INSTITUT DE LA PROPRIÉTÉ INTELLECTUELLE LUXEMBOURG

NGI TETRA

IP Protection in Software Development

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What is intellectual property?

- Registered and unregistered rights granted to creators and/or owners of works, that are results of human intellectual creativity, for governing their commercial exploitation

- Registered: legal procedure(s) must be followed pro-actively to verify grant is meritorious

  vs

- Unregistered: right(s) arise automatically by operation of law(s)

- All IPRs are time-limited and jurisdiction-specific (with limited exceptions)

- In a business context, all IPRs are intangible assets, tradeable and with a real or assumed value

Types of IP Rights

Registered Rights

- Patent application
- Patent
- Trade mark application
- Registered trade mark
- Design application
- Registered design

= Monopoly Rights

independent creation (e.g. accidental) of same work is infringement

Unregistered Rights

- Copyright
- Unregistered Design Right *[not 2D]*
- Unregistered Trade Mark (passing off)
- Confidential Information/Trade Secret

≠ Monopoly Rights

independent creation (e.g. accidental) of same work is not infringement

Basic principles

- A combination of different IPRs can be used to protect innovative activity, market activity and company intangible assets.
- Many different types of IPRs can subsist in a same product/service (patent and/or design for software functionality/UI, trade mark for brand, copyright for code/documents/websites)
- Many same types of IPRs may apply to a same product/service (e.g. respective patents for image encoding, e-payment securing, data packet addressing, etc. in a same software)
- The term of protection and the registration requirements vary between types of IPRs and, given a same type of IPR, between jurisdictions
- No one-size-fits-all solution: the fitness-for-purpose of an IP portfolio always depends on a business' specific circumstances, its core activities and core markets, and so varies over time.
- Ownership is key, and Statutes can sometime override contractual clauses (employer/employee, or anti-competitive practices: never a good idea to rely on US templates)
- Timing is equally key : any public or commercial disclosure may-

  (i) destroy ability to make an application for certain types of registered IPRs (patents, designs)

  (ii) start the term left to make such applications (12 months, for designs)

  (iii) start the term of unregistered IPRs (unregistered designs, copyrights)

Everyday example

Patents + Trademarks + Designs + Copyrights…

…in the phone

…in the phone OS

…in each app (1st & 3rd party)

…<etc>

Duration and subject

- Patents – typically 20 years from filing, for inventions (technical subject-matter)
- Trade marks – ‘forever’ (renewal every 10 years), for words, logos [and others] used as a badge of origin in the market
- Registered Designs – 14 years (US) to 25 years (EU, 5 x 5 years), for product shape, configuration or ornamentation, 2D or 3D. Not for functional aspects (e.g. engine exhaust end), patent protection should be used if appropriate
- Unregistered Designs – 3 years (EU) to 10 years (UK), for product shape or configuration, 3D only. Functional aspects OK (e.g. engine exhaust end).
- Copyright – life of author + 70 years, for original literary, dramatic, musical, artistic works. Many more types of copyrights with varying terms (e.g. ‘database right’, 25 years)
- Trade Secret / Confidential Information – so long as it remains confidential.

Timing considerations

"First Public Disclosure" is the cornerstone for timing

Simply put, the 1st time IP 'exits' the confidential context of the inventor or employer/commissioner, in any form.

= exhibition, meeting without NDA, info on website/social media, university paper, 1st sale, <etc.>

Patents : first public disclosure is fatal to validity of (future, not yet applied for) patent rights everywhere except when disclosure is unauthorised (6m grace period to apply, but complex/~~€€€~~).

Designs : first public disclosure is fatal to validity of (future, not yet applied for) design rights in some important jurisdictions [US, China], not others [EU: 12m grace period].

Dangerous to rely on grace period: design apps in bad faith by 3rd parties (competitors, distributors) are ~~€€€~~s to rectify and very wasteful (1-to-10 ratio, relative to applying first whilst still confidential).

'Deferred publication' mechanism devised for exactly this purpose.

Trade marks – no similar principle, **but** first-to-apply principle means lost marketing €s & goodwill in new trading name if 3rd party applies beforehand [in good or bad faith].

Check registrability and availability of a trading name/get-up first, *before* spending marketing ~~€€€~~s on brand (otherwise, risk finding out late, that it infringes earlier TM rights = reboot brand-building afresh)

Geographical considerations

IP rights are country-specific: LU patent irrelevant to RoW, US trademark irrelevant to RoW, etc.

Where is/are main market(s)? main competitor(s)? server farms/data centres? etc. = suggests where protection should be sought.

