

## A global issue played out in Japan

*In January 2004, a Japanese district court ordered Nichia Corp to pay ¥20billion (US\$187million) to its former employee, Shuji Nakamura, the inventor of the blue laser-diode. The judgment is currently on appeal but the message is clear enough – employers worldwide need to wake up fast to the vexed issue of compensating employees for their inventions. By Nigel Page*

The Materials Department of the University of California, Santa Barbara, is a long way – both geographically and culturally – from Nichia Chemical Industries in the Japanese city of Tokushima, where Shuji Nakamura worked as a researcher until 2000. Now a professor on the US's west coast, Nakamura is famous for having developed the nitride LED and laser breakthrough technologies that could reportedly net Nichia as much as US\$1.14 billion by 2010. The fact that, after 20 years' service at Nichia, he netted rather less – receiving just ¥20,000 (US\$190) for each of the patents he filed – earned him the nickname Slave Nakamura among his US contemporaries and formed the basis for his subsequent lawsuit against the company.

Interviewed for *IAM*, Professor Nakamura is refreshingly self-effacing for a man who now stands to make US\$187 million in compensation for his contribution to the value of Nichia's LED patents (provided that the Japanese High Court upholds a January 2004 district court ruling in his favour).

Remembering his time at Nichia, he says: "Back then, I never thought this patent remuneration was unreasonable. After all, it was the same situation all over Japan. In fact, I was almost happy with it!" By 1994, however, Nakamura had begun travelling to conferences in the US. "I began to appreciate just how differently things were done over here," he explains. "Employees in the US were making big money out of their inventions via stock options – and that was something that just didn't happen in Japan. In the US, anyone with ability and good sense has a chance to make decent money. But in Japan, money and science are not meant to mix."

Nakamura is also, by any standards, an

unlikely focus for the panic that his ¥20billion award has provoked in Japan – and in boardrooms around the world. From now on, multinational companies with Japan-based R&D facilities/subsidiaries have no alternative but to face up to some very substantial (and unpredictable) potential liabilities. This new reality was emphatically brought home in July, when Pfizer Japan was hit with a US\$9 million suit from an ex-employee, claiming compensation for technology he helped to develop which he claims made the company between US\$180 million and US\$200 million. Maria Lin, a partner in law firm Morgan & Finnegan LLP's New York office, puts the impact of these developments into context. "I would say that the various Japanese cases are really causing concern for companies with operations in Japan. At one recent meeting, several of the pharma companies with operations there were discussing withdrawing from the country," she says. Lin explains that the unpredictability of the Japanese legal situation was the cause, and as there is no statute of limitations in Japan, ex or current employees can file suit whenever they like in respect of past R&D activities. "Taking the sort of hit that Nichia is now facing is a huge scare for any company," she concludes.

### **Changing the face of innovation?**

But the repercussions of the Nakamura/Nichia spat may well extend much further. With the exception of countries such as Japan and Germany, where statutes mandate the reasonable compensation of employees for their inventions, remuneration rates have until now been dictated only by market forces. In most western economies, where it is generally assumed that (unless otherwise stated)

employers will own the inventive output of employees who have been hired to invent, the compensation of employees for their inventions has been addressed, at best, on a piecemeal basis. Only the most farsighted companies have put structured incentivisation programmes in place. Those that have not, maintain that these compensation systems are counter-productive, promoting secrecy and workplace jealousies. Believing that any motivational benefit will be short-lived, and outweighed by conflict, they have relied instead on peer-group recognition systems to reward their employees.

The publicity surrounding the Nakamura litigation may change all this. And if it does, it could well be doing companies around the world a big favour. As was pointed out in the last issue of *IAM* (issue eight, October/November 2004, page 6), the number of technology graduates entering the marketplace is falling. In the US, for example, there are 17% fewer science and engineering graduates than there were 20 years ago and by 2010, there is expected to be a five million-strong skilled worker gap. Individuals who do have the right qualifications are going to be increasingly in demand. Recruits with track records of innovation will expect substantial bonus payments, percentage shares of profit or opportunities to run spin-out companies. At the same time, multinationals cannot hope to run cohesive organisations which rely on fragmented inventor compensation systems to fuel innovation. "The Nakamura decision also raises questions over whether R&D teams in the US will start to make similar demands on their organisations as their counterparts in Japan," says Ed Kahn, CEO of Cambridge, Mass, IP strategic management consultancy EKMS. An intriguing question then arises for multinational employees in R&D currently located in the US, Kahn continues. "Is it possible to undertake forum shopping, if you allow the legal analogy: trying to work on a Japanese R&D site where the financial reward might be more lucrative, even while working for the same multinational, due to the dissimilar operation of country law, which might override their employment contract?"

