#### **University of Trento**

## Crash Course on research funding, intellectual property and start up creation

Tuesday, 16 April 2015

## University Knowledge Transfer: Copyright and open access in the digital age

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### Copyright Law and the Digital Age



#### ...let's start...

- Human creativity needs technology to express itself.
- The discipline of intellectual works is strictly related to technological developments.
  - The embryo of a legal protection of copyright takes shape at a turning point →
     the invention of movable type printing
- The historical antecedents of modern laws on protection of intellectual works are represented by the privileges granted by the sovereign for printers.



#### Copyright Law

• The Statute of Anne (1710): "An act for the <u>encouragement of learning</u>, by vesting the copies of printed books in the authors or purchasers of such copies, during the times therein mentioned"

• U.S. CONST. art. I, Sec. 8, cl. 8 «The Congress shall have Power . . . To promote the <u>Progress of Science and useful Arts</u>, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries»



#### Copyright is a recent law

- Unlike the property on material things (which dates back to the dawn of time, which means the earliest forms of human legal organization).
- Copyright is a recent law

- Before printing:
  - Classic world: Greece and Rome
  - Medieval Age: authors (and scribe), painters, sculptors, architects, musicians and theater



#### Copyright is a recent law

- Hypothesis to justify the absence of copyright:
  - Economic incentives (patronage) and uniqueness of representation
  - Non economic incentives
  - Not immorality of plagiarism
    - Creativity and plagiarism: an ambiguous relationship (i.e. Shakespeare and following slides)
  - Absence of the possibility of creating a market for piracy (the cost of the original is equal to the cost of the copy (you must pay the scribe))



Which did come first: the egg (protection) or the chicken (its infringment)?

"Only when media technology and market conditions made piracy profitable could copyright arise" (P.E. Geller)





## Emergence of a new revolutionary technology and its impact on the market

- Before the invention of movable type printing, the original costs the same as the copy (the cost is the payment of the slave, the scribe).
- With <u>movable types</u>, the original (matrix) is very expensive, the copy is cheap (the marginal cost of producing the copies is low).
- The second printer copyies the matrix (supporting costs) and then he must support only the marginal costs of producing copies.
- With a new market (the book) and a new business model (selling large-scale copies of the originals with a cover price) → comes the need for new rules



#### Information: a "good" with distinguishing characteristics

- Information features:
  - Immateriality
  - Inexhaustible
  - incremental and cumulative nature ("on the shoulders of giants")
- Information → "Public Good":
  - Not rival
  - Not excludable
- A market of public goods → <u>Market Failure</u>



#### Remedies for the market failure

- State remedies for market failure:
  - Direct intervention
  - Awards and grants
  - Monopoly/Property rights (copyright and patents)
    - To create artificially (ie, by the force of law) the excludibility that is missing to information in the state of nature
    - An exclusive right that allows to apply an higher price with respect to the marginal cost in order to incentive the creation and distribution
    - A poised balance → The exclusive right is limited in time and extent



#### The Origins of Intellectual Property

- Relationship between the Gutenberg invention of the press and the legal protection of literary works:
  - Press invented in the 15th century: first Bible published in1455
  - Privilege of the Republic of Venice (1469)



#### The Statute of Anne - The Authors' Copyright

- 1710 the Statute of Anne:
  - Declamation: "The encouragement of learning" (no reference to "property" contained in the preamble of the Bill)
  - Operational rules:
    - "The sole liberty of printing and reprinting books ..." (Proprietor), but <u>uncertainty in</u> the nature of law
    - <u>Time limits</u>: 14 years from publication plus another 14 if the author is still alive (for works already published: 21 years from 1710)
    - Registration
    - Penalties



#### The Extension and Globalization of Copyright Law

- 1883: draft of the International Copyright Agreement
- 1886: Berna Convention for the Protection of Literary and Artistic Works
- 1893: creation of the Bureau for the Protection of Intellectual Property. In 1967, it becomes the World Intellectual Property Organization (WIPO)
- April 15th, 1994: Annex 1C to the Marakesh Agreement: Trade Related Aspects of Intellectual Property Rights; GATT becomes the World Trade Organization
- 1996: WIPO Copyright Treaty

• ...