Example:

65% EU, 30% US, 5% RoW? = protect EU & US

65% EU, 30% US, 5% RoW today, but 30% EU, 30% US, 25% CN, 5% RoW in 3 years? = protect EU, US & CN

"Priority claim": 1st filing, then later filing(s) in other countries (max 12m patents, max 6m designs/TMs)

1st patent filing in LU 25/11/20, then EU & US patent filings 25/11/21 = LU, EU & US patents all deemed filed on 25/11/20

1st TM filing in EU 25/11/20, then US TM filing 25/05/21 = EU & US TMs both deemed filed on 25/11/20

[3rd party filings between 26/11/20 and 25/11/21 (patents) or 25/05/20 (designs/TMs) are automatically invalid]

"International filing systems": go multinational easy & cheap, but beware nature of system & IP rights

- Patents: EP (European Patent Office), PCT (World Intellectual Property Office)
- Designs: EU (European Intellectual Property Office), Hague Agreement international designs (WIPO)
- Trademarks: EU (European Intellectual Property Office), Madrid Protocol international TMs (WIPO)

Copyrights in software

No © in principle, idea or method underlying a piece of software, nor in its functionality.

© only in subject-matter ('work') that is expressed (written, typed, recorded, performed) and it is type-respective.

In software:

- original code = literary ©
- organised/structured data = 'database right' (for the structure, not the data)
- new font = 'typographic right'
- digitised assets: photo / audio recording / video [respective © survives digitizing]

'automatic' operation of law: © exists as soon as subject-matter expressed, no registration beside deposit systems (US Library of Congress, envelopes Soleau where available).

Typically owned by the author and ownership not transferred unless in writing, but national variations exist: [LU] © in software authored by employee owned by the employer, unless contract clause to contrary

'automatically' international (Berne Convention 1886)

[Lux] ***Loi du 18 avril 2001 sur les droits d'auteur, les droits voisins et les bases de données***

1ERE PARTIE
LES DROITS D'AUTEUR

Section 1
Dispositions générales

1. — 1) Les droits d'auteur protègent les œuvres littéraires et artistiques originales, quels qu'en soient le genre et la forme ou l'expression, y compris les photographies, les bases de données et les programmes d'ordinateur.

Ils ne protègent pas les idées, les méthodes de fonctionnement, les concepts ou les informations, en tant que tels.

2) Sont des bases de données au sens du paragraphe précédent, les recueils ou compilations d'œuvres ou d'autres éléments indépendants, disposés de manière structurée ayant nécessité un investissement substantiel.

Sont protégées les bases de données originales dont la structure, par le choix ou la disposition des éléments qu'elles contiennent, constituent une création propre à leur auteur, qu'elles soient accessibles par des moyens électroniques ou par d'autres moyens, à l'exclusion des phonogrammes et des œuvres audiovisuelles.

La protection des bases de données ne s'étend pas à leur contenu ni aux programmes d'ordinateur utilisés le cas échéant pour leur création, leur fonctionnement ou leur consultation, sans préjudice de la protection propre de ces éléments.

Section 7
Les programmes d'ordinateur

Objet de la protection

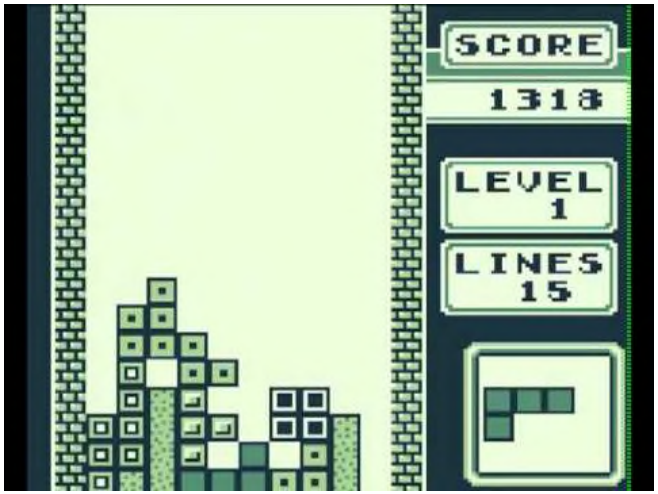
31. Les programmes d'ordinateur sont protégés par la présente loi en tant qu'œuvres littéraires au sens de la Convention de Berne pour la protection des œuvres littéraires et artistiques. La protection d'un programme d'ordinateur comprend celle du matériel de conception préparatoire concernant ce programme.

Bénéficiaires de la protection

32. — 1) La protection est accordée à toute personne admise à bénéficier des dispositions de la présente loi applicables aux œuvres littéraires.

2) Lorsqu'un programme d'ordinateur est créé par un employé dans l'exercice de ses fonctions ou d'après les instructions de son employeur, seul l'employeur est habilité à exercer tous les droits patrimoniaux afférents au programme d'ordinateur ainsi créé, sauf dispositions contractuelles contraires.