#### Article 35 avalanche

Developments in Japan are the most immediate concern for R&D-based companies. The collapse of that country's old lifetime employment system coincided with a dawning realisation that real financial rewards were available, so spawning a rash of lawsuits.

Under Article 35 of the Japanese Patent Law, employees are granted the right to reasonable

remuneration for a patented invention made in the scope of employment (on assignment of the rights in that invention to the employer). Based on this, there has been an avalanche of litigation in recent years. The first significant dispute arose in 1995, when an employee-inventor sued Olympus Optical Co Ltd, seeking reasonable compensation for his invention of improved pick-up devices for compact and videodisc players. In April 2003, the Supreme Court upheld his award of US\$20,000. The decision was followed by *Yonezawa v Hitachi Ltd*, where the Tokyo High Court awarded ¥160 million (US\$1.5 million) to a former employee (the case is currently on appeal). This decision was especially significant because the court ruled that employee inventors are entitled to compensation for their patented inventions, no matter where they are exploited. The High Court in that case had increased the damages awarded by a factor of five to reflect the revenue earned by Hitachi on foreign patents covering the invention.

In September 2002, Masayoshi Naruse, an ex-employee of Ajinomoto Co, sued the company for ¥2 billion (US\$18.7 million) for his contribution to developing a mass-production process for aspartame (the Tokyo District Court awarded Naruse US\$1.75 million in April 2004). In October 2003, an ex-employee of Canon sued for almost US\$10 million for an invention linked to computer technology. And then, in mid-2004 came the news that western companies had been dreading: an aggrieved ex-employee had hit Pfizer Japan with a multimillion suit. This was no longer a Japanese problem.

#### The Nakamura effect

Notwithstanding this steady drip-drip of lawsuits, it apparently took Nakamura's big money case to make Japanese companies, and the Japanese government, really sit up and take notice. "At last, Japanese companies are changing to provide reasonable compensation," says Nakamura. "After my suit, many of them moved their upper limit on employee compensation to around US\$1 million. Now Japanese companies are all against me and employee inventors love me. This has become a battle!"

Change is certainly in the air, with an estimated 43% of Japanese companies now having removed their upper limits on compensation. Sumitomo Pharmaceuticals is among the many companies that have announced new inventor reward policies. It will pay 0.05% to 0.2% of annual sales for five years from release of a drug. For a drug worth ¥10 billion a year, the researcher/inventor could therefore expect to receive up to ¥2



**Shuji Nakamura:**  
US\$187 million  
winner in the  
Japanese courts

## The German perspective – a complicated system

Germany has the most complex system for dealing with employee invention. The basic principle under German law is that employee inventors, whose employment contracts are governed by German law or who work in Germany, initially hold all the rights in their inventions. However, if the employee makes a so-called service invention he is obliged to report it to the employer. Service inventions are those inventions that arise from the duties of the employee or are based on the activities and experience of the company. Within four months of receipt of the report of the invention, the employer can claim the right to the service invention. As soon as the employer exercises this right, it is liable to pay reasonable compensation to the employee.

The type and amount of compensation is determined by agreement between the employer and employee. If no agreement can be reached within a reasonable period, the employer must propose an amount for compensation. If the employee disagrees with that amount he can file a claim at the Board of Arbitration, which is part of the German Patent and Trademark Office. The Board of Arbitration can make a non-binding proposal to settle the issue. If this is not accepted the parties can ask the court to decide the level of compensation.

The assessment of reasonable compensation is usually based on the directive governing compensation payment for inventions of employees in private services. This involves calculating the value of the invention and assessing the personal contribution of the employee to the invention. Where there are German and non-German patents, compensation will be assessed on the basis of the worldwide rights. According to the directive, there are three options which can be used to calculate the value of the invention.

