

“Hot-housing innovation: Creating a research-led innovation ecosystem to drive our own Medici Effect”

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Introduction

Dear Friends – Welcome.

I would like to open by putting today’s launch in a global context.

The past two decades have been witness to the most frenzied period of innovation and creativity in the history of the world.

Connectivity has exponentially multiplied human progress.

Examples abound: From super-conductive materials - to squeezable metal - to mind-bending advances in quantum computing and astrophysics.

In just the past year alone, we’ve seen breakthroughs in gene editing and in human tissue regeneration. One day, in the not too distant future, it will be possible to repair nerve damage and to artificially grow entire limbs and organs.

SpaceX proved that recycled rockets and boosters are eminently reusable – the stuff of science fiction noir and – importantly – a saving of \$18 million per launch.

A few months ago, scientists were able to measure, via gravitational waves, the violent death of two neutron stars 130 million light years from Earth.

We’ve made gargantuan strides in almost every field in just a few short years.

I mentioned connectivity. But is it connectivity alone that has been so potent?

Or is there something else also at work?

Today I want to talk about that “something”.

Because it is this factor – the secret sauce of innovation, if you like – that has given birth to the Swinburne Innovation Precinct and provides the foundation for our strategy here.

I am extremely proud to officially launch our Innovation Precinct **in this wonderfully repurposed Fire Station**. This is the *front door* of our research and innovation strategy. And it is deeply rewarding to see the physical crystallization of an idea.

I will outline our strategy in a moment - but before I do, I want to stress that this is not about a building or a collection of buildings, or even a gigantic project.

What we are creating - what we *have* created - is a *vibrant* and *global* innovation ecosystem.

Innovation in our DNA: the Medici Effect

The Swinburne story begins over 100 years ago with a technical college committed to innovative education, strong industry engagement and social inclusion.

Our story moves forward to 25 years ago, when we became a university, and the world was on the cusp of the current creativity explosion.

From the beginning, our founder's dream was that Swinburne would be defined by who we *included* not by who we *excluded*.

Inclusion and diversity: these two essential values go right to the heart of who we are as a university.

And this brings me back to my secret sauce.

Some years ago, a Harvard researcher provided a significant insight into how breakthrough creativity occurs.

He dubbed it the “Medici Effect”, evoking the flourishing of ideas and creativity in Florence under the Medici family from the 15th Century onwards.

What Frans Johansson was referring to was a discovery that many of the world's most innovative ideas occur at the “intersection” of different disciplines, different cultures, different fields.

In other words, breakthrough ideas rely on a *diversity of perspectives*. *They rely on inclusion and diversity*.

We have the best chance of coming up with great new ideas when we mix diverse approaches, fields, cultures and backgrounds - something we have always known instinctively here at Swinburne.

This is in our DNA.

Dragonfly wings

I am going to share three recent breakthroughs and co-creations with you to help illustrate my point.

The first is a new material that has the potential to fight the global threat of antibiotic resistance.

Recently, two Swinburne professors won the Eureka Prize for Scientific Research for their discovery of this bacteria-killing nano-material.

The revolutionary material mimics the sophisticated textured surfaces of cicada and dragonfly wings. Tiny spikes — or “nano-pillars” — provide a physical rather than a chemical model for killing bacteria.

In nature, these surfaces pull bacterial membranes apart.

This development is truly game changing.

It is also the product of a team of researchers working across time zones, across cultures, across institutions and – this is one of the most important elements – across *disciplines*.

Our Professors were part of a vital international and cross-disciplinary effort.

Blockchain for art

My second example is a first in Australia, blockchain technology for the arts industry.

At the National Gallery of Victoria launch earlier this month, our partners Kay Sprague and Cameron Macqueen from ArtChain Global told me that the idea for this technology was born from a deep love for the visual arts.

Swinburne researchers are now turning this idea into reality by developing a blockchain enabled decentralized system for secure registration, trade, and tracking of provenance of art assets across their entire life cycle -globally.

We are disrupting a 500 year old industry!

Blockchain will transform our worldview in the arts in a way not unlike photography transformed it in the 19th century. It will alter the commerce of the arts industry and redefine originality, reproduction and value once more.

The ArtChain Global technology is being created by an interdisciplinary team here at Swinburne, supported by artists, collectors, venture capitalist entrepreneurs in a joint effort with senior art and finance analysts.

To put it classically, together we are driving our own *Medici Effect*.

Facett

My third example is a less widely known – but equally inspirational “co-creation” – and its impact for society and for industry is immediately apparent.

Earlier this year, I attended the Melbourne launch of a new hearing aid known as “Facett”.

It is self-fitting, low-cost, modular and beautiful – and it is the result of a fantastic collaboration.

Led by Melbourne-based scientists, Peter Blamey and Elaine Saunders, the collaboration included industry partner Extel Technologies, RMIT designers, the ARC Training Centre for Biomedical Devices, here at Swinburne, and Swinburne University’s Factory of the Future.

Facett – in Johansson’s terms – also came about because of a *Medici* occurrence.

The product is the culmination of decades of work and many scientific advances – and its creation has been a true collaboration between *diverse perspectives*, between science and design, between research and industry.

Path-breaking notions sometimes steer circuitous routes. But they most often occur at novel *intersections*.

