

# ***Going Open in University & Libraries challenges and applications***

UFP's Erasmus Staff Week for Librarians

Workshop on 7<sup>th</sup> June, 2017

Luis Borges Gouveia

lmbg@ufp.edu.pt

# The Workshop

- ***Going Open in University & Libraries: challenges and applications***  
***7<sup>th</sup> June, University Fernando Pessoa***

*The digital and the almost ubiquitous existence of computers, mobile devices and computer networks turns data and information easily accessible and thus create new challenges. It impacts not just the way we preserve information but also how we store and organize it, forcing new forms to curate, discover and tackle with the economy of authorship, intellectual property, and editorship rights which are being eroding traditional barriers to activities like reading, usage, exploring and transforming both data and information into value.*

*As a result, the needs to be fulfill and services provided by libraries urge to consider a more digital context allowing a move to adapt and evolve (being smart) in order to provide digital information along with more traditional services in a sustainable way. This presentation discusses some of the challenges and applications that the open movement may provide for the years to come.*

***Can we consider that academic libraries candidates to be part of the digital transformation?***

# Workshop conducted by Luis Borges Gouveia

- *Full Professor* of Information Systems, in the Science and Technology Faculty at *University Fernando Pessoa*
- Among his research interests are *the impact of digital information and information society issues in our day-to-day life*.
- Authored 15 books and was involved in projects concerning the use of information into e-learning and e-government settings
- Coordinator of the UFP Phd Program in Information Science – Systems, Technology and Information Management
  - Web present: <http://homepage.ufp.pt/lmbg>
- Aggr. in Engineering and Industrial Management
- Phd in Computer Science
- MSc in Electronic and Computer Engineering
- Dip in Applied Mathematics / Informatics



*Luis Borges Gouveia, lmbg@ufp.edu.pt*

# Schedule, Tuesday 7<sup>th</sup> June

From 10:00 till 12:30:

1. Our world, a digital versus an analog one...
2. Digital issues
3. Libraries and the academic library

- *Be free to interact wherever wanted*
- *The main idea is to create an open discussion environment*





A (brand new) digital world and (/or) an analog one?

# OUR WORLD

# Evidence on a globalised world



**1.2 billion**

International trips  
made in 2016



**914 million**

Social networking users  
with at least one for-  
eign 'friend'



**244 million**

People living outside  
their home country  
globally



**75 million**

Online cross-border  
purchases within the  
EU-27 in 2016



**13 million**

Cross-border  
online students  
globally



**3.3 million**

People who studied abroad  
through the Erasmus pro-  
gramme, since 1987



**2 million**

Cross-border com-  
muters in the EU-27  
in 2015

Note: Data for 2016 or latest available (2015)

Source: McKinsey Global Institute, United Nations, World Tourism Organisation, OECD, European Commission







[https://ec.europa.eu/commission/sites/beta-political/files/reflection-paper-globalisation\\_en.pdf](https://ec.europa.eu/commission/sites/beta-political/files/reflection-paper-globalisation_en.pdf)

Luís Borges Gouveia, [Imbg@ufp.edu.pt](mailto:Imbg@ufp.edu.pt)

# Evolving globalisation

## Globalisation so far

## Trends changing globalisation

	Tangible flows of physical goods	
	Demand for more, and more diverse goods and services	
	Global supply chains	
	Flows mainly between developed economies	
	States and big multinational companies drive flows	
	Easily monetised transactions	
	Technology transfer from developed to emerging economies	

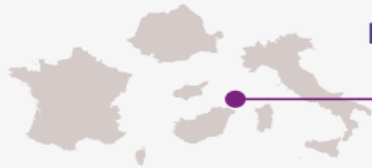
Source: European Commission, McKinsey Global Institute, OECD

# European Commission proposals to open up to globalisation



## European Union level

- Trade agreements to open markets and enforce a level playing field
- Measures to address tax avoidance and evasion as well as tax erosion
- Promotion of globally relevant regulatory standards
- Trade Defence Mechanisms
- European budget (such as EFSI, ESIF, GAF, Horizon)
- European external investment plan
- Development assistance
- Product and food safety



## Member State level

- Provision of education and training
- Active labour market policies and instruments to assist workers
- Social fairness through taxation
- Development assistance
- National investment plans
- Infrastructure spending
- Research and development



## Regional level

- Modern infrastructure provision
- Cluster policies and smart specialisation
- Land and sea logistics networks
- Effective use of regional funds (EFSI, for example)
- Provision of education and training



## Local level

- Smart city solutions
- Integration of migrants
- Innovation hubs and entrepreneurship incubators

# The easy part...



Taking notes in a class



Reading cached e-mail during a flight



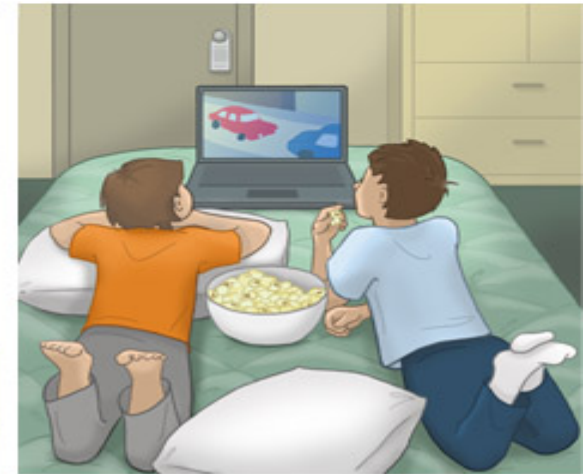
Updating patient records between appointments



Browsing the web while reclining on a sofa



Giving a business presentation



Watching a movie in a hotel room

# Some ideas of such a world...

- Highly networked
- Fast paced
- Ongoing change
- Mutating workplace (leisure also?...)
- Do it now, everywhere, with available tech, no time waste, and resources efficiency
- Action
  - Collaboration oriented
  - Life long learning
  - Self learning
- Be prepared for
  - share, cocreate, be creative, reuse, and stay with high mobility

# Digital challenges



# A definition...

- Describes any system based on discontinuous data or events.
  - Computers are digital machines because at their most basic level they can distinguish between just two values, 0 and 1, or off and on. There is no simple way to represent all the values in between, such as 0.25.
  - All data that a computer processes must be encoded digitally, as a series of zeroes and ones.
- The opposite of digital is *analog*.
  - From <http://www.webopedia.com/TERM/D/digital.html>

# Spread the word (on that case, the bit)

- Bit: binary digit
- First computer, then networks
- First some data, then many data
  - On such days almost all the data that matters
- First some information, then those information we need to access
  - On such days almost all the information with value
- And knowledge?
  - We are working on it...

