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The Institute of Chartered  
Secretaries & Administrators



# Futureproofing:

Technological innovation,  
the company secretary  
and implications for  
corporate governance

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## Technological innovation, the company secretary and implications for corporate governance



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# Foreword


Who would have thought that technology would have disrupted the role of a company secretary that goes back well over 100 years? Who would have thought that one day a robot would be sitting in the boardroom making decisions? Those thoughts are now real and the disruption that we have seen in so many aspects of our daily lives is now with us in our professional lives.

It is important that as professionals, we understand the impact that changes in technology will bring. It is important that we embrace them and not resist them. To embrace will depend upon how much we understand the changes. It is important that we are in a position to advise our boards and wider organisation on how these changes can enhance the workplace or our communities.

The Institute has observed the pace of change. Many members are already embracing these new technologies in their boardrooms, general meetings and in their compliance work. We thought it was important that we started a discussion with the wider membership, for example, on how Artificial intelligence or Blockchain technology is moving into our lives.

This paper was prepared and written by David Venus, the Institute's President for the two years to 30 June this year. David has always had a keen interest in how the profession has evolved in his long career, and in particular how technology has constantly made an impact. We are grateful to him for producing this thought provoking analysis.

As your Institute, we are pleased to provide this report on *Futureproofing: Technological innovation, the company secretary and implications for corporate governance*. We know that a better understanding of what is coming, and in some cases already here, will make us better professionals. We may not be able to futureproof, but we can be on the front-foot and be ready.



**Edith Shih** FCIS FCS(PE)  
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## About the ICSA

The Institute of Chartered Secretaries and Administrators (ICSA) is the premier global qualifying organisation for professionals aspiring to become a Chartered Secretary and or a Chartered Governance Professional. With over 125 years of history, we assist company secretaries, governance advisors, non-executive directors and others in the development of their skills, knowledge and experience. The Institute is an international organisation with offices in nine countries and 29,000 members living and working in over 80 countries. Most importantly, it brings its influence to bear on international trade bodies, governments, regulators, NGO's and companies to represent the views and current thinking of those involved in governance.

## About the Thought Leadership Committee

The Institute is in the unique position of being able to draw on the expertise of the leading practitioners and academics in our profession from across the globe. The Committee comprises members and senior staff who have extensive experience in listed and large private companies, the public and community sectors as well as regulators and exchanges. The work of the committee involves formulating policy positions, conducting research and preparing discussion papers on issues key to the profession.



# Introduction

We are at the dawn of the fourth industrial revolution (4IR). This phrase was coined by Professor Klaus Schwab to describe the fourth stage of technological progress, which we have now entered. The first revolution in the 18th century saw the harnessing of water and steam power followed by the exploitation of electricity in the second and then computer sciences in the third. The new technologies of artificial intelligence, machine learning and robotics are heralding the next revolution.

These cognitive technologies will change our world. They will undoubtedly change the way we do business and, as a consequence, our working lives. The 4IR will impact all of us, not least the company secretarial and governance profession. It will affect our profession in two fundamental ways.

1. New technology is and will increasingly change the way we work as company secretaries and governance professionals. This paper seeks to identify and explain these innovations, to describe what is available now, what is likely to come and how these innovations may help us in our work.
2. Technological innovation gives rise to new corporate governance challenges which we need to consider as a profession, giving rise to issues of transparency, fairness and ethics. Our boards, colleagues and organisations will require our advice and guidance.

This paper by ICSA's international Thought Leadership Committee (TLC) is presented as an introductory summary for our members, students and others about the opportunities and challenges arising from 4IR. Given the rapid pace of change the TLC proposes to issue further updates and commentary from time to time.

This paper has been written to assist the non-technical expert to become more familiar with the sciences behind the new technology. We should all wish to know more.

# Artificial intelligence

Artificial intelligence (AI) and machine learning are sometimes presented as enablers to a new bold, bright future, bringing benefits to mankind as a whole. Other commentators warn that in time robotics and machine learning may lead to domination over humans. These claims catch headlines but can do the new technology a huge disservice as they divert us from serious discussion about immediate, practical issues. There is no doubt that the use of robotics and algorithms have the potential to analyse and interpret data faster and more accurately than humans but the science is still in its infancy and emotional intelligence and human judgment remain key to the deployment of AI technology.

AI does and will work best when it sits alongside human intelligence and oversight. AI is not a panacea. As a commentator recently wrote in *The Financial Times*, a language translation app that operates with 99 per cent accuracy will be transformative but a self-driving car with 99 per cent accuracy will be catastrophic.

