Technology in the mining sector

The recent announcement that the EU has offered funding to the I^{2}mine research project which seeks to develop invisible, zero-impact mines, amply demonstrates the increasingly significant role played by technology in the mining industry. Not just a driver of cost savings, technological innovation now underpins many initiatives in sustainability, health and safety, equipment and processes. If licensed to third parties in return for a royalty, technology can also be a valuable revenue stream in its own right. With particular reference to the mining sector, this briefing reviews how the legal principles of intellectual property (IP) apply to the protection, enforcement and acquisition of technology.

Types of IP

In general terms, IP confers on the rights holder a right to exploit the right to the exclusion of all others. Typically, technology in the mining sector can be protected by one of two IP rights: patents and trade secrets.

Patents

One of the most significant rights available to the creators of technology is patents. Patents confer on the patent holder (patentee) a monopoly to exploit the invention protected by the patent for a limited period – usually 20 years. The trade-off for this legal protection, from the perspective of the technology creator, is that the details of the invention are published along with the patent, so that when the patent expires, it can be used freely by the public.

Patents in the mining sector can, in theory, cover any aspect of the mining process including machines for freeing the mineral from the seam, transport specially adapted to underground conditions, drilling technology, conveyer technology and vehicle automation.

However, not all inventions and process innovations can be patented. Because of the potential value of a patent to its holder, there are significant legal safeguards to ensure that the invention is worthy of patent protection. A complex set of law has developed around this area. At its core, an invention must be capable of industrial application, "novel" and must involve an "inventive step" (i.e. be "non-obvious").

Patents are generally territorial in scope, and which countries to apply for a patent is one of the first decisions a patent applicant has to make. Applying for and maintaining a patent is expensive, and it is generally uneconomic to apply for patents in a wide range of countries. Invariably the applicant will decide to apply for a patent in the US, Japan and key European countries. Generally an applicant would be advised also to apply for a patent in the key territories where it wishes to exploit the invention, such as, for example, South Africa, Canada and Australia. Where the patent is applied for and granted may have important implications for the patentee's enforcement strategy (see below).

While patent law is broadly similar across the world due to the effect of various international treaties, there are significant local differences. For example, it is comparatively easier to obtain a patent for software in the US than in Europe.

Key issues

- Technology is increasingly used in the mining sector to improve processes and as a differentiator.
- Processes need to be in place to capture, protect and enforce intellectual property developed through technological development.
- Effective licensing strategies can maximise the exploitation of intellectual property, and create a valuable revenue stream in its own right.
- The acquisition of IP-rich targets requires specific diligence on the IP assets.

Obtaining a patent is a specialist procedure, usually carried out by patent attorneys. Patent attorneys invariably have technical or scientific training in their field, and are expert at turning a description of an invention into a patent application that can meet the various technical requirements prescribed by the patent office.

Trade Secrets/Know-how

Trade Secrets are not intellectual property as such, but rather a right to bring an action for breach of confidence. In the field of technology, trade secrets are often called "know-how". In the mining sector this know-how could cover any number of methods of design, manufacture or processes. In order to establish a claim for breach of confidence, the claimant must establish that:

- the information is confidential (i.e. that it is not in the public domain);
- it has been imparted in circumstances where the confidant ought reasonably have known that the information was confidential; and
- there has been unauthorised use or disclosure of that information, to the detriment of the "owner".

Recent Patents filed in the Mining Sector

- Short-circuiting-shim-extracting device for switching on an electrolytic cell for producing aluminium
- Copper aluminium alloy moulded part having high mechanical strength and hot creep resistance
- An apparatus and a method for tapping molten metal from below a molten electrolyte layer less dense than the metal is described
- Process for the recovery of nickel and/or cobalt from a leach solution
- A method for optimizing a bioleaching process, at least in respect of heat generation and primary copper sulphide leaching
- Lyophilized powder product for processes of bio-lixiviation or bio-oxidation of mixed or pure minerals, method for preparing same and method for the application of said processes
- Kit and method to perform a biological test for evaluating minerals potential for being bioleached

In contrast to patents, there is no time limit on trade secrets. Provided it is not within the public domain, the information remains protectable by the law of confidence. In this way, Coca Cola has kept its famous recipe secret for over 100 years. A less well known example is WD-40, which has been kept secret since the 1950's. Moreover, there are no requirements as to the nature of the trade secret once the quality of confidence has been established (contrast the novelty and inventive steps required for patents). However, once a trade secret enters into the public domain, there is nothing that can be done to prevent its use. Moreover, it is not possible to prevent technicians from independently creating the same know-how, or deducing the nature of the confidential information from reverse engineering publicly available products.

