



# *Il sapere libero nell'era del Web 3.0: opportunità e limiti*

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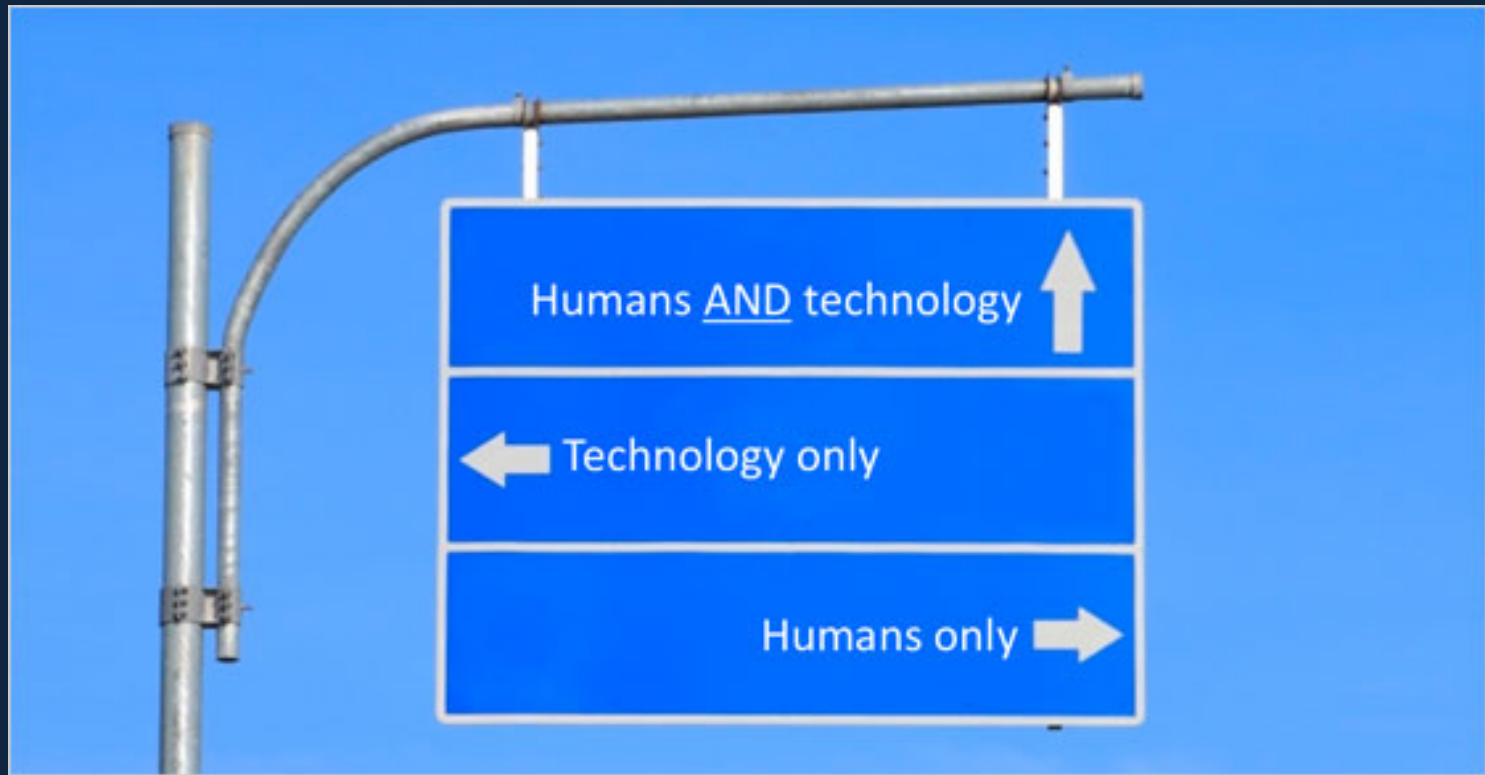
# **Outline**

Towards Web 3.0 : Evolution of technologies and practices

Web3.0 challenges: opportunities and limitations

From data to information to knowledge

# Web 3.0 : Evolution of technologies and practices



# WEB

1.0 → 2.0 → 3.0

HTML

READ

XML – PHP- RSS

ASP – JSON

**SEARCH – TAG**

**COLLABORATE**

READ - WRITE

RDF – XHTML

RDFS – OWL

**PERSONNALIZATION**

**KNOWLEDGE**

READ – WRITE

UNDERSTAND

# WEB 1.0

A platform through which information could be published in a **static form**, well designed with text and images.

