



## Leveraging Cultural Heritage through ICTs



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# Outline

- Looking for the Identity of a City
- Leveraging Cultural Heritage by Means of ICTs
- The Activities within the Future Center



# This place

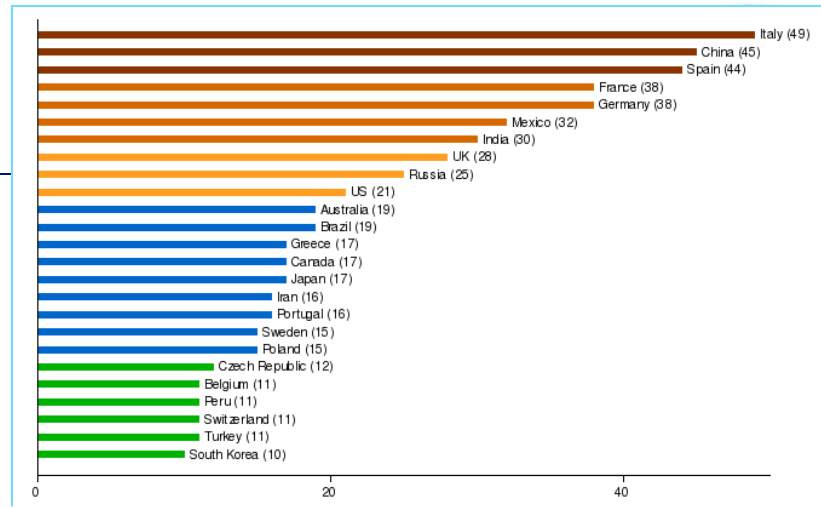
- The origins of San Salvador church and convent go back to XI century
- The current architecture is from Renaissance period (Telecom Italia has recently restored the paintings within the Refettorio and given back them to the city) are from XVI century
- In the late XVIII century, the Napoleon troops transformed the building into «barracks» for soldiers and after Restoration Austrian troops took over.
- At the end of WWI, the building was acquired by TELVE, the local telephone company serving the North East part of Italy
- During the 80ies it was transformed in a research center for economical studies related to Telecommunications
- ~~Now it is the site of the Future Center ... and it is going to host new activities related to the leverage of Cultural Heritage by means of ICT s~~



# Cultural Heritage in Italy

## – a few indicators

- Italy is at the first place in the World for the presence of sites defined as World Heritage by UNESCO but it is at the fifth place as touristic destination
- Italy is visited each year by 90 millions of tourists (50% from abroad) and this is a revenue source for over 100 B euro
- The tourism industry in Italy gives a job to up 2M of people
- Venice and its Lagoon is a World Heritage Site:
  - About 1,5 M of «arrivals» in the City in the 1H2013
  - Typically a short stay



CITTA' D'ARTE		GENNAIO-LUGLIO		
		ARRIVI	PRESENZE	P.MEDIA
VENEZIA	2013	1.434.476	3.646.939	2,54
CENTRO STORICO	2012	1.431.915	3.582.601	2,50
differenze assolute		2561	64338	0,04
differenze percentuali		0,18%	1,80%	
MESTRE	2013	887881	1579002	1,78
E MARGHERA	2012	811725	1444599	1,78
differenze assolute		76156	134403	0,00
differenze percentuali		9,38%	9,30%	
VENEZIA (NO LIDO)	2013	2.322.357	5.225.941	2,25
	2012	2.243.640	5.027.200	2,24
differenze assolute		78717	198741	0,01
differenze percentuali		3,51%	3,95%	
RIVIERA DEL BRENTA (*)	2013	125.000	206.607	1,66
	2012	124.140	206.421	1,66
differenze assolute		860	186	-0,01
differenze percentuali		0,69%	0,09%	
<b>TOTALE</b>	2013	<b>2.447.357</b>	<b>5.432.548</b>	2,22
	2012	<b>2.367.780</b>	<b>5.233.621</b>	2,21
differenze assolute		79577	198927	0,01
differenze percentuali		3,36%	3,80%	

(\*) RIVIERA DEL BRENTA - Comprende i comuni di Dolo, Fiosso d'Artico, Mira, Stra, Viadegno e Vidor.



