

Scientists in the boardroom: enhancing evidence-based decision making

DirectorsBrief | Issue 4 | 2019

As organisations and society face increased uncertainty and complexity, the breadth of issues that directors are having to consider is expanding to new territory. With simultaneous complex challenges on the horizon, including disruptive techniques such as deepfakes and the advancing impacts of climate change, boards need to ensure that they have the right information and diverse perspectives to operate at their best when making decisions.

In this DirectorsBrief we look at the skillsets that scientists bring to the boardroom and how boards can improve decision-making through greater use of evidence. It has been prepared in collaboration with Royal Society Te Apārangi. It includes insights from Rick Christie and Dr Helen Anderson, who are both Chartered Fellows of the Institute of Directors (IoD) and Companions of Royal Society Te Apārangi. They both trained as scientists and have extensive governance experience.

“To prepare for our biggest challenges, we need evidence-based information that will help us to understand the issues and make good decisions on what to do.”

ROYAL SOCIETY TE APĀRANGI

Scientists in the boardroom

Professionals from the sciences can bring a different lens to the boardroom, along with a deep rooted respect and understanding of the value of intellectual capital (including intangible assets) and strong capability in understanding and working with evidence and data.

Professor Sir Peter Gluckman describes science as a profession with a culture “of iterative scepticism and questions.”¹ It continuously seeks the truth by asking questions, experimenting and testing hypotheses. In a business environment where agility, innovation, and a trial and error mind-set can be keys for successful innovation, the way that scientists approach problems can provide a competitive edge.

In board decision-making scientists can bring a focus on evidence, leading to a preference for evidence-based decision making. An evidence-based approach can add to board decision-making across an array of different areas from risk management to resource allocation and capital investment decisions.

Having a professional director on the board with technical knowledge and who understands scientific practice can also help break down information barriers for other board members who may not completely understand scientific and technical evidence presented to the board.

However, recent research suggests that there is a lack of scientists in the boardroom, with a 2019 survey finding that only 3% of directors surveyed had science and technology expertise². Further to this, the IoD/ASB *Director Sentiment Survey* has found that the proportion of directors who consider that their board has the right capability to lead their digital future has remained consistently low over the past four years, hovering between 30-35%.

Show me, don't just tell me: insights from Rick Christie CRSNZ, CFInstD

Rick is a Chartered Fellow of the IoD with over 30 years of governance experience. He is currently chair of Service IQ, ikeGPS and the National e-Science Infrastructure Collaboration, serves as a director on the boards of Southport Ltd and Solnet Solutions Ltd, and is a Trustee of the Victoria University Foundation. He is a member on the IoD's Wellington Branch Committee and in 2010 he was made a Companion of Royal Society Te Apārangi.

How STEM³ thinking and evidence-based decision making can help boards

Boards face a more technically intensive world today than ever before. Major capital items are becoming more complex and expensive as companies seek greater productivity. STEM training enables a better understanding of modern equipment and processes and can help the board to test management on systemic and process risks.

Other new challenges we face are around climate change impact, robots, the Internet of Things, AI, machine learning and blockchain; to add to the data, IT and cybersecurity issues which have been with us for a while. Boards need to ask and challenge management to “show us the evidence supporting this, rather than just recommending it.”

Scientific training enhances director thinking

Scientific method is a thorough and tested way of drawing a conclusion. Good business cases are supported by expert technical advice, and, where necessary, peer review. Scientific hypothesis is a valuable tool for boards and management in formulating strategy. I often ask how a project will be executed, along with the business case itself. I want to see, and test, the evidence, rather than just accepting it at face value. I will also ask whether there is another, maybe better, way of achieving the outcome we are looking for.

Evidence and data in board decision-making

Directors are becoming more vigilant and demanding. The plethora of data now available is a double edged sword, as we firstly need to decide what is ‘good data’ and what isn't, but we also need to analyse it professionally to understand what it is telling us.

How to get more scientists on to boards

Boards need to look beyond the traditional sources of potential directors. However, this can be challenging for our profession as many scientists are very specialised and may not really understand governance or see it as a career option or next step. However some scientists may be introduced to governance through the current research funding structures with the Centre of Research Excellence (CoREs) and National Science Challenges which require Principal Investigators to set up governance structures. These types of opportunities can provide scientists with foundational and transferrable governance skills that can be used for other governance roles or further governance training.

“Over my career I have served on more than 20 boards and have mentored many governance professionals, and one of my reflections is that the skillsets that scientists can bring are often lacking on boards. There is an opportunity to change this in the future to drive a strong and sustainable future for New Zealand.”

