Intellectual Property (IP)

&

IP Rights (IPR)

Should Property be Protected?

- Two separate theories provide the rationale for granting property rights:

1. Property rights are a type of "**Natural Rights**".
2. Property rights are "**Social Contracts**".

Should Property be Protected?

- Property rights are **natural rights** that …
- ought to be granted to individuals …
- for the products resulting from the labour expended in producing…
- an artistic work or a practical invention.

Should Property be Protected?

- Property rights are **social contracts** designed to encourage creators and inventors **to better serve society** by bringing forth their artistic works and practical inventions into the marketplace.

Should Property be Protected?

- According to De Geoge, these two theories are also known as the **Standard Argument** (SA):
- **Fairness/Justice**
  - Those who spend time, money, and resources in developing a product or expression of an idea deserve the chance to receive compensation.
- **Utilitarian**
  - Society benefits from new products.
  - The best way to encourage the research and development of new products is by ensuring the opportunity to recoup their investment and to make a profit.

Should Property be Protected?

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- **Consequentialist Theories** treat property rights as good as they lead to good consequences.
- Actually, both Locke's ***Natural Rights*** and Bentham's ***Utilitarian*** perspectives justify **monopolies** to encourage innovations that ultimately benefit the larger society …
  - *(cf. references)*

Should Property be Protected?

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- Their arguments are based on two premises
  1. monopolies create an ecosystem of innovations and creations
  2. such instruments are tools to benefit the public at large.

Should Property Be Protected?

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- Let's take a closer look at these two theories (Natural Rights & Utilitarianism)

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Property Rights Justified

- The Labour Theory of Property
- The Utilitarian Theory of Property

Should Property be Protected?

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- Traditional theoretical foundations for property rights are often broadly grouped under
  - The Natural Rights theory of property
  - The Utilitarian theory of property

Should Property be Protected?

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- **Natural Rights Theories:**
- Derived from John Locke's 17th century **Labour theory**.
- States that a person has a ***natural right*** to what they produce.

Locke's Theory of Appropriation

- Nature was created for all to share; it is a common.
- We each own our body, and the labour it produces.
- Mixing labour with the common yields a valid property claim.
  - if I put some labour into some common, then I have a claim to that common.
- Subject to caveats and provisos; not an absolute claim ...

Locke's Theory of Appropriation

- He did place some restrictions on the right to appropriation e.g.:
  - individuals have a natural right to acquire and possess property through their labour, but The Lockean proviso states that there had to be "enough and as good left in common for others".
    - implies that one can appropriate property from the common resources as long as there is enough and of similar quality left for others to use.

Locke's Theory of Appropriation

- He stated that labour is far from an absolute claim to title:
- "He that had as good left for his improvement as was already taken up needed not complain, ought not to meddle with what was already improved by another's labour; if he did it is clear he desired the benefit of another's pains . . ."

-- 2nd Treatise, ¶ 33

Locke's Theory of Appropriation

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- Can be applied to software.
  - If I copy your software I'm stealing your labour.
  - I've made you lose the capacity to sell (and make money from) your creation.

Should Property be Protected?

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- Locke argued that, generally, if you mix your labour with something then you have a legitimate claim to it.
- Weakness: why should we gain what we mix our labour with?
- Why not lose our labour?
- E.g. according to John Weckert (1996):
  - *"If I poured a can of tomato juice, which I owned, into the sea, clearly I would not thereby own the sea. I would merely become juice less."*

Utilitarian theory

The Utilitarian Theory of Property

- Granting property rights will maximise the good for the greatest number of people in a given society.
- Bentham's utilitarian moral philosophy or ethics = "the art of directing men's action to the production of the greatest possible quantity of happiness, on the part of those whose interest is in view."
- John Stuart Mill: the moral worth of actions is to be judged in terms of the consequences of those actions.

The utilitarian perspective

- "The greatest good for the greatest number"
- "Rights" follow only from **calculations of collective welfare**
- "Natural rights" are useless – Jeremy Bentham

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Intellectual Property (IP)

INTELLECTUAL PROPERTY (IP)

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- Intellectual property refers to creations of the mind such as inventions, designs, music, literary and artistic works, and symbols or names used in commerce.

INTELLECTUAL PROPERTY (IP)

440

- Refers to the results of intellectual activity in the industrial, scientific, literary or artistic fields.
- It is ***intangible*** property created by individuals or corporations.

INTELLECTUAL PROPERTY (IP)

441

- Intangible property arising from human intellect **that can only be protected upon expression**.
- Like other property, can be owned, administered by states, sold (assigned), leased (licensed), developed (exploited) and is usually enforceable by the law.

Intellectual Property Protection

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- Legal, economics and management scholars have articulated legal doctrines that serve as the theoretical foundations for IP laws.

Moral Intuitions vis-à-vis IP Protection

1. The Scholar
2. The Entrepreneur
3. The Consumer
4. The Society

Moral Intuitions vis-à-vis IP Protection

- **The Scholar**
- Ideas should not be restricted.
- Only good can come from sharing ideas and challenging other ideas.
- However, it is NOT right to claim someone else's idea as yours.
- Always attribute correctly.

Moral Intuitions vis-à-vis IP Protection

- **The Entrepreneur**
- In order to make profits, businesses use resources in
  - product R&D,
  - production, and
  - product marketing.
- If you copy their product you deny them their just returns.

Moral Intuitions vis-à-vis IP Protection

- **The Consumer**
- What you as a consumer buy is yours to use as you please …
- … as long as you do not violate the Entrepreneur intuition.

Moral Intuitions vis-à-vis IP Protection

- **The Society**
- Basically, IP is social.
- It should be used for the common good.
- What if the common good and individual claims to IP clash?
- Appeals to the common good win.