It portrayed an environment where information and data were static and displayed with **no interaction between the information and the consumer** and minimal content creators, also known as the **read-only Web**

([Rudman, 2010](#))

# WEB 2.0

Shift of paradigm : **greater collaboration** between consumers, programmers, service providers and organizations

Users are enabled to **re-use and contribute information**, thereby enriching the content distributed between the collaborative parties on the Web

[Getting \(2007\)](#)

# WEB 2.0

Key features:

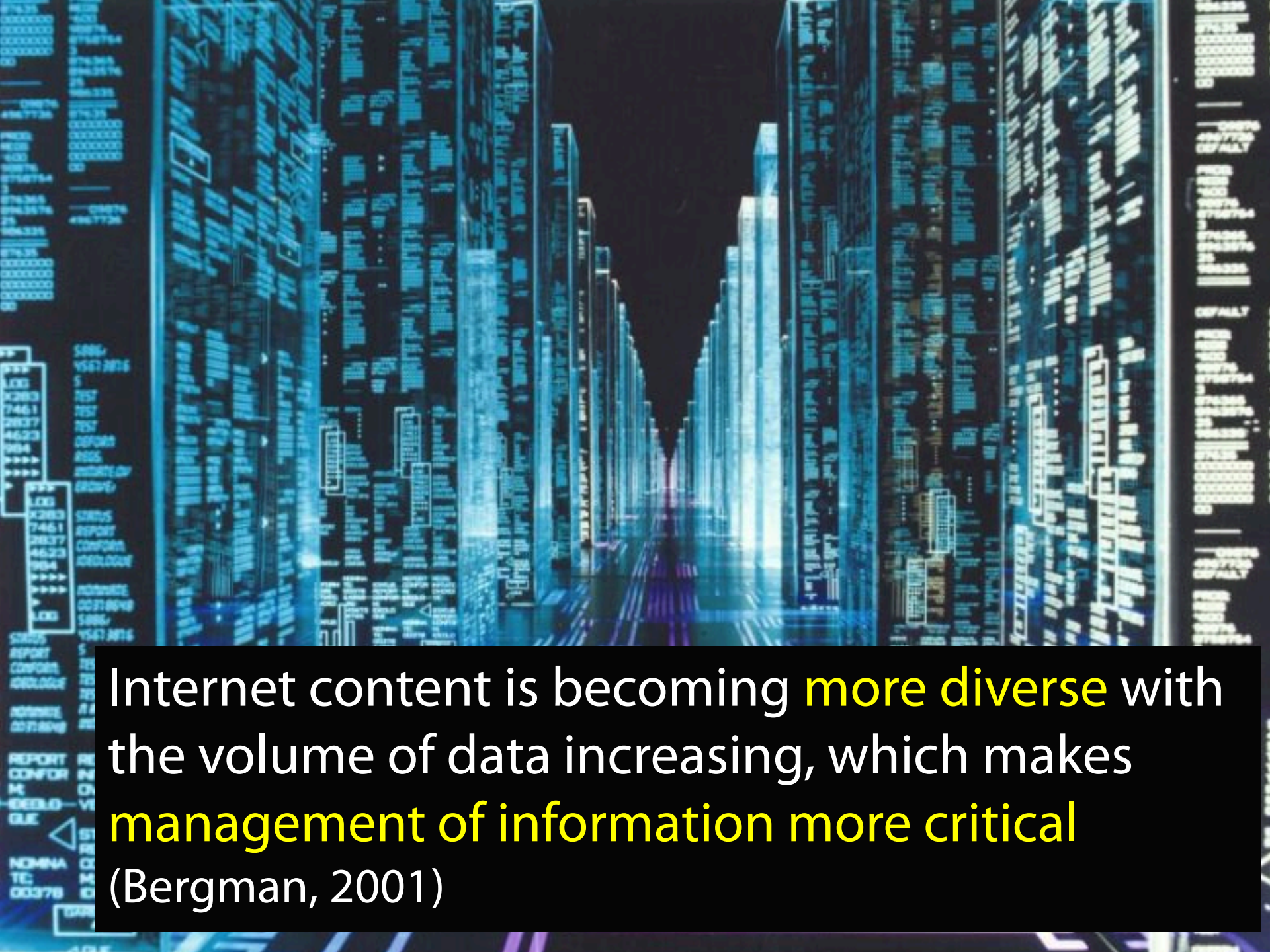
***Community and social:*** The ability of a consumer to view, create, edit and share content by means of the Web.

