#326: Brains trust: How do businesses capture and manage the knowledge they depend on?

VOICEOVER
This is Up Close, the research talk show from the University of Melbourne, Australia.

ELISABETH LOPEZ
I'm Elisabeth Lopez. Thanks for joining us. Well, as the saying goes, knowledge is power. In the 1980s there was growing recognition of the importance of the knowledge worker, educated specialist employees who used their wits rather than their hands. Today, most organisations see knowledge as one of their most important assets, but for some firms it's the one asset that determines their existence. The ability to integrate knowledge from different disciplines is essential in fields like biotechnology, where firms must innovate or die. It's estimated that Fortune 500 companies between them lose about $30 billion a year through failing to share knowledge effectively.
Two decades later, a lot of managerial attention has been soaked up by the challenges of big data and IT systems, but managing knowledge is about much more than managing information, according to our guest on Up Close.
Kwanghui Lim is Associate Professor of Strategic Management at Melbourne Business School and has a special interest in how organisations build into their DNA the ability to span disciplinary boundaries and to strike combinations of people and expertise that will result in both creative and commercially successful endeavours, and how firms can protect this hard-won knowledge in a globalised economy where intellectual property rights are easily circumvented. Welcome to Up Close, Kwang.

KWANGHUI LIM
Thank you, Liz.

ELISABETH LOPEZ
Kwang, knowledge management was the buzzword in the 1990s. How are organisations approaching this complex task these days?

KWANGHUI LIM
So over the past 20 years, firms have become much more aware that knowledge is

perhaps the most valuable asset. This has happened all around the world, not just in the developed economies like the US and Australia, but also in developing economies where knowledge workers have become a premium.

So it's become a real impetus for firms to try and absorb external knowledge, the kinds of knowledge they find at universities, at research labs, even at other rival firms. It's also become important for them to better make use of that knowledge, particularly if it's knowledge from different technical domains that they're trying to bring in to their area of work, or if they're trying to engage with customers or other knowledge workers elsewhere.

So there's a growing interest in things like open innovation, in open source, in collaborations, acquisitions, mergers, as these different tools that firms use in order to access knowledge elsewhere.

So I guess one way to think about your question is to think about managing the sources of knowledge and managing access to the sources of knowledge instead of looking at knowledge itself.

ELISABETH LOPEZ
You've spent a lot of time looking at entrepreneurs and tech start-ups, and you say that you can learn a lot about how a firm uses knowledge and exploits that knowledge from what happened at its origins, a process borrowed from biology of imprinting. How does that work?

KWANGHUI LIM
Recently I published a paper with David Hsu, my co-author at Wharton and a former classmate of mine at MIT in the United States. We look at biotech start-ups and we trace what they do in terms of taking ideas from different technical domains into biology over a long period of time. What we find is that the initial conditions of these firms matter a lot.

If they are founded in conditions where they are absorbing a lot of external knowledge from different technical domains, that persists over time, and if they begin life as a firm that doesn't do that much, they have to resort to other means to start acquiring external knowledge and to develop, such as hiring more people with technical skills that are from other domains.

ELISABETH LOPEZ
Is this because they haven't built in that knowledge capture or cultivation in their own processes and how they work? It's not in their DNA?

KWANGHUI LIM
Yes. So we think it's the result of two factors. The first is the kinds of incentives that are built into firms, and these are particularly hard to change after a while, so a firm like Google that has a very free-wheeling culture and kind of incentive that encourages play and encourages interaction with the outside, it's a very different firm than IBM, for example, that was founded on much more rigid hierarchical structures. It's taken some time for IBM to change, and they have changed, but the founding conditions have a long-lived effect.

ELISABETH LOPEZ
So with Google we're talking about things like employees being given time to work on their own pet projects, which often turn into standard, mainstream Google products, ultimately.