Copyrights in Software - example



Tetris (1984)

- game code: literary ©
- individual brick types: artistic ©
- UI layout and [static] components : artistic ©
- Melodies : artistic ©

Mino (Xio Interactive, US 2012) - © does not protect:

1. manipulation of pieces composed of square blocks
2. different geometric shapes for pieces
3. pieces falling from game board top to the bottom where pieces accumulate
4. new piece issued after current piece reaches bottom of game space available
5. piece rotation to fit it in with the accumulated pieces
6. fill all spaces along a horizontal line to erase line / earn points / game board freed up

but Xio lost because it copied block pieces (artistic ©), 10x20 game board field (UI ©), <…>

Patents in digital (software) projects

Marks&Clerk

Article 52 [38], [39]
Patentable inventions

Art. 54, 56, 57, 100, 138
R. 26, 27, 29

(1) European patents shall be granted for any inventions, in all fields of technology, provided that they are new, involve an inventive step and are susceptible of industrial application.

(2) The following in particular shall not be regarded as inventions within the meaning of **paragraph 1**:

(a) discoveries, scientific theories and mathematical methods;

(b) aesthetic creations;

(c) schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers;

(d) presentations of information.

(3) **Paragraph 2** shall exclude the patentability of the subject-matter or activities referred to therein only to the extent to which a European patent application or European patent relates to such subject-matter or activities as such.

“as such”: the presence (or not) of genuine technical problems

3 established types of fundamental technical problems :

1.saving resources: memory, processing capacity, bandwidth, power, consumption, … ***[objective material necessity]***

2.improving precision: of a result, a simulation, a forecast, of control for a process or equipment, … ***[objective material necessity]***

3.improving security: of data, of communications, of access, of control for a process or equipment, … ***[objective human necessity]***

new technical problems under development, e.g. in the context of AI projects, ethical problems ***[objective human necessity]***:

a) making neural network behaviour understandable to humans

b) determination of responsibility when an autonomous AI agent is involved

c) AI-driven implementations of right to be forgotten online

<…>

Software patent claims – technical vs non-technical

- Patent claims are concerned with a technical effect brought about by the software, not with an effect or result of an organisational nature.

- Computers, networks and other known ICT devices and structures are not inventive in and of themselves, and an organisational (“business”) method which they are programmed to deliver electronically cannot contribute to inventive step = refusal of patent application.

- In practice: strip organisational/commercial logic, query software devs about implementation problem(s) and their solutions, isolate purely technical problems and assess their technical and commercial relevance within the overall project

  Examples:

  (1) modelling an airplane toilet-booking system [organisation, not technical]

  (2) distributing audio-video content to a user [technical, even if AV content is not]

  (3) implementing a retail store online [not technical, but e.g. smaller photo size, secure payment, …]

  (4) detecting tampering with a blockchain >

Blockchain patent: EP 3125489 B1 (British Telecom)

1. A ***computer implemented method*** for detecting malicious events occurring with respect to a **blockchain data structure** comprising:

defining (402) a transaction creation profile according to which transactions can be generated and submitted to the blockchain;

submitting (404) a transaction to the blockchain, the transaction causing the generation of a profiler data structure in the blockchain including executable code to generate profile transactions to be submitted to the blockchain according to the transaction creation profile;

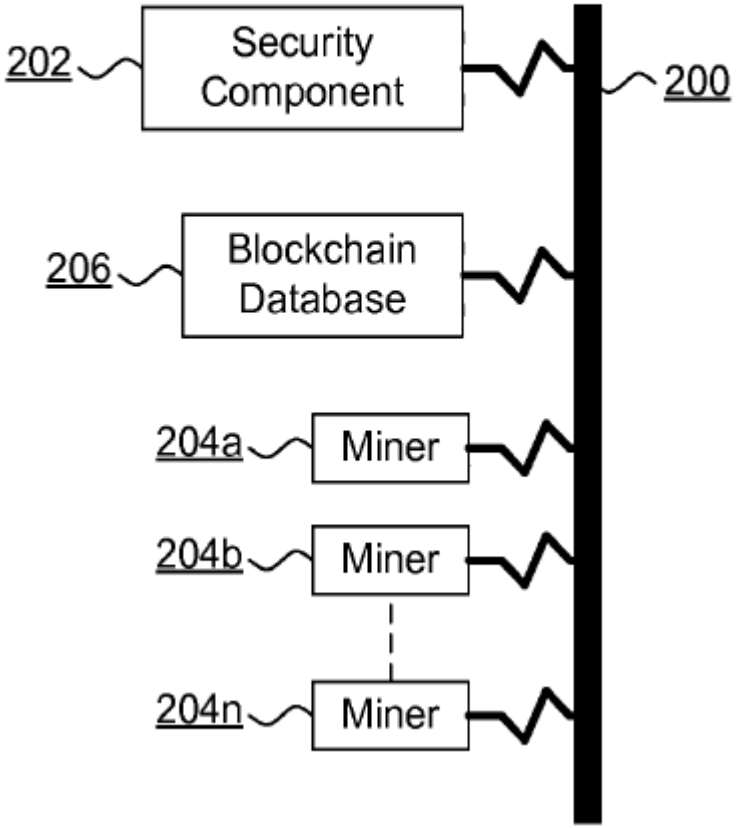
monitoring (406) the blockchain to identify profile transactions; and