#### **Copyright Law**

- Copyright law grants authors an exclusive rights in their intellectual works.
- The exclusive right embraces:
  - Moral rights
    - i.e. right of attribution
  - Economic Rights
    - i.e. publication, reproduction, derivative works, etc.



#### Copyright Law limits: extension

#### • <u>Extension</u>:

- Originality
- Expression/Idea Dichotomy
- First Sale Doctrine (Once a work is sold or distributed on a specific territory with the consent of the right holder, the latter may not control or prevent the further distribution).



#### Copyright Law limits: duration

- Statute of Anne 1710: 14 years (+ 14)
- U.S. Copyright Act 1790: 14 years
- Berne Convention art. 7: author's life + 50 years
- Diretctive 93/98/EC, 29 October 1993: author's life + 70 anni
  - Art. 25, l. 22 aprile 1941, n. 633 (Italian) "Copyright Law"
- Sonny Bono Copyright Extension Act of 1998: author's life + 70 years



#### Copyright in the digital age

- Until the specimens were copied with difficulty or a copy was qualitatively much lower than the original → the rules mentioned before have fulfilled the assigned task.
- The system has started to crack with
  - tools to easily reproduce protected works:
    - photocopiers,
    - tape recorders,
    - VCRs
- Epochal challenge of digital technology!



#### Copyright in the digital age

- Challenge of digital era with respect to the traditional patterns of protection of copyright:
  - Easy production of copies
  - Impossibility to distinguish the copy from the original by a quality point of view
  - Easiness of distribution of copies.
- Copyright laws are still there to recognize exclusive rights to creators of original works.
  - New threats and new instruments of protection.



#### Copyrigth in the digital age

- Digital age brings to a redefinition of the elements that characterize intellectual works:
  - Concept of work

Concept of author

Concept of creativity



#### The paradigmatic case of software

Machine or Symbolic Code?

In any case, the added value lies in the utility, functionality

Complementary and alternative protection – The Copyright Approach



#### The ambiguous nature of software

- Text:
  - literal elements (similarity to a work protected by copyright)

- Machine:
  - functional elements (similarity with an invention protected by patent)



## Complementary and alternative protection - The Copyright Approach

- Copyright
- Contracts (License; EULA, ...)
- Unfair Competition
- Trade Secret
- Patent
  - Art. 52 European Patent Convention excludes "programs for computers" from patentability to the extent that a patent application relates to a computer program "as such" (Art. 52(3)).
  - Any invention which makes a non-obvious "technical contribution" or solves a "technical problem" in a non-obvious way is patentable even if that technical problem is solved by running a computer program.
- Sui Generis Exclusive Rights?



#### Copyright in the digital age

- Forms of control of digital information
  - Contract

Technology

Copyright Law



#### **Authorship and Ownership**

- The author is the creator of an intellectual work
- The rightholder is the person who is entitled to exploit the work in order to gain an economic revenue from it
  - Normally → the same person
- Problems when:
  - the work is the outcome of an employment relationship or for a special commission or order
  - in case of "collective works";
  - in case of "joint works or works in collaboration"



#### Works within an employment relationship: INTELLECTUAL WORKS

- As a general rule → rights of economical exploitation belong to the employer (and not to the author) as far as the creative activity is present in the employment contract as an employee's obligation.
- Moral rights always pertain to the author
- Teaching Exception
- Artt. 11 and 29 Italian Copyright Act



#### ...software...

- Art.12-bis L. 633/41 (Italian Copyright Act):
  - "Save for an agreement to the contrary, the employer is the holder of the exclusive right of economic exploitation of the computer program or of database created by the employee in the execution of his/her duties or following the instructions given by his employer!



## **Open Access**

## to Scientific Knowledge



#### Agenda

- Open Access to science
- Legal Framework
- Licenses
- OA Italian Law and Policy Unitn



### **Open Access**



Open access (OA) means unrestricted online access to scholarly research.

Open access is primarily intended for **scholarly journals**,

but is also provided for a growing number of theses, book chapters, and monographs.



