Novelty and Inventive Step

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great ideas come to us
Patents – Novelty

• Two substantial validity requirements are novelty and inventive step (non obviousness)
  – This forms part of the Quid Pro Quo of the patent system
  – The state only grants the monopoly if the applicant teaches the public something new

• Novelty = no prior publication or use of the exact concept or product

• Inventive step = non-obvious variation from what is publically known

• Novelty requirements are mostly similar around the world, but obviousness tests vary
Historical Development of Novelty and Inventive Step

• The concept of novelty and inventive step arguably goes back to at least the Statute of Monopolies (1623) which allowed patents for “new” manner of manufactures.

• Over time the concept of “new” was refined.
  – The 1903 Australian Patents Act allowed for revocation of a patent on grounds under common law, which included the concept of “invention”.
Historical Development of Inventive Step

• Initial case law did not distinguish the two concepts of novelty and obviousness, and they were often mixed together
  – Griffin and Isaacs (1942) 12 AOJP 739 ; (1938) 12 ALJ 169.

• The concept of “obviousness” (the antithesis of inventive step) was formally introduced in the 1952 Act as a ground of opposition and revocation, but not as a separate examination requirement.
Historical Development of Inventive Step

• In the 1990 Patents Act Novelty and Inventive Step have been separated into distinct validity requirements
  – Formalised in s18(1)(b) of the 1990 Act
  – Courts recognise that they are separate requirements with different tests
  – Lack of an novelty or an inventive step is fatal
  – A patent can always be challenged on these grounds.
Novelty = newness

- Was the *exact* invention *publically known* before the application was filed
- This may be due to a prior publication in any medium, or a prior use
  - To anticipate an invention a single publication or single use must reveal all details of the invention
- Assessment is against what was public @priority date
- An earlier filed, but not yet published patent application that discloses all of the information will anticipate the invention
Novelty Requirements

• Prior publication may be in any medium, language or location
  – Journal paper, conference paper, book, website, etc
• All information must be available in a single source
  – Exception is if documents or acts are related such that the person skilled in the art as a single source of that information (eg book chapters)
• Doesn’t matter if you have to pay to obtain the article, only that you are free to use the information after receiving it
• The information must be clear and unambiguous
Public use of the invention

• Public use or public sale, prior to filing can destroy novelty
• Anticipation depends upon whether all details of the invention are made available to the public
  – Are public free to inspect and use that knowledge without constraint
  – Are their hidden details that can’t be determined by inspection (black box)
Novelty – comments from the Courts

• "To anticipate the patentees claim, the prior publication must contain clear and unmistakable directions to do what the patentee claims to have invented ..."

• A signpost, however clear, upon the road to the patentee's invention will not suffice.

• The prior inventor must be clearly shown to have planted his flag at the precise destination before the patentee."

• “Anticipation is deadly but requires the accuracy of a sniper, not the firing of a 12 gauge shotgun”
Novelty – High Threshold

• In order to anticipate the invention the prior inventor must clearly be shown to have planted the flag at the precise destination before the patentee *rather than the skilled addressee* rummaging through the prior flag locker to find a flag which the prior publication possessed and could have planted.

• If the directions may be carried out in a way that would result in an infringement and in a way in which infringement would not occur, *there will be no anticipation.*
Some wiggle room exists

• A prior art document is to be read in the light of common general knowledge
  – It must be read as at the date of publication

• Some gaps can be filled in if the missing feature was inherently disclosed
  – PSA must add the missing information as a matter of course ie (inevitably or automatically add).
  – Not enough that it might it might be an obvious addition
Some exemptions exist (rely on with care)

- publication of an invention at a *recognised* exhibition;
- publication of the invention in relation to a “learned society”
- any publication or use of the invention within twelve months before the filing date of the complete application ("grace period")
- Disclosure through unauthorised use
- Reasonable trial and evaluation in public.
- Seek professional advice
Example of novelty test

- *Delnorth Pty Ltd v Dura-Post (Aust) Pty Ltd* [2008] FCA 1225.
- Claims of patent were directed to a *roadside* post.
- Novelty was challenged based upon US Patent No 3312156 (Pellowski) directed to a highway marking device located *in the road*.
- Disclosed all of the functional features defined in the claimed roadside post.
- Not novelty destroying as it was a device *in the road* and thus not a *roadside* post.
Novelty Summary

- **Novelty is focussed on newness**
  - Has anyone attempted to solve the same problem using the same product/process?