KWANGHUI LIM
That's right. They're given an opportunity to spend I think up to 20 per cent of the time on other projects, but it's more than just the time. There's also systems in place to encourage those innovations to bubble up. Some of those become actual products. Some get folded into things that are used in the existing products.
So a good example of that is Google Maps that was first invented by the Google team in Sydney, Australia. And that idea of using electronic maps has now been used in a wide range of things across Google's product lines, including the maps applications that you see in your web browser on your computer but also on the Android phones as a navigation, a source of information, and also for things like shopping.
They've started to use the same technology across a large range of things, but those are the kinds of things that bubble up from employees experimenting with things that were quite distinct from their initial area of work, which was search engines and the web.

ELISABETH LOPEZ
Is it just a question of getting a particular combination of the right talented people in the one space, or is managing this knowledge about much more than that? Is it just 'yep', let's just add water to this combination of people?

KWANGHUI LIM
That's a very difficult question to answer. It depends on the context. So some of the work that we've done in areas like biotechnology, sometimes it makes sense for people to cluster together, either in the same geographic area or in the same company.
But more recent work that we've done on designers and people that design everything from furniture to apartments to fashion, there may be a problem of just having them clustered together within the same firm, because you want, first of all, to just give them enough of an incentive within their own firm to work, but also some of the people that are highly creative, highly unusual, what Apple calls the crazies in their advertising, they may not fit well in a corporate environment.
So they may need an environment like a design studio or a company like IDEO, which does high-end design, to thrive in that kind of an environment, and it might be better in that case to interact with them as an external vendor and procure their services as a designer or as a design firm.
This is a market that we've found is very difficult to work with, because it's very hard to protect the intellectual property when you design something new. We interviewed a company based in Melbourne that is now a global company called Aesop. They're a $100 million company that does very high-end skin care and personal care products, and they said it's very hard for them to protect the basic formulae and even the basic packaging that the products come in, so they need to find other ways to

work with the companies that want to procure their services.

We find that in those instances, it might be better for these firms to build up a reputation for good design and use that to sell their services, instead of trying to trade in the services that are difficult to protect.

ELISABETH LOPEZ
So it's about the whole consumer experience and there's a lot of, I guess, marketing creeping into that to protect the sort of reputation that they've been able to build up from imitators.

KWANGHUI LIM
That's right. So reputation is key, and the players in markets like those try very hard to signal the reputation to others within the market. I guess that's why it's not an accident that I'm working with Don O'Sullivan, a colleague of mine, who is in marketing, as well as our doctoral student Michael [Falk], who straddles both marketing and strategy, the area I work in, on this project, because both sides are needed in order to understand how this market works.

ELISABETH LOPEZ
It's easy to understand how products like soap or moisturisers or hand creams might be difficult to protect, because I imagine the basic recipes wouldn't vary all that much, but in terms of other design, what makes it so difficult to protect it via patents, or what makes it impractical?

KWANGHUI LIM
That's a really good question, Liz. The design right, what we in Australia call the design right and what people in the United States call a design patent, only protects a narrow aspect of the product or service. It only protects the look and feel. It doesn't actually protect the rest of the consumer experience, which is much more intangible and, arguably, what we actually pay for when we pay a premium for a product like a good skincare product.

So part of the problem for these people is that if they only protect the look and feel of a bar of soap, well, it's just a bar of soap. How do you protect the aroma, that sense of style you get because this is the bar of soap you find when you walk into the high-end cafes of Melbourne or at top-end hotels around the world and that's the brand and the quality that they stock?

It's of the brands that try to signal the reputation through these means. Unfortunately, they can't protect the basic product or service because it might be only limited in the scope of the law.

The second problem here is that once a product or a service is out there, it's easy for a competitor to build a workaround. So even if they don't copy you exactly, it might be possible for them to build something else which serves the same needs.

You might not be able to have much legal recourse against them, but your best bet in that case may be to just build a reputation that yours is the true, authentic version of that experience, or that you are more consistent in quality, or that you are able to continue producing such goods in a consistent form across your product line, whereas maybe the competitors are inconsistent in their quality.

ELISABETH LOPEZ
So it's a constant quest to not only innovate, but to educate consumers that what they really want is authenticity.