***Technology and architecture:*** Software and applications with multiple device and platform compatibility.

***Business and process:*** Cloud technologies, software and resources made available on a network.

[Rudman \(2010\)](#)



The background of the slide is a digital cityscape. The skyscrapers are constructed from vertical columns of binary code (0s and 1s) and various data-related terms. The perspective is looking down a long, straight corridor formed by these digital buildings, creating a sense of depth. The color palette is primarily blue and black, with some white and yellow highlights for the text and data elements.

Internet content is becoming **more diverse** with the volume of data increasing, which makes **management of information** more critical (Bergman, 2001)

# WEB 3.0

The Web is overrun with exabytes of data, and computers **still cannot automate** the function of harvesting this information, or of performing complex tasks with it.

The **need for data structuring and integration** is crucial to enable the Web to evolve into its next phase.

Variation in names: Web 3.0, the Semantic Web, the Transcendent Web and the Web of Things.

# WEB 3.0

The Web is becoming a platform for linked data. Data are becoming **more openly available** to consumers, and **by making connection** between similar data characteristics, the data itself becomes more **valuable**

([Tarrant et al., 2011](#))

# Objective

Develop the ability of Web 3.0 technologies to **autonomously harvest data** from the Web and reason with data in a meaningful way.

**Machines** adopting **human-like characteristics** with the ability to collect and distribute data at a relatively far greater speed and accuracy

# Web3.0 challenges: opportunities and limitations

# Challenges

1) The introduction of **new programming languages** with the ability to categorise and manipulate data to enable machines to understand data and the phrases describing data.

([Verizon, 2015](#))

# Challenges

2) The capability of obtaining contextual information from a Web search and storing it in a hierarchical manner, according to similar characteristics, for **easy and specific retrieval**.

([Verizon, 2015](#))

# Challenges

3) The ability to **obtain information** from a bigger and wider variety of **sources**, including previously walled applications.

([Verizon, 2015](#))



# Challenges

4) The ability to create and share **all types of data over all types of networks** by all types of devices and machines.

([Verizon, 2015](#))

# Limitations

Unwanted application performance due to continuous updates

Over-reliance on services offered by third parties or only relying on server-side security