- **The test is against any public information, anywhere, in any language**
  - However it must be a clear disclosure to destroy novelty
    - Requires the accuracy of a sniper, not the firing of a shotgun

- **Must clearly disclose each and every feature of the invention**

- **Public use or public sale, prior to filing can destroy novelty**
Inventive Step - Background

- Novelty test is a strict test, so a further requirement is that it not an obviousness development from what was publically known.
- Inventive Step/Obviousness is a difficult assessment
  - What is the process of invention?
  - How inventive do you have to be?
  - How do you assess it?
- Various tests/approaches have been developed to help the courts and non experts (attorneys/examiners/etc) make an assessment.
Comments on the Invention Process by the High Court in *Lockwood v Doric (No 2)*

• “For the purposes of considering this patent and its treatment in the courts below, it is instructive to start with an old but frequently repeated description of the processes of invention by Fletcher Moulton
  
  – An invention may, and usually does, involve three processes.
    • Firstly, the **definition** of the **problem** to be solved or the difficulties to be overcome;
    • secondly, the choice of the **general principle to be applied** in solving this problem or overcoming these difficulties; and
    • thirdly, the choice of the **particular means used**.
    • **Merit in any one** of these stages, or in the whole combined, **may support the invention.”**
Obviousness = very plain

• “as a basic premise, obviousness and inventiveness are antitheses”

• The Australian High Court has repeatedly stated that obviousness means “very plain”
  - the question is always “is the step taken over the prior art an ‘obvious step’ or an ‘inventive step’”?  

• Determining whether a patent involves an inventive step is also "one of degree and often it is by no means easy"

• A question of fact
  - Ultimate determination will depend upon expert evidence
Flowchart for assessing obviousness

What is the problem

Whose is the PSA

What is their CGK

Determine relevance of citation
- Is it in the prior art base?
  - (pre 2013) Ascertained, understood, relevant, combined?
- Technical hurdle in modifying it to obtain claimed solution
  - Straight forward?
  - Motivation for making the modification?

Assess obviousness
Person Skilled in the Art (PSA)

• Hypothetical, non-inventive worker in the relevant field of technology who is equipped with the common general knowledge in the art.
  – Hypothetical – may be a team, each with different skills

• PSA and their common general knowledge is used
  – to fill in gaps in prior art documents
  – assess likely course of action of PSA when faced with a problem

• Determined based on the problem the invention is intended to solve, and not in the light of the claimed solution
Common General Knowledge (CGK) of the person skilled in the art

• CGK “... forms the background knowledge and experience which is available to all in the trade”

• CGK must be information which is “generally accepted”
  – A document is not CGK because it is widely circulated or widely read, or easily locatable, it must be generally accepted without question by the majority of persons in the art
Inventive Step Assessment

- What would the typical worker in the field do to solve the problem?
- What documents would they consider, and where would it lead them?
- They must be plainly led to the solution based on public information and their background knowledge.
- Does the proposed solution overcome some hurdle or provide some advantage?
- Was the invention the identification of the real problem?
Combining documents

- Where novelty is limited to a single document, obviousness allows documents to be combined.
- When a document discloses most of the features, the missing features can be added by another document or CGK.
  - However, there must be some reasonable motivation to combine in light of the problem to be solved.
  - Be wary of hindsight bias (post facto analysis).
  - Does the document “teach away” from the inventors' solution?
Aktiebolaget Hassle v Alphapharm [2002] HCA 59

• High Court considered question of obviousness
• Patent to a omeprazole composition (tablet)
• Omeprazole rapidly degrades in an acid or neutral solution and, further, its stability also is affected by moisture and organic solvents.
• For omeprazole to work as a drug, it must be protected from acidic gastric juice on its way through the stomach and must be released rapidly when it reaches the top of the small intestine.
The tablet claimed a combination of three integers.

