EBU5017: Block 3 Review Notes

Date: 5th January, 2025

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AI and Intellectual Property

IP can leads to knowledge creation and creative expression.

Copyright

First Principle: **IP Laws protect applications and expressions of ideas, but not the ideas itself.**Ideas cannot be reserved as private property, ideas belong to the public domain

- What can be ‘copyright works’?

  It refers to the intellectual achievements in areas like literature, arts and science, that have originality and can be fixed in certain forms.

  (1) written works;
  (2) oral works;
  (3) musical, dramatic, quyi, choreographic and acrobatic works;
  (4) works of the fine arts and architecture;
  (5) photographic works;
  (6) cinematographic works and works created by a process analogous to cinematography;
  (7) graphic works such as drawings of engineering designs and product designs, maps and sketches, and model works;
  (8) computer software; and
  (9) other works as provided for in laws and administrative regulations.

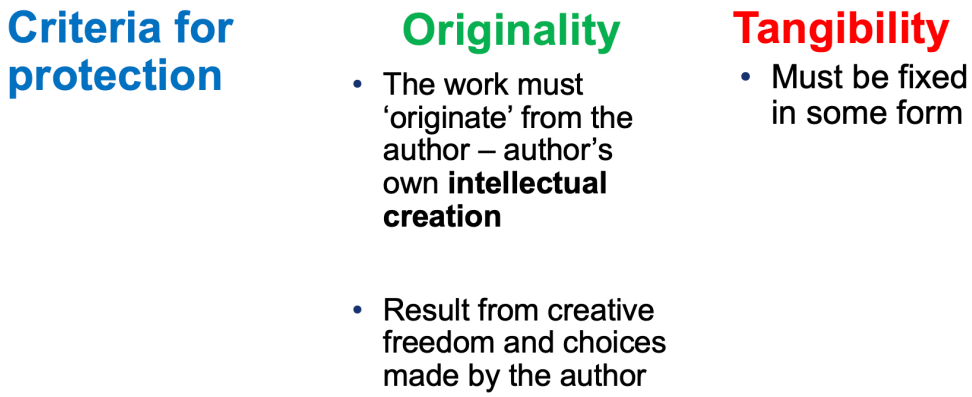
- When does copyright exist in a ‘work’?

- **To gain copyright protection any of these works must be intellectual creations**

and must pass 2 further tests: Originality and Tangibility.

- **Originality: the act of creation of a work requires intellectual achievement. It *must 'originate' from the author's own intellectual activity – reflect the author's personality.***
- **Tangibility: Capable of being reproduced in a certain tangible form**

1. **First, there must be an 'intellectual achievement' from an 'author' who 'creates' the work**
2. **FIXATION in a form from which can be reproduced**



Other supplementaty: Copyright belongs to the author. **The natural person creating a work is the author**

- A legal person or an unincorporated organization is regarded as the author of works that are presided over by the legal person or an unincorporated organization, that are created at the will of and on behalf of the legal person or an unincorporated organization, and for which the legal person or an unincorporated organization bears responsibility.

- How is the requirement for 'originality' met in copyright Law?
  - **Originality: 1. the act of creation of a work requires intellectual achievement. It *must 'originate' from the author's own intellectual***

activity – reflect the author's personality. 2. Results from the author's creative freedom and choices.

- In general, free and creative choices made by author, independently and include personal touches.

- What is the idea v expression dichotomy in copyright law?
  - The protection does not extend to any idea, concept, discovery, principle, algorithm, process and operating method used in the development thereof. It protects expression rather than idea.
  - Differentiating ideas from expression requires an examination of whether non-literal expression is copied and the extent of copying.(non-literal: structure, sequence, organization……)
- What are the 'exclusive rights' given to any copyright work?
  - Moral rights of the author: **(this is not exclusive rights!)**

Publication	Right to make the work available to the public
Paternity	Right to be identified as author
Alteration/ Revision	Right to alter or revise the work
Integrity	Right to protect the work against distortion and mutilation

  - Economic rights of the owner:
    - A 10(5) (5) **the right of reproduction**, that is, the right to produce one or more copies of the work by means such as printing, photocopying, rubbing, audio recording, video recording, duplicating, re-shooting, or digitizing;