Loss of confidential and personal information due to malicious attacks

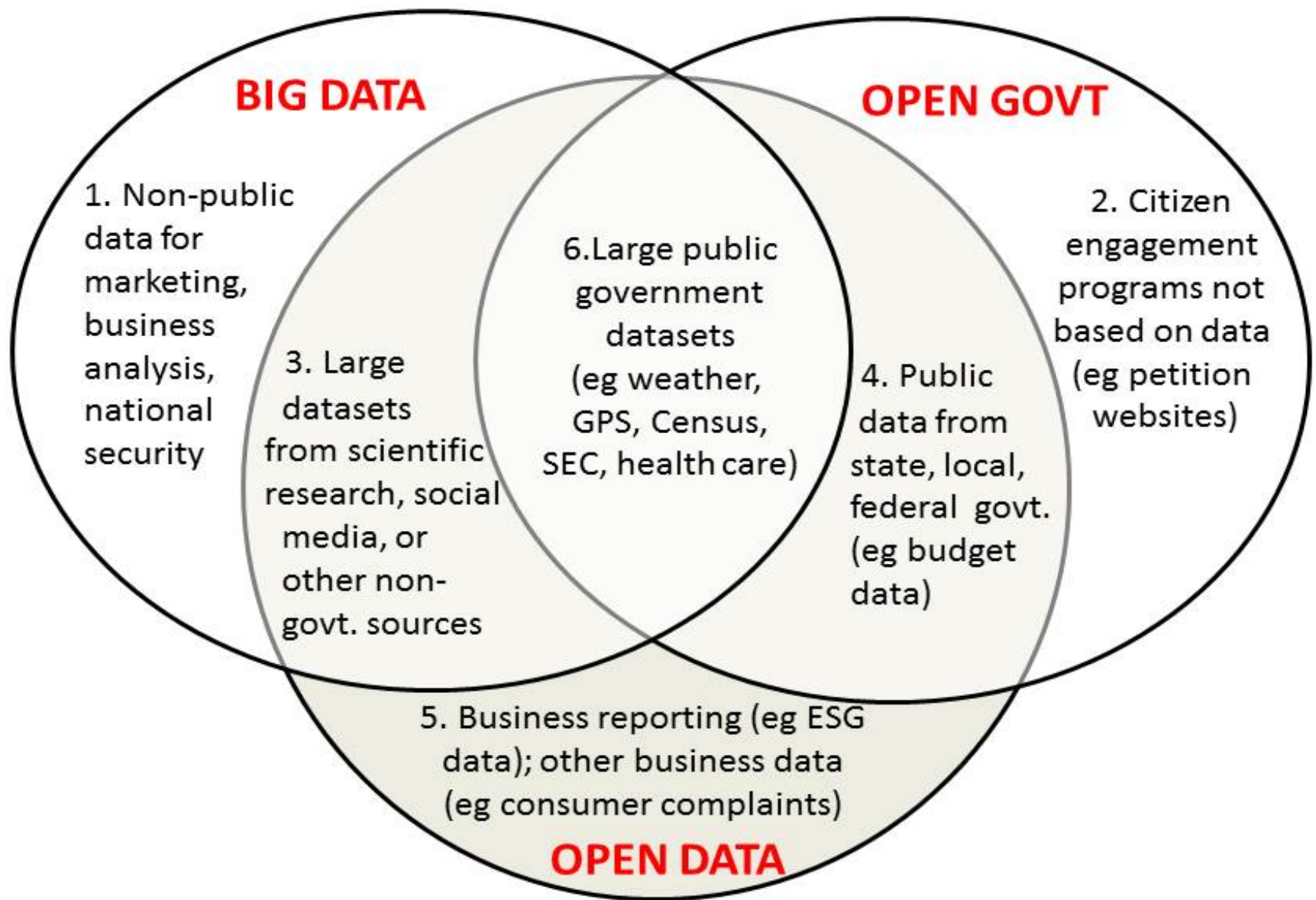
# Limitations

Unproductive use of organisational resources

Non-compliance with regulatory governance

Shortage in experienced technicians to ensure effective operation and monitoring of complicated systems and applications.

From information to  
knowledge





Ambiente (318)



Arte e Cultura (144)



Commercio (199)



Demografia (15)



Economia (280)



Infrastrutture e Trasporti (225)



Istruzione (196)



Lavoro (161)



Politica (69)



Popolazione (402)



Pubblica  
amministratzione (148)



Sanità (121)



Scienza e Tecnologia  
(38)



Sociale (142)



Sport e Tempo libero  
(67)



