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# Sobre os Dados Científicos: Desafios e Oportunidades

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# Internet Time

Google

Wikipedia

Everywhere

Anytime

Cut / Paste



# WEB 2.0

Twitter

Instant Messaging

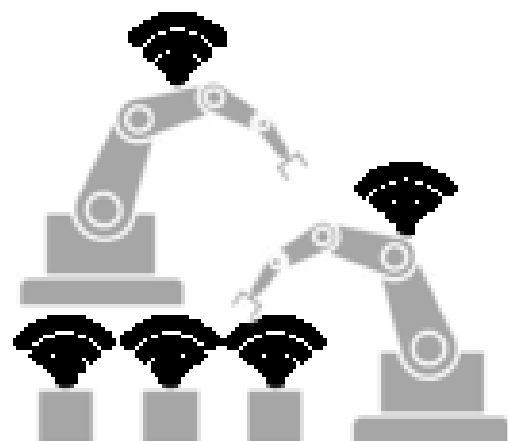
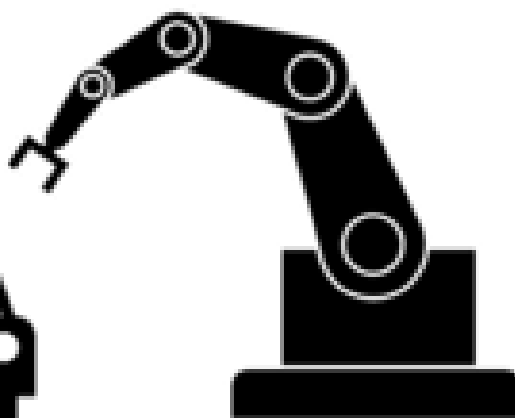
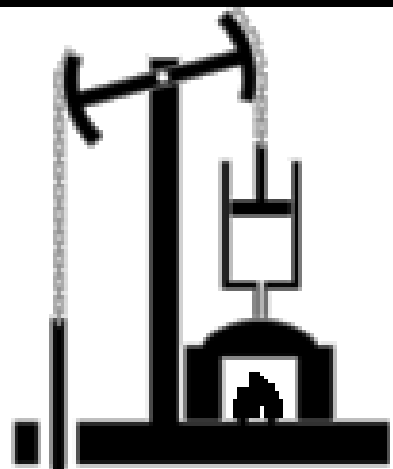
Facebook

SMS

Wireless

Sem fios

# Indústria 4.0



**1st**

**2nd**

**3rd**

**4th**

Mechanization,  
water power, steam  
power

Mass production,  
assembly line,  
electricity

Computer and  
automation

Cyber Physical  
Systems

e-Skills

e-Science



# The FOURTH PARADIGM

DATA-INTENSIVE SCIENTIFIC DISCOVERY

EDITED BY TONY HEY, STEWART TANSLEY, AND KRISTIN TOLLE



## Riding the wave

How Europe can gain from the rising tide of scientific data

Final report of the High Level Expert Group on Scientific Data  
A submission to the European Commission

October 2010

# Data Tsunami



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DENNIS TSICHRITZIS

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# Reengineering *the* University

UNIVERSITIES OPERATE LIKE RENAISSANCE QUARTETS BASED ON LIVE PERFORMANCES. BUT ORCHESTRAS AND MUSICIANS HAVE FOUND WAYS TO OBTAIN FINANCIAL REWARDS THROUGH REUSING THE CONTENT THEY GENERATE. UNIVERSITIES NEED TO DO THE SAME. \_\_\_\_\_

The university today must be redefined with new concepts. The Internet allows virtual classrooms. Digital libraries provide knowledge repositories. The Web offers up-to-date material for seminar discussions. Computer simulation substitutes for laboratories. Technology is

# Knowledge without Borders

GÉANT 2020 as the  
European Communications Commons

Report of the GÉANT Expert Group  
... October 2011



MASSACHUSETTS INSTITUTE OF TECHNOLOGY

The Third Revolution:

The Convergence of  
the **Life Sciences**,  
**Physical Sciences**,  
and **Engineering**