The Need for IP Protection
An Example Case

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- Say it takes you quite some time and a lot of effort to come up with the capital required for your start-up.
- After all that, you use your time, knowledge and effort to develop some fantastic software.
- When you put it into the market it takes more time and effort to become popular but after a couple of years it picks up.

The Need for IP Protection
An Example Case

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- You recover 10% of the start-up capital and other expenses but two things happen in the 3rd year:
  - Because your software is so fantastic everyone wants it (and gets it) but almost no one is paying you for their copy.
  - A pirate copies and modifies your software and sells it at much cheaper price. After all, their development costs are minimal.
- Despite your best efforts, your business collapses in the 4th year.

The Need for IP Protection

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- We can all agree that something seems unfair here.
- **Q:**
- What should we do to prevent this?
- **One (legal) answer:**
- Allow you to have LEGAL exclusive rights to your software.
- Then you can deal with the pirates via the law.

The Need for IP Protection

451

- **The Goal of IP Law**
- To encourage the development of **ideas** and **devices …**
- by giving the originator **exclusive** rights …
- to obtain **remuneration** for the use of the idea or device …
- for some **period of time.**

The Need for IP Protection

452

- Software ***is*** IP.
- The free flow and use of **digital** information has an open border.
  - Difficult to control copyrights, authorship, other IPR.
- There is a need for **standard procedures, regulations and laws**.
- These must be designed to be **implemented in technical solutions.**

The Need for IP Protection

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- Only then can we control the trade, storage and use of individuals', communities', state organisations' and other bodies' IP.
- For example:
  - **A copyright law** protects literary and artistic works
  - **A patent law** protects inventions
  - **A trademark law** protects the rights of businesses to their **identity**
    - e.g. a company logo

The Need for IP Protection

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- All these concepts have been around much longer than the computer.
- However, their **digital representation** has raised various legal issues.

The Need for IP Protection

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- Today's information systems severely challenge existing law and social practices that protect private IP.
- Digital information is easily copied or distributed via networks.

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IPR

Challenges in the 21st Century

IPR: Challenges

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- Contemporary ITs, especially software, pose severe challenges to existing IP regimes.
- They create significant ethical, social, and political issues.
- Digital media differ from physical media
  - E.g. books, periodicals, CDs, and newspapers …

IPR: Challenges

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- Digital media are:
  - easy to replicate;
  - easy to transmit;
  - easy to alter;
  - compact (easy to steal)

IPR: Challenges

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- It is also difficult to classify a software work as a program, book, or even music;
  - SW code can be copyrighted like a book, but can also include audio/visual components resembling music or art.
  - SW often combines various media forms: text, images, audio, video, and interactive elements. E.g: an educational app might include text-based content, images, and interactive quizzes.
  - e-books often include multimedia content
  - SW can be used to create generative art or algorithmic music - the output is generated through algorithms and not necessarily the direct result of human creativity. This blurs the line between software and traditional artistic forms.

IPR: Challenges

*

- It is also difficult to establish SW's uniqueness.
  - Can be extremely complex, with millions of lines of code; challenging to analyse all this code thoroughly to determine if it's entirely unique.
  - Is inherently abstract, consisting of lines of code and data that are not physical objects; difficult to assess its uniqueness compared to tangible, physical items.
  - Many SW programs reuse standard functions and code libraries thus certain parts of different programs may be similar or even identical.
  - Unrelated developers can independently develop similar solutions to common problems=>similar software even though there was no copying.
  - SW dev is often an iterative process where small changes are made over time; a program may evolve gradually, making it challenging to pinpoint when it became unique.

461 Legal Mechanisms To Protect Software

Legal Mechanisms To Protect Software

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- Trade Secrecy
- Patents
- Copyright
- Trade Mark
- Registered Design
- Domain Name protection

Kenyan Laws Governing Intellectual Property

Kenya's Legislative Instruments

- Include:
  - Copyright Act No. 12 of 2001
  - Trade Marks Act Cap 506 (as last amended by the Trade Marks Act, 2002)
  - Industrial Property Act (IPA) No 3 of 2001
  - Anti-Counterfeit Act (2008)
  - The Geographical Indications Act
  - Seed and Plant Varieties Act, Cap 326

Legal Mechanisms To Protect Software

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- Kenya has well-established laws to protect intangible property rights.
- We are part of various international agreements and organisations that promote the protection of intellectual property rights.
- The government encourages innovation and entrepreneurship through legal provisions that protect intellectual property rights (IPR).
- Any IP owner must register their original works or products with the relevant bodies to protect their rights.

1. The Copyright Act of Kenya

466

- Protects literary, musical, and artistic works from reproduction, communication to the public, and distribution without the owner's authorisation.
- Includes music, books, films, and software programs' protection.
- It's the owner's responsibility to register their work with the Kenya Copyright Board.

2. The Trademarks Act of Kenya

467

- Protects symbols, names, and logos used to identify goods and services from unauthorised use.
- Trademark registration and renewal are mandatory to prevent infringement.

3. The Industrial Property Act of Kenya

468

- Provides protection for
  - inventions,
  - designs, and
  - trade secrets.
- Establishes the Kenya Industrial Property Institute (KIPI) responsible for registration and renewal of patents, designs, and utility models.
- Prohibits the use, sale or importation of infringing products.

4. The Anti-Counterfeit Act

469

- Prohibits the manufacture, distribution or sale of counterfeit goods.
- Defines counterfeit products as replicas of genuine products without the owner's authorisation.
- Helps to protect businesses from losing profits and IPR infringement.

5. The Geographical Indications Act

470

- Protects products originating from specific regions from unauthorised use.
- It seeks to protect the IPR of producers of traditional products.
- It's mandatory to register geographical indications with KIPI.

