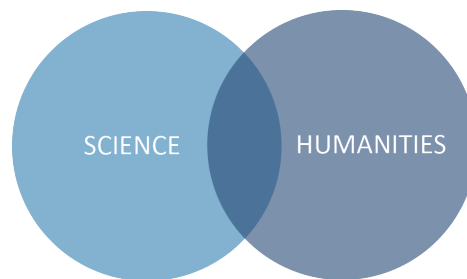


The magical place where science and humanities meet

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...[F]irst, a country will build its economy around the resources it has available. Second, a nation will deploy these resources in the highest-value activities that they can find. ...[Third] is that as things change, nations adapt. – Evan Davis, Made in Britain¹

As New Zealanders we need to think hard about the kind of country we want. If we do not, it will be easy to become caught in the first model described by Evan Davis, in which an economy is built around exploiting a country's natural resources. Sir Paul Callaghan put it this way: 'If we are serious about holding on to our unique culture and way of life, preserving our beautiful country and creating sustainable wealth then we need to raise our eyes above the horizon.'² In order to do this, we need to learn more about high-value activities that New Zealanders are good at and to explore optimal ways of monitoring change, so that this country can adapt quickly to retain a competitive advantage. This think piece looks at how we might develop more high-value activities, and in particular apply foresight to the intersection where science and humanities meet.

Key to our ability to identify high-value activities is understanding what we are good at. In his book *Wool to Weta* Sir Paul Callaghan reviewed this landscape, but we need to work harder to understand what New Zealanders do well.³ To explore this territory, the Institute gathered together two groups of people who we thought might be able to answer this question. The first group met over lunch in July 2011, when we were fortunate to have Sir Paul speak about his vision for New Zealand – 'a place where talent wants to live.'⁴ This resulted in a lively discussion among those around the table, who included former MP and current chair of the Greater Wellington Regional Council Fran Wilde, the late Lloyd Morrison, businessman Jeremy Moon and Grant Paterson, a finance and investment banker based in New York. The second gathering was in May 2012 when a group of entrepreneurs, including Trade Me founder Sam Morgan, came together over lunch to explore what they had in common and how we might grow a culture of entrepreneurship in New Zealand.

When we reflected back on these discussions we found that both explored the intersection between science and the humanities. The Science Council in the UK recently redefined science as the 'pursuit of knowledge and understanding of the natural and social world following a systematic methodology based on evidence'.⁵ In contrast, the humanities are based on ideas about the way we live our lives and the challenges we face together in our families, our communities, and as nations. Hence, both science and the humanities are about ideas. Sir Paul put the distinction more succinctly when he said that the one thing science cannot answer or resolve is 'how to live as humans.'⁶ Put simply, science tests the ideas generated by the humanities.

Apple founder Steve Jobs acknowledged the connection by saying, 'I always thought of myself as a humanities person as a kid, but I liked

electronics. Then I read something that one of my heroes, Edwin Land of Polaroid, said about the importance of people who could stand at the intersection of humanities and sciences, and I decided that's what I wanted to do.'⁷ In retrospect the people we had gathered together stood at this intersection, and it was through this lens that we explored how New Zealand might develop more high-value activities.

Standing in the intersection of science and the humanities

Success takes more than a bright idea; it is the product of a lot of hard work. It was mooted during one of our lunch meetings that success is roughly 30% dependent on the idea, while the remaining 70% depends on working hard to make it happen. Furthermore, the progression from idea to success is not straightforward. When retelling the story of a commercial endeavour from inception to success, many people give the impression that entrepreneurship is linear. In practice it is a convoluted path that spirals and splits off in all directions, leading to many dead ends before eventually creating a profit, a loss or the sale of a sound idea.



This degree of complication means that a certain level of scrappiness is needed to get through; entrepreneurs have to be willing to dig deep and commit. As Sam Morgan put it, 'Business is hard, so harden up.' This means that personality is a core competence in running a business – it cannot be done without personality.

Another idea that arose during the discussions is that entrepreneurs react to what is around them. We have all heard of that sudden flash of insight, the moment the spark ignited an idea – but that is about personality, not where the idea comes from. The creation of the idea depends on having a clear and precise question, something that highlights a problem that needs to be solved. The entrepreneur does not need to be the person who asks the question. Rather, they are the person who, on hearing the problem articulated, thinks it through and seeks out the resources, whether they be money, contacts or skills, to find a solution.

Entrepreneurs have a personality that makes them passionate about an idea, and then commit to delivering on that idea; they are flexible and open to how the idea will evolve; they are happy to follow the complex and spontaneous pathway to commercialisation, and they are prepared to work day and night to bring the idea to fruition. Most importantly, they are prepared to seek out the pathway to success. They see an opportunity to do something new, to build something better than anyone else has done, and then they pursue it.

Central to their success is the ability to see the world differently, and to see the patterns in the way we live our lives, the opportunities and risks. This approach is what literary historian Franco Moretti called 'distant reading', as distinct from close reading.⁸ They can zoom in and out, and are able to understand where an idea fits within the way we live our lives, now and in the future. Steve Jobs, for example, understood the way we live so well he could design products that no one else knew

there was a need for; as he put it, ‘people don’t know what they want until you show it to them’.⁹

How do we get more people into this intersection?

One key question that arose during these conversations was, ‘How do we get more people into this space?’ There was a general consensus that you cannot teach someone entrepreneurship. You can study entrepreneurs, but you cannot teach what they do, because teaching can only cover things that have happened, while entrepreneurship is about reacting to what is happening in an environment. This difficulty in teaching entrepreneurship is exacerbated by the rate at which the business and technological environment is changing.