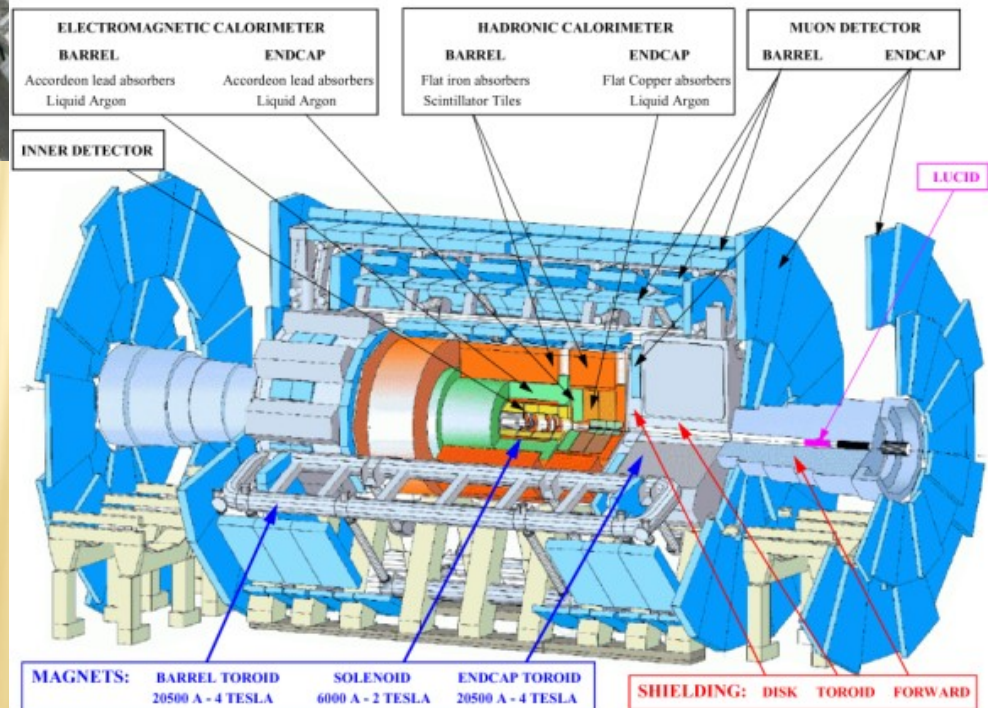
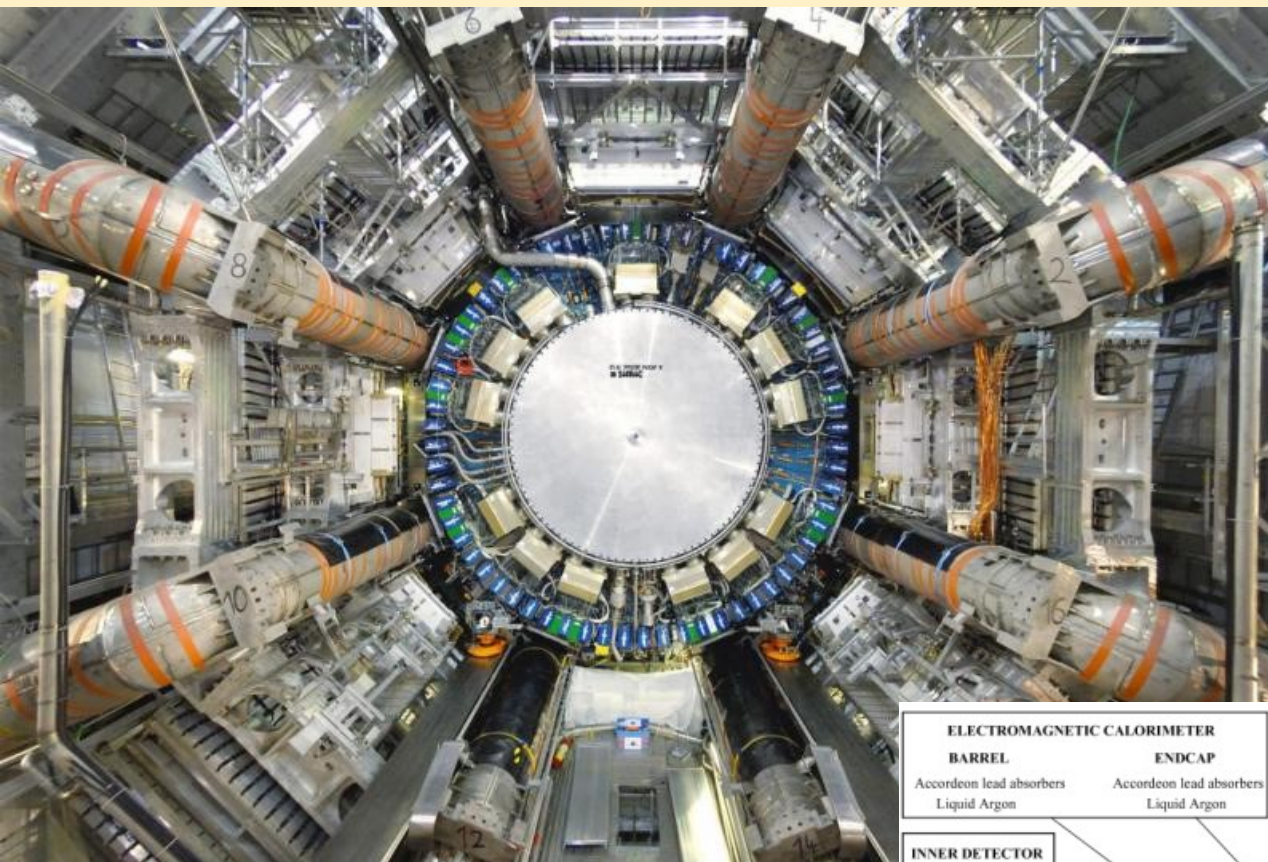