A survey by *Harvard Business Review* found that of 250 executives questioned, 75 per cent believe that the use of cognitive technology will transform their organisations within three years. A similar survey by the Boston Consulting Group and *MIT Sloan Management Review* found that 84 per cent of respondents believe that AI will enable their organisations to obtain or sustain a competitive advantage. Other research conducted by *Harvard Business Review* suggests that transformative projects ('moon shots') are much less likely to succeed than 'low hanging fruit' that enhances or replaces existing routine business processes. This is not surprising and the use of AI, like most other previous technological advances, is likely to be rapid but incremental. Before embarking on an AI project, organisations need to understand the technologies that are available, how they work and the strengths and limitations of each.

So what does all this mean for the company secretary and governance professional? As we said in the introduction, there are two sides to this. First, there are AI solutions available now or in development which can help our work inside and outside the boardroom. We look at these below. AI also gives rise to governance issues of deployment, control, and risk that are very much within our arc of responsibility, and organisations will require our expertise to put in place governance mechanisms and codes of practice and procedure. This second consideration is examined in detail later.

# AI in the boardroom

AI is already being deployed in boardrooms to help directors make decisions.

Since 2014, a Hong Kong company, Deep Knowledge Ventures, has used an algorithm called VITAL to aid decision-making at board meetings. It is described as 'appointed' to the board and has a vote on investment decisions. VITAL was appointed because of its ability to 'automate due diligence and use historical data-sets to uncover trends that are not immediately obvious to humans, surveying top-line data'.

Similarly, Salesforce, a US company, uses a robot called 'Einstein' at its weekly executive meetings to analyse data and critique upon senior management reports. By using algorithms, it reports in real time whether or not an executive's targets are likely to be met. Salesforce is seeking to sell this technology to other organisations.

The concept of AI participating in board level decisions in this way would have seemed fanciful until recently, just like self-driving cars. However, the technology to analyse and interpret data quickly and accurately is with us and why should it not be deployed in the boardroom to enable better decision-making? The real issue here is governance. Even if it were desirable, company law does not recognise a robot as a legal person entitled to attend and vote at meetings. Neither VITAL nor Einstein can be 'present' at meetings in any real sense, and legal responsibility remains firmly with company officers who will continue to owe fiduciary duties to shareholders and others. But AI raises issues of company law and corporate governance which will need to be addressed.

More utilitarian and immediately available applications of AI are currently available for use by company secretaries and their boards. Some of these are described below:

- Audio/visual capability allows participants to take part in meetings without physical presence but, until recently, the technology has been limited and sometimes unreliable. This is changing rapidly, with the development of more robust and immersive systems. High-end surround sound, lighting and shading control, networking and visuals can all be controlled in a boardroom from a single, central console.
- An absence of body language and problems with connectivity have been the biggest drawbacks of many audio/visual systems. These disadvantages are being eliminated by technology that allows those individuals online to be 'virtually' present, by sitting at a screen showing them and their colleagues around the table. Furthermore, hologram technology is becoming available to allow real-time, virtual presence at a board meeting (used by Accenture) or to allow presentations to be made in the boardroom that would previously have been made by video streaming. Imec and Euclideon are two companies developing these applications.
- Facial recognition technology allows the identity of board members and others to be verified. Examples are Google's 'Trusted Face' and Apple's 'Face ID'. The technology will raise an alert of anyone entering a room who is not authorised to be there; it could be particularly useful to verify the identity of 'virtual' attendees at meetings.
- Virtual reality (VR) headsets are being used in boardrooms. These allow presentations to be more immediate and meaningful and ensure the full attention of all meeting attendees; this latter consideration is an important governance benefit, given the presence of smartphones and other potential diversions in most boardrooms. VR provides full immersion in the presentation, allowing board members to use their own observational skills and to create a better understanding and experience of the subject. They also allow meetings to be held remotely. Examples of VR for use in the boardroom are SAP's Digital Boardroom, and Stambol; there are many others.

## AI in the boardroom

- Social networking tools such as Yammer and Trello allow board members and colleagues to share presentations and data and to comment on them in a community. The board of a US non-profit company, Communities in Schools, uses Yammer to create a private 'sounding board' so members can exchange and comment on ideas, reducing the use of emails which can be inefficient and difficult to track.
- Simultaneous translating technology is available to allow meetings to be held seamlessly with those from different cultures, speaking different languages. Google's Pixel Buds are an example. They are wireless headphones that can translate 40 languages in real time, with your phone or other speaker translating words as you speak and the response being translated through the headphones. The advantages of these applications throughout business and commerce are obvious, but use in the boardroom specifically will aid the pursuit of diversity.
- A potential disruptor for our profession is the growing availability of minute-taking devices, using algorithms and machine learning. These applications use 'speech to text' technology to create meeting minutes. By the use of machine learning, it should be expected that the quality of minutes would grow meeting by meeting, reducing the need for human intervention. There seems little doubt that like most AI, human supervision and oversight will be essential to ensure accuracy, content and style but it is certain that the deployment of these applications will grow and become an accepted tool. This technology is a disruptor but a potential benefit to our profession. It is a further example of the necessary evolution of the company secretarial and governance profession from focusing on compliance and administration to adding value through our knowledge, technical ability and strategic oversight. Examples of minute-taking applications include MinuteHero and Otter.