# **T. S. Eliot (1888-1965): The Rock (1934)**

*Where is the Life we have lost in living?*

*Where is the wisdom we have lost in  
knowledge?*

*Where is the knowledge we have  
lost in information?*

<http://www.wisdomportal.com/Technology/TSEliot-TheRock.html>



# Information society

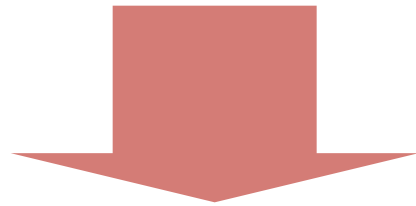
- *a society where information and communication technology are the primary resource to exchange digital information, and to support interaction between individuals using practices and methods in permanent change*

*(Gouveia and Gaio, 2004)*

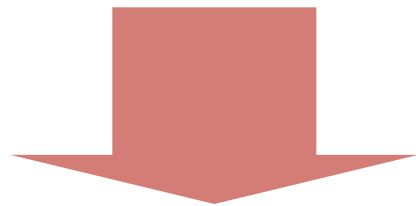


# Information society

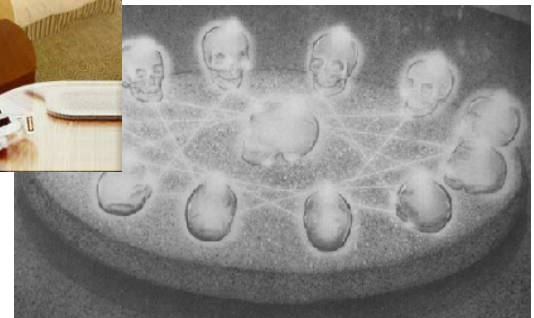
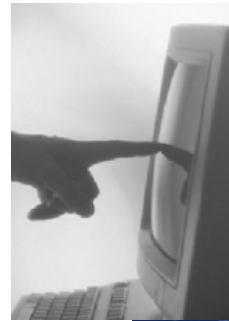
**Heavy use of ICT  
(computers and networks)**



**Growing use of digital**



**Network organisation**

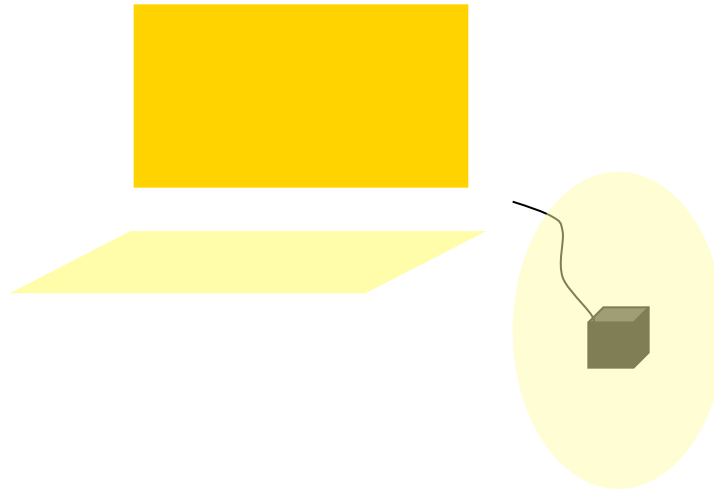


Once upon a time...