RICK CHRISTIE CRSNZ, CFInstD

THOUGHT POINT

The way that organisations are led and governed is evolving. It is critical that organisations ensure they have the necessary capability to deliver future strategy. In the *Director Sentiment Survey 2019* only 50% of directors said their board has the right capabilities to deal with increasing business complexity and risk. As the operating environment continues to change, boards need to consider what capability is needed to govern their organisation today and in the future. When assessing board composition, boards should think strategically about how they can both build board capability and access expertise and capabilities that do not currently sit on the board e.g. through advisory board members or external advisors.

Is evidence getting enough consideration in your boardroom?

The ability to make informed decisions is one of the key competencies of an effective director (see the IoD's *New Zealand Director Competency Framework*). This includes taking the time to analyse, assess, evaluate, distil and question the information provided by management and advisors.

While directors are expected (and appointed) to bring their independent judgement, experience and objectivity to the issues in front of the board, there is a risk of relying on past experience and instinct when making decisions, rather than pressing management for hard facts.

Having the right information in board reports provides a vital input to board decision-making. Boards need to ensure that their organisation has well-designed and comprehensive reporting systems that provide hard evidence to back assumptions and recommendations being put forward to the board.

Getting the right information — and mind the gap

“The structure and nature of management papers presented to the board can have a strong influence on its efficiency and effectiveness. Too much volume and detail can waste valuable resources and divert the board and management’s attention from more important matters. Conversely, inadequate and insufficient information can leave information gaps for directors and lead to a poor basis for decision-making.”

Always on duty – the future board
IoD and MinterEllisonRuddWatts

BOARDROOM CHALLENGE: digital disruption and embracing data

As digital disruption continues to change business models, and organisations are increasingly being transformed by technology and data, many are seeing the value of fact-based decision making and are continuing to invest in areas such as big data and analytics capability. But only a third (33%) of the directors who responded to the IoD/ASB *Director Sentiment Survey 2019* think their board is equipped with the right capability to lead their organisation’s digital future.

“The ability to derive knowledge from vast volumes of easily collected data has resulted in the rise and success of new age data rich companies. Scientists (in particular data scientists) can bring data literacy and an understanding of the scientific methods which use computational power to derive knowledge from large amounts of data, without necessarily developing and testing hypotheses and theories in the boardroom.”

DR ANDREW CLELAND FRSNZ
Chief Executive, Royal Society Te Apārangi



Getting on board with diversity

The IoD's *Getting on Board with Diversity* guide provides five steps for getting diverse talent on boards. It includes tips for reviewing board composition and identifying and appointing diverse talent. It also provides information about how boards can increase objectivity by reducing biased decision-making.

Elevating and translating technical evidence in the boardroom: insights from Dr Helen Anderson CRSNZ, CFInstD

Helen is a Chartered Fellow of the IoD, and is currently chair of the IoD's Wellington Branch Committee, Studio Pacific Architects, Scion and BRANZ. She is a director on the boards of DairyNZ, ClearPoint Ltd, NIWA and Antarctica NZ. She is a member of the National Council of the IoD and Pro-Chancellor of Massey University. She is also a member of the risk and assurance committee for New Zealand Police and a Companion of Royal Society Te Apārangi.

Value in the boardroom

My scientific training enables me to 'lift out of the detail'. Scientists are comfortable with dealing with complex issues and data, and we develop skills in synthesising issues, information and ideas. These skills can be of immense value in the boardroom, particularly in today's environment where the ability to understand data and how to deal with it is critical for boards.

'Scientific literacy' enhancing board discussions and decisions

Scientists can also bring an ability to ask questions about evidence in front of the board to gain a deeper understanding of what it really means. This can be particularly helpful when dealing with technical evidence, as scientists can translate and make sense of the information.

Also, this understanding can help get matters on the board agenda that may otherwise be overlooked. As the chair of BRANZ and a seismologist by profession, I was able to help bring urgency to questions about whether BRANZ could play a greater role in explaining seismic engineering issues. Although we had the capability as an organisation, there was a need to elevate the issue into the boardroom.

There are many challenges that organisations face today that scientists can provide expertise in – from data scientists bringing data and digital literacy, to social scientists who can bring expertise in understanding the stakeholder and a customer lens. However, it's also important when appointing technical specialists to boards that the person understands governance and is able to bring a governance lens to board matters. It is critical to integrate technical expertise with governance thinking, and to work as part of the board team.

It's about capability

We need to develop this governance capability within the science community in New Zealand to harness the potential.