comparing (408) identified profile transactions with the transaction creation profile to detect a deviation from the transaction creation profile, such detection (410) corresponding to a malicious event occurring with respect to the blockchain.

(EP app filed 07/2015, granted 08/2017)

(corresponding US app 9,807,106B2 filed 07/2016, granted 10/2017 via PPH)

FIGURE 2



Software patents claims – basic do's and dont's

- Patent claims must define:

(i) one or more combinations of technical integers inherent to the software, necessary to implement the "further technical effect" **and**

(ii) how these integers bring about that "further technical effect".

- Patent claims must **not** define the invention as the result (the technical effect) to be achieved - e.g. "*a computer program comprising a bandwidth managing module adapted to halve a size of outgoing data communications*" [how? what with? which comms?]
- Patent claims must be drafted to effectively cover:

    1. a technical implementation and its variants,
    2. commercial advantage(s) procured by that technical implementation and its variants,
    3. technical implementation 'choke points' unavoidable for, or delaying, competitors.

- Independent claims typically for data processing method, system, computer program/product, data storage means, set of instructions, user interface, <…>

Patenting user interfaces

- UI: graphical, oral, haptic, <…> - *can* be independently patentable
- UI patent claims concern how and/or why the interface is configured in a particular way, the technical nature of its elements and their functionality [“UI patenting”, but its actually closer to UX patenting].
- UI patent claims never concern which information is presented (“presentation of information” is not patentable, Article 52(2)(d) EPC)
- A technical effect is still required, and typically is one of the 3 “fundamentals” [improving resource usage, precision, security] or an improvement to human-machine interaction [ergonomy].
- Fundamental EPO case law for UI:

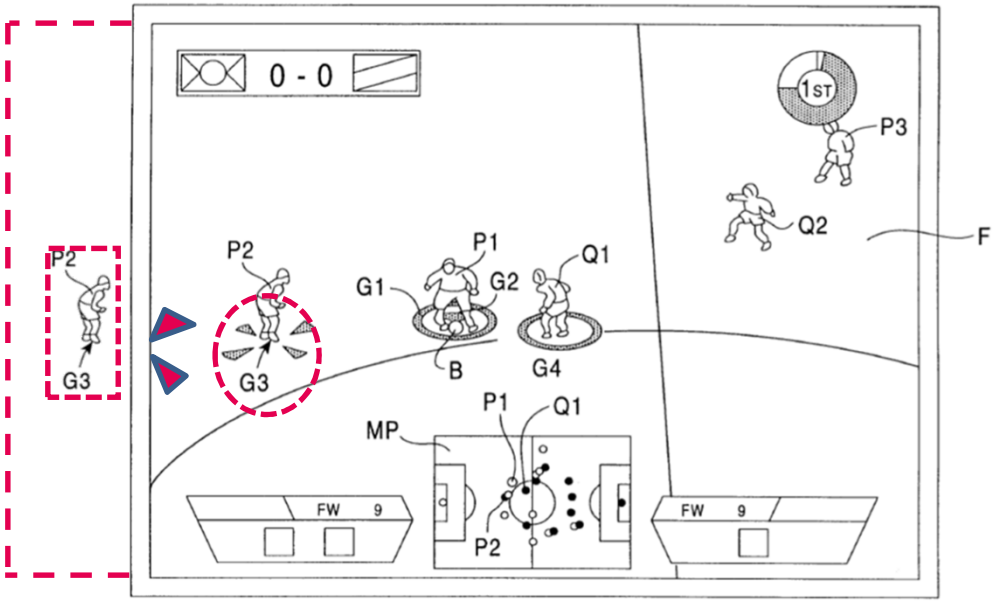
  Konami EP0844580 (T0928/03)

- Recent haptic example:

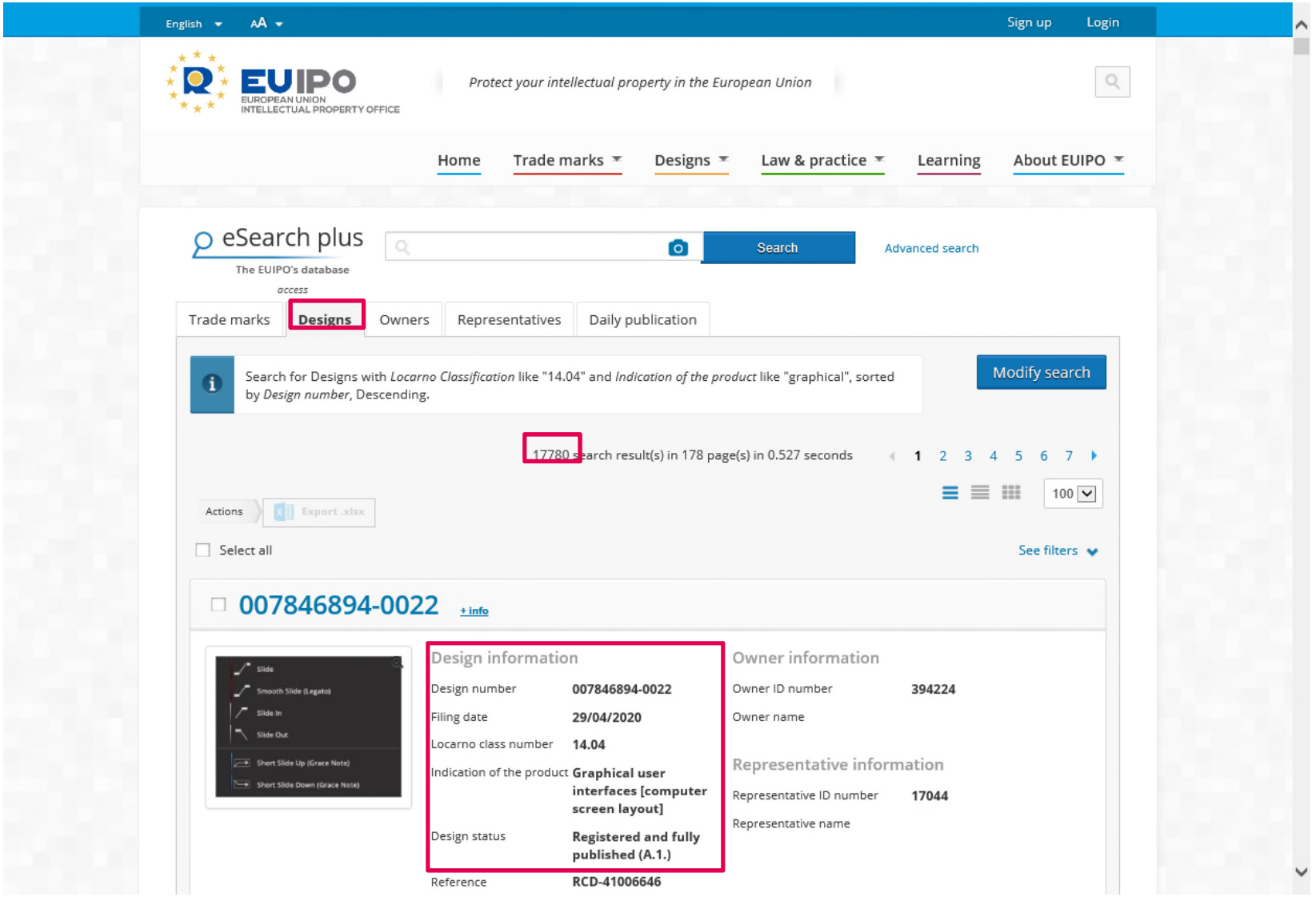
  Nintendo T1504/17 (20/08/20)

  sending GUI element across screens with Wiimote

FIG. 6



No technical effect? Consider design registration



Registering user interface designs

- Reminder: patent protects a technical concept, which can take different appearances
- Design is different: a design only ever protects a/the specific appearance