The strategy/ global connections / collaborations

Our research-led innovation strategy is designed to foster many more of these sorts of successes.

As Louis Pasteur famously said: Chance favors the prepared mind.

So our strategy builds capabilities, establishes partnerships, supports deep research and solves industry problems.

Our Research Institutes enable and facilitate research collaboration across the University. The Institutes are focused on five key areas: Data Science; Health Innovation; Smart Cities; Social Innovation; and Manufacturing Futures.

These drive multidisciplinary and interdisciplinary research, creating teams to tackle big challenges. Our goal is impact: transformative economic and social impact.

And so our research takes on national and global priorities for industry growth and for society's betterment.

This is the Swinburne Innovation Precinct. It is, quote – unquote, a “place”, an organizing concept, encompassing these Research Institutes and much more, but it is also a mindset.

It is where individuals are given the freedom - the licence - to step back from their habitual way of viewing concepts and problems. Here they are able to create intersections with other fields, other cultures and ideas.

We are making history in other ways too. I want to give you a taste of these.

----Just over a month ago, Swinburne established a presence in Silicon Valley - becoming the first Australian university to partner with CSIRO in the most mature innovation ecosystem in the world.

This was a vital component in our strategy.

The CSIRO-Swinburne partnership will see Swinburne PhD students and early career researchers, who are co-funded by industry, working on projects with leading Silicon Valley-based organisations.

California is the sixth largest economy in the world and arguably the most disruptive.

This is about immersion, about working with likeminded disruptors and about enabling our researchers to transform industries with work that is profound and lasting.

----Swinburne's Factory of the Future, part of our Precinct, is creating Australia's first fully immersed Industry 4.0 facility, enabled by the largest ever industrial digitalization grant in Australia's history: Siemen's grant of around \$150 million. But this is not only about technology disruption; it's about the future of work and the future of our society. It's about real-life innovation.

We're immersed in the fourth industrial revolution and we want to make sure that students and researchers are equipped with the required advanced capabilities and tools to support Australian industry, to move our companies up the global value chain.

---- Last year, with Tel Aviv University, we formalized a strategic digital innovation partnership to develop a joint data science research centre in Israel supported by a data incubator involving the local start-up community. As a

result, we are sharing facilities and know-how in the “Start-Up Nation”, the home of some of the world’s most successful entrepreneurs.

---And then there is Hong Kong, our gateway to innovation in China, where we are embedded within the Hong Kong Productivity Council together with the MIT Innovation Lab, to drive research-led innovation and commercialization.

Through investment in partnerships and immersion in the world’s most mature innovation ecosystems, we are learning a great deal and fast tracking our development.

Innovation is essentially a social process

We are a comparatively young university. But in the world of innovation that is not a bad thing.

In just a few short years, Swinburne has created a number of powerful and potentially world-beating collaborations – several of which I have mentioned.

We have built these from a commanding legacy of entrepreneurship and innovation, and we have focused unashamedly on industry, on science, and on technology.

Having a youthful openness – if I can put it that way – has given us a significant advantage.

Innovation is essentially a social process.

It involves relationships, and the coordination and cooperation of people.

In the newly evolving global innovation ecosystem, we have been able to build teams that are rich in diverse backgrounds and thought-processes.

One can get hold of the best players from within and outside of our organizations. But getting the players to work together and play as a team is what makes the extraordinary out of the ordinary.

Our network group at Swinburne – the Networked Innovation Group within the Centre for Transformative Innovation - is combining the soft sciences with the hard sciences in order to analyze the “social networks” that drive innovation. Not social media – but the real life networks that produce outcomes.

Because we are taking the time to understand innovation, what ignites and sustains it, we are changing the way we work and engage, moving Swinburne to the very forefront of research-led innovation.

Conclusion

To conclude, I am going to come back to the Medici Effect.

A vast amount of study has shown that diverse teams harness the power of convergence to make the extraordinary out of the ordinary. But coming up with an idea is one thing. After they develop the breakthrough idea, the team must also execute it. The research is clear on this too: diverse and inclusive teams – cutting across functions and identity – are also more successful in execution. This may be because they have wider experience and wider networks, and are willing to use non-traditional channels to get things done.

One cannot inject an ability to innovate or be creative. You can however provide the right environment – a favorable ecosystem, an enabler of ideas and capabilities, a place where ideas will turn into global products and services. This is what our Innovation Precinct is about.

Our research and innovation vision is to create real impact that transforms industries, shapes lives and communities.

Innovation needs a conscious purpose: It must drive impact and positive change.

But it comes from all quarters. At Swinburne, we look for it. We build bridges to encourage it.

The Swinburne Innovation Precinct is pivotal to our vision.

This building, The Fire Station, is what we call the “front door” to our Innovation Precinct. The Building’s kitchen – quite literally a kitchen – provides an informal central congregating space to encourage spontaneous encounters and conversations. Elsewhere you will find a business incubator and acceleration program; our Factory of the Future and Digital Innovation Lab; an entrepreneur-in-residence; an IP clinic; co-working, prototyping and co-creation spaces; Design Factory Melbourne; and – as I have mentioned a few times! – interdisciplinary collaboration.

Welcome to our ecosystem!