# Blockchain

The rapid development of blockchain technology will disrupt various industries including banking and finance, custodianship and share registration, by minimising or eliminating the need for a 'trusted intermediary'.

Blockchain is the most well-known example of distributed ledger technology ('DLT'). It consists of shared and synchronised digital data spread across multiple sites, countries and organisations. There is no central administration.

Blockchain is an important component of Bitcoin and other crypto-currencies and was created in 2009 as a database where details of all Bitcoin transactions are stored without the need for banks or governments to be involved. Since then, many individuals, companies and governments are exploring the use of blockchain as a decentralised and more democratic way of processing and storing information. Here are its key features:

- Data is assembled into so-called blocks, chained together using complicated algorithms.
- Each block is built off the last one, in chronological order, so that information once posted to blockchain cannot be removed or manipulated. Therefore, in theory at least, an immutable and permanent record is created that cannot be manipulated by fraud.
- Blockchain is a decentralised resource, forming a worldwide web of computers talking to each other to create a giant online ledger that can only be accessed by those invited to join the chain.
- Blockchains can be public or private. A public blockchain, like Bitcoin, is entirely open and can be freely accessed by anyone. Private blockchains require an invitation and users are given entry in the form of a unique cryptographic key.
- Because blockchain is not under the control of one party and information cannot be erased, it is transparent and therefore, in theory, more trustworthy.
- Because of its transparency and its decentralised control, blockchain removes the need for third-party institutions such as banks and custodians to be interposed in transactions; this could have implications for financial and other contracts, share registration, proxy voting etc.
- Blockchain allows stakeholders to access current and accurate information at any time.

At present, shareholders of large companies must rely on the board of directors for information, with little access to corporate records and with no way of verifying at first sight the veracity or validity of corporate statements or postings made by directors. This can change with blockchain.

We are already seeing its use to improve shareholder engagement. In May 2018, Santander became the first company in the world to use blockchain to facilitate shareholder voting at its AGM. Advised by a technology company, Broadridge Financial Solutions, Santander tested the technology by creating a shadow register. While actual voting took place in the traditional way, the blockchain experiment was said to be a great help in terms of transparency and agility at the AGM itself, providing a quick and easy voting platform for use by institutional investors.

The Australian Securities Exchange (ASX) plans to be the first to use blockchain technology to make market settlements. It has announced that a new DLT system will replace its existing clearing and settlement processes in 2020. It expects the new system will reduce costs, and will allow buyers and sellers to pre-match transactions before committing to settlement.

# Blockchain

Regulators are taking note; the State of Delaware in the US has already amended its company law to allow companies to hold their corporate records on blockchain technology.

The potential uses of blockchain are myriad. We are in the early stages of blockchain deployment but a number of possible uses of blockchain have been suggested that could impact on our profession:

- Maintaining shareholder registers, making dividend payments and conducting corporate actions in a wholly transparent way. Share registration companies are racing to be among the first to deploy the technology.
- A depository of corporate records and information in which shareholders and others can have greater trust, knowing it is accurate and up to date; as a result, this could transform the conduct of due diligence in corporate transactions.
- Contracts and financial transactions can be concluded and stored securely and be accessible by all interested parties.
- Blockchain has vast potential as a platform for trading unlisted securities and bringing transparency and trust to the private equity market.
- Auditors will have access to corporate records and financial information, knowing the data has not been manipulated.
- It can be a repository of corporate history upon which regulators can place reliance and which companies can use to complete their legislative filings and disclosures more efficiently and effectively.
- Blockchain will be an excellent platform for entity management. Its capacity for trust and security could facilitate statutory filings from companies to corporate registries and the exchange of information between the two.
- In a complex group, with many separate legal entities, the assembly of an organisation's annual report could be simplified by blockchain. A shared and constantly updated version of the true position of each entity could be invaluable.