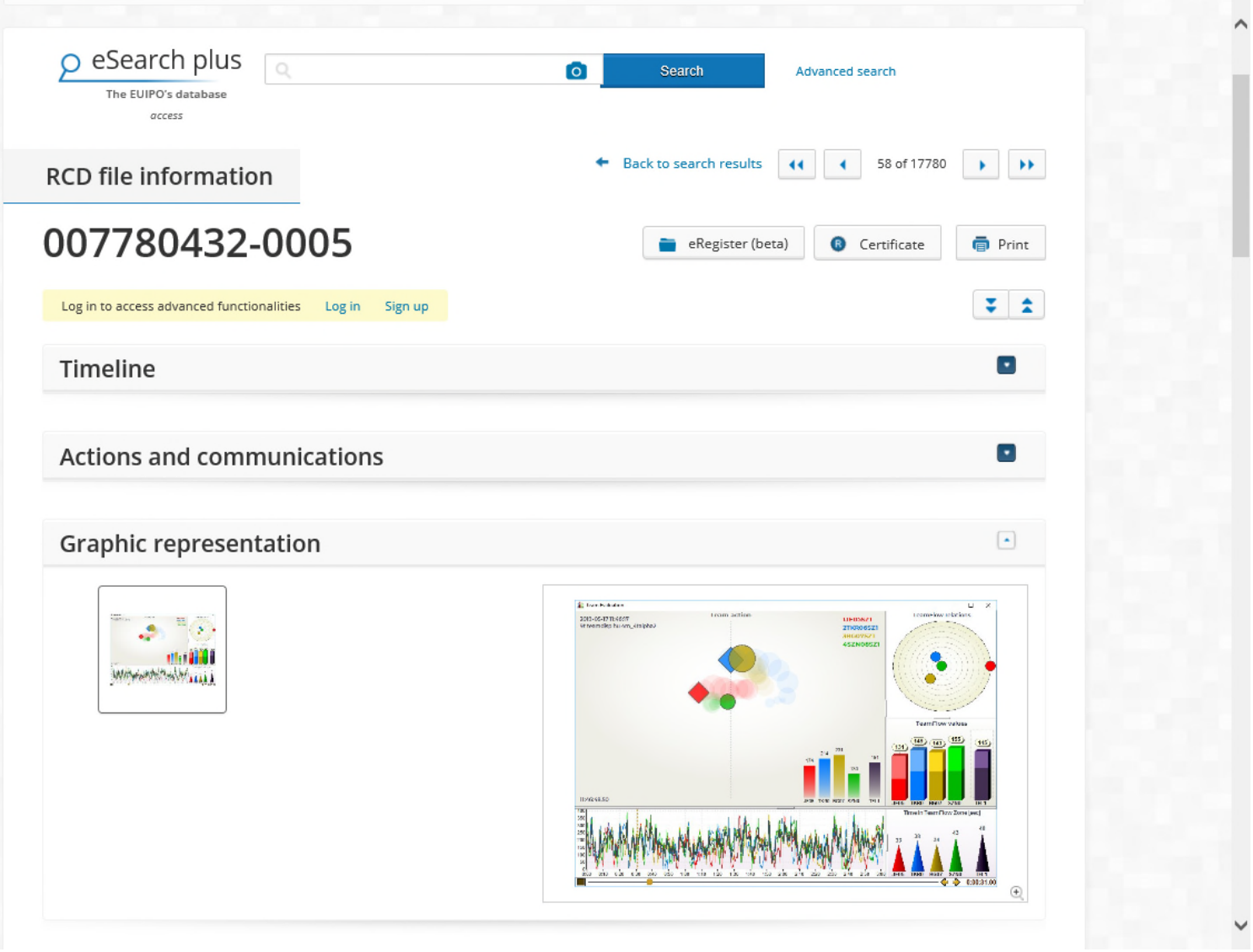
- UI patenting prevents copying of interaction/user experience with app/software
- Design is different: UI design registration prevents copying of app/software look-and-feel