KWANGHUI LIM
That's right. So in a lot of these industries, a lot of money is spent on the obvious kinds of marketing efforts, but more recently we're seeing a trend towards also trying to appeal through new forms of marketing, such as online marketing and guerrilla marketing. But more interestingly, I think at least in the case of designs being bought and sold, we're seeing the importance of investing in other signals.
So one of the ways you can signal your quality in a more consistent and long-lived way is to spend a lot of time and energy on things like competitions, and you see companies and individuals vie for competitions.

ELISABETH LOPEZ
You're listening to Up Close. Our guest is Kwang Lim, Associate Professor of Strategic Management at Melbourne Business School. Kwang, you have observed that competitions are really important for design firms to get involved in, and you've spoken to principals of architecture firms going for huge tenders which involve a lot of complex preparation and a lot of sharing of intellectual property before they actually may or may not get the work. What challenges does that post? What sorts of things tend to happen?

KWANGHUI LIM
That's right. Contests and competitions are really important for designers and people that try to create new designs. It's one of the ways through which they build a reputation in the marketplace, and that reputation could be very long-lived, because if you win a design award or if you win a design competition, you've won it forever. We spoke to several winners of competitions. One of them was the founder of an architectural firm based in Melbourne that has done projects all around the world. They've built the Entranceway to Melbourne, which is a sculptural monument you see as you drive in from Melbourne Airport to the city. They also designed the Melbourne Museum and, if you live in the UK, they designed the Visitor's Centre for Stonehenge.
What the founder said to us was that they spent a huge amount of time investing in and having a methodology for competing in global architectural competitions, so they don't just enter. They have a team, they have a strategy in place, they have an approach that they use, they have a checklist that they go through, and they've done quite well. They've won significant sums of prize money, but also follow-on projects as a result of winning these contests.
Another person we spoke to was an industrial designer, Henry Wilson, based in Sydney, and he won a very prestigious award for the design of a piece of furniture. And he said that that had led to a great amount of follow-on interest by many buyers of his design, because that helped him set up his reputation early in his career, but more importantly the prize money gave him that initial boost that was needed for him to actually start production of this design and make it a reality.

ELISABETH LOPEZ
There's a downside, though, to the contests, isn't there? You've mentioned instances in your research where concepts, very complicated concepts that have required quite a massive up-front investment by architecture firms, then rival firms that have got the bid, presumably because they offer a cheaper price, have been told yes, you go with that concept.

KWANGHUI LIM
There is a downside to contests, and the downside is that usually the contest organiser asks you to turn over your rights for the design, and because you're competing with other firms, they get to see and take the best of your design. Sometimes if you don't win the contest, they may give that design to someone else to then build. So you might have spent a huge amount of time and effort developing that design and submitting that to the contest, but you may not reap the immediate benefit from that contest.

ELISABETH LOPEZ
What can firms do about that?

KWANGHUI LIM
There's very little that any individual firm can do in that situation. What they can hope for is that the visibility that they received during the competition process might have alerted other buyers to the capabilities that they have in-house, but also some of the firms use the contest as a way to invest in capability-building, so the architectural firm I mentioned to you sometimes participates in contests in order to start developing new areas of work.
So for example, they may want to build a type of house that they may not have built before, and do so in order that their junior staff gets experience in building that type of house. So even if they don't win the contest, they then can bring that skill set to other projects.

ELISABETH LOPEZ
Kwang, how important are buyers in this equation, in the design market?

KWANGHUI LIM
Buyers are extremely important. One of the unique features of our research study is we look at both sides of the transaction. Many studies just look at the sellers. We interviewed both buyers and sellers to understand what's really going on, on both sides. We see that buyers have a particular role to play, because they need to persuade designers that they are good people to work with.
Designers want to work with design buyers that are sophisticated, that have good taste, and that are willing to work with them to bring the design to fruition, because when you first some up with a design, it's a sketch. It's a prototype. And you need to work with the buyer to refine that design to make it work for the buyer's needs and for the customers eventually that will use the space that the buyer may want to develop or the product that the buyer may want to design with the designer.
So for example, we interviewed a developer of a boutique hotel, and they were very

successful at bringing on board a large number of high-end designers to be part of their development. One of the ways they did this was to signal to the designers an intent to work with them in the design process.