An important first step in encouraging entrepreneurship is letting people know that there is a credible path to success. Craig Bond, from Goodnature, a company that designs humane and efficient traps, pointed out that in New Zealand it is believed that with enough perseverance anyone can be a top-tier athlete or sports star. But it is important that we also know we can build great companies. As a society we regard people like lawyers and doctors as successful, but New Zealand can also be flush with successful entrepreneurs if we let people know that this is a viable option. Lloyd Morrison, who graduated from the University of Canterbury with an LLB (Hons), was at 27 chairman of OmniCorp, a New Zealand listed investment company based in London, and at age 30 founded his own investment bank. Lloyd’s mantra was don’t just exist, but push hard and give more. This aligns well with Sam Morgan, who wants his children ‘to meet interesting people and have cool jobs’.

Before our first lunch Sam and others discussed what talent likes (summarised here). During this lunch attendees listened as Sir Paul talked about his vision for New Zealand as ‘a place where talent wants to live’, and discussed what obstacles exist.

Talent likes talent
Talent wants to be best in the world
Talent enjoys being recognised
Talent thinks and acts globally
Talent hates completing forms
Talent gets frustrated with delays
Talent needs human capital
Talent grows through investment
Talent follows talent
Talent is key

The problem of encouraging entrepreneurship is both educational and cultural. Commerce has not been traditionally taught in science and engineering programmes at universities. However, this is beginning to change and commercial training is increasingly being integrated into science degrees, where students are asked to commercialise applications or develop products with commercialisation in mind.

Connectivity also needs to be encouraged internationally. This stems from the reality that we do not have everything in New Zealand and we never will have. In order to grow we need to establish connections elsewhere and become savvy exporters. New Zealanders need to be involved in other capital and talent markets in addition to what is available here. The question for New Zealand is, ‘How can we be relevant in a world where everything is elsewhere?’ The international market focuses very heavily on sales and marketing, a strength that is lacking in this country. New Zealand companies either need to sell to the world or accept limited growth. If New Zealand wants to create high-value activities it is going to need to celebrate, support, connect with and empower the clever people who stand at the intersection of science and the humanities. But that alone will not be enough.

In the discussion above, we have not mentioned the word ‘innovation’ once, and for good reason. As we discuss in our latest report, *Science Embraced* (published February 2012), innovation on its own is not going to drive growth because it cannot be measured. While New Zealand could spend a lot of money on innovation, it would have no indicators to demonstrate success and therefore no feedback mechanism to shape investment strategy. As the late Peter Drucker, a world-renowned expert in leadership, said, ‘If you can’t measure it, you can’t manage it.’¹⁰ In contrast, we believe that what is created and what is commercialised can be measured. Unlike innovation, which means many different things to different people, the acts of ‘creation’ and

‘commercialisation’ can be measured, and therefore can be used as a mechanism to identify and grow high-value activities.

Steven Johnson, the author of *Where Good Ideas Come From* (2010), has researched this question.¹¹ He prepared a list of 135 significant breakthrough ideas since 1800 and made value judgements as to whether the person or people who had the idea were working alone or in a network, and whether they were working in a market-driven or in a non-competitive marketplace. These two value judgements formed an axis which in turn created a quadrant. Johnson’s purpose was to find out which of the four quadrants best allowed breakthrough ideas to evolve. He accepts that his analysis involves a lot of personal judgements, but even acknowledging these, he thinks this research provides a useful insight for nations wanting to create the right environment for entrepreneurial growth.

Johnson found that a significant proportion of breakthroughs since 1880 have occurred in the ‘fourth quadrant’: a non-market, networked environment – dispelling the prevailing belief that the market inspires the creation and commercialisation of ideas.¹² Johnson notes that, ‘[T]he wonders of modern life did not emerge exclusively from the proprietary clash between private firms. They also emerged from open networks. Governments must act as open platforms, encouraging networks and the creation and diffusion of new ideas. The success of companies like Google and Twitter has shown that a little openness goes a long way.’¹³ Johnson also comments that ‘governments and other non-market institutions have long suffered from the innovation malaise of top-heavy bureaucracies. Today, these institutions have an opportunity to fundamentally alter the way they cultivate and promote ideas. The more the government thinks of itself as an open platform instead of a centralized bureaucracy, the better it will be for all of us, citizens and activists and entrepreneurs alike.’¹⁴

What can we do?

For universities, this means not only building a more open platform where science and the humanities meet, but also carrying out research that helps us understand what New Zealand is good at today and what opportunities and risks will exist tomorrow.

For government, this means setting a very clear strategy for investing in ideas, and embedding foresight in the public sector. Foresight is a critical skill for any country to develop, as mentioned earlier, clever nations monitor change and adapt.

For the Institute, this means running a special three-week scholarship programme in February for three young people who want to stand in the intersection of science and humanities. Sir Paul believed in investing in young people and we want to continue his commitment to the youth in this country. To this end the Institute will run the Science Meets Humanities Scholarship Programme; the three individual scholarships will be dedicated to visionary leaders, the first will be dedicated to the highly respected Futurist Jan Lee Martin. The aim of the programme is to introduce students to interesting people with cool jobs. The first week will involve rediscovering New Zealand by travelling the length of the country meeting interesting people. The second week will be based at the Institute in Wellington, learning from experts how to apply foresight, think strategically, develop scenarios, and prepare business and research proposals. The third week will be spent with a mentor who aligns with their career path.

What is clear is that science and the humanities must intersect in order for our nation to deliver on Sir Paul’s vision of ‘a place where talent wants to live’. Sir Paul was a great fan of Steve Jobs, who said, ‘... the intersection of humanities and science. I like that intersection. There’s something magical about that place.’¹⁵

For complete references and to find out more, visit our website:
www.mcguinnessinstitute.org



The McGuinness Institute is a non-partisan think tank working towards a sustainable future, contributing strategic foresight through evidence-based research and policy analysis.
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