# the computer



# The computer without a mouse!



# The computer without a mouse! ... How to use it?



# The computer without a keyboard!



# The computer without keyboard!... How to use it?

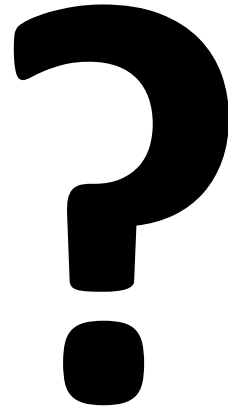


# The computer without monitor!

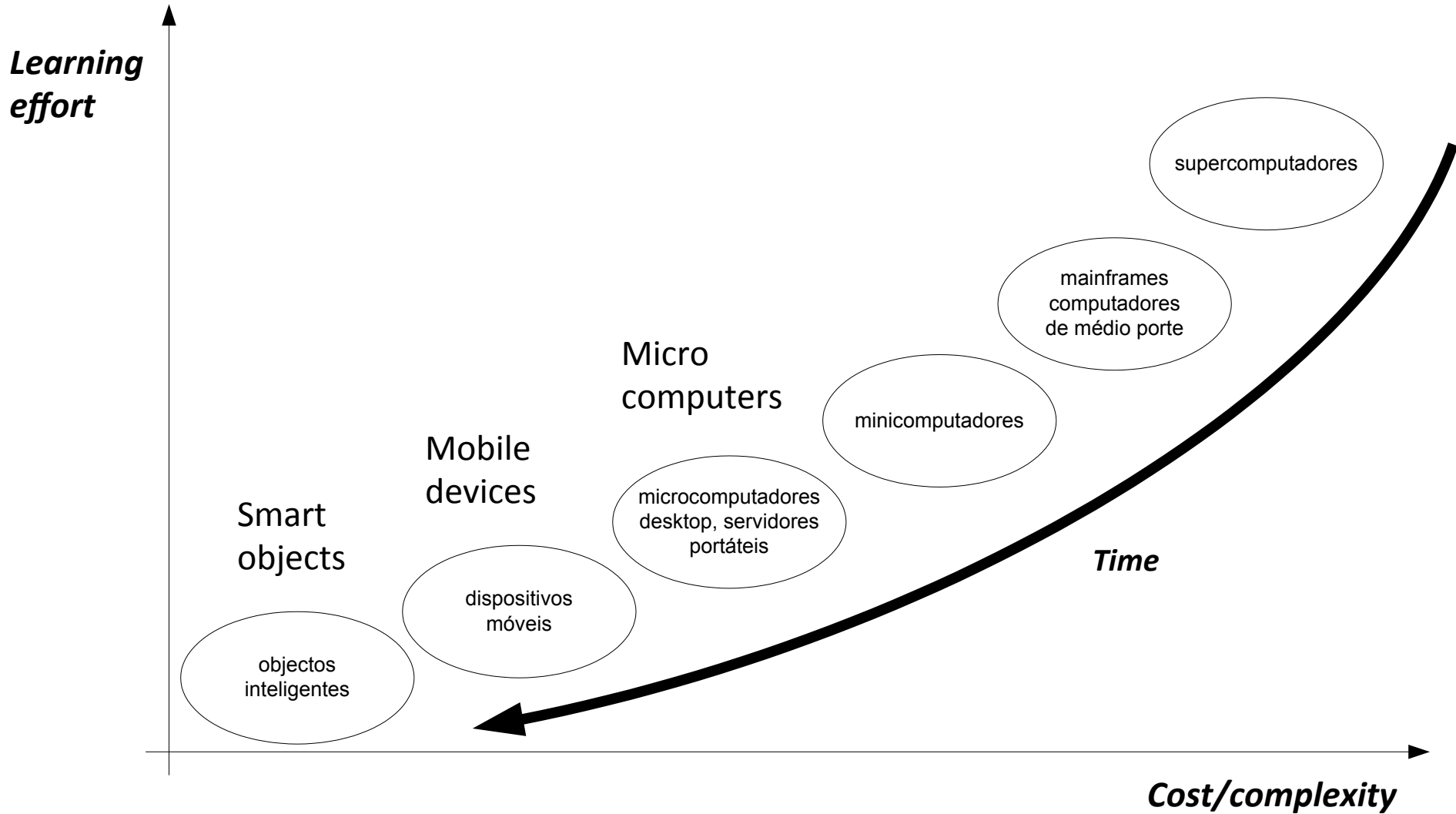


But... Where is the computer!

But... Where is the computer!



# But... Where is the computer!



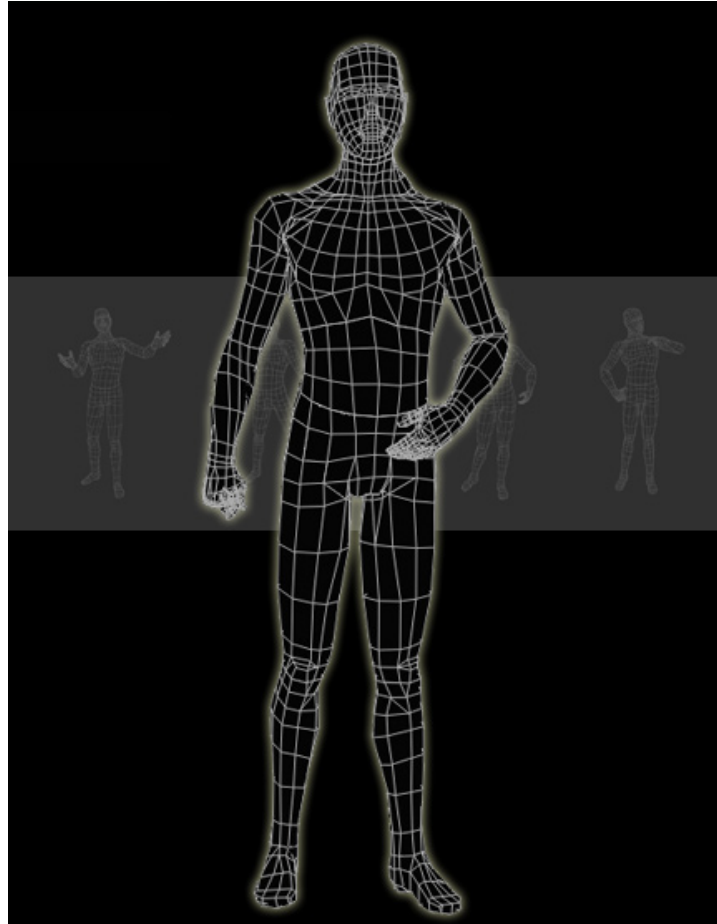
# But... Where is the computer!

- Networked hidden  
*and*
- Transaction related

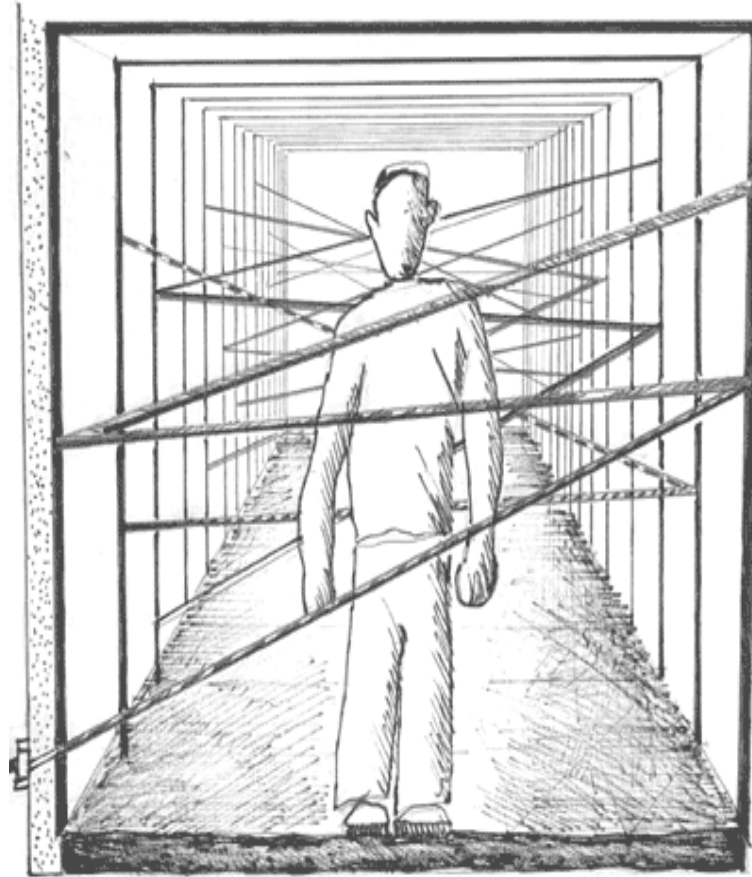
*“somewhere among us”*  
*Make us remember some*  
*religious stuff*



# the digital and rich information environments



# The analogic and rich information environment





Skills to upscale from using computers to discover information

# **DIGITAL ISSUES**

# From the analogic to the digital “world”

- **learn...**
  - In the analogic, memorise to learn
  - In digital, forget to learn
- **work...**
  - In the analog, take time to work
  - In the digital, work without taking time

# Some remarks

- With digital support
  - Space is extended
  - Time becomes a scarce resource
  - i.e. more reach, less time
- People in organisations
  - Less government
  - More governance
  - i.e. Distance can be less a problem than time (time to know, time to be, time to do, time to react,...)
  - i.e. Networks, instead of leadership (?)

