

A new approach to intellectual property

A company founded by two ex-Microsoft employees is buying up patents in nanotechnology and other areas on a grand scale, as **Adarsh Sandhu** reports.

A record 1.76 million patent applications were filed worldwide in 2006, most of them by large industrial companies. However, in the face of dwindling profits, businesses can find it difficult to justify the cost of submitting and maintaining them all. At the same time, the global proliferation of technology-transfer offices in universities means that academics now want a better deal from companies in return for the right to use their intellectual property (IP). Moreover, some companies are reluctant to invest in nanotechnology — and hence reluctant to generate or buy IP — until concerns about the effect of nanomaterials on the environment and human health are resolved. The multidisciplinary aspects of nanotechnology, combined with the preliminary nature of much research in the field, also seem to deter some businesses.

Now, a US company is offering an alternative route for nanotech inventors to take their ideas from the lab to the marketplace. Intellectual Ventures was founded in 2000 by Nathan Myhrvold, the former head of Microsoft Research, and Edward Jung, who was the chief software architect at the software giant for a decade. Based in Bellevue, Washington, Intellectual Ventures buys ideas, patents them, and

then sells or licences the patents for the benefit of its investors and the inventors, who receive royalties. “I refer to our business model as ‘invention capitalism,’” says Myhrvold. “We offer ‘traction’ for ideas. You may have a great engine but without the transmission to get power to the wheels, you will not get far.”

Nanotechnology is one of the areas in which Intellectual Ventures is active. “We invest towards our dreams, and nanotech is an example of spending towards our dreams,” says Myhrvold, who has a PhD in mathematical physics and worked as a postdoc with Stephen Hawking before he joined Microsoft. “Richard Feynman was right — there is plenty of leverage in exploiting phenomena at the nanometre scale. Nanotechnology is an incredibly promising field, but to what extent will it be commercially viable? There’s the famous story of Faraday being asked by Gladstone: ‘What good is this electricity?’, and Faraday replied: ‘One day you will tax it’; and he was right. In Faraday’s time, electricity was a crazy phenomenon on the fringe of physics, without any foreseeable utility. I think that nanotechnology is similar. It’s a basic idea — as basic as electricity was in those days. So some day they will ‘tax it.’”



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Invention capitalists — Nathan Myhrvold (left) and Edward Jung.

Myhrvold points out that traditional areas, such as electronics, biotechnology or medicine, are very broad, sometimes ill-defined fields. “The important difference is that when we talk about electronics, for example, we know the range of applications; but at the moment nanotech is just ‘promise’, and as a result the broad label ‘nano’ became famous before the applications did.” Like all companies, Intellectual Ventures is looking for the ‘killer application’ and Myhrvold is interested in topics as diverse as meta-materials and nanoparticles for drug delivery.

So, what is the outlook for the future? “Nanotech needs a couple of breakthroughs or a technical miracle,” says Myhrvold. “If you look at the history of other breakthroughs, it’s hard to predict where they will happen. The transistor being invented at Bell Labs kind of makes sense, but most breakthroughs are completely out of left-field. Three generations of chemists should be ashamed of themselves for not discovering buckyballs and carbon nanotubes; they were in candle soot all the time and

Box 1 | Next stop Asia

The reaction to the arrival of Intellectual Ventures (IV) in Asia — it is opening offices in Singapore, Tokyo, Beijing, Delhi and Seoul — has been mixed. In Japan, for example, it is working with Fujitsu to off-load dormant patents held by the electronics company. It has also started to manage the patent portfolios of several prominent universities, but technology managers at older (and more conservative) Japanese universities have been less enthusiastic. The Japanese government is also considering launching an IV-style company to manage the thousands of dormant patents produced by various large research-projects it has funded over the years.

In contrast, academic institutes in China, India and Singapore and South Korea have been far more receptive and many are actively pursuing collaborations with IV to file and exploit their intellectual property. So, will Asia become the centre of innovative ideas for nanotechnology? “It is worth noting that it’s a more-level playing field today than it was a decade or two ago,” says Edward Jung. “A lot of the problems in nanotech are related to scale-manufacturing, and that is an area where there is a lot of skill in Asia.”

nobody found them. And now, of course, there is graphene.”

The company has an estimated \$5 billion to invest and has already returned around \$1 billion to its investors through licensing. Its business model includes asking registered inventors for solution-proposals to specific problems in the form of a document known as a ‘request for innovation’. The resulting proposals are then evaluated by the company’s technical experts and the most-promising solutions are patented. The inventors receive profits for their ideas. The company now owns an estimated 20,000 patents and patent applications, making it one of the largest single

patent-holders in the world, and also employs more than 400 people.

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Nathan Myhrvold

Intellectual Ventures is also in the midst of opening offices in five Asian countries (see Box 1) and has just opened ‘IV Laboratories’ next door to its headquarters in Bellevue. The new labs will be home to in-house staff who will support inventors with research, testing and prototype

capabilities. Early projects at IV Labs include the development of safe nuclear power and neutralizing the formation of hurricanes.

The company has a highly multidisciplinary approach towards hiring staff. “People have to be unafraid of what they do not know, but know the boundaries of where their skill runs out,” says Jung, who is the company’s chief technical officer. “Nathan and I have worked largely outside of the boundaries, where we do not have any skill. I am not a computer person, and neither is Nathan, but we both worked at Microsoft.” □

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