The inventor of the World Wide Web, Sir Tim Berners-Lee has said that blockchain can help reduce the influence of big internet companies and return the web to his original vision of a democratic and open forum. As blockchain does not rely on any central authority, this seemingly egalitarian arrangement may make it harder for data to be altered or hacked.

However, Sir Tim also warns of potential dangers. The principle of 'rubbish in and rubbish out' will still apply and many supposedly secure online platforms have been shown to be vulnerable to fraud, hacking and manipulation. Caution is required. The role of the company secretarial and governance profession will be vital in creating the proper checks and balances that are vital to good corporate governance. It is essential that all of us gain an understanding of the technology and possible uses of blockchain so that we can provide appropriate advice and guidance to our boards and colleagues.

# Challenges for corporate governance

Will corporate law and governance need to develop and change to properly police and regulate this new 4IR? The answer is undoubtedly yes. VITAL and Einstein may seem extreme and isolated examples of AI deployment but it should be remembered that the concept of a corporation as a legal person with the ability to contract and to be liable for tortious and criminal acts, must have seemed revolutionary when first proposed. Let's not forget that the advent of limited liability in the 19th century was treated with widespread suspicion and fear by the many of the general public.

If AI can more reliably and accurately interpret data and make better predictions than humans, shareholders and stakeholders will want to see it deployed whatever directors may think. However, legislators and regulators will need to examine what measures are required to ensure that VITAL and Einstein and their successors remain under the guiding hand and oversight of the board; or whether some degree of autonomy for robotic intelligence is desirable or inevitable.

These fundamental questions of governance are both practical and ethical. VITAL has been described as 'the world's first artificial intelligence company director', but of course it has no legal status in Hong Kong company law. The same is true of Einstein in the US. It is the human board that remains in control of the use of all robotic intelligence and the decisions they take. It is for the board to put in place appropriate guidelines and parameters for their use. This must extend to programming, deployment, training, oversight and outcome.

Many organisations are looking at the ethics of AI use. These include:

- Harvard's The AI Initiative, Oxford University's code of ethics for AI project and AI4ALL, a US non-profit partnership of Oakland, Stanford, Berkeley and other universities, to name a few.
- A UK House of Lords Select Committee reporting in April 2018 has recommended the formulation of a cross-sector code of AI best practice and an investigation by the Law Commission of possible legislative change to better define liability for negative AI events.
- Nesta, the UK's innovation foundation, has called for the establishment of a Machine Intelligence Commission to ensure that the public interest is protected in the development of algorithms, machine learning and uses of big data.
- DeepMind, acquired by Google in 2014 and a world leader in AI research, is seeking to develop programs that impact positively on society. Recently, it launched DeepMind Ethics & Society to understand the impact of AI and to help technologists put ethics into practice in their AI applications.

Many other projects throughout the world are looking at the governance of AI. Governments and regulators will in time seek to introduce new legislation, codes of practice and sector-specific guidelines to deal with the ethical and risk and control issues that stem from AI. As a profession, we should monitor and contribute to the debate, advise our boards and colleagues of the likely impact on our organisations, and help formulate good governance practice in-house.

# Questions to ask, things to consider

We need to ask ourselves some important questions if we are to take full advantage of robotics and machine learning in our organisations. AI can be an effective enabler in raising corporate governance standards — blockchain for example may provide more efficient, more transparent and more secure ways of storing and processing corporate records — but these very enablers to better governance will need appropriate control and oversight. We must also advise our boards and organisations about the governance implications of AI solutions throughout the organisation.

We should ask:

- How technically savvy am I, my colleagues and my board? What should I do to better educate myself and my board about AI and machine learning? Don't be afraid to ask stupid questions.
- Is there a member of my board with a deep understanding of the opportunities and disruption that technology can bring? We are never too old to learn and all board members should be seeking greater understanding of AI and taking appropriate advice. The South African Governance Code, King IV, published in 2017, has a chapter on IT and information governance requiring, among other things, that the boards of all listed companies (and recommending that the governing bodies of all other organisations), ensure that responsibility for IT is properly managed, appropriately resourced and sufficiently defined, and that an IT policy is in place to cover ethical and other issues of responsibility. The UK Corporate Governance Code requires all listed companies to ensure that the board and its committees have the appropriate balance of skills, experience and knowledge to discharge their duties and responsibilities effectively. Corporate codes across the globe have similar provisions. If necessary, the nominations committee and/or the board of every organisation should consider recruiting directors with high level skills in IT technology. However, this cannot and should not excuse any board member from gaining a deep knowledge and understanding of new technology that might be employed in their organisation. Collective board responsibility will always apply.
- Should I investigate and experiment with the new technology? 'Hands on' experience of the technologies is invaluable to deeper understanding. You may wish to consider 'playtime' for you and your team and also your board. The World Economic Forum has stressed the importance of play to equip children for the workplace — 'Dressing up like Batman or building imaginary cities with blocks, help young children cultivate creativity, develop emotional intelligence and regulation, and build empathy — the very skills that robots can't replace'. Google famously encourages every employee to spend 20 per cent of their working time on whatever they think will most benefit Google.
- Does my organisation have blind spots? What are my peers and competitors doing?
- Are the lines of communication and accountability clear and open between technical departments and top management?
- Are technological issues sufficiently covered on the board agenda and dealt with appropriately by risk and/or audit committees? Some organisations have established technology and ethics committees to specifically consider AI issues.
- Is there a culture of innovation, creativity and transparency within my organisation that will allow proper consideration of new AI solutions across the business? If not, your organisation may be left behind. Think of Nokia compared to Apple, or LoveFilm supplanted by Netflix.
- Are my organisation's internal codes of best practice and procedure fit for purpose in a digital age?