- In the vast majority of cases the method used is a licence analogy. According to this method, the royalty rate which the employer would normally pay if a licence was taken from a third party is used. The value of the invention is this royalty rate multiplied by the net sales of products covered by the invention. Royalty rates of 3% to 5% are typical for mechanical inventions and higher rates apply for pharmaceuticals and biotechnology.
- According to the second option, the value of the invention is looked at in terms of the actual benefit to the employer as a result of internal cost savings or its benefit as a defensive patent.
- The final option is based on an estimation of the value of the invention. This is used where there is cross-licensing or where there is no actual income received by the employer. This alternative is only used as a last resort.

After assessing the value of the invention according to one of the three alternatives, a rate of personal share (expressed as a percentage) is then used to reduce the amount paid to the employee, since service inventions will involve contributions from the company as well as the employed inventor. Various factors need to be considered such as the contribution of the company to identifying the problem solved by the invention, the contribution of the company itself to solving the problem and the qualifications and scope of the duties of the employee.

These factors are weighted and given points according to published guidelines. For example, if the employed inventor discovered the problem, he may obtain three points. Finding the solution may earn him another three points and having a university degree

may earn five points, leaving the employee inventor with a total of 11 points. According to the guidelines, 11 points represents a personal share of 25%. Based on this points system an employee's personal share may range from 2% to 90%.

Further reductions may also be made to the amount paid to the employee where the total accumulated annual turnover from products covered by the invention exceeds certain specified amounts.

The system in Germany for compensating employee inventors is not only the most structured and complex in Europe, it is generally thought to be the most generous. In cases involving some very valuable chemical patents, employee inventors in Germany have received more than €1 million. Due to the complex system of calculating the remuneration, disputes between employers and employees on this issue are difficult and time consuming, especially in cases where the employer is forced to provide extensive information for the assessment of the three options (licence analogy, actual benefit, value of the invention).

The German Federal Ministry of Justice is currently preparing a far-reaching reform of the Employed Inventors Act by which the requirements for claiming a service invention will be simplified (reversal of burden of proof) and the complicated calculation will be replaced by compulsory lump-sum payments depending on certain turnover thresholds. Also, the employer's obligation to file patent application for all claimed inventions will be modified or abolished. However, there is a fear that this will lead to increased reporting of inventions by employees in an attempt to earn the lump sum.

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million. Meanwhile Shimadzu Corporation now guarantees compensation of almost US\$100,000 with no upper limit for patented inventions that generate sales in excess of US\$100 million. Eisai has also revised its compensation system – again with no upper limit, inventor employees are guaranteed a reward of 0.05% of five-year sales of a patented drug. And Mazda Motor Corporation recently scrapped its ¥1 million ceiling; under the new system, the reward payable can increase without limit, depending on the employee's contribution to the breakthrough

invention. Announcing the new policy, a Mazda spokesman was reported as saying: "This is intended to pay back employees for hard work. The rewards may go up as high as several dozen million yen, and we expect the new system will help prevent an exodus of excellent human resources."

### Removing unpredictability?

Such statements, which would have been unthinkable in Japan just a few years ago, illustrate the cultural *volte face* which is taking place. That said, each of these initiatives is, to

a large extent, a stab in the dark. No one really knows what reasonable remuneration (as stipulated by Article 35) really is. In a bid to remove this unpredictability, and worried that R&D activities in Japan could slow down, the Japanese government has been galvanised into rushing through an amendment to Article 35, due for implementation in April 2005. The speed with which the amended legislation is being introduced is conspicuous. "It's amazing how quickly the government is moving on this issue. Usually in Japan it takes between 10 and 15 years to change the law," laughs Nakamura.