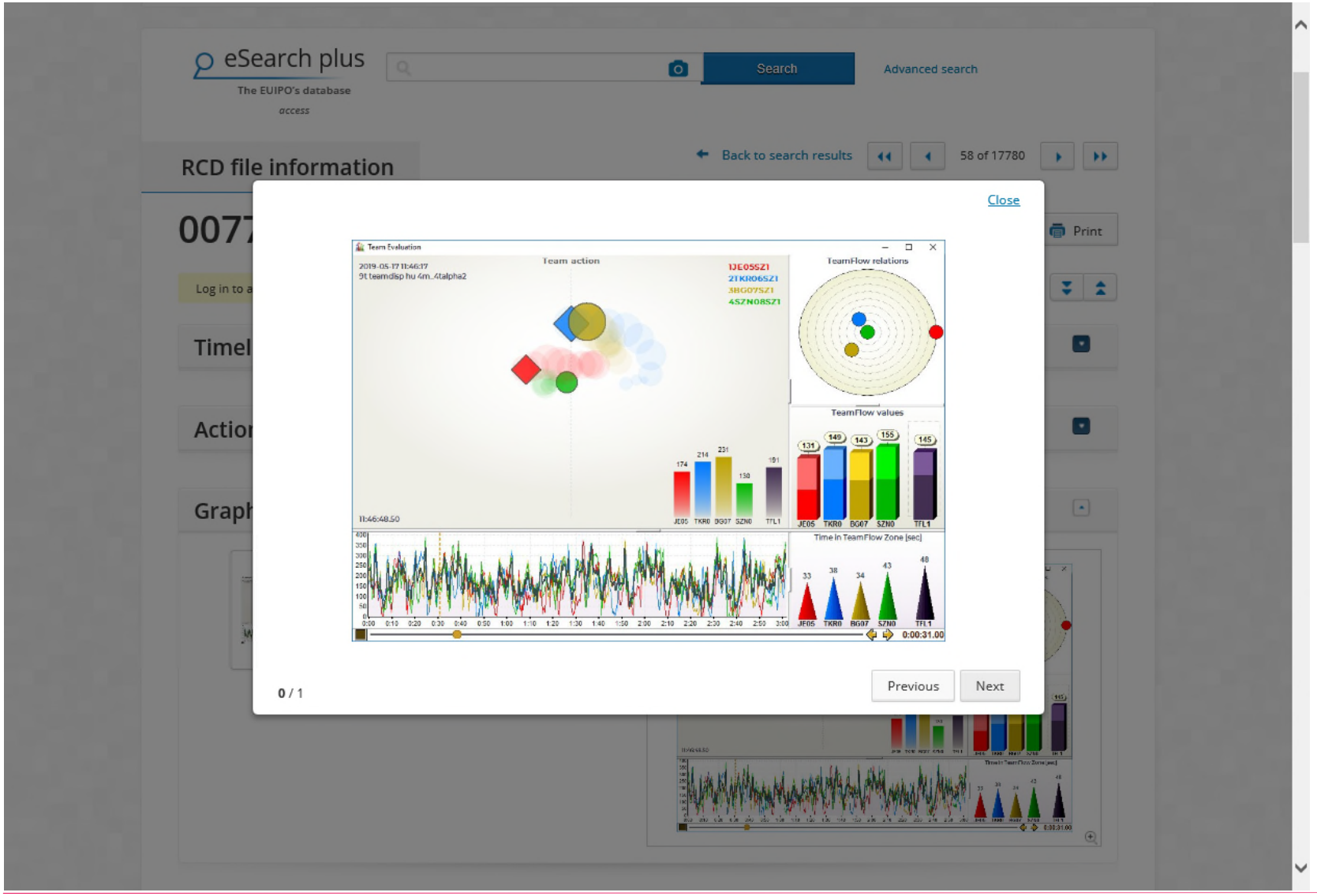
- Design protection is literal, “WYSIWYG”: what is protected, is the graphic representation of the design on the Register, not the UI as it appears in a SUHD phone screen and as it animates through user interaction
- So extreme care required, when selecting graphic representation(s) of UI for registration

- With the right approach, there can be overlap: design can be used to protect interactive aspect (e.g. sequential designs for menu animation sequence)

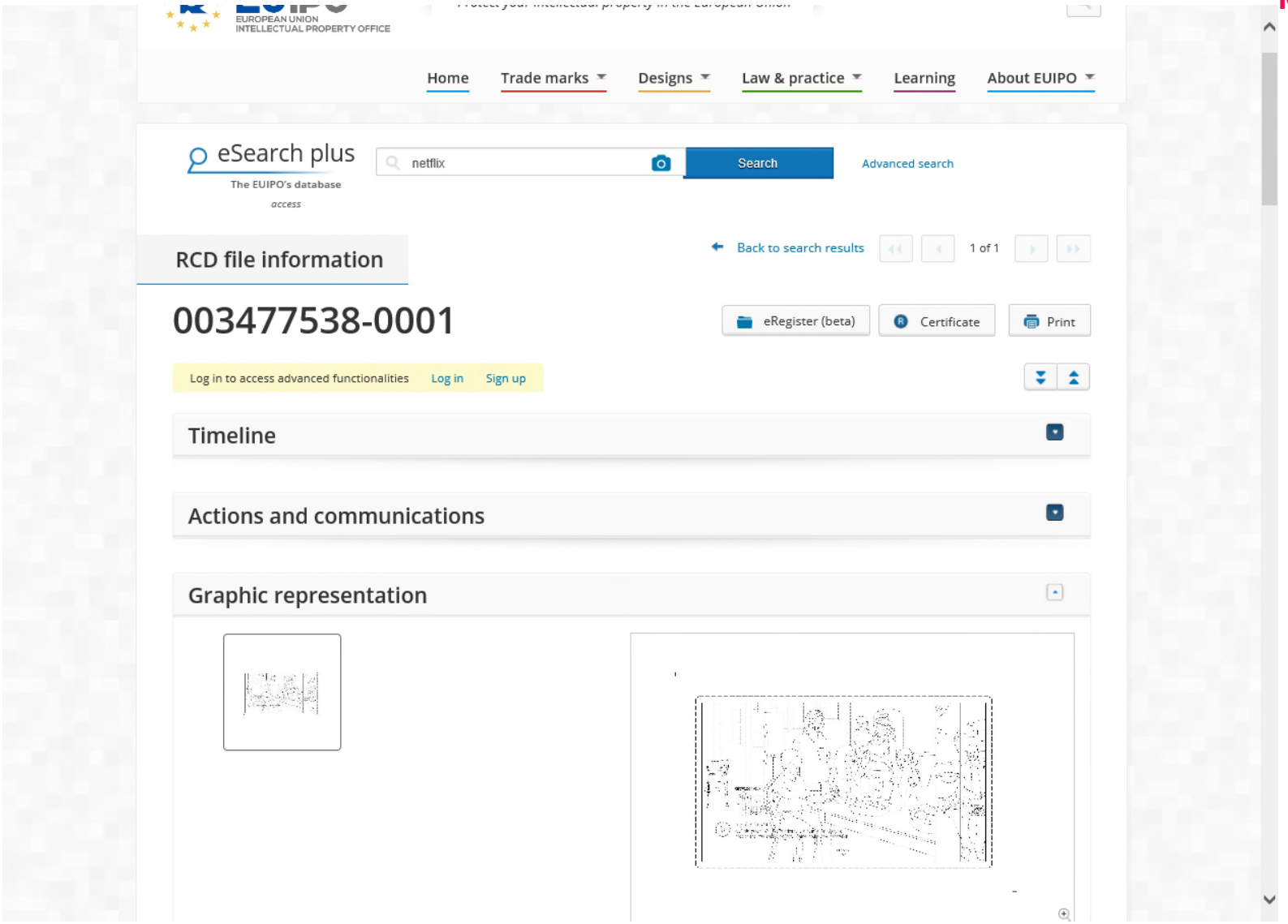
- General point #1: a screenshot of the UI in use, is just about the worst possible choice of graphic representation possible!
- General point #2: distinguish static vs transient elements of the UI [brand-function elements vs data/content] & protect those which trigger the most user loyalty/positive feedback/recall [similar to a trademark function]