# Some remarks

- Again, the digital, time-space and people...
  - i.e. Increase information flux and interactions
- At the end of the day
  - Who pays the bill
  - Who controls it
- Has we take this into consideration when design our cities\* for (?)
  - Diversity
  - Proximity
  - Centrality
  - Knowledge
  - A given strategy

\*schools, libraries, ...

# A number of challenges

- People skills
- [Social, economical, digital] gap
- Engage people
- What to know and how (wisdon?...)

But also

- Sense human presence
- Collaboration support (not just sharing or cooperation)
- Information visualisation & Knowledge representation
- Linking the real and the virtual (location devices, senses and get rid of web based as first tech proposal...)

# Additional notes

- “perform” digital it is not just related with computers and networks
- We still be analogic, but our interaction are more digital than ever



# Additional notes

- Knowledge rate substitution
  - Something between 20% to 25%
  - This means that we need to replace knowledge every 4 – 5 years
- As a result, a territory must be also organised with the ability to produce knowledge
  - Need schools, research and focus
  - Additional concerns to add to energy, water and other stuff...
  - ...and what is the role for libraries?

# Additional notes

- A move from an offer oriented organisation to a client oriented strategy also has implications in the way we deal with information
  - New ways to deal with information discover
    - How to be discovered (offer side)
    - How to discover (client side)
  - Individuals can no more stand on their own ability; must rely mostly on their network connections
  - ...again, what is the role for libraries?

# Digital literacy

“Digital literacy is the ability to understand information and –more important –to evaluate and integrate information in multiple formats that the computer can deliver. Being able to evaluate and interpret information is critical [...] you can't understand information you find on the Internet without evaluating its sources and placing it in context”.

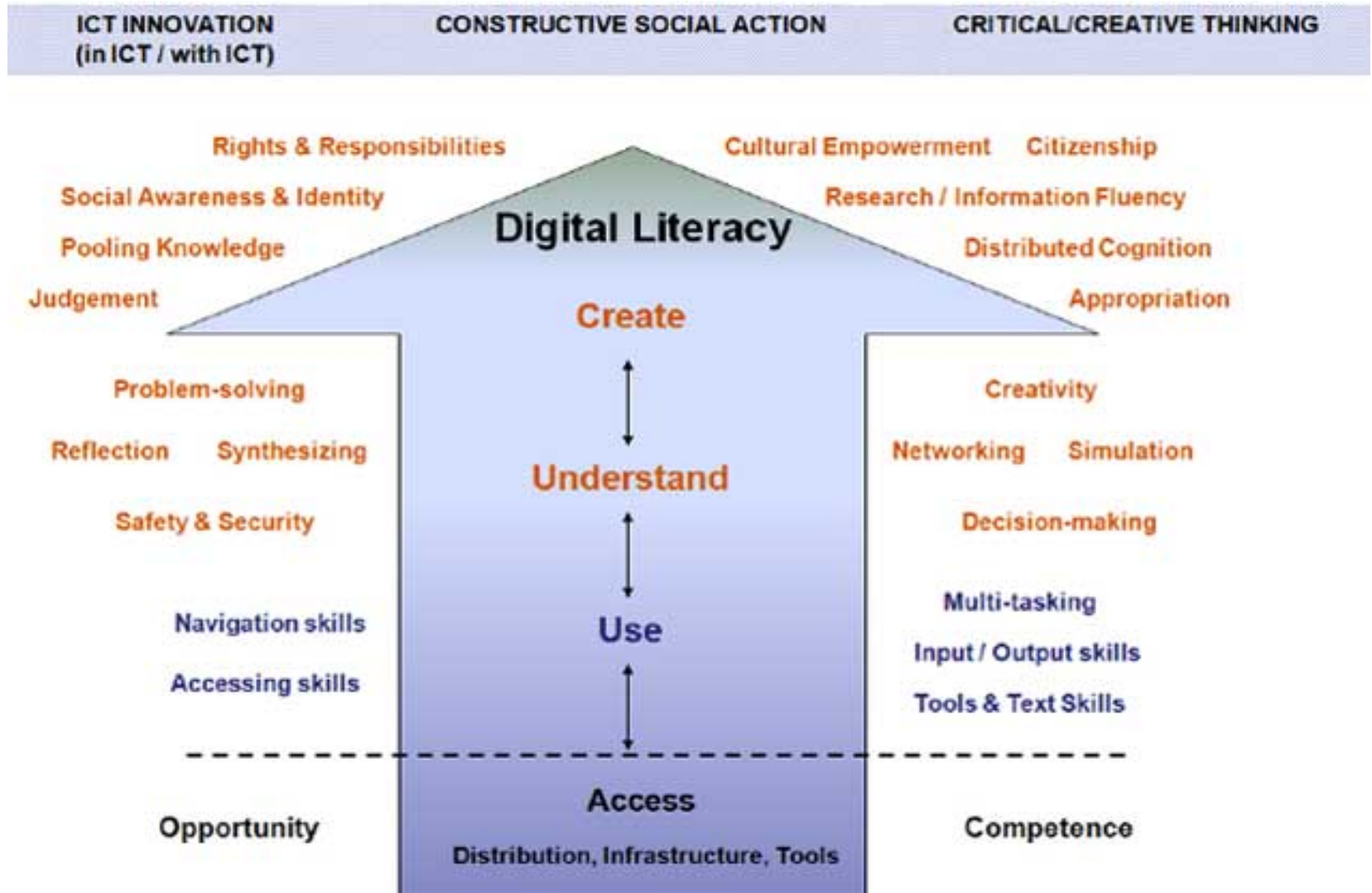
Paul Gilster

Read more at

<http://www.ascd.org/publications/educational-leadership/nov97/vol55/num03/A-New-Digital-Literacy@-A-Conversation-with-Paul-Gilster.aspx>