- Article 10 (12) the **right of communication** through information network, that is, **the right to make a work available to the public** by wire or by wireless means, so that people may have access to the work ***from a place and at a time individually chosen by them***
- **The right of distribution**: The right to make the work available to the public by selling, renting, or otherwise distributing copies of the work.The right of distribution, that is, the **right to provide the original copy or reproductions of a work** to the public by selling or donating;

Reproduction	Making copies of the work
Distribution	Make available copies of the work to the public
Rental	Rent the work

Exhibition	Publicly display the work of fine art/photography
Performance	Publicly perform / broadcast the work by various means
Showing	Show to the public the work, fine art, films…

Right of making cinematograph work	Right to fixate on a carrier

Broadcast	Publicly broadcast or communicate to the public a work by wireless or wire
Communication	By wire or wireless means in such a way that members of the public may access these works from a time and place individually chosen by them

Adaptation	right to change a work to create a new work of originality
Translation	Right to translate a work from one language to another
Compilation	Right to compile works or parts of work into a new work through selection or arrangement

- Works EXCLUDED from protection
  1. laws and regulations, resolutions, decisions and orders of State organs, other documents of a legislative, administrative or judicial nature and their official translations
  2. news on current affairs; and
  3. calendars, numerical tables and forms of general use, and formulas.
- Duration of exclusive rights:

  Moral rights: perpetual(forever)

  Economic Rights:
  - Lifetime of author + 50 years after author's death
  - Works of legal entity: 50 years from year of creation
- How are exclusive rights limited in copyright works?

1. **China**

- China **provides a 'closed list' of exceptions –** the law states, 'in the following cases 'and then lists certain exceptions . **The law does allow certain 'free use' to be made of protected copyright works – without seeking permission** .

1. **IT MUST NOT Unreasonably prejudice legitimate interest of copyright owner**
2. **NOR Impair the normal exploitation of the work**

- **The basic exception and 'condition'**
  - Provided that the name of the author and the title of the work are mentioned,
    Other rights enjoyed by the owner are not prejudiced
- **private study, research or appreciation' exception**
- *translation, or reproduction in a small quantity of copies of a published work by teachers or scientific researchers for use in classroom teaching or scientific research* , provided it's not published
- *translation of a published work of a Chinese citizen….. from Han language into minority nationality languages*
- The right to translate the book to braille (for the blind)
- reproduction of a work in its collections by a library, archive, memorial hall, museum, art gallery, etc. for the purpose of display, or preservation of a copy, of the work;
- eg. Can I sell a book? Secondary sale allowed of the physical media – but not of digital media

2. **US**

the fair use of a copyrighted work… for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, **is not an infringement of copyright**.

In determining if use fair: following factors are to be considered:

        - the purpose and character of use
        - the nature of the copyrighted work
        - what amount and proportion of the whole work was taken, and
        - the effect of the use upon the potential market for or value of the copyrighted work.

- Should copyright be attributed to original AI-generated literary and artistic works or should a human creator be required?
    - US Approach
        - Works created solely by AI without meaningful human creative input cannot be copyrighted. The U.S. Copyright Office has explicitly stated that only human authors can claim copyright protection
        - corks that involve meaningful human creative input can be copyrighted, even if AI tools were used. The human author must have exercised sufficient creative control and artistic choice. Only the portions that result from human creativity are protected
    - UK Approach
        - Works generated by AI "in circumstances where there is no human author"
        - The copyright belongs to the person who made the arrangements necessary for the creation
        - This could be the person who:
            - Programmed the AI
            - Selected or arranged the training data
            - Prompted or directed the AI effectively
- Does using copyrighted data for ML training infringe copyright?
    - Copyright law traditionally protects creative works, but AI training data use raises novel questions. Courts and legislators are grappling with whether

use of copyrighted materials for AI training constitutes fair use. Key factors include transformative use and market impact.

- Should copyright law make exceptions for AI training?
  - US: fair use.
  - EU balances innovation with rights protection through controlled exceptions rather than open fair use.
    - Research organizations: Free **text data mining** use
    - Commercial use: Allowed unless rightsholder opts out
    - Must have lawful access
  - China favors strict regulation and licensing over exceptions, contrasting with US/EU approaches.
    - No specific AI training exception

Proposed Solutions:

Mandatory licensing schemes

Collective management systems

Opt-out mechanisms

Research-only exceptions

Compensation-based systems

US: Currently relies on fair use, no specific exception proposed yet.