The first is the "core material" containing omeprazole as the active ingredient with an alkaline reacting compound.

The second is one or more inertly reacting subcoating layer(s) on the core material.

The third an outer layer which is an enteric coating (protects passage though stomach acid).

The question for decision concerns the ingenuity of the combination, not of the employment of any one or more integers taken individually.
Patentee’s position

• The patentee provided evidence that arriving at the claimed formulation was a long and difficult process due to the instability of the omeprazole – “A complex of difficulties was encountered by the team”

• A brainstorming session was held after 2 years of (failed) development, and the solution arose from this session – “The range of ideas suggested reflected the fact that we could see no clear way forward, and there was no way that we could predict that any of the possibilities which had been suggested would solve the problems we had with omeprazole.”
Respondent’s (Alphapharm) position

- The use of an acid protective coating would have been an obvious path to try
- They lead evidence from several experts that they would have no hesitation in proceeding down this path
- It came down to a fight over what was obvious to try and what was the expectation of success
High court reinforced need to be led to the solution

- High Court sided with patentee – claimed solution was not obvious to try with a reasonable expectation of success
- What would have been 'obvious to try' would have been to
  - vary all parameters or try each of numerous possible choices until one possibly arrived at a successful result, where the prior art gave either no indication of which parameters were critical or no direction as to which of many possible choices is likely to be successful. ... 
  - explore a new technology or general approach that seemed to be a promising field of experimentation, where the prior art gave only general guidance as to the particular form of the claimed invention or how to achieve it."
- Prior art needs to do more than this to plainly lead to the invention and render it obvious
Approach to Obviousness – Comments by the HCA in Aktiebolaget Hassle v Alphapharm [2002] HCA 59 [at 53]

• “Would the notional researcher (or research group) at the relevant date in all the circumstances which include a knowledge of relevant prior art together with the common general knowledge directly be led as a matter of course to try the claimed method (and apparatus) in the expectation that it might well produce a useful alternative to or better apparatus [method] than known to the prior art?”

• More than just was it “obvious to try”
Assessing Obviousness

• **One practical approach that can be useful is problem/solution approach.**
  – favoured by Europe (and patent examiners) but rejected by HCA as sole test as too narrow and open to hindsight abuse (ex post facto analysis)
  – Start with problem
  – Take most relevant prior art documents and determine how to modify them to obtain the proposed solution
    • Any difficulties or hurdles faced in using or combining documents
    • What are the motivation/advantages for making required changes
    • Does the document teach away?
Indicators of obviousness

• "As the latin derivation (obvius, in the way) makes plain something is obvious if it is lying in the way, so that one who takes the ordinary route will be likely to come upon it."

• Claimed solution is likely obvious (ie lies in the way) if:
  – it is **one of several options** that the person skilled in the art would consider in solving either their identified problem
  – the options would **at once suggest themselves to the PSA**
    • e.g. the options are part of the common general knowledge of the person skilled in the art, or clearly indicated in the prior art
  – there is **no practical difficulty** in implementing the particular solution claimed, and
  – neither the prior art, nor the common general knowledge, **teaches away** from the particular solution

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Obviousness

- Often the assessment of obviousness comes down to identifying a structural feature or element of the solution that provides some advantage over the prior art
  - Evidence (test results, expert declarations) generally helps

- In many cases there will be considerable uncertainty as to whether a particular solution will in fact work
  - In these cases supporting evidence can be decisive, especially if the results show an surprising improvement
Indicators of nonobviousness