Accordingly, the innovations that lend themselves to trade secret protection are those:

- that embody a high degree of complexity and novelty that would make independent invention unlikely;
- where the novel aspects of the innovation are not in a form which is readily susceptible to reverse engineering; and
- where the innovation is subject to a high degree of protection, making it difficult for others to access and use.

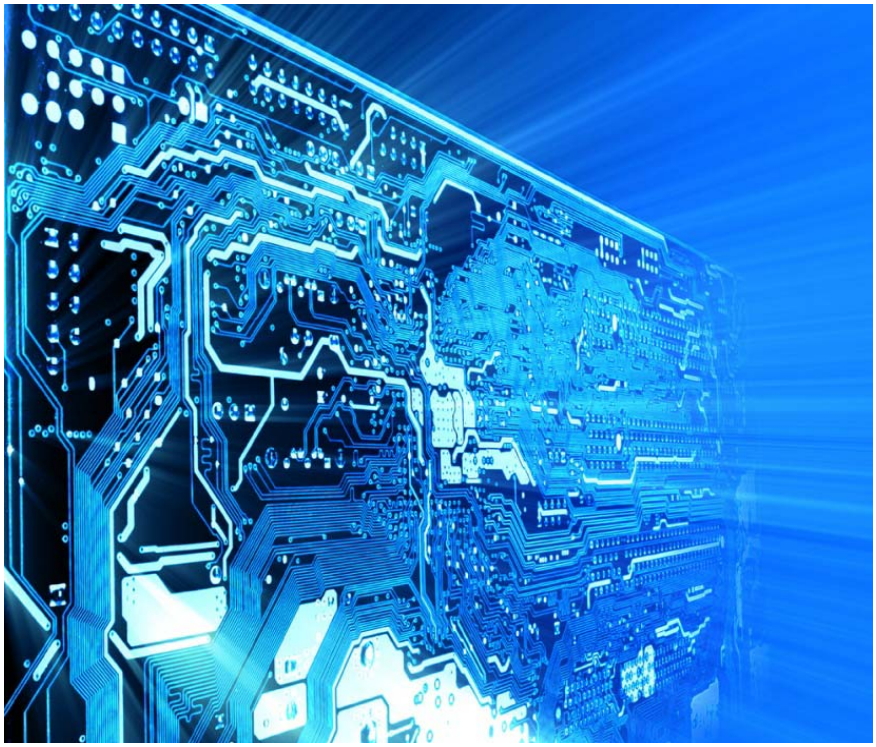
	Patents	Trade Secrets
Protects	How things work	Information
Term	20 years	Indefinite, as long as the information remains confidential
Independent creation	Not a defence	An absolute defence
Effect of disclosure	Disclosure only adverse if prior to filing	Destroyed by disclosure
Establishment Costs	Potentially extensive costs to register	Arises automatically
Remedies	Injunctions easier to obtain	Remedies often contractual; injunctions difficult to obtain
Compliance	Costs of compliance may vary	Effectiveness dependant on stringent compliance measures

Creation of IP

Companies which create, or may create, technology need to have a strategy in place to capture and protect the underlying IP. In particular, companies should consider the following issues.

- Internal processes should quickly and efficiently deal with any IP created in order to assess its commercial worth. Delay could allow a competitor to acquire prior rights to the relevant technology.
- A comprehensive patent filing strategy should be in place to ensure that patents are filed in the right countries without undue expense. The advice of a patent attorney should be sought early in the process, to advise on the patentability of the relevant invention. Early on, an assessment needs to be made as to whether the cost of embarking on patent protection is justifiable given the potential market.
- Employee inventions are not always automatically the property of the employer. Employment contracts should deal with the transfer of IP from the employees to the employer, to the extent permissible by local law.
- Systems should be put in place to prevent inadvertent disclosure of IP. For example, premature publication of an invention can destroy the confidential nature of the information. Particularly critical know-how should be kept in a safe or other secure location.