IP Law

471

- IP is usually subjected to a variety of protections under three different legal traditions:
  - trade secrets,
  - copyright, and
  - patent law.

472 Trade Secrecy

Trade Secrecy

473

- Trade secrets **must**
  - have novelty
  - represent economic investment by claimant
  - have involved development effort
  - have been the subject of considerable effort to protect secrecy
- Mechanisms
  - non-disclosure clauses in contracts of employment
  - licence agreements

Trade Secrets

474

- Any **intellectual work product** used for a business purpose can be classified as a trade secret…
  - Provided it is not based on information in the public domain.
- Examples of **intellectual work products**
  - a formula
  - a device
  - a pattern
  - a compilation of data
- used for a business purpose

Trade Secrets

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- Generally, trade secret laws grant a monopoly on the **ideas** behind a work product.
- **Software** that contains novel or unique elements, procedures, or compilations can be included as a trade secret.
- Trade secret law protects the **actual ideas** in a work product…
- … NOT just their **manifestation**.

Trade Secrets

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- If you are a creator or owner claiming Trade Secrets protection, ensure you've bound your employees and customers to non-disclosure agreements (NDAs).
- You must do everything necessary to prevent the secret from falling into the public domain.

Trade Secrets

477

- **Limitation**
- True, almost all complex software programs contain **unique** elements of some sort.
- However, it is difficult to prevent the **ideas** in the work from falling into the public domain when the software is widely distributed.

Trade Secrecy Limitations

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- Can't enforce employee confidentiality to extent of preventing **re-use** of ideas
  - *E.g.: say you own a company that develops a browser whose UI is loved by its users.*
  - *You eventually sell the company and create another one.*
  - *Much to most of its users' displeasure, your former company changes the popular browser's UI .*
  - *You develop a browser who's UI is what most liked.*

Trade Secrecy Limitations

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- Similarly, licensing agreements can't prevent users from exploiting experience with proprietary software to build '*a better mousetrap*'
  - *(create a better version of a widely used product).*

Trade Secrecy Limitations

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- Strong protection allows the owner to keep their idea & its manifestation out of the public realm …
- … but **once exploited, this is lost**.

Sources of an Obligation of Confidence

481

- Express contract
- Implied contractual obligations

Sources of an Obligation of Confidence

482

- Express contract
  - **Express terms** are those that have been specifically mentioned and agreed by both parties at the time the contract is made.

Sources of an Obligation of Confidence

483

- Implied contractual obligations
  - **Implied terms** are not expressly outlined in the contract but which legislation, and the courts, deem to be part of the contract.
  - Two main types of implied terms:
    - implied by statute
    - implied by the courts

Sources of an Obligation of Confidence

484

- **Express contract**
  - e.g.
    - Non Disclosure Agreement
    - Confidentiality Agreement
  - Can be oral or written (the latter is better for evidence)
- **Standard Exceptions**
  - "Black Box" agreement – user can use the device, but not take it apart (can apply to computers)

Sources of an Obligation of Confidence

485

- **Implied contractual**
  - May be used to supplement express terms
    - e.g. an **express** term against disclosure of confidential information …
    - could be supplemented by an **implied** term prohibiting its use.

Obligation Of Confidence …

486

- An obligation of confidence is owed by **employees;**
  - **During employment** – strict obligation of confidence
  - **After employment** – can be bound **explicitly** or **implicitly**:
    - **Explicitly**: Covenant in restraint of trade
    - **Implicitly**: Obligation of good faith (fidelity)

Obligation Of Confidence …

487

- After employment:
- **Explicitly: Covenant in restraint of trade** (must be "**reasonable**")
  - When courts are considering whether to enforce such a covenant they scrutinise it's reasonableness (see the slides titled *Explicit Obligation of Confidence…Covenant in restraint of trade*)
  - The parties can agree to any express term as long as it's legal.

Obligation Of Confidence …

488

- **Implicitly**: Obligation of good faith (fidelity) on **the part of the employee**
  - **Implied by law** - they must avoid all **conflict of interest** situations.
    - When employed, they must therefore not use trade secrets or confidential info for their own benefit to the detriment of the employer.

Explicit Obligation of Confidence… Covenant in restraint of trade

490

- **Restraint of trade:**
  - employers and employees can negotiate and agree to almost any express term in employment contracts.
  - However an employer's ability to enforce a covenant in restraint of trade against an ex-employee is not so straightforward.
  - It's quite difficult for employers to implement **restrictive trade clauses** (RTCs).

Explicit Obligation of Confidence… Covenant in restraint of trade

491

- Kenya's Employment and Labour Relations Court has held that RTCs
  - are constitutional and generally enforceable **if reasonable**.
  - must be balanced against the employee's circumstances.
- RTCs must comply with the Contracts in Restraint of Trade Act (CRTA) - (Chapter 24, Laws of Kenya), to stand any chance of enforcement.

Obligation Of Confidence …
Contracts in Restraint of Trade Act (Cap 24)

492

- A provision or covenant restraining one party from exercising any lawful profession, trade, business or occupation is not void
- However, the High Court shall have the power to declare the provision or covenant to be void if
  - the provision or covenant is not reasonable either in the interests of the parties; or
  - the provision or covenant is injurious to the public interest

Obligation Of Confidence …
Contracts in Restraint of Trade Act (Cap 24)

493

- Considerations when ruling on Non-Compete clauses include
  - Reasonableness
  - Time
  - Scope of activities
  - Geographical coverage
  - Legitimate interest
  - Public Interest

Obligation Of Confidence …
Contracts in Restraint of Trade Act (Cap 24)

494

- These are balanced against an **employee's right to employment …**
- that has recently been prioritised over the **employer's right to protect its business interests.**

Obligation Of Confidence …
Contracts in Restraint of Trade Act (Cap 24)