# University of Trento Efforts

Statute of University of Trento

Policy of University of Trento

Website <a href="http://r.unitn.it/it/ateneo/open-access">http://r.unitn.it/it/ateneo/open-access</a>

Online course on IP and OA

.....we will come back later



### **Open Access Origin**

- Bottom-up phenomenon
  - librarians
  - scientists communities publishing their results through Internet, on archives and journals accessible to anyone (and without a payment of a price)



## OA: declarations, policies, guidelines, ...

- Budapest Open Access Initiative 2002
- Bethesda Statement Open Access Publishing 2003
- Berlin Declaration 2003 (Dichiarazione di Messina 2004; Linee guida per l'accesso aperto alle tesi di dottorato 2007)



### **Berlin Declaration 2003**

Two conditions



#### First condition

• The author(s) and right holder(s) of such contributions grant(s) to all users a free, irrevocable, worldwide, right of access to, and a license to copy, use, distribute, transmit and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose, subject to proper attribution of authorship (community standards, will continue to provide the mechanism for enforcement of proper attribution and responsible use of the published work, as they do now), as well as the right to make small numbers of printed copies for their personal use.



#### Second condition

A complete version of the work and all supplemental materials, including a copy of the permission as stated above, in an appropriate standard electronic format is deposited (and thus published) in at least one online repository using suitable technical standards (such as the Open Archive definitions) that is supported and maintained by an academic institution, scholarly society, government agency, or other well-established organization that seeks to enable open access, unrestricted distribution, interoperability, and long-term archiving.



# Open Access: models

- Gold road → "scholarly works published ab origine on OA basis" (open journals)
- Green road → "self-archiving in OA repositories of published peer reviewed articles" (institutional and disciplinary repositories)
- (Hybrid OA) → OA publication of articles in closed access journals, against payment of the article processing charge (APC)



# **Open Access Models**

<u>Gratis OA:</u> eliminates only the economic barriers to access (weak forms of OA)

<u>Libre OA</u>: eliminates the economic barrier and lowers legal barriers to access



#### **OA Key:** Paternity and Reputation

Attribution



Reputation: author's name, institution's name, repository's name, search engine's name

More visibility and more impact

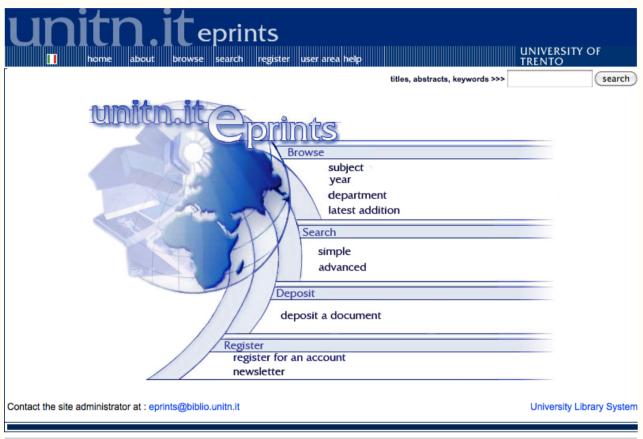


# **Open Archives**

- Disciplinary
- Institutional



#### Unitn.it - ePrints





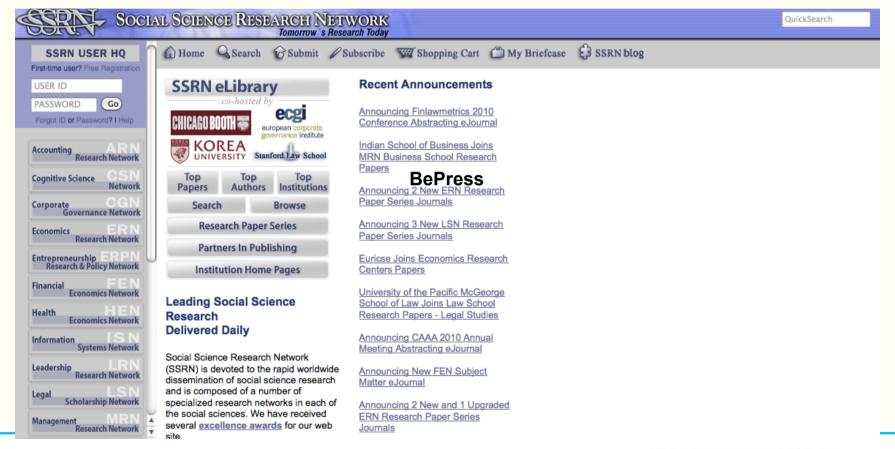
UNITN-eprints is running on EPrints2 archive-creating software, which generates eprints archives that are compliant with the Open Archives Protocol for Metadata Harvesting OAI 1.1