# What do you typically visit in Venice ?



Basilica di San Marco



Piazza San Marco



Palazzo Ducale



Campanile di San Marco



Canal Grande



Ponte di Rialto



Ponte dei Sospiri

# Standard shopping experience



Many people follow recommendations or the “usual” path





# What do you miss ?

## Arsenale



Painting of Canaletto



Squero delle Gagiandre and forced the shut down of the production of Galee (Galeoon) )

- The term Arsenal derives from the Arab word daras-sina'a1h, i.e., home of industry
- The Arsenal was occupying up to 2000 workers (5% of the entire population)
- It was the precursor of the factory concept, actually in the XVI century it was the biggest factory in the world
- It was instrumental for the success of Venice as a commercial and military Mediterranean power
- It had a very strategic role (in fact Napoleon greatly reduced it and forced the shut down of the production of Galee (Galeoon) )
- A mix of technology and Art: Sansovino Dry Docks



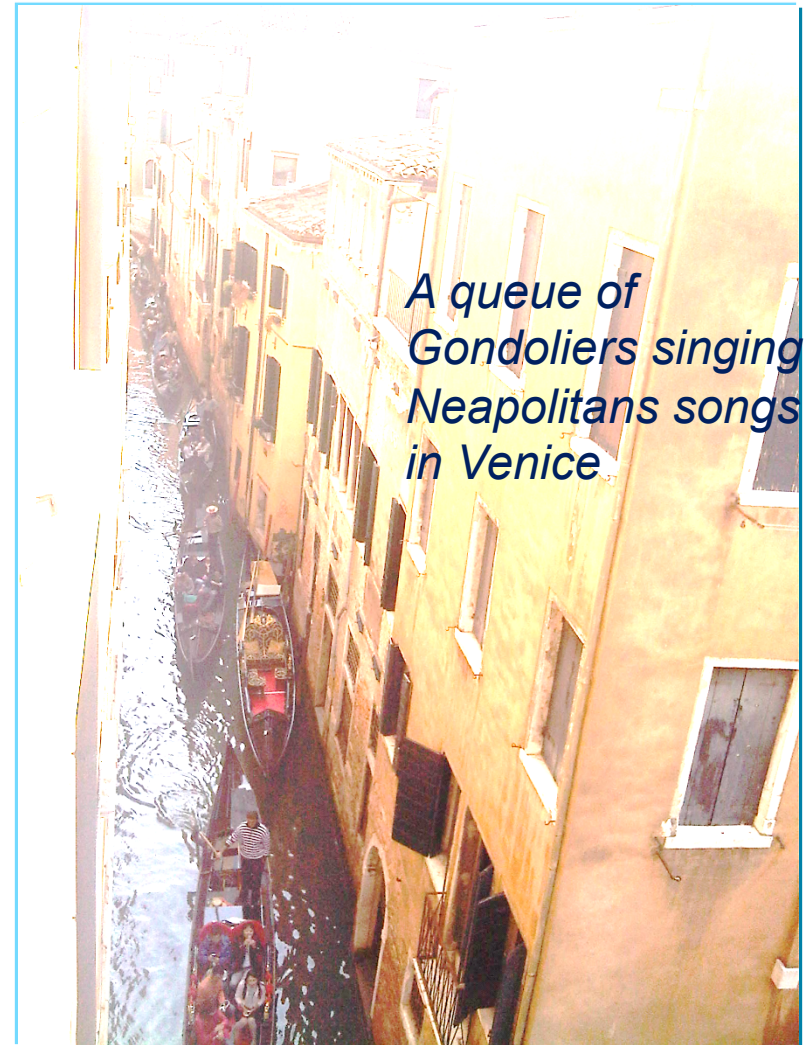
# The Identity of a «Place»

All Places look alike !! They are «no places» actually  
 All places have a standard pattern for visiting

We need to support a rediscovery of Place Identities and we need to relate the identity of that place with identities of people



*Venice or Las Vegas ?*



*A queue of Gondoliers singing Neapolitans songs in Venice*



# The impact of technologies on the City:

## The Freedom Bridge example

Ponte della Libertà, i.e., the Freedom Bridge



Every day in Venice almost 200 K people are in the city , even if only less than 60K of Venice live in here

It is more than 140K transits: it is not only tourists, it is commuters: students and workers.

A lot of people have left the city for the mainland. And the city has lost not only citizens, but also a part of its identity.

How this happened ? Because of a Bridge!!!