495

- **Case Law**
- ***Credit Reference Bureau Holdings Ltd vs Kunyiha (2017)***
- *Steven Kunyiha, the former chief executive officer of Credit Reference Bureau Holdings Ltd (CRBH) was prohibited from*
  - *entering into employment with any competitor of CRBH for a period of 12 months after the termination of his employment …*
  - *disclosing any confidential and proprietary business information to CRBH's competitors.*

Obligation Of Confidence … Contracts in Restraint of Trade Act (Cap 24)

496

- *Kunyiha got a job with a direct competitor of CRBH.*
- *The latter sought injunctive orders restraining him from taking up employment on the grounds that the competitor would gain*
  - *access to its confidential and proprietary business information and*
  - *an unfair advantage over CRBH in its business operations.*
- The court declined CRBH's application.
- It referred to another case in which the court held that any damage that might be caused to the employer was secondary to the impact an injunction would have on the employee's ability to find another job.

Obligation Of Confidence … Contracts in Restraint of Trade Act (Cap 24)

497

- Held:
- "in a country like Kenya where unemployment is soaring every single day, subjecting the defendant to loss of employment on the basis of a restrictive clause would be unreasonable and not in the interest of either party. Indeed such an action would be contrary to public policy" as courts should not be seen to be unduly impeding upon a person's right to earn a living.
- *A **reasonableness** test that the courts have laid down:*
  - *Subjecting the former employee to a period of unemployment with no guarantee of employment following this period would be unreasonable and against the public interest in the Kenyan context where unemployment is soaring.*

Obligation Of Confidence … Contracts in Restraint of Trade Act (Cap 24)

498

- Also held:
- CRBH had failed to discharge the **burden of proof**:
- The employer cannot reasonably restrain the experience and expertise gained from a particular employer without stunting the employees career.
  - The RTC must seek to restrain the employee's use of only that which is uniquely the employer's secret and not the employee's use of experience, knowledge or skill gained from working with the employer (i.e. which can be acquired by learning, experience or development in technology) …

Obligation Of Confidence … Contracts in Restraint of Trade Act (Cap 24)

499

- CRBH had failed to demonstrate
  - the nature of the secrets or information to which Kunyiha had gained access and
  - the manner in which he was likely to divulge or use the same in his new employment to the detriment of CRBH.
- Further, CRBH had not shown that Kunyiha had in his possession classified information

Obligation Of Confidence … Contracts in Restraint of Trade Act (Cap 24)

500

- **Other Case Law**
- LG Electronics Africa Logistics FZE vs. Charles Kimari (2012)
  - *Restrictive clause is only unconstitutional if it does not meet the limits set by Section 2 of the Contracts in Restraint of Trade Act (Cap 24)*
- Bridge International Academies Limited versus Robert Kimani Kiarie (2017)
  - *The plaintiff had only made allegations without suitable proof, which were easily denied by the defendant.*

Obligation Of Confidence … Contracts in Restraint of Trade Act (Cap 24)

501

- How can the employer be helped?
- **Garden Leave**
- Consider including a garden leave clause alongside the restraint
- Garden leave describes the practice where an employee who has resigned or is dismissed with notice is instructed to stay away from work during the notice period, while still remaining on the payroll.
- More likely to be upheld as employee is receiving compensation
- Undeveloped Case Law in Kenya
- UK Case Law can give us ideas

Obligation Of Confidence … Contracts in Restraint of Trade Act (Cap 24)

502

- **More on Garden Leave:**
- The employee remains on the payroll for a period
  - (typically upto 6 months)
- but is not allowed to go to work or to commence any other employment.
- Usually implemented as the employee may have access to up-to-date information which could be beneficial to the employer's competitors
- so the employer ensures that by the time the employee is contractually free, he or she would have been out of the loop long enough to reduce this threat.

Obligation Of Confidence … Contracts in Restraint of Trade Act (Cap 24)

503

- A garden leave clause typically found in the contracts of senior employees to:
  - Stop an employee working for a competitor until their notice period has come to a close
  - Keep them away from confidential or sensitive company data and prevent them from misusing this data
  - Stop the employee from poaching customers or colleagues
  - Enable the successor to the role without worrying that the other employee will get in the way.

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Patents

NB: Find out the process of obtaining the various means of protection in Kenya (visit http://kipi.go.ke/)

Patents Protection

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- Knowledge is only useful if it contributes to development.
  - It must be **exploited** and **transferred**.
  - **Transfer** can only happen effectively through legal protection and commercialisation which require an **owner** and a **value**.
- **Patents** move beyond just the knowledge (ideas) to the thing (commercialisation).
- Innovation vs Invention:
  - Innovation is the process of translating an idea or invention into a good or services that creates value …

Patents Protection

507

- A patent grants the owner an exclusive monopoly on the ideas behind an invention for 20 years.
- Its intent:
- To ensure that inventors of new machines, devices, or methods receive the full financial and other rewards of their labour *yet still make widespread use of the invention possible*.
- How?
- By providing detailed diagrams for those wishing to use the idea under license from the patent's owner.

Patents

- A patent protects inventions and encourage inventors to innovate.
- A patent gives to an inventor a legitimate monopoly in an invention.
  - This means that the inventor is given the exclusive right to use or exploit the invention for a defined period (20 years in Kenya).
- A grant of the right to exclude others from making, using, importing or selling one's invention without permission.
  - includes right to license others to make, use, or sell it

PATENTS

- Fill Kenya Industrial Property Institute (KIPI)'s form IP3 (*Application for a Patent*)
- A granted patent must be renewed every year after the 5th year for up to 20 years.

Patent Claims

510

- For an invention to be patentable it:

1. must fall within the category of permissible subject matter:
   - "a process, machine, manufacture or composition of matter or … an improvement thereof."