- Where a claimed solution:
  - is one of several possible solutions; and
  - there is no special inducement or reason for choosing the claimed solution; and
  - there is a surprising and unexpected advantage in the claimed solution, then

- the solution is not obvious

- The inventive step may lie in recognising that a there is a problem to be solved, not that the solution is obvious once the problem is known.
  - "the perception of the true nature of the problem was the inventive step which, once taken, revealed that straightforward experiments will provide the solution."
Non inventive workshop improvements

• A workshop improvement can occur:
  – where the prior art fully solves the identified problem, if the PSA would readily recognize a practical difficulty in that solution, and that practical difficulty would be readily overcome by the CGK of PSA
  – where the prior art does not provide a solution to the identified problem, if the solution would at once suggest itself to the person skilled in the art
  – where the prior art solves an analogous problem in a related area of technology, and the PSA would recognise the same solution could be applied to the problem with there being no practical difficulty in implementing that solution
Don’t Ignore Secondary Evidence

• **Secondary evidence includes**
  – commercial success,
  – satisfying a long-felt want or need,
  – the failure of others to find a solution to the problem at hand
  – copying by others such as competitors

• **HCA in Lockwood v Doric at [116] stated:**
  – An Australian court should be slow to ignore secondary evidence or to rely on its own assumed technical expertise to reach conclusions contrary to such evidence.
  – Australian courts have long recognised that the importance of such evidence and its weight will vary from case to case; it will not necessarily be determinative.”

• **US Courts also place value on secondary evidence**
Publication

- Novelty and obviousness are assessed based on public knowledge
- What you publish or make publically available before filing can be used against you
  - Papers, pre-prints, conference abstracts, posters, departmental seminars...
- Be aware of early publication on websites, or making manuscript available on pre-publication servers/repositories
Publication issues

• Preferably file before publishing
• Can you discuss your results without revealing all of the details of how you obtained them?
  – Keep the inventive step(s) hidden
• Does a sequence of publications lead the PSA to your solution?
CSIRO WiFi Patent

• CSIRO developed wireless networking technology (WiFi)
  – Filed patent in ‘93 granted ‘96
• Solved problems of multipath interference enabling fast wireless data transfer
• Now widely used in laptops, mobile phones, routers…
• Took infringement action against Buffalo Technology Inc in 2005
• Successfully defended their patent from strong opposition by major market players
  – $200 million settlement and ongoing licensing deal
CSIRO WI-FI patent case (US Fed Court)

- Patent dealt with problem of maintaining high data rates in light of multipath problem
  - CSIRO Solution was combined OFDM, FEC, interleaving
- Buffalo argued obviousness
  - OFDM known at the time, but not for use indoors
    - Argued obvious to try to solve multipath problem
  - Commercial concerns argued processor (FFT chip) based approach
- CSIRO argued non obvious
  - Conventional wisdom was that OFDM would not work indoors (IBM expert: “idea was instantly dismissed as unsuitable”)
  - Other industry players had unsuccessfully explored other approaches
    - E.g., physical array of steered antennas
- CSIRO won (200 Million + ongoing royalties)
KSR Teleflex – US Supreme Court on Obviousness

• In 2006 US Supreme Court considered how obviousness should be assessed.
• Patent was a combination of a particular prior art adjustable gas pedal together with an (also prior art) electronic gas pedal position sensor.
• Supreme Court set a new (higher standard) for obviousness in the US.
US Supreme Court raised the inventiveness threshold

• When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp.

• If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense.
KSR vs Teleflex – need for synergistic effect

• The Supreme Court found that unless combination patents created “some new synergy,” they would most likely not be patentable.

• The Court reasoned that “‘simply arrang[ing] old elements with each performing the same function it had been known to perform’ and ‘yield[ing] no more than one would expect from such an arrangement...is obvious’” and not patentable.
KSR – look for a solution in the field of endeavour

• PSA expected to look broadly for a solution
  – "any need or problem known in the field or endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed."