## WHAT WE NEED TO DO RESEARCH AFTER 2000

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- ✗ Communicate at the global scale, fast!
- ✗ Collaborate at the global scale, anytime!
- ✗ Access to scientific information and scientific data
- ✗ Access to scientific instruments
- ✗ Use computational power







## Site Navigation

- » Home
- » Introduction
- » **EVN User's Guide**
- » Access to the EVN
- » EVN User Support
- » EVN Data Archive
- » Bologna Catalogue of EVN observations
- » e-VLBI
- » EVN Meetings
- » EVN TOG
- » EVN CBD
- » EVN PC
- » Contact
- » Publications
- » Newsletter
- » Image Gallery
- » Outreach
- » VLBI Links
- » Search
- » JIVE



Consortium for Very Long Baseline  
Interferometry in Europe



## The European VLBI Network

The EVN is a collaboration of the major radio astronomical institutes in Europe, Asia and South Africa and performs high angular resolution observations of cosmic radio sources. An overview of the EVN can be found in our [Introduction to the EVN](#). The EVN is a large scale astronomical facility that is open to astronomers from all over Europe and the rest of the world. You can consult the current [Call for Proposals](#) and the [EVN User Guide](#) for help with proposing, scheduling, observing and reducing EVN data.

EVN users can download their data from the [EVN Data Archive](#). Data are made public once the 12-month proprietary period has expired (6 months for Target-of-Opportunity observations). For more details, please read the [EVN Data Access Policy](#).

### NEWS: EVN discovery of a triple supermassive black hole system (posted 26 June 2014)

Supermassive black holes play an important role in galaxy evolution. In some galaxies there are two or more of these SMBH, but the number of known dual/multiple SMBH systems is small. The EVN with its great resolution is a powerful instrument to identify the compact radio emission from active SMBH in the centers of galaxies, as evidenced by the study published by Roger Deane et al. in Nature. Read the [JIVE press release](#).

### NEWS: Jets Blow Gas out of a Galaxy (posted 6 September 2013)

The jets which are shot away into space by the supermassive black hole in the centre of a galaxy clear gas away from the galaxy. The first clear evidence of this was obtained by a team led by Raffaella Morganti (ASTRON, University of Groningen) using the global VLBI array including the EVN. The results will be published in Science on the 6th of September. Read the joint [ASTRON/JIVE press release](#).

### NEWS: Triggered e-EVN observations help pinpoint puzzling white dwarf (posted 24 May 2013)

The "triggered e-VLBI" capability of the European VLBI Network has aided an extremely precise measurement of the distance to a star system. This has allowed astronomers to finally solve a decade-old puzzle, confirming our understanding of the way exotic objects like black holes swallow the material they rip off the surface of nearby binary companion stars. Read the full [press release](#).