*Luís Borges Gouveia, lmbg@ufp.edu.pt*

# Being part of a bigger and complex set



# How much information?

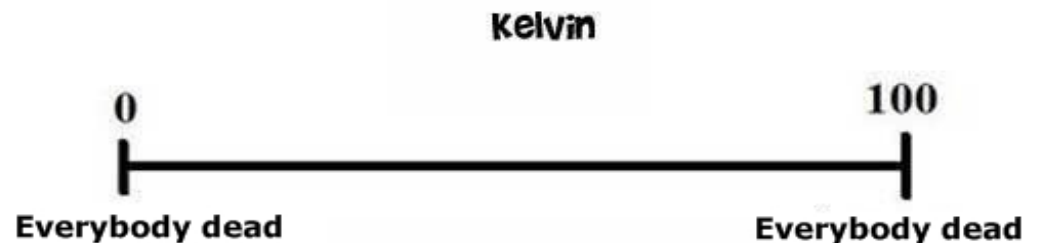
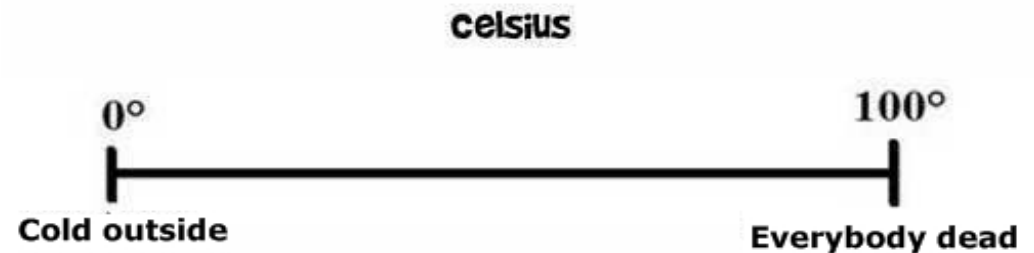
- *“2002 could be considered the beginning of the digital age, the first year worldwide digital storage capacity overtook total analog capacity. As of 2007, almost 94 percent of our memory is in digital form”*
- What about 2017?
  - From 2012, each year, available information doubles...  
big data issues and the emergence of data science
  - Data is the value...
- Read more on <http://news.usc.edu/#!/article/29360/How-Much-Information-Is-There-in-the-World>
- Watch a video about the Martin Hilbert study: <http://vimeo.com/20928251>

# Deal with it...

- Information overload
  - Issues of quantity (to much information to cope with...)
  - Issues of quality (to complex information to cope with...)
  - Issues of synchrony and trueness (can we deal with channel diversity and confirm information trueness...)
- How to deal with information overload?
  - Management  
(tasks, goals, time, information, relationships, attention, ...)
  - Relate, structure, prioritise
  - Say no!
  - Do not have it, link it!
  - Filter, discard
  - Share, collaborate
  - Focus and forget
  - Learn to network a lot

# Turn knowledge into understandable information

- Translate it to real world relationships...
  - compare and relate
  - use multimedia and visual complexity



See

<http://www.visualcomplexity.com>

# With Internet the issue of publication also changes

- See this 9:29 min video from Aaron Swartz –

## **The Network Transformation**

<http://www.youtube.com/watch?v=CzNXDdjtXQI&noredirect=1>

*Aaron Swartz, Internet activist  
(1986, 2011)*





Resources, challenges, and applications

# **LIBRARIES & ACADEMIC LIBRARIES**

# Grassroots for the digital

- Vannebar Bush with *As we May Think* (1945), paper
  - <http://www.theatlantic.com/magazine/archive/1945/07/as-we-may-think/303881/>
- J. C. R. Licklider with *Libraries of the Future* (1965), book
  - <http://www.incunabula.org/2013/02/j-c-r-licklider-libraries-of-the-future-1965/>
- Those authors are part of the Internet pioneers, who anticipate in many ways our today reality
  - <http://www.ibiblio.org/pioneers/licklider.html>
- Also William Arms in its 2000 book, provide a reference for the use of the digital libraries idea
  - <http://www.cs.cornell.edu/wya/diglib/>
- The idea of linking and relating information and provide a more semantic oriented access is beyond just better access and goes further into learning and understanding not just authors work but the knowledge it represents
  - The very idea of libraries...

# From Licklider book (1965)

*“If books are intrinsically less than satisfactory for the storage, organization, retrieval, and display of information, then libraries of books are bound to be less than satisfactory also. We may seek out inefficiencies in the organization of libraries, but the fundamental problem is not to be solved solely by improving library organization at the system level.*

*Indeed, if human interaction with the body of knowledge is conceived of as a dynamic process involving repeated examinations and intercomparisons of very many small and scattered parts, then any concept of a library that begins with books on shelves is sure to encounter trouble.”*