The Liberty Bridge has introduced a «Semiotic breakdown»: instead of bringing in modernization, it has brought the «modernization» of Venice (and it is a post-ary) in Venice

<http://www.linkiesta.it/blogs/cultura-rete-il-blog-di-venezia-2019-salone-europeo-della-cultura/l-alba-di-una-nuova-venezia->

Wikipedia: **Ponte della Libertà** is a road bridge connecting the historical center of the city of Venice to the mainland.

Designed in 1932 by engineer Eugenio Miozzi, and opened by Benito Mussolini in 1933 as **Ponte Littorio**, the bridge is the only access for road vehicles to the historical center. It is built alongside the Venice Railroad Bridge, which was constructed in 1846 by Austrian, with two tracks each way, and is still in use.

# Why working on the Cultural Heritage



- An important area for the development of ICT solutions
- An important contribution to the development of Italy and other Countries
- Opportunity to experiment new approaches
- Possibility to create a vast ecosystems and nurture a business around it

# Five dimensions of Cultural Heritage



- **First Dimension: Identification and preparation of the Cultural Heritage Content**
  - These activities are cross-disciplinary: they aim at identify the Cultural Content. The existing sources for data identified (e.g., Museums, Historical Archives , ...) in addition hypothesis for relating the different sources should be put forward. In addition the means to be used to create new data or collect new information should be stated and elaborated (e.g., how to collect the oral tradition)
- **Second Dimension: digitalization of the Cultural Heritage Content**
  - The identified sources should be progressively digitalized (it can take a long time) without impacting too much on the original material (e.g., old books) and a «big data» like infrastructure put in place. At this stage also discovery of new relationships and «automatic reasoning» on available data should be elaborated and performed
- **Third Dimension: easing the access to the (digitalized) Cultural Content**
  - At this stage, mechanisms for easing the access to available (original or inferred) information should be studied and made available to user. Extensive research on user interaction, recommendation engines and new forms of data representation should be conducted.
- **Fourth Dimension: the Ecosystem View on the Cultural Heritage**
  - This wealth of data should be made available to enterprises, users and organization in order to promote the city or the territory and to create a strong link between the cultural heritage and the enterprises operating in the tourism or cultural industries
- **Fifth Dimension: the creation of new Cultural Content**
  - New Digital technologies can be made available to artists, designers and also users in order to create new (digital) content. Examples could be the Art Lab (as an implementation of the FabLabs for art), new forms of TV, etc..

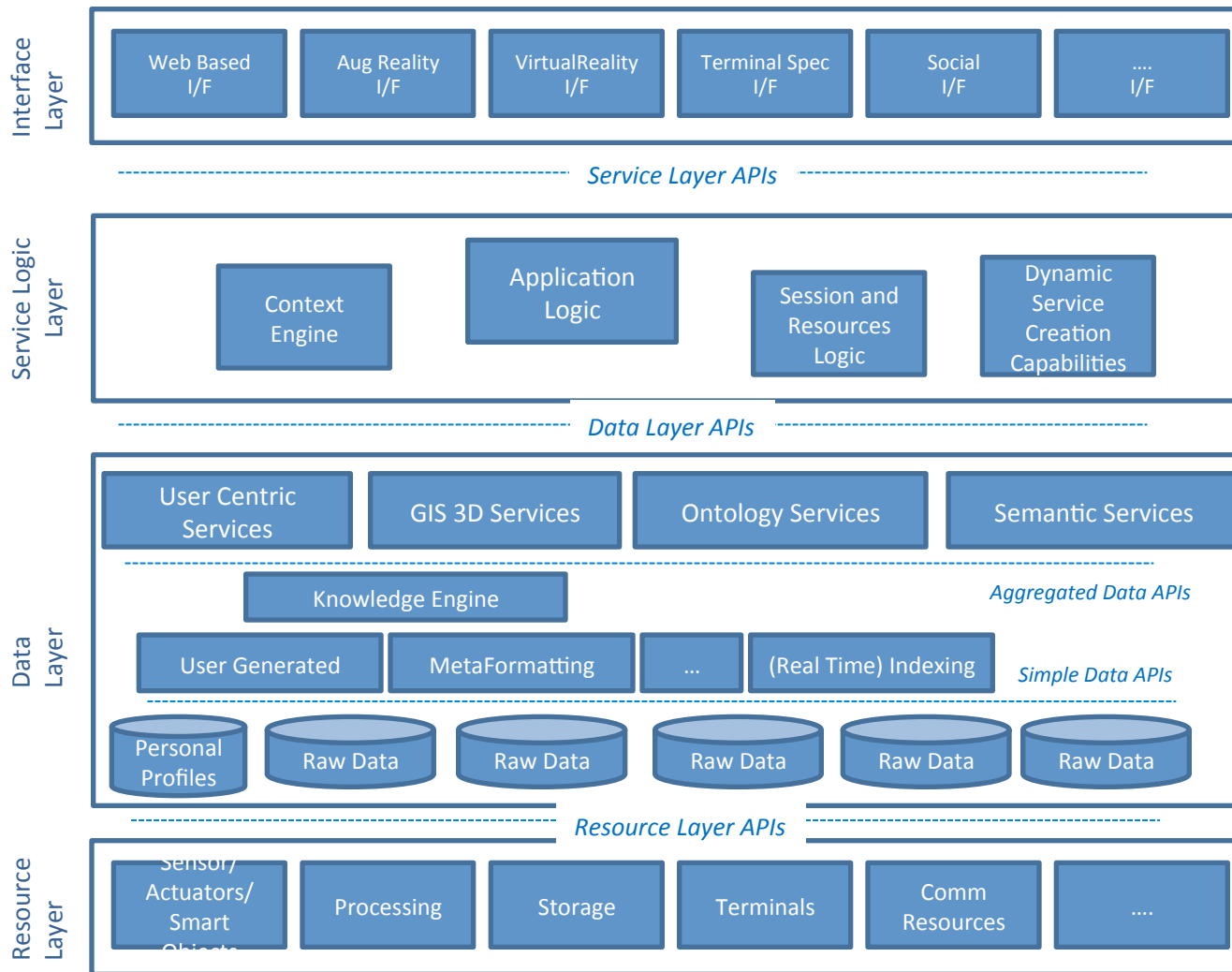
# How Telecom Italia can contribute to the Leverage of Cultural Heritage