Where IP is being created in the context of a contractual relationship, or in a joint venture, careful consideration needs to be given to which party will own that IP. The party providing the original IP



("background IP") will typically want to retain the rights to any improvements to that IP ("foreground IP"). However, the party to whom services are being provided may want to secure a licence of such foreground IP. Joint venture agreements frequently provide for joint ownership of foreground IP. In more complex arrangements, the parties might agree to split the ownership of the foreground IP based on their respective fields of interest, perhaps with a cross-licence to the other joint venture partner.

Enforcement of IP

It is not enough to create and protect IP. Owners of IP must be prepared to enforce their IP against third parties. At the very least, competitors must *believe* that the IP may be enforced against them as a deterrent against infringement. Otherwise, third parties will be able to infringe the IP with impunity and the IP in question is rendered effectively worthless.

Enforcement costs for IP can be expensive and a good IP strategy will assess each infringement to determine which is the most appropriate response. For example, it is not always cost-effective to immediately instigate legal proceedings – although in some cases this will be the right response. Trade secrets can be harder and more expensive to enforce, because they require the claimant to establish unauthorised use and detriment. In contrast, patent infringement does not require the infringement to be intentional – even innocent use of a patent is actionable.

A key consideration when contemplating patent infringement proceedings is selecting the right forum to do so. For example, if the country where the patent is actually being used is a developing country, taking legal action may be unattractive. However, the sale or importation of an infringing product into another country may also infringe

that patent (assuming it is granted in that country) – meaning that action may be possible in a country with a more advanced legal system. Considerations such as these make the patent application strategy critical.

Acquisition of IP Assets

When acquiring IP assets, or targets which are IP-rich, the potential Buyer should pay specific attention to the Target's IP position, both in due diligence and the contractual documentation.

Due Diligence

Due diligence should be undertaken by a specialist lawyer or attorney. A basic due diligence process would focus on ownership of any registered rights, such as patents. However, such a basic review would not indicate to the potential Buyer if there are any issues with third party IP with which the Target's IP may conflict with. A review of actual and threatened disputes will give the Buyer an indication of potential problems. Conversely, an absence of disputes may be an indicator of poor IP management, because the Target is not enforcing its IP against third parties.

If a patent portfolio is being acquired, the Buyer may wish to commission a full "freedom to operate" search which investigates the IP landscape in the relevant technology field.

If trade secrets are a significant asset of the target, the Buyer should investigate the processes by which these are captured and maintained.

Warranties

Specific warranties should be sought in relation to the IP assets. While the breadth of these will depend to some extent on due diligence, core IP warranties will include:

- the Target owns or has a right to use all IP necessary to conduct its business;
- all IP licences and other agreements have been disclosed and are in good standing;
- the Target's use of its IP does not infringe any third party rights; and
- no third party is infringing the Target's IP.

Shared IP/Licensing

Where the Target is being carved out of the Seller's group, the Buyer should carefully review if there is any IP that is shared between the Target and the Seller. In this case, the Buyer should consider negotiating a licence from the Seller to the Target in relation to this shared IP so that the Target can continue to operate its business post-Completion.

Tax Considerations

A number of tax issues arise on IP transactions that do not normally arise on mining transactions. Care should be taken to ensure that these are properly addressed, especially if the company is new to IP transactions.

Some jurisdictions confer enhanced tax relief on expenditure incurred on the creation of IP and/or lower corporate income tax rates in respect of certain IP-derived income (the Netherlands, for example, operate a so-called "patent box" regime). It is worth considering, even before commencing work on new IP, whether a new company should be established to carry out the work in a tax friendly jurisdiction.

The payment of royalties between group companies may be subject to transfer pricing and attract withholding tax. Care should be taken when setting royalties to avoid transfer pricing adjustments. Where a company is to be established to hold group IP, in order to manage withholding tax, consideration should be given to jurisdictions which benefit from a wide double tax treaty network. When establishing such a company, care should also be taken when transferring IP created by other group companies to the IP holding company, as any such transfer will have tax implications (possibly in more than one jurisdiction).

Conclusion

Unlike certain other sectors, such as pharmaceuticals and software, the mining sector has not traditionally relied on IP. Increasingly, this will change, as technology provides both a competitive advantage and a potentially lucrative revenue stream. Lessons can be learned from companies in other sectors, such as IBM and Hitachi, who actively use their patent portfolios to increase revenue, turning their IP departments from cost centres to profit centres.

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New Mining Law for Japan (April 2012)

Australia's Minerals Resource Rent Tax in force from July 2012 (March 2012)

Resource nationalism (December 2011)

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