EMBL



European Molecular  
Biology Laboratory

## Europe's flagship laboratory for the life sciences

EMBL is at the forefront of innovation in life sciences research, technology development and transfer, and provides outstanding training and services to the scientific community in its member states. This publicly-funded non-profit institute is housed at five sites in Europe whose expertise covers the whole spectrum of molecular biology.



## POLLUTION, PREPAREDNESS & RESPONSE

Roughly half of EMSA's budget is focused on pollution preparedness and response activities. In particular, the Agency offers a network of contracted oil pollution response vessels. Spread across the European coastline, these vessels can be called upon by Member States in case of a major oil spill at sea.

## LATEST NEWS

### Letter February 2016

1.2.2016

This issue: Cooperation issues in support of ships in need of assistance; EMSA's new entrusted entity of U's Earth Observation programme Copernicus; IS-S: one year in review...



Lesson  
MSC f  
in ne  
27.01.  
Today  
the ne  
need o  
develop  
Membr

## QUICK ACCESS



Facts & Figures  
Work Programme  
5 Year Strategy  
Other publications

[Extranet login](#)
[CleanSeaNet](#)
[LRIT](#)
[Port State Control](#)
[SafeSeaNet](#)

## EMSA VIDEOS

[watch more videos](#)

### Places of refuge for ships in need of ...



August 2012 - MSC Flaminia gets help from Germany, Lloyd's List, 21 August 2012

## RECENTLY UPDATED

[Inspections of Recognised Organisations](#)  
19.04.2016

[Horizontal analysis](#)  
19.04.2016

[EMSA/OP/04/2016](#)  
19.04.2016

[Anomaly Detection Systems and Automated Behaviour Monitoring \(ABM\) workshop](#)  
19.04.2016