- Two major lines of work
- **Digital Humanities**, i.e., studies and initiatives to collect, preserve and make available the rich Cultural Heritage of Italy (and Venice in particular)
  - Big Data for Cultural Heritage
- **Future Cities**, i.e., the studies and researches to make available the Cultural Heritage in a context of Smart Cities
  - Crowdsourcing and Virtual Continuum
- The way to do it:
  - By means of partnership (e.g., MoU with CaFoscari and EPFL)
  - Specific projects
  - Venture Capital

# An Architecture for Digital Humanities

(a part of)





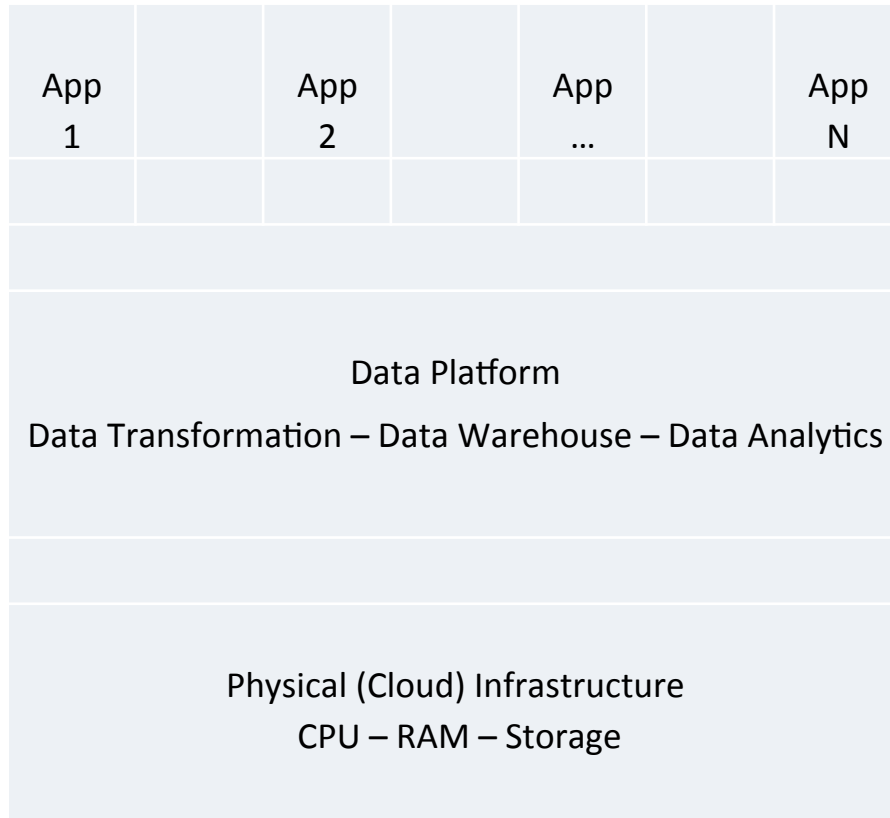
# Big Data For Cultural Heritage



Data management for Cultural Heritage falls in what classical data warehousing literature terms as an ETL (Extract, Transform, Load) process.

