

Tim Cook, Isis Innovation



Preparation

Tim Cook studied physics in 1966-69 at St Catherine's and, in 1969-72, took a D.Phil in engineering in the Oxford University Engineering Department. He became a cryogenic engineer at Thor Cryogenics, a spin-off from Oxford Instruments, in 1971 and, in 73-74, took an HNC in mechanical engineering at Oxford Poly.

Tim continues: "Isn't that strange? With a D. Phil. in engineering from Oxford and having taught engineering to Oxford undergraduates, I went on to an HNC at a Poly. What's more, I failed to fulfil the Poly's minimum entrance requirement: I had no GCSE in technical drawing.

Nevertheless, I persuaded the authorities in London to give me special permission to do their course. Half was trivial, - after two physics degrees – but half was all the stuff I wanted to know. I could then argue with engineers in engineering vocabulary. But the accountants stopped me. So, around 1976, I took the Certified Diploma in Accounting and Finance at Abingdon College of Further Education. This is accounting and finance as a foreign language. Not open to accountants, it's like tourists' Spanish. You can communicate with the natives, but not become one. So I could argue with specialists, using physics, engineering and accounting as vocabularies."

In 1976-87, I stayed with Oxford Instruments - turnover 1976 £1 million and 1987 £ 100 million. Exciting stuff." "In 1987, I was 40 and head-hunted by a South Coast electronics company, working in Poole for a year, for a huge increase in salary, but commuting from Dorchester-on-Thames to Poole really was a bad idea. After other jobs, more commuting and more money, I got fired.

Unemployed, I spoke to Martin Wood of Oxford Instruments about getting an MD's job with less commuting. He said, 'you should talk to Ian Laing who runs Milton Park. They have lots of companies, and are always looking for managing directors."

Milton Park, Ian and Nick

"So in 1990 I met Nick and Ian. They wanted to invest in technology-based businesses and had developed Milton Park into a brilliant business park. So I joined them for seven years. They put in money and advice: I put in my time. Nick was an accountant/lawyer turned businessman and Ian an economist/ property developer/businessman. Neither was a technologist: so having someone with my technological vocabulary was good. I worked there for seven years. We started Oxford Semiconductor. Then we started Oxford Asymmetry (see the Steve Davies Case).

In 1997. I joined ISIS as director. Interviewed in June 1996, next day I phoned the University and withdrew. The job was obviously impossible. But a colleague said, 'If you take this job and stick it for a year the way you resign might move things forward. So I accepted'."

"The University really did want to commercialise research – but wasn't quite sure how to verbalise its aims. I did for them. So they gave Isis a lot of money, I recruited good people, and it's been very successful. That's it, really."

Music in parallel

Tim sees his musical career as a 'parallel track'. A singer since childhood, he now runs a vocal sextet – three women and three men. He is interested in how personal and interpersonal abilities contribute to successful performance. "I think from any two sorts of entrepreneurial managements, there are lessons from both which can be applied to either. To some extent that's why Isis works. It manages people in a 'helping them do what they do', rather than 'making them do what I tell

them' sense - influencing not managing. If they can see you managing, you're not doing it properly."

Isis and the University

For Tim Cook in Isis and Catherine Quinn in Research Services working well together is crucial and Tim sees them as "a seamless partnership. All the University's £160 million plus of research funding - grants and contracts - goes through Catherine's office. If an invention is made where the University owns the rights, they assign it to me. We then commercialise it and, if there's on-going research, it goes back to Catherine's department. Our predecessors didn't get on, and researchers played one off against the other. So Catherine and I have a pact: never argue in front of researchers."

"By its nature, there's a lot of inherent tension: the university wants maximum research funding, I want no rights given away. The arrangement works because the social interactions are strong enough to deal with the tensions. But if there's a personality clash, the tensions exacerbate it."

Tom Hockaday

"Tom Hockaday is taking over from me here, and he also works well with Catherine. I am sure the system will continue to be succeed. Before I joined Isis, I ran Oxford Asymmetry three days a week, doing music on Mondays and Fridays. I recruited Tom Hockaday to become my successor here five years ago, and we are on a very long taper. I now work here three days a week and do my music on Mondays and Fridays. I've more or less achieved a work - life balance."

"Tom works here five days a week. He's the coming generation. Tom built up Tech Transfer in Bristol over seven years from nothing to quite good. It took me six months to persuade him to come here. As Mr Technology Transfer in Bristol, had a high reputation in the national professional network of technology transfer. Tempting him from number 1 in Bristol, to be number 2 in Oxford was difficult."

"When I came here - good talker, good arguer - I knew nothing about technology transfer. But neither did anybody else! So I went to all the conferences, about 12 people, who all kept looking at Tom Hockaday: he was the guy doing it, so far. That was about 97, and Tom joined Isis in 99. We didn't recruit in a conventional sense. He came he as Director of Special Projects – a flexible role."

Isis and its contribution

"Isis now has 36-37 staff, a clear structure, a competent company surgery, six month reviews and a formal HR system. There are management meetings once a month and project managers' seminars once a month. It's a proper small company."

"We've been in this office about four years and currently have 775 open files - about 40 for each project manager. Nearly all of wthm have both science doctorates and industrial experience."

"Life sciences and physical sciences – in two separate rooms - deal with the scientific part of the University, and the rules are that they can lay out their desks how they like, except they have to be round the edge facing inwards. And the head of each office sits in his office. Beyond that we deal with any Oxford academic who comes to us, including the two non-science divisions. And we have no director's suite, or such nonsense."