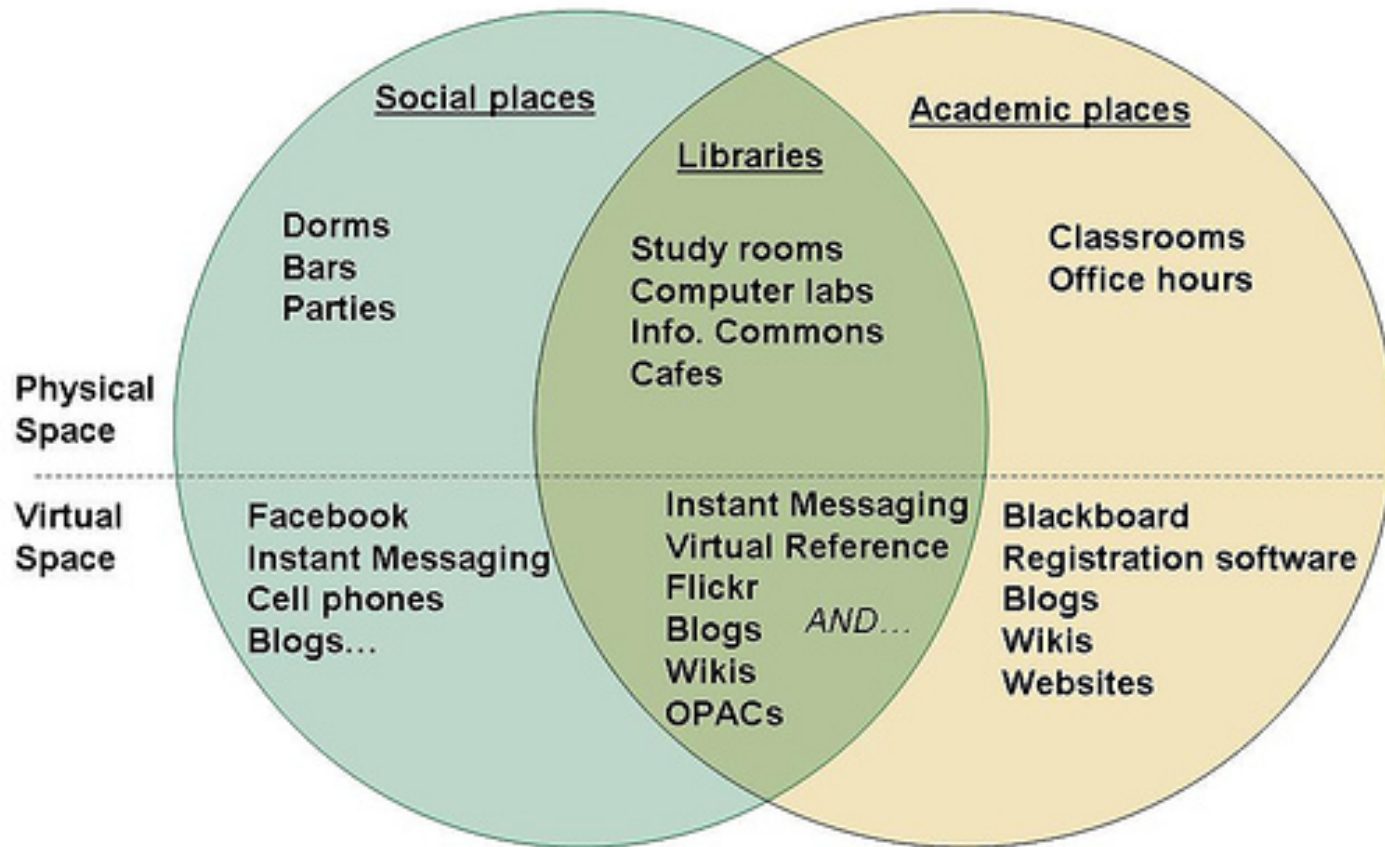
# Definition of digital library

- Not “a definition” but many alternatives, like these:
- Borgman (2000)
  - Digital libraries are a set of electronic resources and associated technical capabilities for creating, searching, and using information. Digital libraries are constructed – collected and organized – by [and for] a community of users, and their functional capabilities support the information needs and uses of that community
- Bishop, Van House and Battenfield, (2003)
  - Sociotechnical systems – networks of technology, information, documents, people, and practices

# About preservation

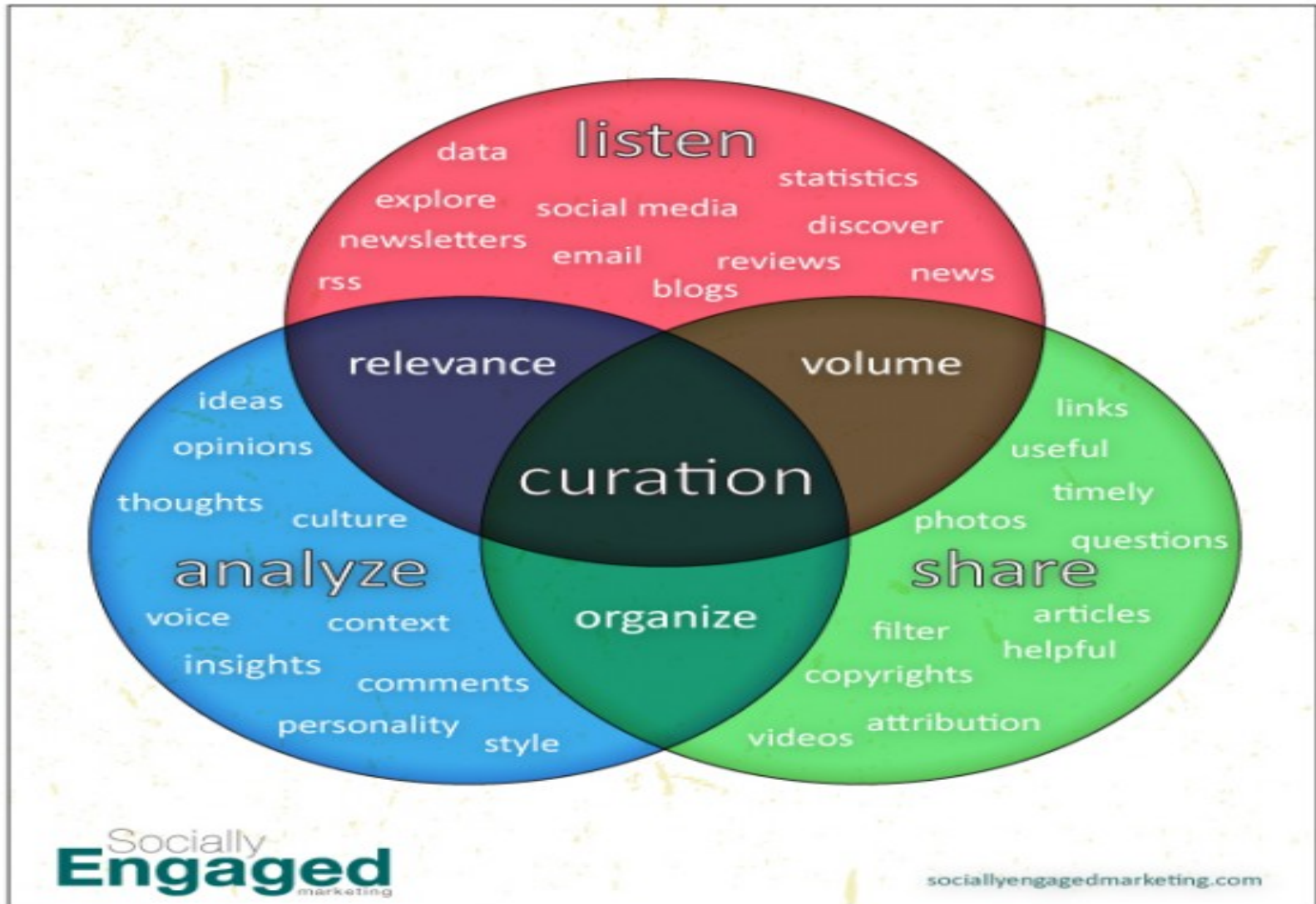
- the curatorial role of digital libraries as managed collections, requiring that digital objects be selected, made accessible, and preserved as *long-term, stable resources*
- *Preservation is a critical and quite challenging issue* where the digital becomes a even higher challenge
  - *How to access old formats and mantain support reading devices from several generations?*