Whether or not the new law will clarify matters is a moot point. Lawyers are sceptical. "The bottom line is that the proposed changes do not make much difference to the previous version," says Naoki Yoshida, a partner in Finnegan, Henderson, Farabow, Garrett & Dunner's Tokyo office. Under the revised Article 35, provided the process of reaching an agreement (on compensation) between a company and its employees is not unreasonable, there can be no cause of action. However, if the process is unreasonable, the courts will assess the company's contribution to the invention process, and the level of profits generated, when calculating appropriate compensation. In other words, the situation will be little different to how it has been since 1959. The emphasis therefore is on ensuring that the agreement process complies with the new law. Taro Yaguchi, a patent attorney and senior partner at Omori & Yaguchi, sums up the situation facing companies: "Guidelines are available and reasonableness will be inferred if there has been a meeting/consultation where the standards for determining compensation are properly disclosed and opinions are freely exchanged."

It seems unlikely, then, that the amended Article 35 will soothe away many corporate headaches. Large corporations will find it impossible to reach satisfactory agreements with all their employees – and even if they do, the risk of lawsuits will still be there. These companies will likely adopt a pragmatic line, with many expected to trade off the anticipated cost of reaching agreements with employees against the average compensation awarded by the courts. Practically speaking, and bearing in mind the fact that problems around this issue only relate to successful inventions, the advice is for companies to set transparent rules under which large amounts of compensation can be awarded to successful inventions. "This will make it easier to reach agreements with employees. It will also be important, obviously, to follow the

agreement process guidelines as closely as possible," says Yaguchi.

#### Meanwhile, over in the US ....

While these developments are being watched with interest by the many companies with subsidiaries and/or R&D operations located in Japan, the situation has also turned the spotlight on the wider employee incentivisation debate, and nowhere more so than in the United States.

"The US and Japan make an interesting comparison," says Finnegan, Henderson, Farabow, Garrett & Dunner's Michael Kelly. He explains that the two countries are currently at opposite extremes. "In the US, patents are treated as personal property and can be conveyed by written agreement. The basic rule is that employment agreements generally apply to employed hired to invent inventors. The US is a land of contracts and written agreements and these will normally specify that inventions made in the course of employment belong to the employer."

With regard to incentivisation, Kelly says, there's a wide variety of approaches to inventor incentive schemes. Intended to encourage employees to invent, and to cooperate with in-house patent departments, some set dollar amounts for disclosures, applications and patent awards; others are based around recognition programmes that recognise the contribution of the individual to the research team and the wider business. "From the legal perspective, there's nothing that actively forces companies to reward their employees, but there are powerful market pressures that force companies to take real steps to value and keep hold of their star inventors," Kelly concludes.

#### Market forces at work

The rules establishing compensation are usually enshrined in employment contracts. Few organisations are prepared to go into great detail on this issue, but companies such as IBM and DuPont reportedly reward the inventors of breakthrough technologies with hundreds of thousands of dollars over and above their agreed salaries. Famously, Wallace Hume Carothers, the inventor of nylon, was made a very rich man by the 1% of net sales entitlement he was awarded by DuPont – notwithstanding the fact that this windfall aggravated his depression, contributing to his eventual suicide. At IBM (assigned 3,439 US patents in 2003), there is a so-called master inventor designation for those employees that make substantial contributions to IP value. These employees then help to identify new ideas with patent potential and mentor

#### The UK perspective – change on the way

Traditionally it has been difficult for UK-based employees to obtain additional remuneration for inventions made in the workplace. The number of awards made by the English courts in favour of employees pales into insignificance when compared with the very substantial awards made by the courts of other major industrialised countries such as Japan, Germany and France. This may be about to change under new legislation.

Until recently, UK employees who made inventions would be entitled to financial compensation as a result of the benefit that their employer had derived from a patent granted in relation to the invention, provided that the invention was of "outstanding benefit" to the employer. The court would not award compensation unless it could be shown that the benefit in question resulted from the patent itself, rather than merely from the intrinsic merits of the invention. The court would first consider whether the benefit was attributable to the patent and then whether that benefit was outstanding when viewed in the context of, for example, the size of the employer's business and its relative importance.

Remarkably, the UK courts have not made any compensation awards to employees under the old legislation. To a large degree this reflects the difficulty faced by employees when trying to establish the existence of an outstanding benefit – the courts have set the barrier high. This does not necessarily mean that employers can be complacent. The employment relationship in the UK is often governed by detailed contractual arrangements. Particularly in those companies which value intellectual property highly, terms

of employment will deal with ownership of inventions and employee compensation so that few disputes make it to court. In contrast, in many continental European countries, where employment relations are often governed by collective bargaining arrangements, there are apparently more disputes.

