BOARD STRATEGIES FOR LEVERAGING DIGITAL AND EMERGING TECHNOLOGIES

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Evolving and emerging technologies represent a challenge to both companies and their boards that will be examined at IOD's 2019 Annual Conclave. The consequences of overlooking new technologies could include the loss of market position to those who adopt new business models enabled by them. Making the wrong move could prove to be an expensive distraction and a high opportunity cost. Within an organisation there may be few if any people who really appreciate what is emerging, while the understanding and intentions of those outside an immediate leadership team may be difficult to judge.

Our view of any technology depends upon our perspective. Digital technology enthusiasts might celebrate democratisation of access to mobile devices and various apps, and welcome wider opportunities to participate as barriers to inclusion and competition are reduced. However, its detractors may be concerned about cyber security and the risk of hacking. Directors have to weigh arguments for and against and balance costs and benefits. They also need to consider possible consequences and future implications. What can we learn from past experience, particularly of the adoption of digital technologies?

A directorial perspective needs to embrace the context and environment within which a company operates. There may be legal and regulatory issues and stakeholder apprehension and possible reactions to consider. For example, public concern about the loss of control of personal data and what organisations know about us. There might be political unease about the concentration of the rewards of technological and/or business entrepreneurship.

Helpful and Harmful Applications of Technology

In themselves, digital and emerging technologies are generally neutral. Whether they help us or harm us depends upon who uses them, how we use them and for what purpose. Thus we could employ them to improve existing activities or to enable new business models. In the case of new and emerging technologies, there may be pressures to take decisions when there is little or no authoritative information on the experiences of early adopters. By the time cautious boards receive it and react to it, more entrepreneurial first movers may have already staked their claims in a new arena of opportunity.

Media reports and popular views can sometimes be misleading. Presentation slides of the exponential increase in the speed with which selected successful innovations have conquered existing markets or established new ones often overlook the number and cost of failed attempts and the length of time that can often elapse before what with hindsight seem obvious innovations are adopted. Evidence and case studies used by suppliers and sellers of digital and emerging technologies invariably suggest success.

Objective overviews of corporate investments in digital technologies are often difficult to come by. Analysis by Paul Strassman, a serial CIO and former Vice President of Xerox suggests the overall impact of early generations of IT was neutral. Well run businesses tended to be helped and to become more competitive as a result of their IT investments. In contrast, badly run and struggling businesses tended to be harmed and to become even worse. As a counterpoint to the benefits of connectivity, in some organisations, many people seem to be sending each other time wasting emails rather than discussing and sorting important issues.

The potential for either helpful or harmful impacts of embracing digital technologies is reflected in contemporary debates about questions such as whether the wider adoption of the strangely named artificial intelligence (AI) will increase or reduce employment. In reality AI is likely to do both simultaneously, creating opportunity for some and providing a challenge for others. The net effect will depend upon entrepreneurial flair. AI is also a good example of how technologies with great potential are sometimes among the slowest to be adopted.

Realising the Full Potential of Technologies

The author recalls working AI environments at Xerox and promising applications of it during the 1980s. Not all the uses reflected the full potential of the technology. At Cambridge University some recipients of AI workstations and software donated by Xerox left their machines on overnight in winter and the heat they generated helped to keep damp off the walls. If certain environments developed at Xerox PARC had been rolled out and adopted more

widely, their application could have transformed how many people work and learn.

Despite an objective to derive a half of its income from integrated office systems, Xerox Corporation failed to leverage technologies that it had played a key role in developing. Many of the senior management team whose experience had been largely in the copier business did not understand the very different office systems sales and support requirements. Success required building a relationship over a longer period, at a more senior level and with a group of decision makers rather than just a print room manager. Boards that establish a new strategic direction need to ensure that people and capabilities to implement it are in place.