Patent Claims

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2. Must have the following characteristics (i.e. it **must satisfy three tests**):
   i. **Novelty** - It must be new (not used anywhere else)
   ii. **Non-obviousness** - It must have an **inventive step** that is not obvious to someone with knowledge and experience in the subject
      - someone skilled in the field of invention sees it as an unexpected or surprising development
   iii. **Utility/industrial applicability** - It should be capable of being made or used in some kind of industry; it must work/have a useful application (you can apply it in industry or agriculture)

Patent Claims

- All these (the 3 tests) are tested by KIPI (Kenya Industrial Property Institute).
- If your invention makes the cut, you can then have the rights to control who makes, uses, sells, offers to sell and/buy and/or imports the patented invention.
- NB for IP:
  - FCFS (ownership)
    - E.g., for patents: first inventor to file an application

Patent Claims

- Registering with KIPI = only local protection
- ARIPO - African Regional Intellectual Property Organisation
  - (do it through KIPI) - African countries
- WIPO - World Intellectual Property Organisation
  - If you want international protection you must go to KIPI first then WIPO.

What You Can't Patent

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- It must not be:
  - a literary, dramatic, musical or artistic work
  - a way of performing a mental act, playing a game or doing business
  - the presentation of information, or some computer programs
  - an animal or plant variety
  - a method of medical treatment or diagnosis
  - against public policy or morality
  - a scientific or mathematical discovery, theory or method...

What You Can't Patent

515

- ***It must not be a scientific or mathematical discovery, theory or method …***
- Say you make a new and useful scientific discovery that no one else has ever thought of.
- You cannot get a patent on it because **you did not actually create** the fact you discovered.
- That fact was always in existence, you were just the first to notice it.
- However, if you can come up with an invention that makes use of that fact, you can patent the invention.

Patents Protection

- Advantage
- It grants a monopoly on the underlying concepts and ideas of software.
- Disadvantages
- Proving non-obviousness, originality, and novelty is hard.
  - e.g., the work must reflect some special understanding and contribution.
- The amount of time it takes before receiving protection (sometime years).

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Patenting Software

Summary

Patent principles

- Purpose is the advancement of the useful arts and sciences
  - not simply the right of inventors to reap rewards - a means not an end
- Foster inventions
- Promote disclosure of inventions
- Assure ideas in public domain remain free
- Improve economy and employment

Patents and Software

- Until 1980's, patent offices were reluctant to grant software patents for fear of granting ownership of mental processes
  - patent holder could require a licence to perform operations mentally
- More recently the focus is on the nature of mathematical algorithms
  - explicitly excluded as inappropriate subject matter

Patents and Software

532

- Although software functions by using algorithms and mathematics, it may be patentable if it produces some concrete and useful result.
- However, what cannot be patented is software whose only purpose is to perform mathematical operations.
- Not Patentable:
  - software that converts one set of numbers to another
- Patentable:
  - software that converts one set of numbers to another to make rubber ...

Patents and Software

533

- Initially, the US's Patent Office rejected **software** patents applications.
- Until the ***Diamond versus Diehr (1981)*** Supreme Court decision:
  - computer programs could be a part of a patentable process.
    - The plaintiff (Diehr) had applied for a patent on a process for curing synthetic rubber.
    - His machine could cure rubber aided by a computer using mathematical formulae.

Claiming a software patent

- Before putting to market, do ex(t/p)ensive patent search
  - If overlapping patents, secure licences
- Patent searches are unreliable as the classification system for software is poor
  - Easy to spend development £$Ksh only to find a relevant claim has been filed
- Conclusion: patents do not serve interests of innovation in software

Read about relevant cases from http://www.richardspatentlaw.com/faq/have-an-idea/what-do-you-think-about-software-patents/

Further Reading

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- Check out the following article titled **"Filing for a Patent Versus Keeping Your Invention a Trade Secret"**
- https://hbr.org/2013/11/filing-for-a-patent-versus-keeping-your-invention-a-trade-secret

536 COPYRIGHT PROTECTION

*Copyright is a form of protection provided by the laws of a country to the authors of original works in the industrial, scientific, **literary** or artistic fields.*

COPYRIGHT PROTECTION

537

- **Literary works** may include such things as written material, music, drama and paintings.
- The protection is available to **published** or **unpublished** works.
  - provided it meets the relevant legal criteria and requirements.
- Both **source code** and **object code** are taken to be literary works.
- Hence they are copyrightable.

Copyright Protection

538

- Copyright protects IP creators from having their work copied by others for any purpose.
- In Kenya, the duration is the life of the author plus an additional 50 years after the author's death.
- The intent behind copyright laws is to encourage creativity and authorship.
- Creative people receive financial and other benefits of their work.

Copyright Protection

539

- Many countries/nations have their own copyright laws.
- They also ratify international conventions and bilateral agreements on IPR.
- For SW, copyright laws allow the buyer to use the SW while the creator retains legal title.
- Copyright protects against copying of parts of, or the entire program.
- Damages and relief are awarded for infringement.

Copyright Protection

540

- **Disadvantage:**
- The underlying **ideas** behind a work are not protected, only their **manifestation** in a work.
  - Copyright applies to the tangible form and precise details of a work, but not the underlying ideas, concepts, principles or facts that it is based on.

Copyright Protection

541

- For example, you can copyright a specific novel you wrote, but you cannot copyright the general idea of an action novel set in a particular time period.
  - Others are free to express that general idea in their own unique way.
- For SW, a competitor can use your software, understand how it works, and build new software that follows the same concepts without infringing on a copyright…

Copyright Protection

542

- "*Look and feel*" copyright infringement lawsuits are about differentiating between an idea and its expression.
  - E.g. in the early 1990s ***Apple Computer sued Microsoft Corporation and Hewlett-Packard*** for infringement of the expression of Apple's Macintosh interface.
- They claimed that the defendants copied the **expression** of overlapping windows.