[Workshop on oil fingerprinting and the work of OSINet](#)  
19.04.2016

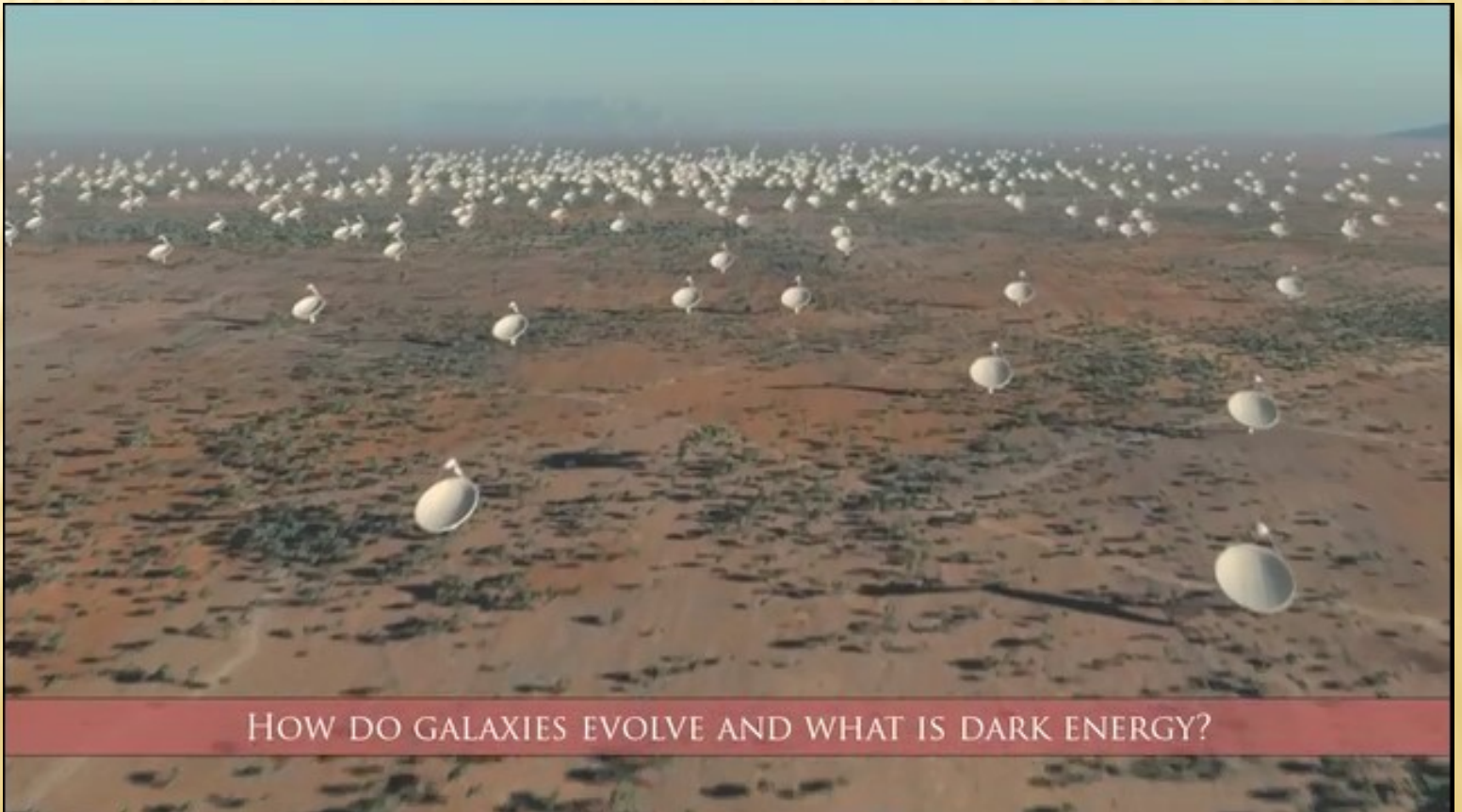




[Home](#)

# The Square Kilometre Array

Exploring the Universe with the world's largest radio telescope



HOW DO GALAXIES EVOLVE AND WHAT IS DARK ENERGY?

# EDUCAST



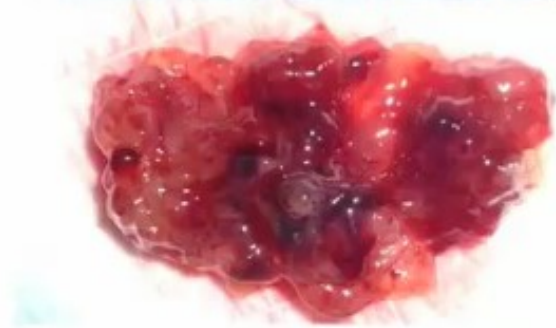
Trabalho Final de Mestrado Integrado em Medicina

Clínica Universitária de Cardiologia – Hospital de Santa Maria

Director: Professor Doutor Mário Gastão Lopes

## MIXOMA DA AURÍCULA DIREITA

- A PROPÓSITO DE UM CASO CLÍNICO -



Ariana Cerqueira Azevedo (6ºano 2009/10, n.º 5294)

Orientadora: Prof.ª Doutora Emília Pereira da Silva



# ZAPPIENS.PT



O que é? | Requisitos | Termos e Condições | Perguntas Frequentes | Contactos |  Subscrever RSS

### Speedmeter



Zappesquisa

Publique aqui o seu vídeo





**ZappStream disponível em código-aberto**

O ZappStream é um servidor de vídeos que permite uma gestão eficiente da largura de banda e acesso directo a qualquer parte de um vídeo durante a sua transmissão.

O [código do ZappStream](#) é agora disponibilizado para que possa ser utilizado e melhorado no âmbito de outras iniciativas.