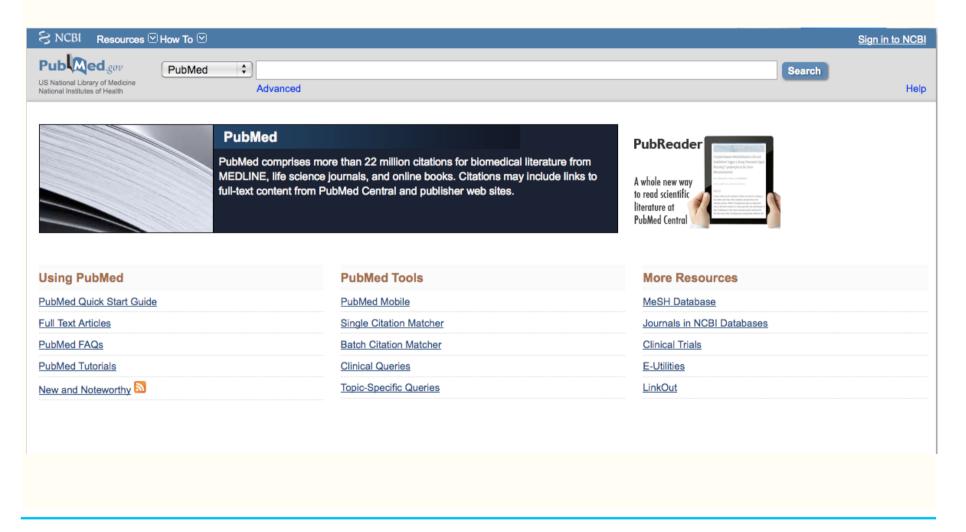
The eprints.org archive-creating software is available for free at http://www.eprints.org/



# Disciplinary Archives, examples: Social Science Research Network



## PubMed.gov



# **Benefits of Open Access**

- Speed and extent of content dissemination
- Interdisciplinary research (collaboration)
- **Transparency** to citizens
- Preservation of research results over time
- Development of new research evaluation processes



# University knowledge transfer

- publishing (both traditional and OA)
- patenting and licensing
- university spin off
- consultation of faculty members
- etc.
- Publications and conferences: important knowledge transfer means
- Patent licensing and OA publishing: compatible
  - es. Harvard and the Massachusetts Institute of Technology



# Intellectual property and Norms of Science

- Features of the production of scientific knowledge
  - mostly shaped by the practices and customs of the community of scientists
  - not so linked to commercial dynamics
  - research funded through public funding and salaries
  - academic freedom → social development
    - authorship

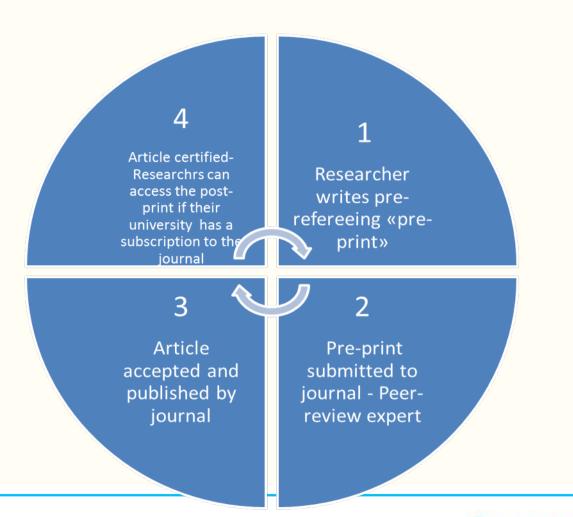


# Scientific Researcher goals

- Scientific results dissemination
- Visibility
- Academic Career Publishing on high impact factor journal/ review
- More university and single researcher funding