In order to allow such an architecture to scale and to be agile and manageable by all the parties involved, it has to sit on a cloud infrastructure:

Data store implementation will make use of Big Data technologies (like MapReduce approaches, NoSQL and NewSQL data stores, CEP analysis) to allow the scalability and response time needed to act effectively on homogeneous sets of data.



# Towards the Virtual Continuum



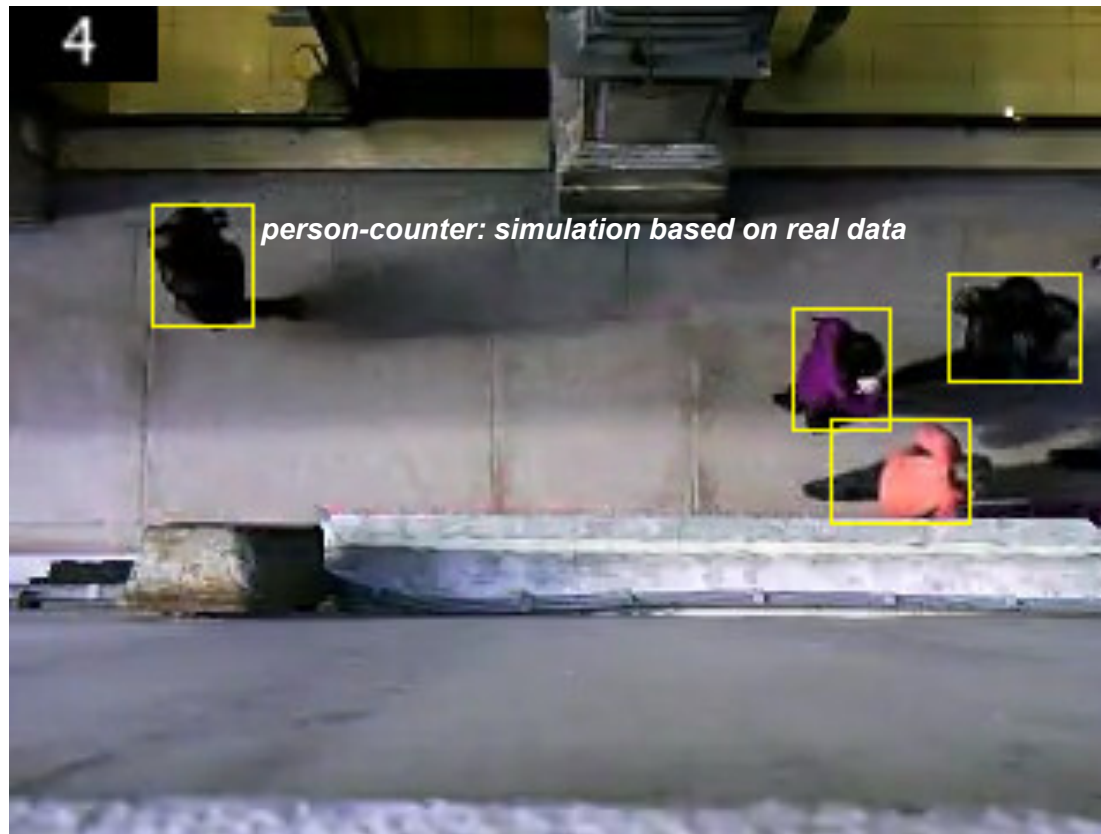
A virtual environment is a software feature that allows customers to use an entire (virtualized) computational and communication environment tailored to their specific needs.