# Digital Library as third place



<http://mchabib.com/2006/10/05/digital-library-as-third-place/>

# Information & digital curation



# Information curation

- *Curation is the act of individuals with a passion for a content area to find, contextualize, and organize information. Curators provide a consistent update regarding what's interesting, happening, and cool in their focus. Curators tend to have a unique and consistent point of view providing a reliable context for the content that they discover and organize.*“

Steven Rosenbaum

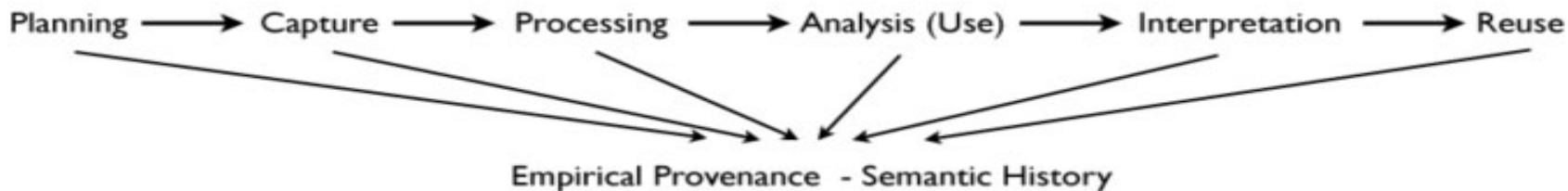
<http://www.fastcompany.com/1834177/content-curators-are-new-superheros-web>

- Plan and oversee the arrangement, cataloguing, and exhibition of collections. It additionally describes and analyses valuable objects for the benefit of researchers and the public

<http://informationcuration.wikispaces.com/>

# Digital curation

- General term for the activities and strategies that support the stewardship of a particular portion of library collections – digital assets
  - Context and focus
- Consists of producing, acquiring, organizing, maintaining, controlling, preserving, and securing digital assets is an enterprise effort that requires the coordination of personnel and operations putting the right information into where and when it is needed
  - Time and space requirements of information needs



Scholarly Activity	Discover	Gather	Create	Share	Save
Publication	Go to library, search online, talk with colleagues, review own materials	capture in notebook, netbook, laptop, desktop, iPhone	Word doc, references, images, figures, PDF	Send to publisher, publish online via FTP, blog, repository	Backup locally, Send to repository via ingest process (OAIS), convert to complex digital object (METS)
Tools	Finding aids, web search, Collections	bSpace, Zotero, Portfolio, network storage, email, iPhoto	MS/Open Office Endnote, Photoshop, Illustrator, iPhoto, PDF, Omeka	MV Publish, e-Scholarship, bSpace, Calmail	Time Machine, UC Backup, Digital Preservation Repository, METS
Provider	Library, Google, MV collections	ETS, Zotero, IST, gmail/calmail	MS/Open Office, MV DAM (IST), bSpace (ETS), Omeka (Okapi)	Publishers, Flickr, Facebook, IST, Library, CDL, ETS	Apple, IST, CDL, Library Services
Function	Search	Digital Asset Management	Productivity Tools	Publishing	Archiving

# Challenges for Academic Libraries

## 10 ideas from 2014, still update?

1	<b>Making services engaging to researchers and students</b>
2	<b>Handling research data management tools</b>
3	<b>Demonstrating your value</b>
4	<b>Preserving material on a digital scale</b>
5	<b>A growing and diverse spectrum of customers</b>
6	<b>Nailing down library policies</b>
7	<b>Role development</b>
8	<b>Digital licensing</b>
9	<b>Subject-matter expertise</b>
10	<b>Becoming familiar with a wide range of digital content</b>

<http://www.sirsidynix.com/blog/2014/09/25/top-10-challenges-for-academic-libraries-in-the-21st-century>

# Real world issues (many, complex and intertwined and provide a never ending quest)

- Infrastructure
  - Physical infrastructures
  - Technological infrastructures
  - Digital platforms
- Budget
  - Maintenance & operations
  - Research & development
- Human power available
  - Age distribution
  - Skills and digital skills
  - Training and PR (public relations) issues
- Digital culture
  - From staff
  - From managers
  - From users
- Organizational structure
  - Internal to the service
  - Integration with the organization
  - User oriented to respond, adapt and transform

# Operational issues

- Major groups of concern:
  - Communication and Brand issues (CB)
  - *Sustainability issues (SI)*
  - **Legal and security issues (LS)**
  - *Knowledge management issues (KM)*
- *Privacy and security*
- *Individual data*
- *Intellectual property*
- *Patents and industrial copyrights*
- *Legal complex environment*
- *Multiple partners activities*
- *Content cocreation*
- *Shared property and services...*

# Intellectual Property (IP)

- Copyright
  - Automatically conferred when a physical representation of an idea is done
- Trademark
  - Any sign or symbol that allow to others to distinguish the offer from the competitors
- Patents
  - Protect the form and functionality of any invention and the process by which it is made
- Design rights
  - Gives a monopoly right for the look of a product, protecting boh the shape and pattern or the decoration
- Informal types of IP protection
  - Trade secret where there is no formal protection but an unknown part of the IP that keeps the offer not open to other than those who have the knowledge

# The open movement

- A lot to be added
  - A requirement for R&D
  - Open data
  - Open science
  - Open publication
  - Open source
  - Open access
- Where is the value of it?
  - Share, reuse and enhance:
  - Faster, cheaper and easier
- Creative commons
  - <https://creativecommons.org/>

# Libraries transform: communication the library...

- The librarian: the best search engine

Libraries Transform is built around four key messages:

- Libraries transform lives
- Libraries transform communities
- Librarians are passionate advocates for lifelong learning
- Libraries are a smart investment

<https://americanlibrariesmagazine.org/2017/06/01/libraries-transform-progress-report/>

# Although still an offer approach...

there is always space for community reinforcement

- Because the expert in the library is you
- Because fake news can have real-world consequences
- Because your voice is important
- Because support is key to success
- Because you can pass a referendum