# The traditional publishing circle





# The traditional publishing system

- Core Journals
- Digital technology new business models
- Control over content by few publishers
- High prices
- Research evaluation system supports that market



# Three Levers

Copyright

Contract author/publisher (assignment)

http://resource-cms.springer.com/springer-cms/rest/v1/content/1254/data/CTS+%28for+information+purposes+only%29+%28pdf%2C +213+kB%29

Contract publisher/library (license)

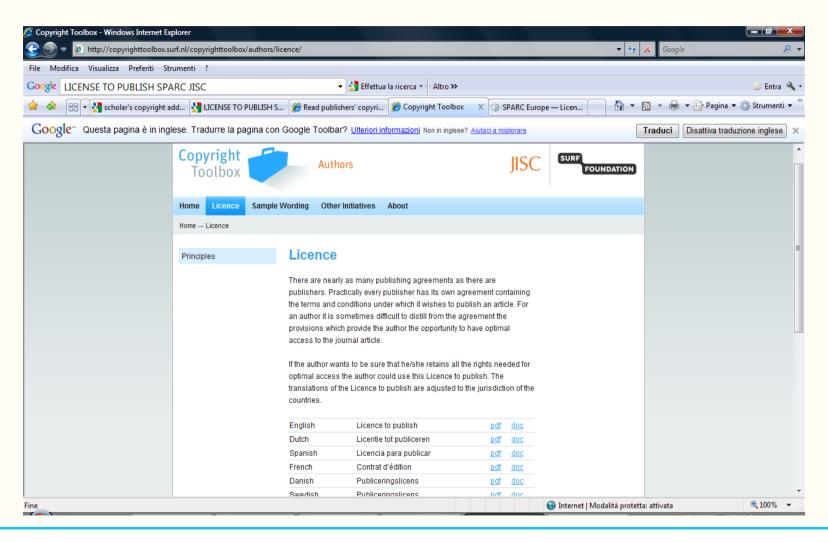
not available



# Legal tools fostering OA

- Publishers/researchers contracts.
  - Standard forms contract: addenda and License to Publish (Science Commons)
- Copyright holders/readers
  - Standard forms contract: Creative Commons Licenses
- Legal Policies





#### **Creative Commons**

# C creative C commons

http://creativecommons.org/videos/wanna-work-together



#### **Hierarchical Model: Not Hierarchical Model:** fixed roles open logic User/ Program Programm mer er User/ User/ Program Program mer mer Software Houses/ Intermediaries User/ User/ Program Program Users mer mer



# **Creative Commons**

- Non-profit organization headquartered in San Francisco, California.
- Founded in 2001 by <u>Lawrence Lessig</u>, Hal Abelson and Eric Eldred.
- First set of copyright licenses → released in December 2002.



# Intermediate regime between complete control (copyright) and no control (public domain)



Creative Commons defines the spectrum of possibilities between full copyright — *all rights reserved* — and the public domain — *no rights reserved*. Our licenses help you keep your copyright while inviting certain uses of your work — **a "some rights reserved" copyright**.



## Features of these licenses

- Prepackaged
- User-friendly
- Modulars



# Key elements of the license

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- You let others copy, distribute, display, and perform your copyrighted work — and derivative works based upon it — but <u>only if they give credit</u> <u>the way you request</u>.
- Starting with CC version 2.5, the Attribution element is factually a baseline right and not an element that can be chosen or not

#### Noncommercial



 You let others copy, distribute, display, and perform your work — and derivative works based upon it — but <u>for noncommercial purposes only</u>



# Key elements of the license

#### No Derivative Works



 You let others copy, distribute, display, and perform only verbatim copies of your work, not derivative works based upon it.