“Diversity on a board is vital but should always be approached through the lens of demonstrated competence.”

THE FOUR PILLARS OF GOVERNANCE BEST PRACTICE,
IoD



A COMMERCIAL LENS

“In my experience the value of scientific evidence is often misunderstood and not taken into account in many boardrooms. Having a board smart enough and able to listen to technical expertise is important. Particularly in the current environment there is a need for better balance between effective risk management and innovation in many sectors. I’ve experienced first-hand how technical experience can be used for very sound commercial outcomes and decisions. At Fisher & Paykel in the early days we were an inventive appliances company operating in a global market. If we didn’t innovate, we wouldn’t survive. We had a technical director on the board who added significant value to the company in terms of innovative solutions. We also had a board that took the time to understand the technical side of the business so were able to benefit from this technical input.”

JOHN BONGARD ONZM CRSNZ
Chair of Science for Technological Innovation (SfTI)

BOARDROOM CHALLENGE: understanding climate risk

Climate change and associated risks are getting increasing attention in the boardroom and we have seen an increased focus on the need for boards to be ‘climate competent’.

In New Zealand destruction and disruption of assets by natural disasters or extreme weather events are considered top risks, and climate change is expected to increase the likelihood of such events overtime.⁴ One area where boards today should be considering sound evidence and data is in relation to the potential impacts of climate change when undertaking asset planning and investment decisions.

Failure to mitigate and adapt to climate change was ranked within the top 5 global risks in the *Global Risk Report 2019* and director duties in relation to climate risk are getting increasing attention.

Given the potential implications of climate change factors on strategic decision-making and risk management, boards should ensure they are up to speed on what the implications could be for their organisation and industry. Scientific evidence related to climate can help with explaining complex scenarios and the potential effects of climate change on the operating model and operations, and overcoming prejudice and incorrect information.

Further to this setting science-based carbon emissions targets can help organisations reduce their carbon emissions. In April 2019 Contact Energy became the first energy company in New Zealand to have its emissions reductions targets approved by the [Science Based Targets](#) initiative; verifying that the company’s commitment to reduce its emissions is in line with what is required to achieve global targets in the Paris Agreement.

Climate Risk oversight

Large global investors have taken an active role in challenging companies on climate competency, and the NZ Super Fund has taken steps to become more resilient to climate-related risk. State Street Global Advisors’ commentary *Climate Change Risk Oversight Framework for Directors* highlights that “companies in high-risk sectors should assess board composition and director expertise in relation to climate competence of the board; establish mechanisms such as access to climate experts to help educate directors on evolving climate-related risks.”

A FINAL WORD

“There is a rich evidence base showing that diverse thinking around a board table produces better decisions. In my experience at the board table, a scientific training brings a systematic way of approaching problems and decisions. To a scientist, evidence-informed decision making is second nature, which can add a rigor to the process in a room where the majority tend to trust their instincts. The scientific lens also naturally brings a long term view of problems, and a focus on multiple bottom lines. Finally, many scientists have a natural ability to helicopter between a systems view and a detailed view, which is an asset in scenario planning, be it for asset planning or risk management.”

PROFESSOR JULIET GERRARD FRSNZ
New Zealand Prime Minister’s Chief Science Advisor

Three tips for scientists seeking to develop a career in governance

- **Build an effective network** and connect with others who are involved in governance. This may be through your current network or through attending events.
- **Undertake professional development** to acquire and develop knowledge and skills in governance. This could include attending courses in governance or reading publications. The IoD/FMA guide *The essentials of being a director* provides a good overview of some of the key things new directors should think about.
- **Consider getting a governance mentor.** If you’re an IoD member with some board experience you can consider applying to the *IoD Mentoring for Diversity programme*. More information can be found on our website iod.org.nz

For more information on building a career in governance, see the IoD’s guide *How do I build my board career?*

Endnotes

- 1 Professor Sir Peter Gluckman ‘*How science informs current thinking in government*’, August 2017.
- 2 Australian Institute of Company Directors and the University of Sydney Business School, *Driving innovation: the boardroom gap*, September 2019.
- 3 Science, technology, engineering, and mathematics
- 4 Marsh, *New Zealand Survey of Risk 2018*, November 2018

This *DirectorsBrief* has been developed collaboratively with Royal Society Te Apārangī and features insights from a number of their Companions and Fellows. More information about Royal Society Te Apārangī can be found on their website royalsociety.org.nz

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ISSN 2537-723X

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November 2019

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DIRECTORS
NEW ZEALAND