Whether or not an innovation that appears promising is adopted can depend upon demand, which in turn may depend upon other considerations such as price, alternatives, trust and justification. For over thirty years the potential of AI has been ahead of our willingness and ability to sensibly employ it. Given the impact certain applications of technology have had, why have more directors and boards not tried to understand why this is the case and ensure that better mechanisms are in place to evaluate new digital and emerging technologies, assess their potential application and ensure their more successful adoption?

The Use and Misuse of Technology

AI also appears to be forever accompanied by debates concerning the ability of people and organisations to control applications of it that can independently learn and evolve. At times such debates seem to be circular with points made repeating those put by previous pundits. Business leaders are sometimes noticeably absent from these discussions. The features and consequences of digital technologies are often double-edged. There is the paradox of people being more connected via social media while also being physically and psychologically more isolated. The convenience of further connectivity is accompanied by additional risks.

Boards need to ensure that risk appetite and risk assessments take account of the current and potential use of evolving and emerging technologies. The *Internet of Things* opens new doors of vulnerability. People who are too busy to update their software with new patches keep these doors open for longer. The global criminal community is leveraging digital technologies and is a major beneficiary of them. According to Michael McGuire of the University of Surrey, the global cybercrime economy is now worth $1.5 TN. This is the scale of the burden borne by businesses and citizens as a consequence of widespread naivety. People need to be more alert to the possible malevolent misuse of current, emerging and future technologies by others.

Cyber criminals often win hands down when it comes to operating flexibly and quickly changing their practices and priorities to take advantage of new opportunities and technologies. Corporate procurement processes with their requirements for board approval, invitations to tender, consultant selection, project planning, budgeting and roll out implementation ensure their targets are usually way behind them. Boards, governance arrangements and collective decision making are all struggling to cope.

As existing technologies continue to evolve and new ones emerge, Governments and regulators also find they are playing catch up. Are there alternatives to strengthening defences and keeping them up to date? At some point, will a critical mass of people and organisations collaborate to counter-attack? Might there be greater use of AI and other technologies to assess, predict, identify and respond to threats? Will those who are wary of surveillance, sharing information and Government monitoring support the steps needed for law enforcement agencies to succeed? In the privacy versus security debate, can one have both?

Inhibitors of Technological Innovation

Missed opportunities to beneficially employ new technologies and rationalisations for inaction are legion. Visions of their transformational use can be quickly killed by a few words of caution to an insecure decision maker. Even when there is support for them, situations and circumstances can quickly change. A budget may be cut due to adverse trading conditions and/or when more has to be spent on other priorities and current activities. Many boards that approve expenditures do not indicate which of them should be regarded as strategic and protected. Longer-term developments that some executives may consider to be speculative become easy targets.

Innovation is often agonisingly slow and more talked about than practiced. Many directors do not want to be the first to embrace a new technology. They may fear failure or blame and be wary of the uncertainties involved. Responsibility may have made them cautious and/or risk averse. They might be influenced by vested interests. They may protect existing activities and past investments rather than enable new business models. Until relatively recently, the boards of some retail chains that are now struggling, dying or dead were still authorizing long-term rental agreements with landlords. Why do so many well-educated directors appear to live in a parallel universe? UK retail stores have succumbed in droves to on-line rivals, yet in the 1980s some indigenous people in remote jungles sold their craft wares over the internet.

Innovations that do occur are often slow to spread. This can be particularly evident in areas of the public sector where many years can pass before a seemingly obvious application is adopted. Individuals and entrepreneurs often move much more quickly than large organisations. When chairing awards for innovation in electronic commerce and e-business, the author found one winning team from the UK's National Health Service imitating a previous winner they had not heard off. The earlier innovators had moved on to new jobs and their successors reverted to previous practice.

Avoiding Radical Change and Mega-Projects

In the 1990s the author led a project for the European Commission to develop a European approach to re-engineering. We encountered a lazy and self-interested preference for the improvement of existing activities rather than transformation through the adoption of new approaches and technologies, particularly in monopolies and public bodies. There was also a noticeable penchant for mega projects within an existing framework and business model. Some of them seemed doomed to fail from the beginning. Even if they were eventually delivered, by then the requirement would probably have moved on.