 <p><b>BECAUSE</b> FOR EVERY NEW BOOK ADDED TO THE SHELVES ANOTHER BOOK MUST BE REMOVED.</p> <p><a href="#">learn more</a></p>	 <p><b>BECAUSE</b> SEATING FOR 38 DOES NOT ACCOMMODATE THIS LIBRARY'S 1,500 DAILY VISITORS.</p> <p><a href="#">learn more</a></p>	 <p><b>BECAUSE</b> FORTY PERCENT OF CHILDREN GOING INTO KINDERGARTEN ARE NOT READY FOR SCHOOL.</p> <p><a href="#">learn more</a></p>	 <p><b>BECAUSE</b> ONE IN FOUR MISSOULIANS DOESN'T HAVE ACCESS TO A UTILITY CALLED THE INTERNET.</p> <p><a href="#">learn more</a></p>
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# About fake news & the *CRAAP test*

- **Five categories:**
  - **Currency:** the timeliness of the information
  - **Relevance:** the importance of the information for your needs
  - **Authority:** the source of the information
  - **Accuracy:** the reliability, truthfulness, and correctness of the content
  - **Purpose:** the reason the information exists
- Scoring each category on a scale from 1 (worst) to 10 (best)
- Grade on a 50 point scale for how high-quality it is!
  - 45 - 50 Excellent
  - 40 - 44 Good
  - 35 - 39 Average
  - 30 - 34 Borderline Acceptable
  - Below 30 - Unacceptable

## *CRAAP test*

*(currency, relevance, authority, accuracy, purpose)*

- **Currency:** the timeliness of the information
  - When was the information published or posted?
  - Has the information been revised or updated?
  - Is the information current or out of date for your topic?
  - Are the links functional?

# *CRAAP test*

*(currency, relevance, authority, accuracy, purpose)*

- **Relevance:** the importance of the information for your needs
  - Does the information relate to your topic or answer your question?
  - Who is the intended audience?
  - Is the information at an appropriate level (i.e. not too elementary or advanced for your needs)?
  - Have you looked at a variety of sources before determining this is one you will use?
  - Would you be comfortable using this source for a research paper?

# *CRAAP test*

*(currency, relevance, authority, accuracy, purpose)*

- **Authority:** the source of the information
  - Who is the author/publisher/source/sponsor?
  - Are the author's credentials or organizational affiliations given?
  - What are the author's credentials or organizational affiliations given?
  - What are the author's qualifications to write on the topic?
  - Is there contact information, such as a publisher or e-mail address?
  - Does the URL reveal anything about the author or source?

# *CRAAP test*

*(currency, relevance, authority, accuracy, purpose)*

- **Accuracy:** the reliability, truthfulness, and correctness of the content
  - Where does the information come from?
  - Is the information supported by evidence?
  - Has the information been reviewed or refereed?
  - Can you verify any of the information in another source or from personal knowledge?
  - Does the language or tone seem biased and free of emotion?
  - Are there spelling, grammar, or other typographical errors?

# *CRAAP test*

*(currency, relevance, authority, accuracy, purpose)*

- **Purpose:** the reason the information exists
  - What is the purpose of the information? to inform? teach? sell? entertain? persuade?
  - Do the authors/sponsors make their intentions or purpose clear?
  - Is the information fact? opinion? propaganda?
  - Does the point of view appear objective and impartial?
  - Are there political, ideological, cultural, religious, institutional, or personal biases?

# Trends and the Library of the future

<http://www.ala.org/transforminglibraries/future/trends>

<i>Aging Advances</i>	<i>Anonymity</i>	<i>Badging</i>	<i>Basic Income</i>
<i>Collective Impact</i>	<i>Connected Learning</i>	<i>Connected Toys</i>	<i>Data Everywhere</i>
<i>Digital Natives</i>	<i>Drones</i>	<i>Emerging Adulthood</i>	<i>Fandom</i>
<i>Fast Casual</i>	<i>Flipped Learning</i>	<i>Gamification</i>	<i>Haptic Technology</i>
<i>Income Inequality</i>	<i>Internet of Things</i>	<i>Maker Movement</i>	<i>Privacy Shifting</i>
<i>Resilience</i>	<i>Robots</i>	<i>Sharing Economy</i>	<i>Short Reading</i>
<i>Unplugged</i>	<i>Urbanization</i>		

# Data Privacy Project

- The Digital Privacy and Data Literacy Project (<https://www.dataprivacyproject.org/>) teaches NYC library staff how information travels and is shared online, what risks users commonly encounter online, and how libraries can better protect patron privacy
  - Privacy literacy training
  - Historical overview
  - Mapping data flows
  - Risk assessment



Data Privacy Project

# Data visualisation

- A good resource is <http://guides.library.duke.edu/c.php?g=289678&p=1930713>
- Anything that allows to convey data and information into visual form
  - Scientific visualization
  - Information visualization
  - Visual representations
  - Infographics
- & visual analytics – using graphics to analyse data

# Data Analytics

- A good resource is <http://data.library.virginia.edu/statlab/>
- How to deal with data from its gathering, to its organising, visualisation and analysis
  - Includes tools and technologies as well support and information about concepts and theories, ranging from statistics topics to languages as R or Python or programs as SAS and SPSS
  - Data science is a trend on dealing with not just data, but big data

# Library publishing services

- Basic services
  - Open journal systems (OJS)
  - Dspace (archives & scientific repositories)
  - Locally developed software
- Post production
  - Metadata
  - Cataloging
  - Digital preservation
  - ISSN / ISBN registry
  - Open URL support
  - Handle and/or DOI attribution

# Types of Journals and Journal Formats

	Journals in development	Established journals	New journals
Electronic only			
Electronic and print			
Electronic and print on demand			

- Sources of funding for individual journals
  - Library operations
  - Subscriptions
  - Grants
  - Other
  - Fee for service (charge back)
  - Author-side fees
- The same for author publication?

# Sources of support for library publishing programs

- Library operating budget
- Grant support
- Endowment funds
- Additions to library budget
- Revenue from sale of products or services
- Charge back to campus units
- Royalties
- Other...

# Additional services provided by (academic) Libraries with publishing services

- Digital repository services
- Digitalisation services
- Author copyright advisory
- Other author advisory
  - When, Where, how to publish...
- Editing services
  
- Must fit scholar and researcher needs, along with the university strategy

# A nice set of resources for academic libraries is ARL and their SPEC Kits

- [http://publications.arl.org/SPEC\\_Kits](http://publications.arl.org/SPEC_Kits)
- ARL (Association of Research Libraries) offer a number of information materials to provide information about a given subject with examples and operational materials
  - Cover issues as data curation, funding article processing charges, collection assessment, supporting digital scholarship, library support for faculty/researcher publishing, open source software, digital humanities, digital preservation, library user experience, among many others...

# Hope the workshop provide some value