stent havard



Navegar

Carregar



Iniciar sessão

## O que é uma angioplastia e um stent?

HMSPortugal



Subscrever

257 vídeos ▾



1:37 / 5:07



**Angioplastia con Stent,  
Parte 2/2 - FOSCAL**

de foscalcomunicaciones

73350 views



**Exumação de um  
Tumor**

de elitchello

4683380 views



**ANGIOPLASTIA E  
COLOCAÇÃO DE**

de MAPSDclientes

847 views



**Coronariografía y  
Angioplastia con**

de cbehmaras

20309 views

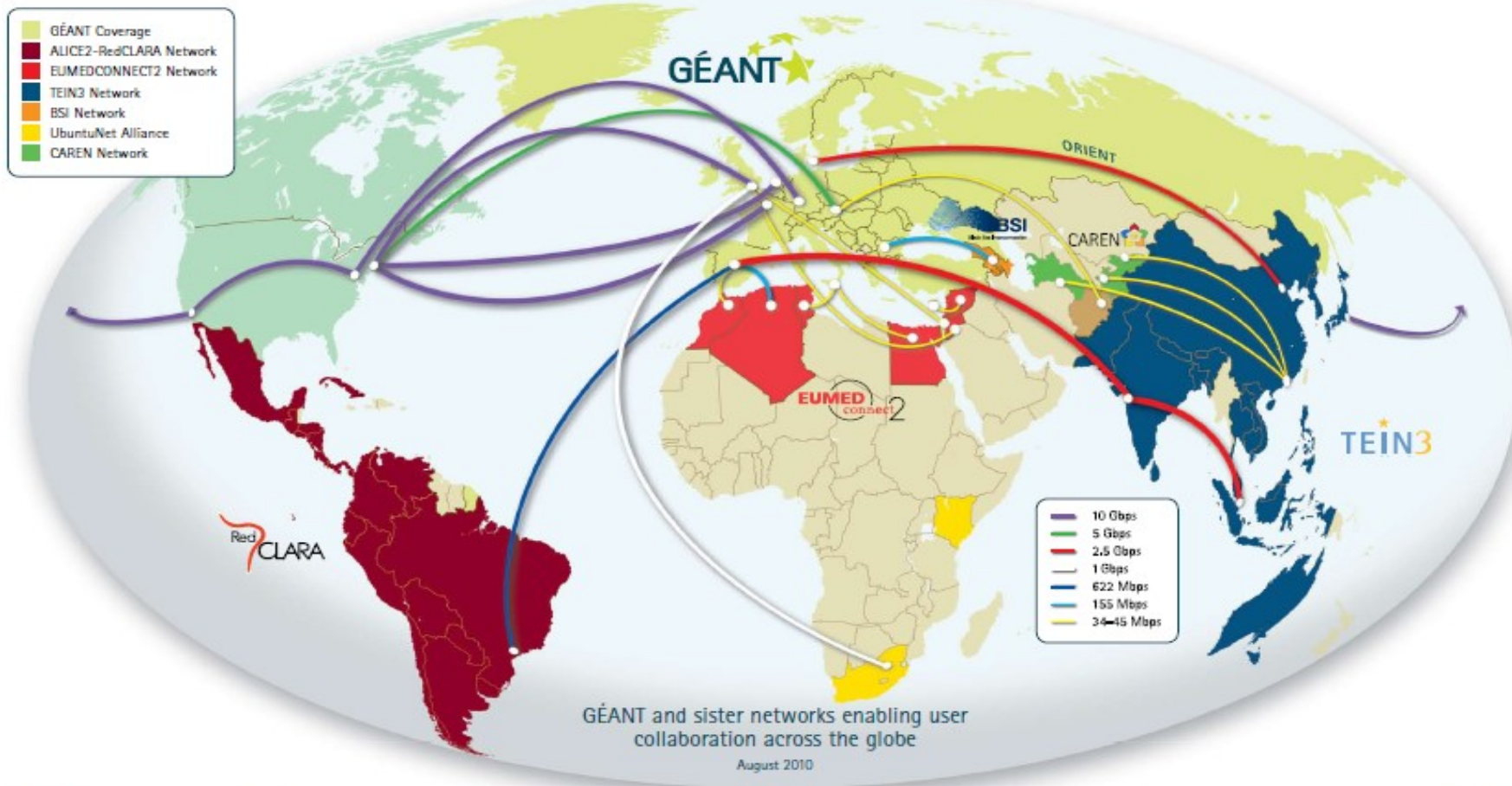


**Angioplastia Coronaria  
com Stent**

de anitatenleon

857 views

# GÉANT At the Heart of Global Research Networking





**Os 3 Vs**

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**VOLUME**

**VELOCIDADE**

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**VARIEDADE**

**VOLUME**

***Big Data***

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**E**

**EM**

**20007**

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# **INTERNET DAS COISAS**

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# COISAS LIGADAS À INTERNET ???