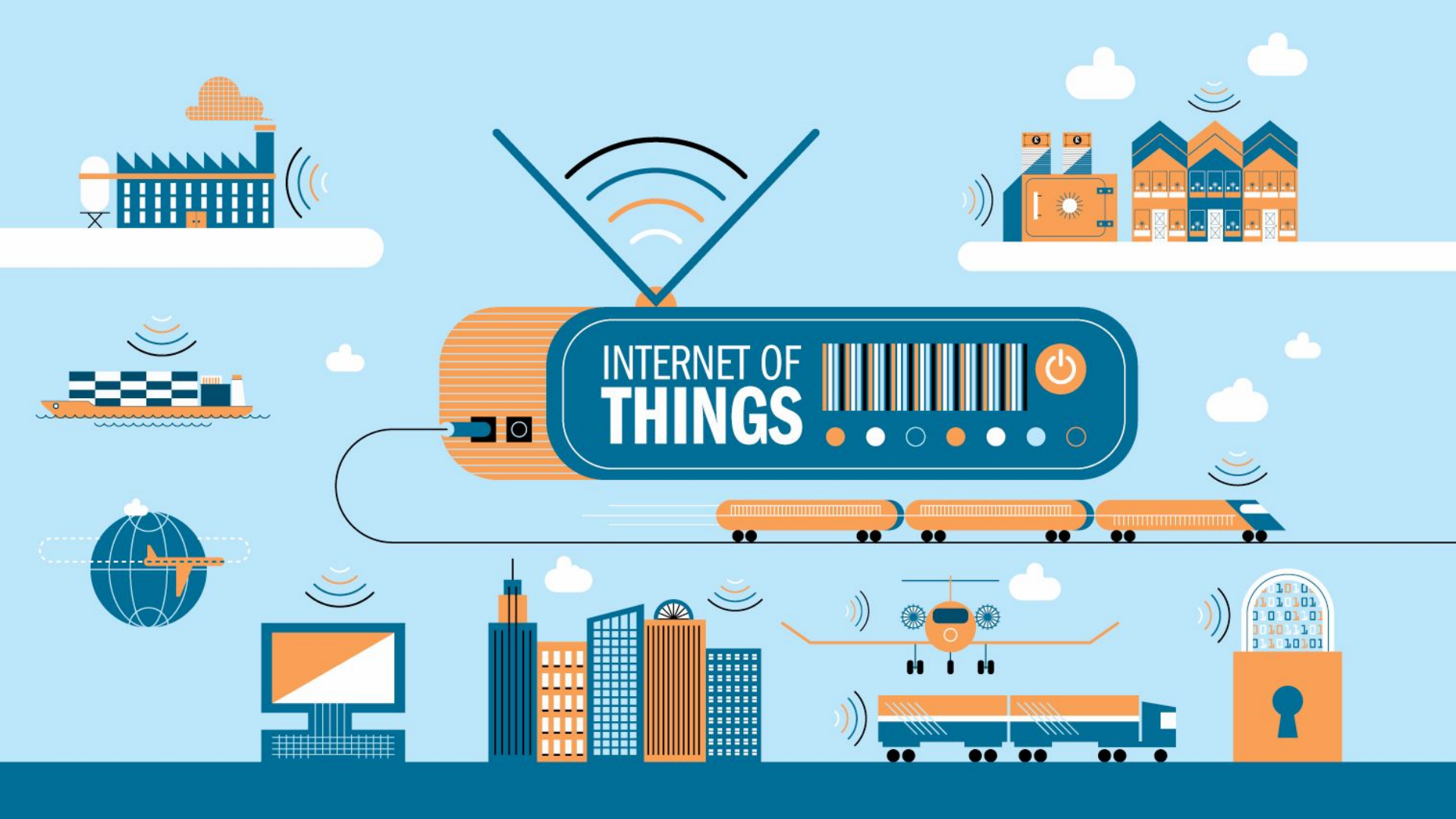
Territorio (347)



Turismo (139)



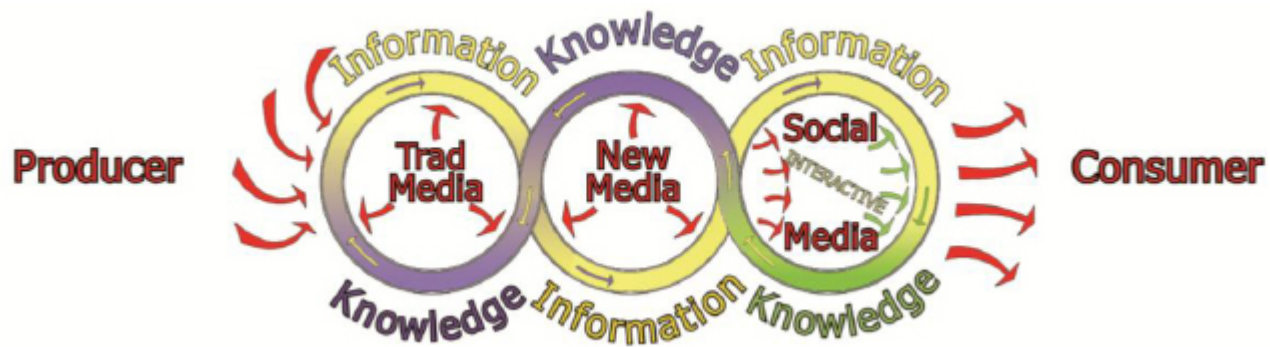
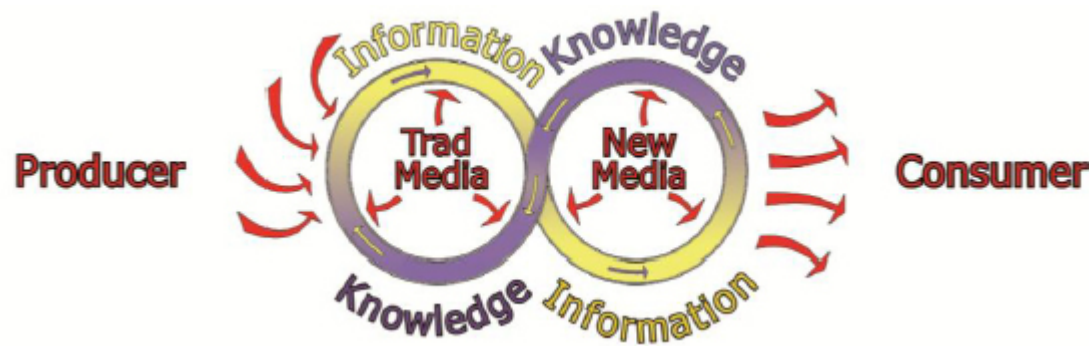