Copyright Protection

543

- The defendants countered that the **idea** of overlapping windows can be **expressed** only in a single way …
- Thus it was not protectable under the **merger doctrine** of copyright law:
  - When ideas and their expression merge, the expression cannot be copyrighted.

Copyright Protection

544

- In general, courts appear to be following the reasoning of the ***Brown Bag Software vs. Symantec Corp (1989)*** case.
  - The court found that similar concept, function, general functional features (e.g., drop-down menus), and colors are not protectable by copyright law.
  - In copyright law, functional aspects are not typically protected, whereas creative expressions can be.
    - In the Apple case, overlapping windows were held to be functional features rather than purely creative expressions.

COPYRIGHT PROTECTION

545

- Copyright is …
- a form of ownership …
- that excludes others,
- for a limited amount of time,
- from copying without permission.

COPYRIGHT PROTECTION

546

- You can NOT copyright an idea.
- Q: What, then, can you copyright?
- The **expression of an idea**.
- What is the difference?
- One way to look at it:
  - The idea is the *concept*, the expression is the *way it is realised*.
  - The expression would be the exact words in the work.

COPYRIGHT PROTECTION

547

- The **expression** is the specific way an idea or concept is articulated, described, or embodied in a fixed, tangible form.
- **Examples of Expression Protected By Copyright**
- The precise wording and dialog in a novel or poem
- The characters, storylines, and imagery in a fictional work
- The notes and lyrics of a musical composition
- The choreography and staging of a dance routine
- How about software?
- **The code and interfaces that make up a software program**

COPYRIGHT PROTECTION

548

- What is protected is the **fixation of an idea in a *tangible medium of expression.***
- We can't protect the idea itself, or any processes or principles associated with it.
- The distinction is not always clear and is usually on a case by case basis.
- **Source and object codes** are copyrightable because they are **expressions of ideas.**

COPYRIGHT PROTECTION

549

- A problem arises here.
- It is very, very simple to make a whole new app by changing very little in an existing software.
- Think back to the case study of the fantastic software start-up that collapsed due to piracy.
- To what does the copyright apply?
  - The old version?
  - The parts of the new version with the old code?

COPYRIGHT PROTECTION

550

- In this case, this question arises even when you, the owner modifies the app.
- Should you reapply for copyright each time you add new pieces of code?
- Maybe viewing software as 'literary works' is over simplifying the issue …

Is Software Literature?

551

Literature	Software
• Doesn't change much. • If I create a literary work similar to yours I can acquire protection for it if I did it independently and it is literally different: (cf. Whelan versus Jaslow in the next slide). • For literature to be useful, a user must be present	• Constantly changing. • If I independently develop software strikingly similar to yours, I may not be able to copyright it. • Software behaviour is useful in itself, even with no users.

Case Law

552

- ***Whelan versus Jaslow (1986) aka Whelan Associates, Inc. v. Jaslow Dental Laboratory, Inc***
- *Whelan developed a program for Jaslow in Fortran.*
- The agreement was that Whelan would own it.
- Jaslow then redid the program line by line in BASIC.
- Whelan sued.

Case Law

553

- Though Jaslow's program was *literally different* and maybe even a different expression of the same idea, the court found in favour of Whelan.
- They found *comprehensive non-literal similarity*.
  - It may not be a literal copy (of the text of the code), but the (more abstract) **structure, sequence and organisation** (SSO) were copied.
    - SSO: the architecture and design of a program - how modules, components, data structures, algorithms, and other elements are arranged and connected together into an integrated whole.

Case Law

554

- cf Lotus vs Borland (1996) …. Idea vs expression of an idea
  - Held: A computer menu command hierarchy is not copyrightable subject matter.

Case Law

555

- ***Franklin Computer Corp versus Apple (1984)***
- Apple had proprietary software that could only run on the Apple II.
- Franklin developed a clone, the Franklin ACE 1000 whose ROM and OS were indisputably copied from Apple (practically line by line).
  - The programs were in object code stored in ROM.
- He was found guilty of copyright infringement.

Case Law

556

- An appeals court held that:

1. a computer program, whether in object code or source code, is a "literary work" and is protected from unauthorised copying
2. a computer program in object code embedded in ROM chip is an appropriate subject of copyright;
   - *Franklin had argued that*
     - *(1) Apple's software existed only in machine-readable form (not in printed form), and*
     - *(2) some of the software did not contain copyright notices.*

Case Law

557

- An appeals court held that … (cont):

3. computer operating system programs are not per se precluded from copyright protection;
   - *(first time a court had ruled that an OS was copyrightable)*
4. even without the presumption of irreparable harm generally applied to copyright infringement actions, Franklin copying key programs would irreparably harm Apple's investment and competitive position. This was enough to justify a preliminary injunction.
5. Irreparable harm must be presumed in every copyright case.
   - *(A lower court had found that Franklin's was too small a company to pose any serious threat to Apple but granting Apple a preliminary injunction would probably bankrupt Franklin.*

COPYRIGHT PROTECTION

558

- Digital representation of IP has made it easier to infringe copyright, and policing of copyright infringement has become difficult.
  - The Internet is one area where this has become very difficult due to the number of people who are performing copying of IP.
- One point of contention is **fair use** of copyrighted material that are copied for personal use, education or research and not for commercial purpose.

COPYRIGHT PROTECTION

559

- Copying may be allowed in the licence e.g. for fair use and back-up purposes.
- **Fair use:**
- Teaching
- Scholarly work/research
- Criticisms or comments
- News reporting
- Some governmental purposes e.g.:
  - parliamentary/judiciary proceedings
  - commissions and statutory inquiries.