Para quê?

Quais?

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# COISAS

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- ✕ Smart TV
- ✕ Frigorífico
- ✕ Aquecimento
- ✕ Forno



# SMART TV



- Youtube
- Skype
- Apps
  - *Netflix*



## Food Management

Three built-in cameras allow you to view what's in your refrigerator remotely, using your mobile device, anytime, anywhere.

# CARRO





# SMARTWATCH



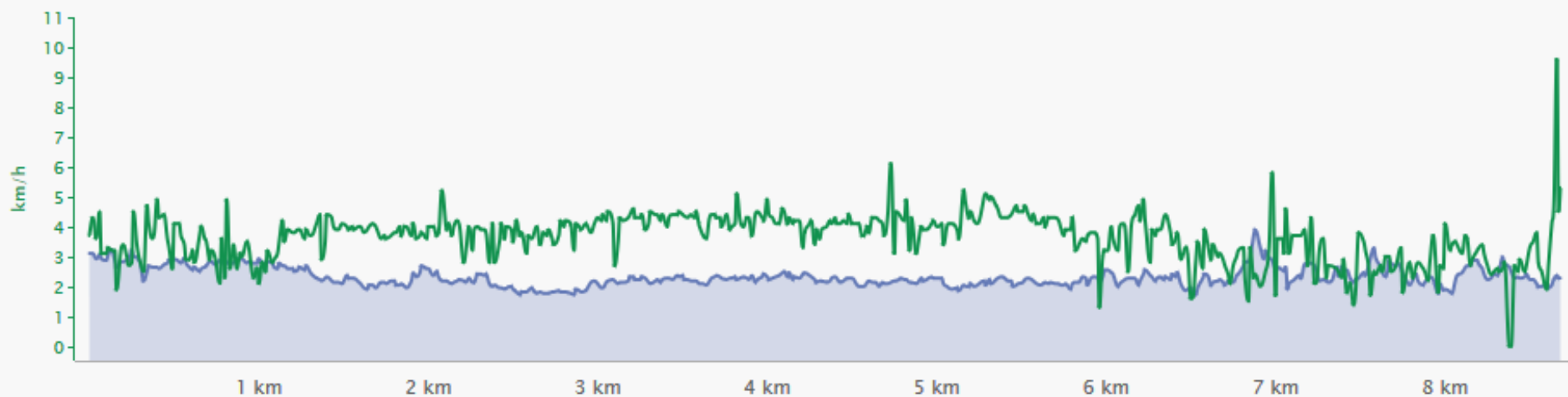




Best distances

☒ Distance ☐ Duration

☒ Speed ☒ Altitude



HBR.ORG

# Harvard Business Review



NOVEMBER 2014  
REPRINT R1411C

**SPOTLIGHT ON MANAGING THE INTERNET OF THINGS**

## How Smart, Connected Products Are Transforming Competition

*by Michael E. Porter and James E. Heppelmann*



nformation technology is revolutionizing products. Once composed solely of mechanical and electrical parts, products have become complex systems that combine hardware, sensors, data storage, microprocessors, software, and connectivity in myriad ways. These “smart, connected products”—made

possible by vast improvements in processing power and device miniaturization and by the network benefits of ubiquitous wireless connectivity—have unleashed a new era of competition.

In: Harvard Business Review

By Michael E. Porter and James E. Heppelmann

# EXEMPLO – FLIGHTRADAR24

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# How to Get a Flightradar24 Business Subscription for Free

Posted on: 2016-04-17 / Categories: Inside Flightradar24

With the launch of our new Business subscription, sharing ADS-B data with Flightradar24 has never been more rewarding. We have also made setting up your receiver as easy as possible so you can quickly begin sharing data and enjoying your new subscription.

## Build Your Own Receiver







# IOT – INTERNET DAS COISAS

## *ÁREAS APLICACIONAIS*

- ✖ Saúde / Bem-estar
  - ✖ Mobilidade
  - ✖ Ambiente
  - ✖ Domótica
  - ✖ Indústria
  - ✖ Logística
  - ✖ ...
-

# IMAGINEMOS ...

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- ✖ Os volumes de dados que as “coisas” do nosso quotidiano podem produzir
  - + Informação meteorológica
  - + Informação ambiental
  - + Informação de saúde
  - + ...
- ✖ O que pode, quem faz investigação, fazer com estes dados!