The Virtual Continuum is the constant entanglement between real objects and their representations in the network. Events, actions, data on a physical object will be represented in the virtual world and vice versa. The Virtual Continuum makes possible the close relation between atoms and bit

In a context of Future City, the virtual continuum offers **the opportunity to measure the relevant events occurring in a city** by means of **physical objects** (e.g., sensors, smart objects) and consequently **to plan policies** for adapting the usage to the resources of the city and to the context of users

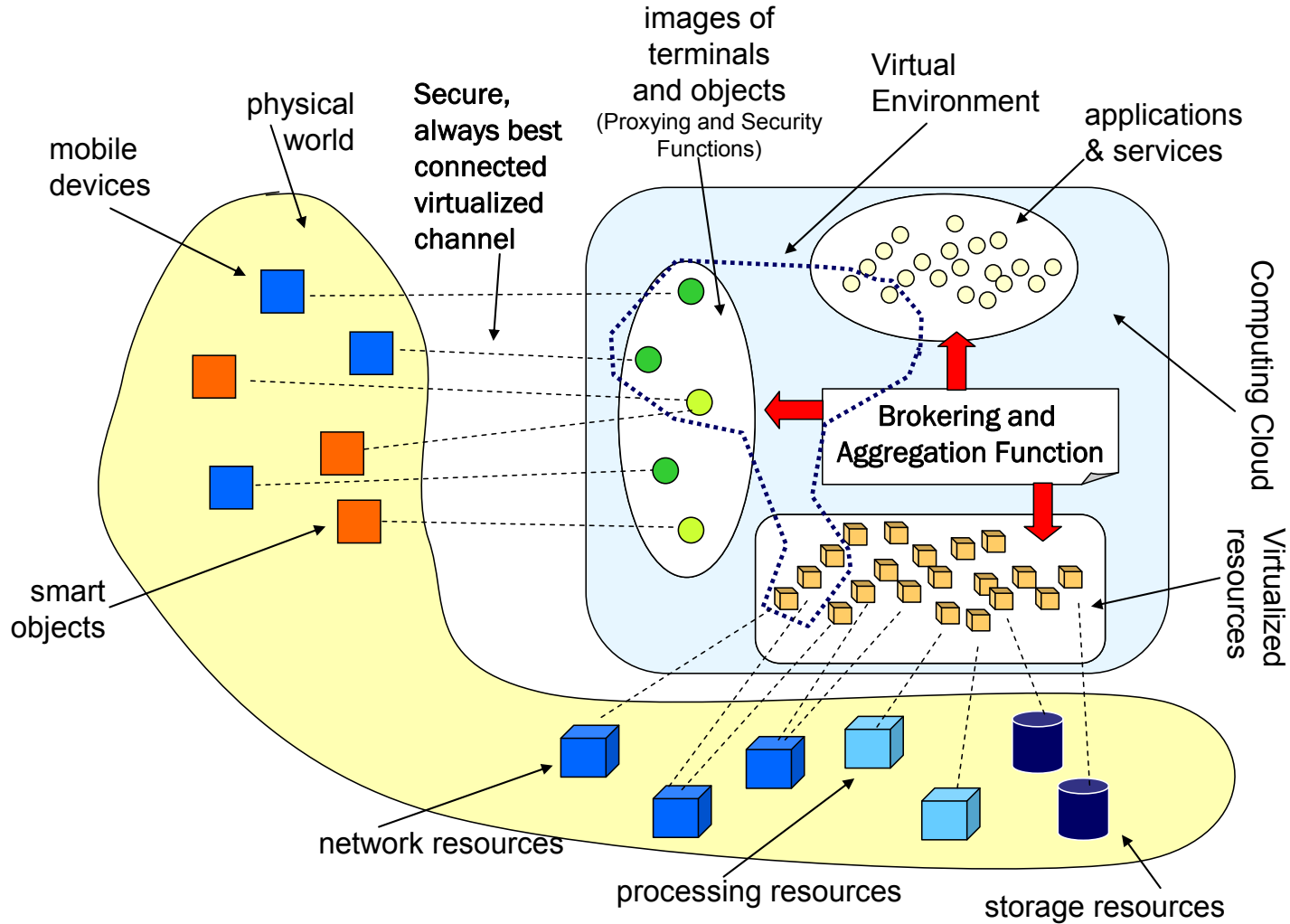
# Counting people without infringing Privacy

*The Future Centre in Venice is working at the monitoring in quasi real-time on the pedestrian flows in the city center. The goal is to measure the pedestrian traffic and keeping the anonymity and privacy of users. The project has been using low-cost sensors and devices (50-100 euros) with a small size (two cigarette packs) in order to acquire video flows of passing by people and to process it locally without any leak or privacy violation. These devices will provide their Id, the time and the number of people that have been detected. Ideally these objects could be scattered in many places of the city and freely transit their data (e.g., through twitter). In such a way, interested developers could create new applications based on these data..*