COPYRIGHT PROTECTION

560

- Computer Software is considered as copyrightable material including freeware, shareware (try-before-you-buy), and commercial software.
- Only public domain and open source software fall outside the copyrighted restrictions.
- When you buy software you are bound by the license agreement.
- License agreements allow you to **use** the software and **not to modify, sell or give it away** as those rights belong to the copyright holder.

COPYRIGHT PROTECTION

561

- Digital images like photographs, art-like cartoons or complex images are copyrighted material
  - but under **fair use** a downloaded image can be used as a screen saver
    - but you are not allowed to distribute or post it in your own web site.
- **Plagiarism** is a problem in university campuses where you present other persons' ideas or words as your own
  - under the fair use practices you can include someone's work as long as you identify the source.

562

The Kenyan Copyright Act

The Kenyan Copyright Act of 2001

- Kenya has a robust intellectual property rights (IPR) legal framework.
- This framework primarily falls under copyright law, which is aimed at protecting the creativity of individuals, authors, and artists.
- The Kenyan Copyright Act of 2001 governs copyright law in the country.
- It takes a comprehensive approach to the protection of literary, artistic, musical, and other creative works.
- It outlines:
  - the rights of copyright owners
  - limitations on exclusive rights
  - remedies available to parties in cases of infringement.

The Kenyan Copyright Act of 2001 The Rights of Copyright Owners

- Protects original works of art, including music, broadcasts, films, photographs, and literary works.
- Gives exclusive rights to copyright owners to:
  - reproduce, distribute, display, and perform their work.
  - create a derivative work or adaptation of their work ...

The Kenyan Copyright Act of 2001 The Rights of Copyright Owners

- create a derivative work or adaptation of their work.
  - Only the copyright holder can create a new program that is based on the original code or integrates substantial parts of the original code.
  - You must acquire permission from them to make an adaptation or extension of their program
    - if you want to reuse significant portions of their code to e.g.:
      - create a new version, port, localise, modify, add new features, combine with other programs, etc.

The Kenyan Copyright Act of 2001 Limitations On Exclusive Rights

- The Act defines the limitations on these exclusive rights e.g.:
  - the use of work for educational, scientific, and research purposes may be allowed in certain circumstances.
- However, such use must not infringe on the rights of the copyright owner.

The Kenyan Copyright Act of 2001 Remedies

- The Act outlines the remedies available to parties who are affected by copyright infringement.
- These remedies include civil and criminal action.
- In civil proceedings, a copyright owner can seek an injunction to stop an infringing party from continuing an action that infringes on their rights.
- They can also claim damages and seek an account of profits made by the infringing party.
- In criminal proceedings, an infringing party can face imprisonment and fines.

The Kenyan Copyright Act of 2001

- It also outlines the role of collective management organisations (CMOs).
- These provide copyright licensing, monitoring, and enforcement services on behalf of a large group of creators/rights holders.
- These are registered under the Act and are responsible for **administering the licenses** for the use of copyrighted works.
- The Act requires that CMOs be accountable to both the copyright owners and the users of copyrighted works.
- CMOs are also required to be transparent about the distribution of royalties.

The Kenyan Copyright Act of 2001

- In 2019 one of the significant changes made to the Kenyan Copyright Act was the introduction of a penalty for online copyright infringement.
- The amendment made it an offense to upload or distribute copyrighted works over the internet without the permission of the copyright owner.
- The Act provides for compensation to the copyright owner, as well as damages to be paid by the infringing party.

Copying

591

- Copying means reproducing the work in any material form.
  - Covers loading into RAM, no matter how transient this is.
- Any use of digitised material requires the explicit consent of the copyright holder, a contrast with printed material and sound recordings, which can be read/heard freely.

Non-literal Copying

592

- E.g. programmer changes jobs, then produces program of similar functionality to copyrighted one owned by former employer.
  - US idea v expression tends to permit, but counts aspects of the logic as expression
  - UK practice: what is copyright? Is it original? Did copying happen? Was it substantial?
  - How about Kenya?

Adaptation

593

- Can only be done with consent of copyright owner
- Includes translating a work
  - to a foreign language
  - to a different computer language

Case: antiquesportfolio.com

596

- Unauthorised use of images by web designer
  - UK court backed website owner who refused to pay designers' fees (and sued them for damages) because the designers had used pictures in breach of a third party copyright
  - Court said that there was an implied duty of care on the part of the designers not to include works that were knowingly copied
- *See: "Information required in a Web Development Agreement" and "Web Development Deals" from out-law.com*

629

The Case for Software as IP

Legal Mechanisms To Protect Software

630

- The eligibility of computer software for various forms of protection is contentious.
- It is still being decided by courts and legislatures

IP: Ownership of Software

631

- With software, what can be owned?
  - The algorithm?
  - The source code?
  - The object code?
  - The user interface?
  - The copy on disk?
  - The right to use?

Is Software IP?

637

- Software challenges traditional notions about property and ownership.
- In the 1970s, it was difficult to patent software due to the sw being perceived as:
  - a mental process
  - a mathematical algorithm

Is Software IP?

638

- ***Diamond versus Diehr (1981)***
- The plaintiff (Diehr) had applied for a **patent** on a process for curing synthetic rubber.
- His machine could cure rubber with the help of a computer using mathematical formulae.

Is Software IP?

639

- The defendant, Diamond, the **patent examiner**, rejected his application.
- This was on the basis that the steps were carried out by a computer under the control of a stored program.
- The question here was *whether patentable claims become invalid because they include mathematical formulas*.
- **Held:** Patentable claims do not become invalid because they include mathematical formulas.

Is Software IP?