## DoorBot wireless doorbell cam lets you see visitors



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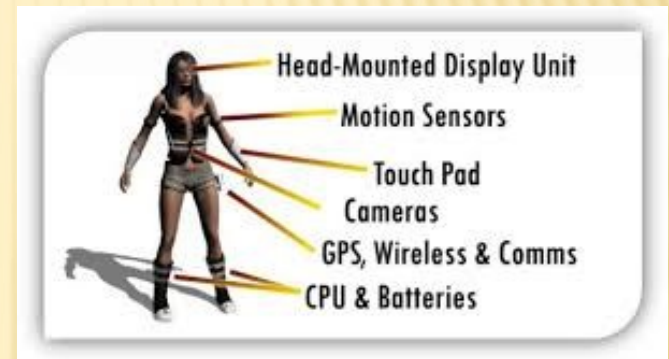
✗ *Wearables*

✗ RFID / IoT

✗ Wireless / Mobilidade

✗ NFC

✗ Big Data





# Drone - Ambulância

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# INTERNET PARA TODOS

*Mesmo todos*

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# Google está a testar drones que transmitem Internet 40 vezes mais rápida do que o 4G

O Project SkyBender é o mais recente esforço da tecnológica norte-americana para criar formas alternativas de distribuir Internet. Os testes aos drones já estarão a ser realizados nos EUA e numa 'casa' que está a ser dividida com a Virgin Galactic.





O QUE É

# PROJETO LOON

Um conjunto de balões capazes de levar a Internet a todo o mundo. A ideia tem tanto de simples como de arrojada e está a ser desenvolvida pela Google

[Mail](#)[Úteis ▾](#)[Notícias ▾](#)[Vida ▾](#)[Compras ▾](#)[Classificados ▾](#)[Internacional ▾](#)

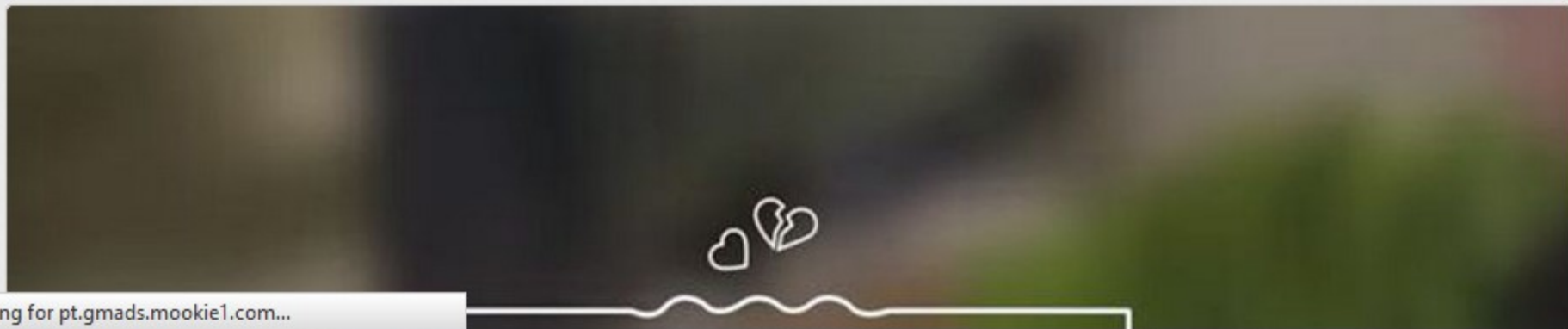
# SAPOTEK

[Notícias](#)[Mobile](#)[Extras](#)[Análises](#)[Opinião](#)[Multimédia](#)[Expert](#)[pplware](#)

📅 16-04-2016 ⌚ 10:44

## Há um colchão que deteta infidelidades e manda o relatório para o seu telemóvel

Uma empresa espanhola criou um colchão que é apresentado com a promessa de ajudar os proprietários a detetar movimentos suspeitos naquela superfície. Há uma aplicação que envia os relatórios com todos os dados.



Waiting for pt.gmads.mookie1.com...

# IBM Watson

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