## The Internet of Things

The network of physical objects - devices, vehicles, buildings and other items - embedded with electronics, software, sensors, and network connectivity that enables these objects to collect and exchange data

["Internet of Things Global Standards Initiative". ITU.](#)



Towards a new communication model



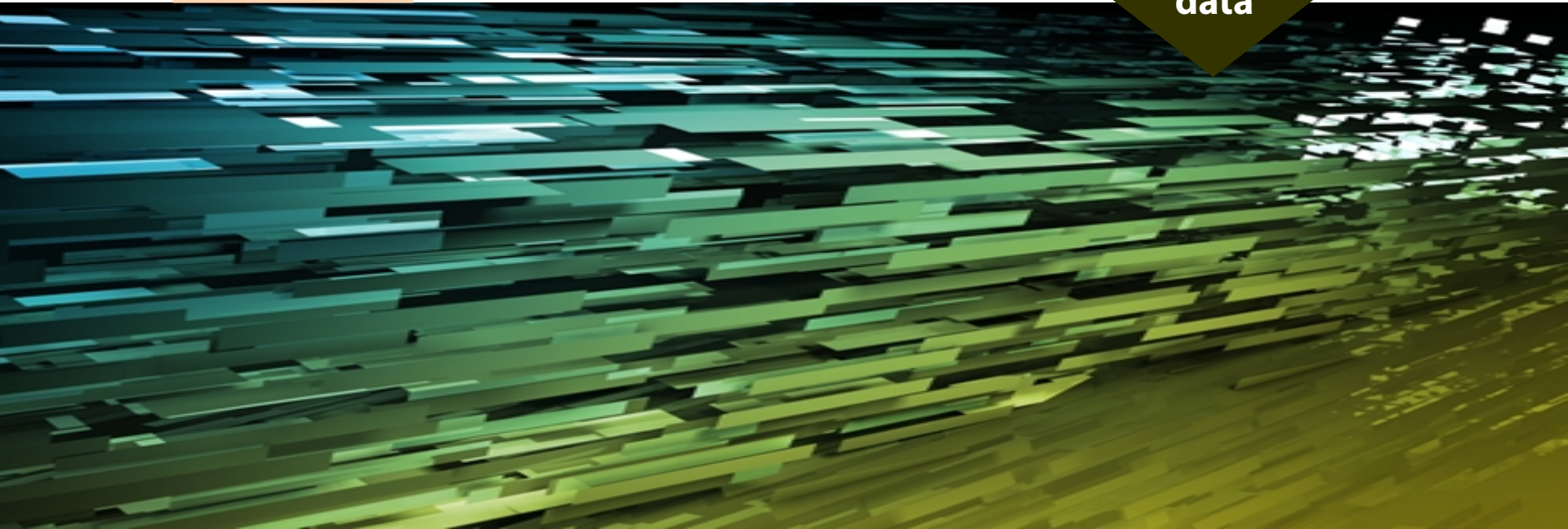




**Historical  
data**

**+**

**Real time  
data**



**Information:** "is a message, in the form of a document, audible or visible communication". In fact, in Latin it means: provide with form, with a shape.

Unlike data, information has a meaning.

5 ways in which data can be transformed into information:

- Contextualized;
- Categorized,
- Calculated,
- Connected,
- Condensed.

## ***Knowledge***

“knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. Knowledge can be seen as both process and stock”.

There are many ways in which knowledge is created, some imply:

- Comparison;
- Consequence identification;
- Creating connections;
- Conversation.

Thank you for your  
attention