- Is AI output similar to training data considered infringement?
  - **Substantial Similarity**

    In many jurisdictions, copyright infringement occurs if the output is **substantially similar** to a protected work. If the AI replicates verbatim or nearly identical portions of copyrighted material, it is more likely to be considered infringing.

- **Transformative Use**

  Copyright laws often protect derivative works but allow **transformative uses** that significantly alter or repurpose the original material. If the AI generates output that is inspired by the training data but significantly transformed, it is less likely to be infringing.

- **Market Impact**

  Courts may assess whether the AI output harms the market value of the original work. If the output competes with or substitutes for the original, it is more likely to be seen as infringing.

- **Fair Use or Exceptions**

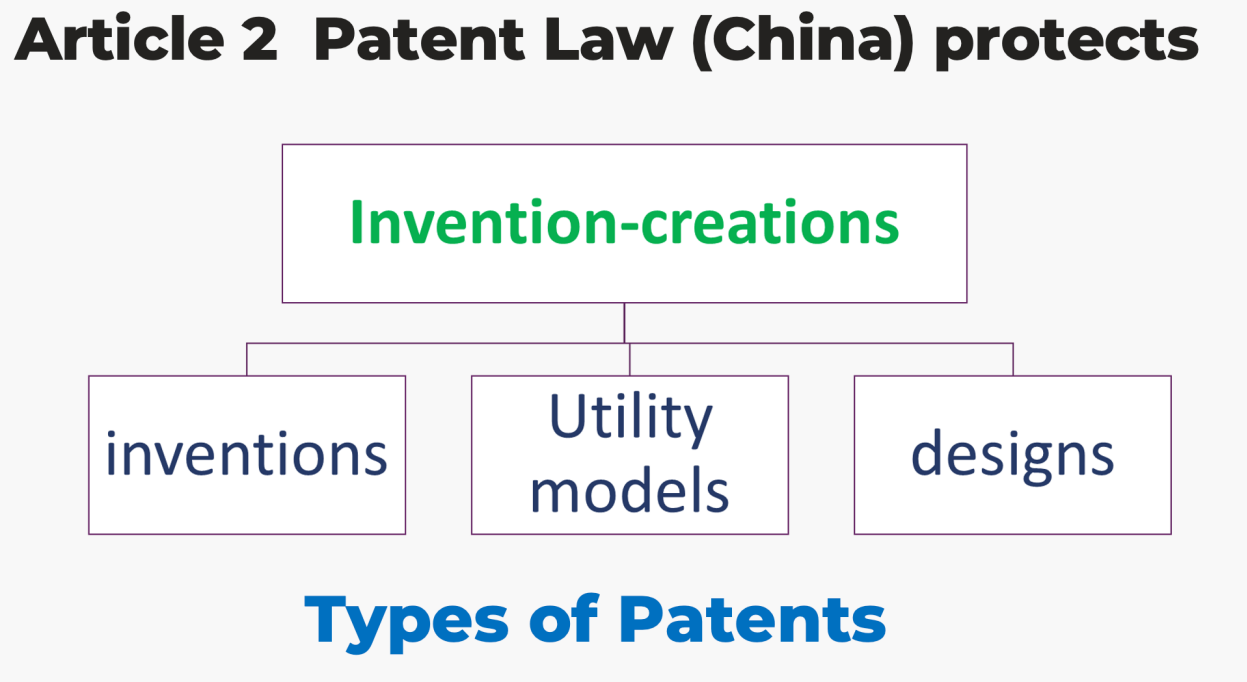
  Jurisdictions like the U.S. may apply the **fair use doctrine**, weighing factors such as purpose, nature, amount used, and market effect.

  The European Union's **DSM Directive** provides specific exceptions for text and data mining (TDM), provided lawful access to the works is obtained.