"What has Isis contributed to the University? When I joined in 1997, the University was contributing £40,000 a year. Isis had three employees and raised about £250,000 a year externally from industrial sponsorship - a legacy of my predecessor, who started the Oxford Innovation Society. So I wrote a business plan, went to the University, and said: 'I think you should give me as much money as I'm raising from external sponsorship, and the University said: 'all right'. The next year I said 'I think you should give me £500,000 year', and again they agreed. Next time I asked for £ 1 million a year for the next five years, and they again agreed. So then I recruited staff,

opened files, and started some companies. The five years ended in 2004 so I went back to the University and asked for £1.3 million for the next five years. And again the University said, 'yes, all right'.

"So what did they get for this money? I spent about £5.5 million. The university got £2 million of royalty shares; £6 million of research funding from companies we started; and £1.6 million of government money we applied for. So they had £9.1 million back in cash. They also had about another £11 million pounds worth of shares in these companies for which they paid nothing. They had £3 million from the government's University Challenge seed fund, and we spent about £7 million on patents. Value the patents however you like! Half what they cost us is £3.5 million - that's a further £17 million. So the total financial benefit from letting Isis use this £5.5 million is £26 million for the university."

"But there are non-financial benefits too. For example, academics also get shares, and perhaps £400,000 went to academics - a benefit the University gives to its employees."

"In all, I think the university got back about ten times what they invested, if you accept that we're adding apples, pears etc. Funding Isis is a good thing for the University to do."

The five year plan

"We now have a new five year plan, where, first, Tom and I have included the new big thing for Isis. And that is to continue our current key task, helping Oxford researchers to commercialise their research."

"Second, we want to increase the support we offer our spun-out companies. We now have about 43 companies, which spending half their time trying to raise funds. James Mallinson, our Portfolio Manager, manages that portfolio, but if we can add more people here, to provide companies with advice on marketing, HR, IT, general management etc, I think, we could move the managements of spin-outs from spending half their time raising funds to spending only a quarter. That would raise the time spent managing their businesses by 50%."

"Third, we have set up a new division called Isis Enterprise. Why? About once a week, a party visits us from overseas, and we always give them an hour's free consultancy - quite sapping but, if you're Oxford University, entirely fair."

"Yet it would be nice to sell them something. So Isis Enterprise will sell technology - transfer consultancy - probably mostly to governments. We shall say. 'We have this scheme. For a fee, you can either send one of your people to sit in our project office for six months, or we can send a couple of our people to your university to guide your set-up process'. That could break even within a year. It's the next adventure."

Isis and researchers

Tim invites Oxford researchers to visit the Isis website. "From that", he says, "you can download books on the whole range of issues - patents, funding, intellectual property, starting a spin-out, selling your consulting services, etc. Commercialisation will work only if academics want to do it."

Tim says, "While we have 16 project managers, and there about 3700 researchers. Rather than go for all 3700, we make a noise all the time. We spend half our energy on PR directed inside the University - letters, magazines, newspaper articles, the web, lectures, handouts.... And we talk to undergraduates about spin-outs. We also do things like Radio Oxford, the Oxford Mail. We generate a lot of interest, but only deal with those researchers who come to us."

"Now if we define all the inventions in the University by their attractiveness to Isis, this attractiveness is a function of the strength of the science, and of a parameter I've called the

commercialisability of the academic. Do they turn up on time for meetings? Have they got any embarrassing personal characteristics that will alienate licensees? Do they want to work with us? "

"Anybody doing science at Oxford is going to be quite good at science. So the issue reduces to the commercialisability of the academic, and we work with the ones who choose to come to Isis, finding their own tortuous way in. Our method gives us a self-selecting sample of the kind of people that we want to work with."

Managers for spin-offs

"We then have to get management for new companies. People can get very enthusiastic about managing spin-outs, but then talk to their spouses who ask very challenging questions about the job. And they bottle out.

"To help us find the right managers, Ian Laing came up with this model: If the job is to get a rowing boat off the beach, you don't need to be an expert in global navigation – only to know how to get boats off beaches. So the direction of travel is pre-ordained. Two years later - beyond the headlands - it matters where you steer the ship. But by this time, you've got a bigger ship. So you can recruit a steersman with gold braid on his hat, and send the rowing boat man back to the beach for another one.

That's what we did. And we've got a few people going round and round this course."

"Interestingly, the post-doc who came with me to Oxford Asymmetry, Mario Polywka, had two years' industrial experience when Ed Moses arrived, having sat next to me. Indeed, Ed Moses then did that for a bit, and when Ed became chairman, Mario Polywka ended up running a company of three or four hundred people - by then he'd had eight years industrial experience. Interestingly, when we sold the company to the Germans, Mario came back and said: 'Can I have a rowing boat? And he did another round. The more times individuals go round this loop, not only do they get better at rowing rowing boats, they also get better at dealing with the University. This is all part of it. We can build up really quite a quirky and valuable asset. It usually takes two years. Most quirky individuals can conceive of doing something for two years. Beyond two years, it is not a project, more a way of life."

The next stage

"So Isis has to raise initial business angel investment to establish the spin-off and raise the resources to get to the next – more expensive – change point where venture capitalists come in. But will the spin-off's manager make it, because that second job is different."

"Normally you get the chief executive and they bring in the venture capital. But there is definitely a culture change at the end of two years. The key skill for the guy running it now is to be in a position where he can raise that venture capital. This is where the fatalities happen - where it gets savage. Sometimes you just haven't got enough resources at the end of the first phase, to be in a position to raise the necessary resources, before you fall off the end of the pier."

Commercialisation

"Commercialisation is like applied sociology. There is such vast, under-utilised brilliance in the university, and such vast opportunity for it, out there. The limiting factor is how effectively you can help the two worlds to communicate. Get that right, and Isis has to do nothing else. Inside is getting better at reaching out, and outside is at reaching in, though I don't think we'll ever be out of work. But fostering that process is our key skill."

Douglas Hague and Christine Holmes, November 2004.