And they had a series of activities they conducted to make sure that the designers knew that they were serious about co-creating the final product with the buyers. One of the things they did was to commit to the development of a piece of art, a sculptural wall, made out of ceramics from a now-deceased ceramic artist of note. They managed to persuade the family of the ceramics artist to allow them to use his work as the feature on the wall.

Because of this, designers understood that this was a buyer with great taste and was serious and spending significant sums to essentially make their hotel not just a hotel, but a piece of art. So leading designers spent a huge amount of time and effort being participants in this process and committing their work to this hotel, and as a whole making it quite a success.

It also shows that it is actually quite difficult to get this done right, because most of the time buyers don't have this commitment. High-quality buyers are rare.

ELISABETH LOPEZ
How do we cultivate them? How do we develop them?

KWANGHUI LIM
One of the things that needs to happen is an increase in the awareness of the importance of interacting with the seller. This work that we did was funded by the Australian government, and we recently presented it to the Australian government, but I believe that it applies to many places around the world, not just in Australia. There is a lack of understanding among buyers of how they need to interact with suppliers in order to bring external knowledge in-house, and I think this speaks not just to the design world. It speaks to biotechnology, it speaks to a host of other areas. If you look at many industries, people treat suppliers just as people you outsource to for a low cost. They don't understand that in order to get a good product, at the end of the day you have to work with suppliers very interactively. You have to work with them in a very immersive way, very iteratively, in order to get the best out of them, but also in order that they feel motivated to put in the right amount of effort and energy into your project rather than the minimum of effort to just get away with essentially selling you [a] poor product.

ELISABETH LOPEZ
You're listening to Up Close. I'm Elisabeth Lopez and our guest is Kwang Lim, Associate Professor of Strategic Management at Melbourne Business School. Kwang, there are people who are very skilled at getting the most out of suppliers and bringing external knowledge in-house, and you describe them as knowledge brokers. What is it exactly that they do?

KWANGHUI LIM
Knowledge brokers are people that take ideas from different technical domains into their own. For example, someone working in biology might see an opportunity to bring an idea in from computer science or archaeology or geology to solve a problem

in biology. And one well-known example of this is the use of some techniques in computer science in biology to essentially create replication of cells.

A well-known inventor in the past saw the opportunity to use these infinite loops that you see in computer science, to use the same kind of idea to make small samples of biological materials into larger volumes of the same thing. So there are ways of using ideas from other places and brokering those into your technical domains.

My co-author, David Hsu, at Wharton, and I have spent many years looking at people that broker ideas from different technical domains. We have also looked at people that have brokered ideas across organisational boundaries, so taking ideas from different organisations or different institutions into their own firm.

We find that brokering is really important. It has a positive benefit on the impact of the innovation that is then produced. In our study, we look at biologists at leading biotech firms and the kinds of patented innovations that they produce. And the ones that do some level of brokering of ideas from different technologies end up generating patents that are more highly cited, that have a bigger impact, that are used in more follow-on inventions. So we find this to be quite an important discovery. We also see that if they do too much brokering, it starts to go downhill, that too much brokering leads to combinations that are often not feasible or too early for the market or just simply don't work because the ideas are too wild to fit into your own technical domain.

ELISABETH LOPEZ
So they're getting caught up with the creativity of combining different elements of different ideas from different disciplines and possibly moving away from what the firm strategy should be?

KWANGHUI LIM
Yes. So there's a balance between trying to be creative and too creative that you end up having an invention that you can't figure out what to do with.

ELISABETH LOPEZ
And I suppose one of the tendencies in firms is for different ideas and products to mushroom, and at some stage you've got to kill your darlings to remain viable.

KWANGHUI LIM
Killing your own darlings is one of the hardest things to do, and unfortunately most people cling on for too long, but there comes a time when you have to realise that if a project is not working out, you have to kill it.