- When AI output is in the 'style' of a copyright work, would it be infringement?
  - **Copyright Protection for Style**
    - **Ideas vs. Expression**: Copyright law protects **expression**, not ideas, styles, or techniques.
    - However, if an AI generates output that closely replicates **specific expressions** or **substantial parts** of a copyrighted work, it could infringe. Eg. elements
    - If an AI mimics the **style** but not the exact expressions or elements of the original work, it is less likely to infringe. For example, an AI-generated painting that adopts an impressionistic style but doesn't reproduce specific elements of an existing painting may not be considered infringing.
  - **Substantial Similarity**
    - A key factor in determining **substantial similarity** is whether the output can be seen as a **derivative work**.
  - **Transformation and Fair Use**

        - parody, pastiche and caricature. Adding new meaning, context, or expression
        - fair use
    - **Transformation and Fair Use**
        - human work cased

Patent



- **"Inventions" mean new technical solutions proposed for a product, a process or the improvement thereof.**
- What can be patented and what cannot be patented?
    - What can be patented?
        - **Patents are granted to innovations in all fields of technology.patents** are granted for inventions that are **novel, non-obvious, and useful.**
        - **Inventions: new technical solutions proposed for a product, a process or the improvement thereof**

- **Utility models** : **new technical solutions proposed for the shape and structure of a product, or the combination thereof, which are fit for practical use. Not for METHODS/ PROCESSES**
- **Designs** : mean, with respect to a product, new designs of the shape, pattern, or the combination thereof, or the combination of the color with shape and pattern, **which are rich in an aesthetic appeal and are fit for industrial application.**
  - **Technical Solution**: An aggregation of **technical means** applying the laws of nature **to solve a technical problem**

- What can not be patented?

  (1) scientific discoveries;

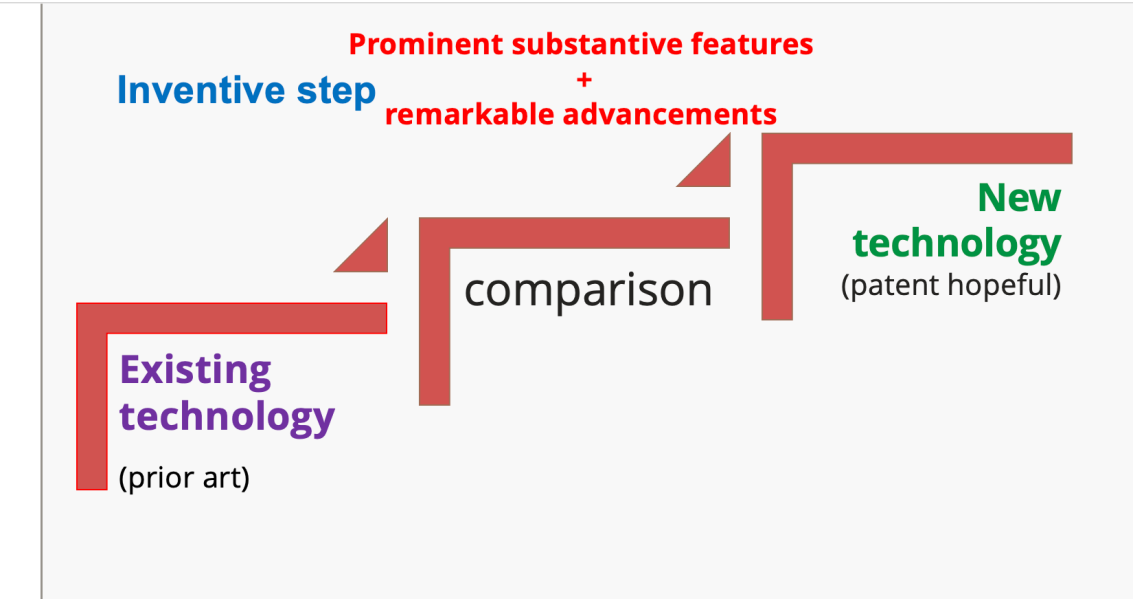
  (2) rules and methods for intellectual activities;