Boards sometimes approve the costly and disruptive re-structuring of existing operations without exploring alternative options and different models of operation. They also seem willing to spend huge amounts on suites of processes and systems that are largely the same as those used by most of their competitors, but are reluctant to spend relatively small sums on practical performance support tools that would quickly transform how people undertake difficult jobs, differentiate and deliver multiple other benefits for both the organisations concerned and their stakeholders, while providing huge returns on investment.

Too often, suppliers of digital technologies push their own particular systems and overly large, complex, time consuming and disruptive projects. They exaggerate their advantages and play down their limitations. They are reluctant to transfer knowledge and so encourage post-purchase dependence and secure multi-year income streams. Within some companies the least experience of certain technologies is sometimes found in the boardroom. On occasion, what is regarded as new or emerging by directors is regularly used by their grandchildren.

Selecting Technology Partners

Many insecure directors do not know to whom to turn for independent and objective advice. They play it safe by opting for widely used technologies and offerings from established suppliers. They overlook more imaginative, cheaper and flexible options that would differentiate them without 'locking them in'. Some boards initiate too many projects and their strategies lack focus, for example on easily updated steps that are visible to customers and clients and which could transform their experience.

Boards need to ensure that relationship building policies and practices are sufficient to enable a company to pursue its mission and achieve its strategic goals. Technology partners and collaborators should be chosen with care, avoiding those that take much more than they give and try to build dependency. State owned companies may be expected to give priority to national interests, which could involve spying upon certain naïve overseas customers, users or partners and stealing their intellectual property. The benefits of shared learning and co-creation may need to be weighed against the risk of losing know-how.

Ensuring a Strategic Focus

Departmental corporate structures and the inputs given to boards by functional executives often prevent directors from seeing the inter-relatedness of issues and events. As a result, individual technology projects and other issues are considered in isolation and the context in which a company operates is ignored. The author recalls running a session for 40 senior people from an internationally operating market leader company in a sector about to be impacted by an alternative technology. They were especially proud of their history and the well over 8,000 quality improvement projects that were underway around the world.

The confident but complacent participants were given an exercise to identify and prioritise the issues or developments in the business environment that would determine whether the company lived or died. We got to issue eleven before one of the functional heads present claimed a related project group. The top ten issues could not be conveniently labelled as a marketing, personal or other functional issue and so, while potentially affecting all of them, fell outside of their particular remits. As a result of ignoring obvious advice and continuing to strive to be excellent in all aspects of their current operations, this then corporate giant quickly became a bit player in a new digital world.

Many inter-related challenges and opportunities are not addressed because CEOs and boards do not have an obvious, objective and trusted unit, network or team to refer them to, and/or a collective or collaborative response is needed. Technology governance and related decision making needs to improve. Many boards need to think longer-term and be more flexible, responsible and practical. Responsible leaders and technology providers seek outcomes that benefit customer, corporate and wider stakeholder interests. They also consider life-time, end-of-life, crawl-out and transition costs when taking technology related decisions.

Sustainability Considerations

Given the challenges faced by mankind there are many opportunities that can be pursued without exploiting insecurity, naivety and/or ignorance. We need lifestyle changes and innovative and sustainable applications of technology that address environmental and climate change concerns. Many people are increasingly dependent upon digital technologies. Generation gaps in understanding and its use have emerged and are evolving. Many young people in particular are worried about the implications of our use of finite resources. The democratisation of opportunity and greater inclusion could further increase the pressure.

Will we exercise enough restraint to transform the future prospects of our children and grandchildren? Will they have to scavenge in mountains of our rubbish for rare minerals in discarded devices .Without innovation, will information, communication and other technologies as we know them survive? Will there be enough rare minerals to enable the potential of a variety of emerging technologies to be realised? Will enough people with the means to buy hold back to enable a sustainable use of natural resources and social priorities to be pursued. Curiosity and courage are key qualities for leveraging digital and emerging technologies. Directors should champion their imaginative and responsible use. ■

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