#### Share Alike



• You allow others to distribute derivative works <u>only under a license</u> <u>identical to the license that governs your work</u>



#### Combinations of options

- cc by = Attribution
- cc by-nd = Attribution-NoDerivatives
- cc by-nc-nd = Attribution-NonCommercial- NoDerivatives
- cc by-nc = Attribution-NonCommercial
- cc by-nc-sa = Attribution-NonCommercial- ShareAlike
- cc by-sa = Attribution-ShareAlike
- (pd = Dedicated to or certified to be in the public domain)



#### Three formats

- Common Deed:
  - a plain-language summary of the license, complete with the relevant icons
- Legal Code:
  - the fine print that you need to be sure the license will stand up in court
- Digital Code:
  - <u>a machine-readable translation of the license that helps search engines and</u> <u>other applications identify your work by its terms of use</u>



#### **Common Deed**



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You let others copy,
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only if they give credit the
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# **Open Access**

Within Italy and European Union



## OA: "Legal Framework"

- Commission Recommendations of 17 July 2012 on access to and preservation of scientific information (2012/417/EU)
- Italian Law (Law of October 7, 2013, n. 112, section 4 §2,3,4)
- Policy UNITN
- EU Research funding: FP7 Horizon 2020



# Law of October 7, 2013, n. 112, section 4 §2,3,4)

Implement the necessary measures for the promotion of Open Access

Articles publicly funded (50%)

To promote OA both gold road and the green road

Embargo: 18 months, technical and medical disciplines, 24 months humanities and social sciences.



## **University of Trento Policy**

http://eprints.biblio.unitn.it/4258/

Compliant with the Statute, Section 2.8, promoting knowledge dissemination also through OA

Written works excepted those that generate royalties

Researchers obligation: "dark deposit"

Republication in the Repository on a Libre or Gratis OA basis is strongly encouraged



# Horizon 2020

- Framework Programm for Research and Technological Development
- It runs from 2014–2020 and provides €80 billion of funding
- Open access is an underlying principle of Horizon 2020
  - Guidelines:
     <a href="http://ec.europa.eu/research/participants/data/ref/h2020/grants\_manual/hi/oa\_pilot/h2020-hi-oa-pilot-guide\_en.pdf">http://ec.europa.eu/research/participants/data/ref/h2020/grants\_manual/hi/oa\_pilot/h2020-hi-oa-pilot-guide\_en.pdf</a>



# Horizon 2020

Pursuant to art. 43, par. 2 Reg. UE 1291/2013 (establishing Horizon 2020)

"With regard to the dissemination of results through scientific publications, open access shall apply under the terms and conditions laid down in the grant agreement.

Costs relating to open access to scientific publications that result from research funded under Horizon 2020, incurred within the duration of an action, shall be eligible for reimbursement under the conditions of the grant agreement..."



# Model Grant Agreement

#### 29.2

Each beneficiary **must ensure open access** (free of charge, online access for any user) to all peer-reviewed scientific publications relating to its results.

In particular, it must:

(a) as soon as possible and at the latest on publication, deposit a machine-readable electronic copy of the published version or final peer-reviewed manuscript accepted for publication in a repository for scientific publications;

Moreover, the beneficiary must aim to deposit at the same time the research data needed to validate the results presented in the deposited scientific publications.

- (b) **ensure open access to the deposited publication** via the repository at the latest:
- (i) on publication, if an electronic version is available for free via the publisher, or
- (ii) within six months of publication (twelve months for publications in the social sciences and humanities) in any other case.
- (c) ensure open access via the repository to the bibliographic metadata that identify the deposited publication.

The bibliographic metadata must be in a standard format



# Model Grant Agreement Enforcement

29.6 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 43).



# **AISA ONLUS**

#### Associazione Italiana per la Promozione della Scienza Aperta

A non profit association - founded on March 3th, 2015. Scope of Association: encouraging OA development through promoting activities such as:

- empirical research on OA development
- organizing conferences and workshops spreading the open science culture;
- creating international networking to promote open science;
- promoting AISA members participation to international research projects within the scope of the association aims.
- promoting open science at political level.

Forthcoming the AISA website.

For the registration please write to <a href="mailto:roberto.caso@unitn.it">roberto.caso@unitn.it</a>



# Thank you for the attention!

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