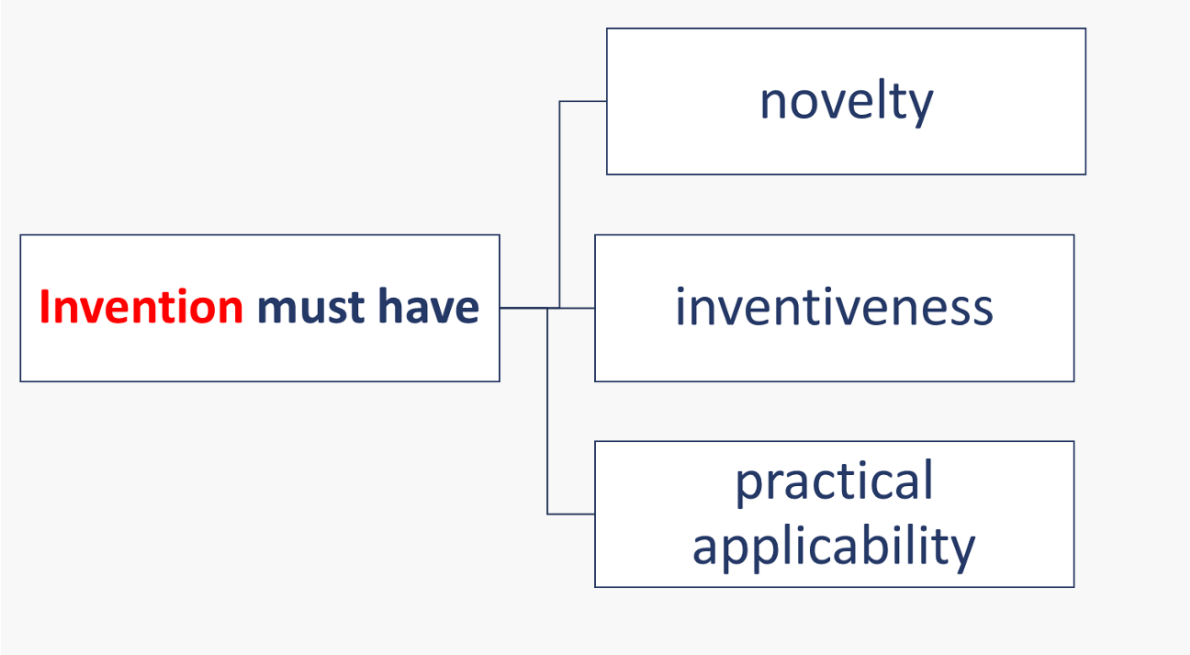
  Mathematical method
  Business methods
  Computer programs

  (3) methods for the diagnosis or treatment of diseases;
  (4) animal or plant varieties;
  (5) substances obtained by means of nuclear transformation; and
  (6) designs that are mainly used for marking the pattern, color or the combination of the two of prints

- What is the criteria for protection?
  - **1] SUBJECT MATTER ELIGIBILITY：** must not CLAIM ANY excluded subject matter 'per se' . eg. can not be a computer programs per se.
  - **2] PATENTABILITY** must CLAIM a technical solution **(Novelty & Creativity) which means new and non-obvious.**
    - **Novel:** new (not known or disclosed to the world in single document)
    - **Inventiveness:** non-obvious solution - to a person skilled in the art : inventive step – notable progress over what is already known and done
    - Article 22 Inventions and utility models for which patent rights are to be granted shall be ones which are novel, creative and of **practical**

use.





- Can AI be recognized as an inventor?
  - Current laws typically recognize only human inventors as valid patent holders, focusing on individuals' rights and responsibilities.

- Most patent offices (USPTO, EPO) have rejected AI as inventors
- Some courts have explicitly ruled that inventors must be human
- Creates uncertainty for AI-assisted innovations

- What is the criteria for protecting an AI innovation?
  - 1. The involved algorithm has a specific technical relationship with the internal structure of a computer system, and Can solve a technical problem to improve the internal performance of the computer system that confirms to the laws of nature.

    2. **The solution of the claim aims to process big data in the specific application field by:**
       - using the internal relationships in the data mining that conforms to the laws of nature,
       - solving the technical problem of how to improve the reliability or accuracy of big data analysis in the specific application field, and achieving corresponding effects.

    ▪

- Three elements of technology' test:
  - Claim are taken as a whole to analyse the **technical means** involved, the **technical problems** solved and the **technical effects obtained .**

How? Technical Means	• What technical tools/methods are you using? • What hardware/software components are involved? • How do they work together?
Why? Technical Problems	• What specific technical issue are you solving? • What wasn't working well before? • What needed improvement?
Results ? Technical Effects	• What measurable improvement did you achieve? • How is it better than before? • What concrete results can you show?

- In general, whether ML applications is patentable:
  - Produces a "technical effect" beyond the mathematics
  - Solves a specific technical problem
  - Interacts with physical components or processes