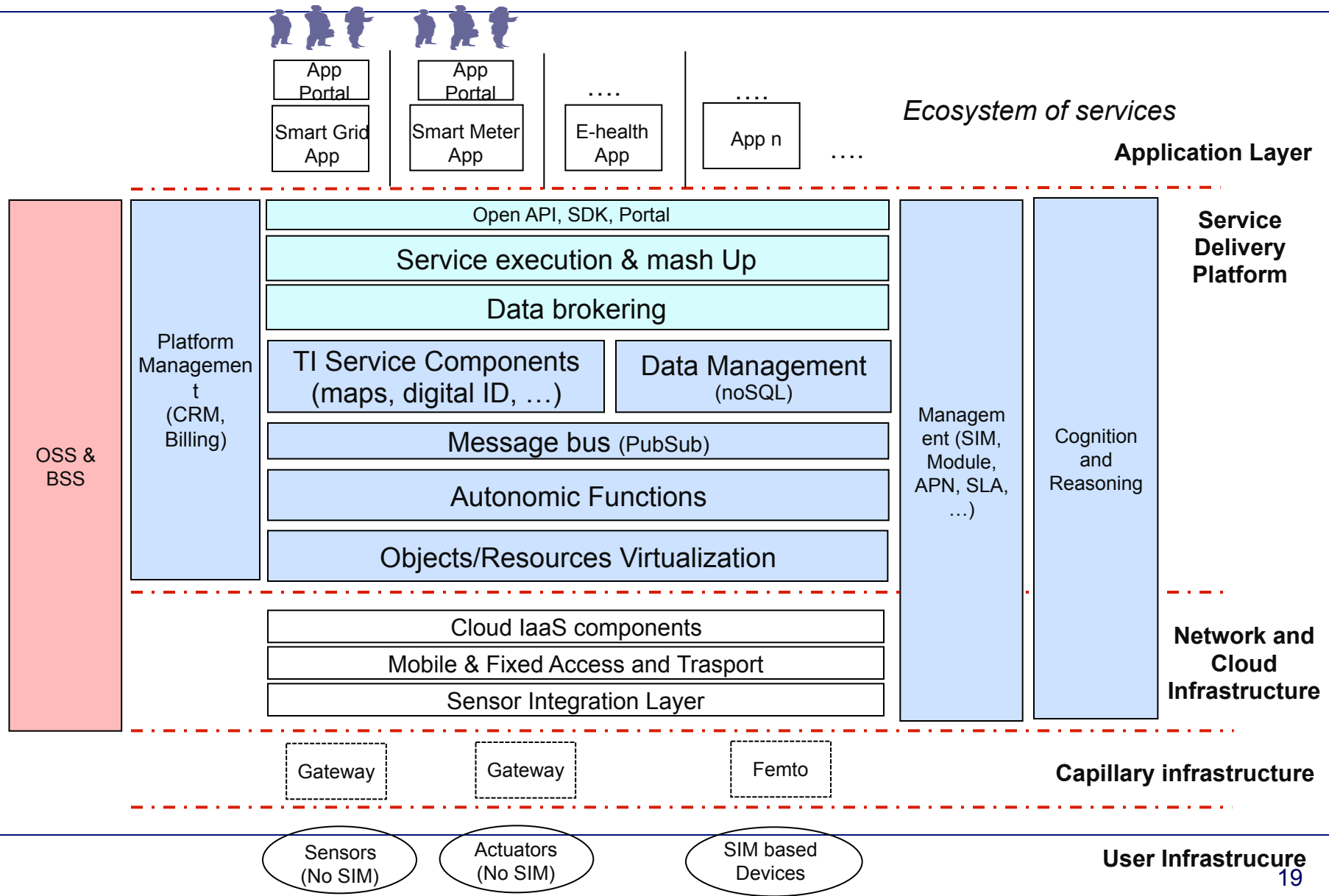


Is it a person  
or a shadow ?

# The Context for Virtual Continuum



# Framework for Virtual Continuum Platform





# An Example of Crowdsourcing: Tag the City





Thank you!

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## Scala Contarini del Bovolo

<http://www.euro-poi.com/venice-bovolo-house-italy-383.html>