640

- After this case, many patents have been granted on software.
- A new combination of steps in a process may be patentable …
- even though all the parts of the combination were well known and commonly used before the combination was made.
- One of Diehr (the patent applicant)'s arguments;
- *Yes, a mathematical formula, just like a law of nature, cannot be the subject of a patent …*

Is Software IP?

641

- However they were seeking protection for **a process** of curing synthetic rubber, not a mathematical formula.
- Sure, their process used a well-known mathematical equation.
- However they were not stopping anyone from using it unless …
- it was in conjunction with all of the other steps in their claimed process.

Arguments against Software Protection

Arguments against Software Protection

643

- A person that owns a program owns the mental steps that make up the program.
- Thus you cannot use these mental steps.
- That is basically interfering with your freedom of thoughts.
  - Imagine someone claiming ownership of the IF statement.
- The level of knowledge considered is generic and common.

Arguments against Software Protection

644

- But what about those who argue that:

"No ownership → lack of incentive to produce software."

- Says who?
- Not all programmers do it for the money.

Arguments against Software Protection

- Information wants to be free.
- Information wants to be shared.

Arguments against Software Protection

- **Information wants to be free:**
- Richard Stallman = strong proponent.
- He opposes software IPR:
  - Programmers would still write programs even without financial rewards via copyright protections.

Arguments against Software Protection

- According to Stallman:
  - Information is something that we humans desire to share with one another.
  - Software development is like science.
    - It progresses most rapidly when knowledge is shared openly.

Arguments against Software Protection

- To share information, it must be communicated.
- Intricate IP structures and mechanisms prohibiting / discouraging the communication of information undermine its very purpose – as something to be shared.

Arguments against Software Protection

- **Information wants to be shared.**
- Herman Tavani is a proponent.
- He argues that **Information Wants to be Shared** has a better chance at being taken seriously than **Information Wants to be Free**.

Arguments against Software Protection

- Sir Tim Berners-Lee, invented HTTP, and the WWW.
- He shared it freely with the world.
- The idea behind HTTP was to allow for the sharing of information.
- Doug Englebart freely shared his invention with everybody.
- He did not claim a patent for the mouse.

Arguments against Software Protection

- Such information sharing has benefited many entrepreneurs.
- Some of them then sought to control the flow of information in cyberspace.
  - Steve Jobs got his ideas of GUIs from Xerox PARC.
  - MS Windows's UI was derived from his ideas.
  - Current UIs have benefited from the sharing of information.

Arguments against Software Protection

- The Open Source movement supports the idea that **Information Wants To Be Shared.**
- We need to preserve the intellectual commons.
- **Q:** What if all the information that we have traditionally shared freely were to disappear from the public domain and enter the world of copyright protection?

Arguments against Software Protection

- Short term effect:
  - Private corporations and some individuals will make huge profits.
- Long term effect:
  - Society may be worse off intellectually, spiritually, and even economically.
- The short-term goals or privatisation of information should be balanced against the interests of the greater public.

Further Reading

654

- John Locke, *Two Treatises of Government* (P. Laslett, ed., Cambridge: Cambridge University Press, 1970), Second Treatise, Sec. 27. 4
- Bentham, Jeremy (January 2009). *An Introduction to the Principles of Morals and Legislation* (Dover Philosophical Classics). Dover Publications Inc. p. 1. ISBN 978-0486454528.
- Also:
- For a not recent but still thought provoking and informative discussion on the Kenyan scene with regards to IP (including procedures to follow when applying for the protections), read http://viffaconsult.co.ke/intellectual-property-a-case-review-of-kenyas-it-sector/

Why Should We Care About Legal and Professional Issues?

655

- We've already established that

1. Today, technology plays a huge role in our society.
2. We must take into consideration its ethical, social and legal implications.

Why Should We Care About Legal and Professional Issues?

656

- What are the repercussions of the technology we apply?

Exponential growth in computer usage

+

increase in monetary value of software and computer related technologies

=

software professionals being increasingly affected by the legal issues surrounding these technologies

Why Be Concerned About Ethics and Professional Conduct?

657

- Certain legal frameworks apply to our discipline and the areas in which we work.
- As computing professionals, we must work within them. E.g.:
  - It is now essential for software professionals to understand intellectual property categories.
  - We must understand how they specifically relate to software and computer related developments:
    - trade secrets,
    - trademarks,
    - and especially copyrights and patents

Why Be Concerned About Ethics and Professional Conduct?

658

- We are also bound to the ethical and moral principles appropriate to computing operations.
- Legal, professional and ethical issues are ALL important in computing.

CAT (30 MARKS)

Groupwork: Paper

INSTRUCTIONS

- Divide yourselves into not more than 10 groups.
- In a SPREADSHEET app type your member details into 4 columns as follows:

S/NO	Truncated Reg No	Reg No	Name
1	12345/2020	A12/12345/2020	MARY ALI
2			
3			
…			
…			

Name the spreadsheet SCO402L&E 2023-2024 Sem1 Group Members

CAT (30 MARKS)

- Provide a comprehensive overview of the process for acquiring intellectual property rights (IPR) on computing property, such as software or algorithms, in Kenya.
- In your paper, include the legal steps, required documentation, and key considerations from the initial creation of a computing product to the final grant of IPR protection in the context of Kenyan intellectual property law.

CAT (30 MARKS)

- Summary of documents you will send to my email:

1. A spreadsheet named:

   SCO402L&E 2023-2024 Sem1 Group Members

2. A word processed (NOT a pdf) document named:

   SCO402L&E 2023-2024 Sem1 CAT2

- **NOTE**

1. Send these documents to my email address on or before Friday, 17th November, 2023.
2. The subject of the email MUST be SCO402L&E 2023-2024 Sem1 CAT2
3. Plagiarism will not be tolerated.