UK law on employee compensation is soon to change. Once the amendment has been implemented, UK courts will no longer need to decide whether a benefit to the employer flows from the patent, but will instead look to the benefit as derived from the invention as a whole. This should make it easier to establish that the benefit was outstanding in situations where the invention has been beneficial for reasons beyond those related merely to the existence of the patent itself and should therefore make awards of compensation in such circumstances more likely. For example, where a patented invention is incorporated in a product, it is likely to be easier to establish the benefit arising from the invention in terms of product sales rather than to try to establish the benefit attributable to the patent itself, which may in effect only be of defensive use to prevent others from entering the market. However, employers who choose to implement properly structured compensation schemes that recognise and reward employee contributions should continue to be able to pre-empt many employee compensation claims and be in a better position to defend the level of compensation awarded to an employee in the event of a dispute.

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colleagues who are less familiar with patent processes. To keep ideas flowing, IBM gives an award on filing and another when the patent is granted. It also keeps track of the invention's value to the company, recognising employees who produce the top 5% of revenue-generating ideas with rewards of up to US\$100,000.

Of course, rewards are not always this substantial – nor this structured. While stock option schemes might have made overnight millionaires out of some Silicon Valley IT innovators, there is still a severe lack of awareness about the rising expectations of employee inventors. As they come to appreciate their real value to employers, few will be prepared to settle for the brass plaques and slap-up dinners that are still the norm in many companies.

That doesn't necessarily mean providing large cash handouts the minute patents are filed and/or granted, according to Kevin Rivette, executive adviser on IP to The Boston Consulting Group. "The aim is to get innovation teams looking to crack issues and to do that faster, better and cheaper than the competition. Few employees are interested in instant rewards. The process of innovation is a continuum – it's really all about making sure the whole team evolves and continues to innovate," he says. This means putting in place incentivisation schemes that motivate employee inventors by giving them a say in the whole commercialisation process.

The academic sector in the US has demonstrated just how successful this approach can be. University inventors are typically allocated one-third of the royalty streams from licensed technologies, as well as having real opportunities to launch spin-outs, and to profit from their success. At the same time, points out Ed Kahn, more thought needs to be given to how inventions actually happen. "The fact that multiple inventors are cited much more than single inventors should be giving employers pause for thought," he says. At present, Kahn continues, many reward systems make multiple inventors split the same fee – they don't raise the amount if there's a multiple split. "This means that in many modern companies there are real disincentives for collaboration. The individual can become the ultimate silo," he says.

#### **Getting involved in commercialisation**

Alec MacAndrew, who heads PA Consulting's Global Technology Group, is a firm believer in giving inventors the chance to get fully involved in the commercialisation process. According to MacAndrew, inventions have very little value on paper and only become valuable

once they've been commercialised. "The process of turning a bright idea into a business worth billions of dollars requires a huge amount of work from many people. The company itself must be prepared to risk significant amounts of capital on the process. Of course, people with bright ideas should get some reward, but this should only come once the business built on their patent has become successful," he states.

If IP is developed at PA Consulting within this business, MacAndrew explains that the firm will be unwilling to invest in its commercialisation unless the developer is also prepared to be part of that process. "We don't believe in our employee inventors being risk free – there is no safety net for them to come back into the firm if the venture proves to be unsuccessful. That said, if an inventor believes in the commercial potential of his/her idea and is prepared to take a stake in it, then s/he should receive a significant slice of the reward in return."

#### **Making sense of the future**

Thanks to Article 35 and Shuji Nakamura, companies in the US and Europe have been forced to wake up to employee incentivisation. And the situation is a confusing one. In the short term, if they are to keep employees from relocating to Japan (in pursuit of the big money), they may well have to rush through additional incentive programmes to make up for the imbalance. Looking further ahead, however, they will need to instal robust reward structures that attract and retain the brightest talent, as well as invigorating the IP commercialisation process. One thing's for sure, something has to change. ■

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