User interface RCD : self-filed example





User interface RCD : fit-for-purpose example



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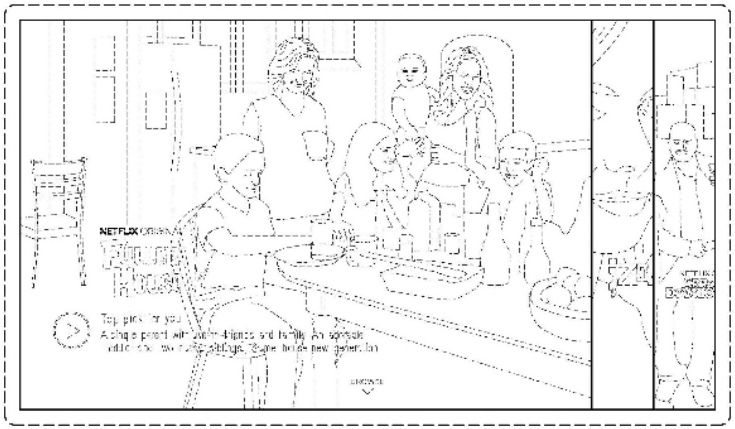

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Previous Next

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Log in to

Time

Actic

Graphic representation

Print

Protecting trade secrets

- no basic principle as to form :

  whatever information, data, practice is critical to survivability of business

  so can be any or all of client contacts list, algorithm(s), APIs, hooks, database(s), AI engine, behaviour tree <…> and more.
- no one size fits-all approach: for software, typically enforced through combination of-
  1. contractual clauses [development for hire, employment], in particular post-contractual obligations [non-performance, non-competition, non-disclosure]
  2. system/user rights [data accessing, copying, editing, etc.]
  3. evidentiary traceability [version journalling, data/file watermarking, code Easter egg-ing, etc.]
- no timing consideration, but statutory limits to post-contractual obligations [e.g. devs cannot be stopped from dev'ing within their speciality, nor stopped from dev'ing a competing product forever]
- no geographic consideration, plus problematic cost-benefit of seeking and enforcing cross-jurisdictional injunctions
- basic common (and business) sense applies : scale efforts [in particular, due diligence and systems/procedures spec'ing] proportionally to criticality of trade secret subject-matter within context of business size (actual + projected)

> hope for best, plan for worst

Registering trademarks

- same basic principle as design:

  what is protected, is what appears on a Register
- same geo-scope principle as other IPRs: mark is protected only where registered
- IP type-specific considerations: not descriptive, not generic, not identical/similar to earlier mark(s)
- scope of protection: “word mark > combined mark > figurative mark”

Example:

Ebay >  > 

- Typical registering ‘hierachy’ is-

1. corporate name (prime origin identifier in marketplace)
2. [each] app name (prime product identifier in marketplace)
3. [each] app store icon: combined or figurative, consider design instead/as well

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