ELISABETH LOPEZ
So the knowledge brokers themselves, do they tend to be specialists in the fields they're taking ideas from, or do they just have particular qualities that lend themselves to a kind of eclecticism?

KWANGHUI LIM
Knowledge brokers tend to be people that are quite productive in their own field, but we also, in our interviews with some of the knowledge brokers, find that they have an

ability to transcend the narrowness of their field. Bear in mind that many people that do scientific or technical work tend to only interact with people that are very similar to them, and one of the challenges of being able to effectively make use of knowledge that's from a different area is being in touch with scholars and academics and researchers that are in that space.

So in some of other work that I've done with my co-authors Annapoornima Subramaniam at the National University of Singapore, and Pek-hooi Soh at the Simon Fraser University in Vancouver, we look at people that try to bridge science and technology. We look at people and their attempts to publish scientific work while being productive at developing new patented innovations. And what we find is that the people that are able to interact across these boundaries, they do better for their firms.

The people that can transcend boundaries tend to be of a certain personality type, but they are very rare. It is very hard to find people that are able to balance the conflicting needs of serving different communities. Many scientists are torn between the choice of publishing in scientific journals and trying to build a scientific reputation versus trying to produce patented innovations which are for commercial use but may not give them the scientific kudos.

And so very few people can contribute to different communities of work that have conflicting needs and conflicting incentives and being productive in doing so.

ELISABETH LOPEZ
So does this mean that collaborating with universities, for instance, remains very important in that space?

KWANGHUI LIM
Collaborating with universities continues to be very important. Universities are a really important source of new knowledge, because of the cutting edge research that's being done by leading research universities, but they're also a source of graduate students who do internships, who bring knowledge, who bring fresh ideas, who challenge the status quo, and so what we find across the different research projects that we've done is that firms that continue a collaboration with universities are able to access those sources of new knowledge and fresh blood into the organisations.

ELISABETH LOPEZ
Kwang, you've spoken about how difficult it is in the design world to protect innovations, but we also know that even the biggest corporations are not immune from emerging players appropriating or reverse-engineering some of their innovations; for instance, Huawei, allegedly, has appropriated Cisco's intellectual property on routers. How can firms get around this problem?

KWANGHUI LIM
Intellectual property protection is only part of solution. There is no global intellectual property protection for firms. These are jurisdictionally enforced and implemented, so if you get a patent in one country or jurisdiction, you still have to apply for the same in other countries and other jurisdictions.

So the problem has always existed. It's just that perhaps it's become more visible in recent years because markets have become more global, perhaps, and competitors have become more visible in the public eye.

One way in which firms can protect themselves is to recognise they're only partly protecting the IP as a source of advantage. In order for an innovation to make it successfully to market, you need your IP but you need what we call complementary assets. You need marketing, distribution, branding, strategy, a host of other things that need to work out well, and those things are hard to build, hard to replicate.

So in earlier work that I've done with a couple of co-authors, we looked at the telecommunications industry and we found that success comes not necessarily just from the IP side of things, but also entry into the industry and success into the industry can also come from managing and protecting the complementary assets.

So part of the answer to your question is that if you are a company that has initially started off with weak IP, and over time, you're developing your IP portfolio, you need to compete globally in a market where you might face threats, you have to start developing those other things like your brand, your reputation, your ability to do R&D that then generates new things that you can then protect in future, even if maybe in the early parts of your history you are not such a strong IP-based player.

ELISABETH LOPEZ
Kwang, thanks very much for being our guest on Up Close today.

KWANGHUI LIM
You're welcome, Liz. It's been a pleasure.

ELISABETH LOPEZ
On Up Close this episode we've been speaking with Associate Professor Kwanghui Lim of Melbourne Business School about how organisations manage knowledge. Links, a full transcript, and more information on this episode can be found at our website at upclose.unimelb.edu.au.

This episode was recorded on 14 November 2014 and produced by Kelvin Param and Eric van Bemmel. Audio engineering by Gavin Nebauer. Up Close is created by Eric van Bemmel and Kelvin Param. Thanks for listening. Until next time. Goodbye.

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