• The court stated that the relevant prior art need not solve the same kind of problem
  – the obviousness analysis should include elements from prior art even where that art solved different problems from those addressed by the current patent.

• Whether the changes to the prior art produce result that could be predicted by the PSA is also strongly relevant –
  – if the function that results from changing or combining elements from the prior art is predictable by the PSA given what is already known about how those elements work individually, the claimed change to or combination of those elements is probably obvious.
US Supreme Court on “Obvious to try” approach

• Supreme Court upheld the use of the “teaches away” argument to disprove obviousness

• In relation to “obvious to try” the court stated:
  – under certain circumstances such as where there is a design need or market pressure to solve a problem and
  – there are only a finite number of identified predictable solutions,
  – a combination patent may have been obvious to try and may therefore be unpatentable.
Schlumberger Holdings Ltd v Electromagnetic Geoservices AS

- EMGS patented a Control Source ElectroMagnetic based remote sensing technique for detecting submarine (under seabed) hydrocarbon reservoirs.
- At the time, the oil industry used seismic based remote sensing techniques to detect the presence of subterranean reservoirs.
- However seismic methods only detected presence and were unable to determine whether a reservoir contained seawater or hydrocarbons.
- Cost of drilling to determine was ~ $25million, and only had a 1 in 10 hit rate...
Main issues – who was PSA

- The CSEM technique was well known to two small groups of academic geophysicists (SCRIPPS & Cambridge Southampton) interested in studying the structure of the lithosphere (e.g., locating magma chambers).
- However, the widely held view by exploration petrologists was that EM based methods would not work in the ocean due to the conductivity of seawater.
The invention

- **The invention was a marrying of two fields**
  - Before the patent application, nobody had thought to marry the known techniques of deep water surveying for oil with CSEM in such a way, although both were well known separately.
  - Patentee was arguing that the invention was a "non-obvious marriage of skills".

- **At the time of their discovery they were unaware of the CSEM work by Scripts/Cambridge**
  - They then found a CSEM expert to review their work and perform modelling who commented
    - "The proposed application to direct detection of hydrocarbons is, to the best of my knowledge, novel"
UK Court had to decide obviousness

- In addressing the critical question was who was the PSA
- “If it would be obvious to that team to bring in different expertise, then the invention will nonetheless be obvious.
- Likewise if the possessor of the “extra expertise” would himself know of the other team’s problem.
- But if it would not be obvious to either of the notional persons or teams alone and not obvious to either sort of team to bring in the other, then the invention cannot fairly be said to be obvious.
UK Courts Approach

• "It follows that the correct approach in this case is to start with the real problem faced by exploration geophysicists.
  – Did they appreciate they had a solvable problem?
  – How could they determine whether a thin layer of porous rock identified by seismics as potentially hydrocarbon bearing in fact does so or is just a false positive bearing only brine or water?
  – One then asks whether the notional exploration geophysicist who read the cited prior art would see that the answer was to use CSEM, or if not that, at least that CSEM had a sufficient prospect of being useful that it was worth asking a CSEM expert.
• The problem must also be approached the other way round, from the point of view of the CSEM expert.
  – Would he or she know of the exploration geophysicists’ problem and, if so, would he or she appreciate that CSEM had a real prospect of being useful to solve the problem?
• In short: was the marriage obvious to either notional partner?"
Decision

• The court then considered prior art patents and took evidence from several expert witnesses
  – An (unclear) US patent, a conference paper on methane hydrates, and a review paper in a geophysics journal on EM based techniques (including CSEM)

• Patent was found novel and inventive (non obviousness)
Novelty and Obviousness

- **Core requirements for a patent**
- **Novelty is strict newness**
  - All of the features must be clearly disclosed in a single document
- **Obviousness looks at inventive process**
  - What range of documents/information was known
  - What would the PSA take from these
  - Would they be reasonably led, or motivated to obtain the claimed solution with a reasonable expectation of success
Any Questions?