# Conclusions

Various studies have shown that some 60 per cent of a company's value may not now appear on its balance sheet; this 'hidden' value is in the form of intangible assets such as IT, intellectual property, branding, reputation, customer lists and employee engagement (an interesting article on this conundrum can be found at [http://www.buildingipvalue.com/05\\_SF/348\\_353.htm](http://www.buildingipvalue.com/05_SF/348_353.htm)).

This excess in net worth over physical assets has grown steadily over the last 50 years and the gap appears to be getting wider. This continuing divergence will not be surprising given the competitive advantage that intangibles such as IT and AI can give a business. This 'quiet revolution' may be reflected in the statistic that over 80 per cent of those companies that made up the US Fortune 500 in 1955 no longer exist.

McKinsey, the business consultancy, commenting on the financial services industry, has observed that contrary to conventional wisdom, the best predictor of success is not size and scale but focused execution to capture share in the most important markets; in other words, a switch to smarter working.

The ability to be more agile, more customer-facing and more transparent will drive the development of AI solutions and this will be true of boardroom products and services as much as any other. This may lead to job losses in administrative roles for company secretaries and governance professionals as work becomes increasingly automated. However, this is not necessarily bad news. Cognitive systems perform tasks, not entire jobs and there will continue to be a need for qualitative judgments made by humans. The emotional intelligence required by our profession is key to advising directors and others on legal, ethical and procedural issues, and in managing relationships and boardroom dynamics. This, and the need for new corporate governance mechanisms to oversee AI mean that our skills and experience are likely to be more in demand than ever. For this reason, it is critical for company secretaries and governance professionals to improve their understanding of the new technologies and their implications.

But what of the bigger picture? Will corporate law change dramatically, are we going to see a shift in the standard model of director-led organisations, routinely run on the agency principle? Some commentators think this change is coming.

Blockchain has the potential to give shareholders greater insight and information about their company. If you take this concept to its extreme, governance of an organisation could be built into the system by AI, without the need for a board or a committee. An organisation would not be governed by people following rules, but by rules built into the system. A name has even been given to such a body — a Decentralised Autonomous Organisation or 'DAO'. A cryptocurrency called DASH is already run on these principles; the DASH protocol allocates certain funds to a central pool where users of the system can vote how the funds are allocated.

If shareholders or members of an organisation can themselves run the business day to day, the agency principles that are the basis of company law become redundant.

These ideas may appear far-fetched for large, complicated enterprises but it is easier to imagine resident management companies, charities and not-for-profit organisations being run as DAOs.

Currently company law around the world requires a board of directors to be the guiding hand, with responsibility for the management of the corporate body. Legislators may need to consider how AI can be accommodated within the confines of company law if an increasing number of organisations rely on AI and machine learning to take important, strategic decisions.

# Conclusions

It is important to remember that machine learning is vastly different from computer software. The machine learns from examples, rather than being explicitly programmed for a particular outcome. But it has at present a fundamental weakness. Much of the knowledge we have as humans is tacit; we know much more than we can tell. For example, it would be very difficult for us to write down or put into words how to ride a bike. In time, machines may grasp what it is to be human, but for now emotional intelligence and judgment are key. As governance professionals, it is our responsibility to ensure that AI is deployed in our workplace ethically and with appropriate oversight and control.

If 4IR is to be both transformative and positive, good governance will be more essential than ever before. Emotional intelligence in dealing with the humans who deploy and control AI will be as important as rules and procedures. As Patricia Christias, Head of Legal at Microsoft UK, has tellingly remarked — ‘Computers are not unethical, humans are’.

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