the market)
- Verify the opportunity of establishing an OS community around the Platform evolution

