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The Future of Work

Getting ahead of the curve

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Abstract:

Globalisation of markets, emerging technology and the entry of millennials into the workforce are just some of the issues that will change the workplace as we know it.

To survive and thrive in an increasingly hostile and chaotic environment, organisations will need to address the four tenets of awareness, agility, personalised service and responsiveness.

Keywords: agility, service, intellectual capital, future, networks, Organisational learning, innovation

Introduction

The concept of work as we understand it continues to change. The boundaries, structures and functions of organisations are becoming blurred as the interaction with customers, suppliers, peer networks and our communities permeate traditional structures. This paper looks at how the workplace demographics, globalisation, environmental change, social networking and the explosion of middle class in developing countries will impact on the way that organisations will need to evolve to compete and survive. It is apparent that how well an organisation can learn and adapt is critical to its sustainability and competitive advantage.

First, it is useful to consider how to go about envisaging a future state and what is a futurist? The Association of Professional Futurists (2016) define a futurist as a person who studies the future in order to help people understand,

anticipate, prepare for and gain advantage from coming changes. The analytical process for considering future trends includes:

1. Framing - understanding the current state of affairs
2. Scanning - looking for indications of the future
3. Describing - explaining or reporting on possible futures
4. Visioning - opening the range of possibilities
5. Planning - creating/implementing a future direction

To place the advice of any futurist in context, clients need to understand the perspectives, orientation and bias of any futurist (Hines, 2003). Clients need to be careful of being told what they want to hear or a perspective influenced by particular commercial, social or political perspectives.

Framing the current state

The 2013-14 State of the Future (UN, 2014) shows that the world is improving better than most pessimists know and that future dangers are worse than most optimists indicate. People around the world are becoming healthier, wealthier, better educated, more peaceful, increasingly connected, and living longer. Child mortality rate has dropped 47% since 1990, extreme poverty in the developing world fell from 50% in 1981 to 21% in 2010, primary school completion rates grew from 81% in 1990 to 91% in 2011, only one trans-border war occurred in 2013, nearly 40% of humanity is connected via the Internet, and life expectancy has increased 10 years over the past 20 years to reach 70.5 years today.

However, water tables are falling on all continents, intrastate conflicts and refugees are increasing, glaciers are melting, income gaps are increasing, coral reefs are dying, ocean acidity is increasing and ocean dead zones have doubled every decade since the 1960s. Half the world's topsoil is destroyed, youth unemployment has reached dangerous proportions, traffic jams and air pollution are strangling cities and \$1.6 billion is paid in every year in bribes. The drug trade is worth over \$300 billion and organised crime gets twice as much as all the military budgets combined.

Scanning for indications

Matt Moore observes that PwC, McKinsey, the rest of the big consulting firms, researchers, government agencies and futurists all identify similar megatrends that impact on organisations, most of which are identified here.

Al Gore (2013) contends that there are six drivers affecting global change:

1. An interconnected global economy
2. Planet wide communication grid
3. New balance of political, economic and military power
4. Unsustainable growth
5. Biological and genetic technologies
6. Climate change

Most of these are certainly issues raised by a number of other authors.

Economic

Moore observes that the rise of emerging economies such as China & India will continue to place stress on raw materials. We probably have 30-70 years' worth of oil left and 150 years of coal. This will continue to drive investment in renewables to replace fossil fuels.

Social futurist Richard Slaughter (2013) claims that the growth economy is founded on assumptions that no longer hold true as it has exceeded global limits for sustainability from the 1980s onward. Many economists are fixated on growth as a stabilising factor as a lack of or reduction in growth has historically resulted in failure. In simple terms it is consuming natural capital at an increasing rate and reducing the capacity of the earth to support life. The question remains, is there a scenario where a reduction in population, demand and consumption can still result in an improvement in the quality of life.

Education

The cost of education and healthcare will continue to increase, reducing access by the average person. Both of these trends are occurring due to a reduction in government funding shifting costs to the customer in many countries. Scandinavia and South America are the exceptions.

Analysis by IBIS World (2014) contends that online learning providers such as Coursera and edX could conceivably outpace traditional

universities in terms of breadth of subjects, availability, cost and potentially, quality. The potential for such providers to carve out a substantial niche from the traditional university student base may explain the enthusiasm with which universities are seeking to establish their own online educational pathways in an effort to retain market share and on-sell their traditional services.

Climate change

CO2 levels and global warming continues to be the high profile, long term issue. At the current rate of CO2 emissions, the success rate of krill hatching will drop by over 50% by the middle of the century, impacting on the global marine ecosystem. This will destroy any community dependant on fishing industry for food or income and could create a global famine.

Demographics

Baby boomers represent a future challenge as this group will distort non-working population, just as they increased its working population throughout the 1960s and 1970s (Australian government, 2007). An older non-working population will put a greater strain on hospitals, aged-care services and pensions with many commentators predicting a financial crisis. This is occurring in developed countries but will flow on to the rest of the world. Bernard Salt (2015) sees this as a creeping crisis requiring higher taxes and migration to support an aging population

Many developed countries have worsening dependency ratios as the baby boomers move into retirement and then become a burden on the health care system late in life. The dependency ratio in Japan went from 48% (1980) to 62% (2013) of the population. The shrinking workforce is also driving up wages in Japan opening the door for competition from globalisation.

As of 2013, 47% of the world's population are still rural and over 1 billion people still work in agriculture. As developing countries slowly mechanise their food production, urbanisation will continue to increase, effecting pollution, congestion, homelessness and unemployment. This is being exacerbated temporarily by the influx of refugees in Europe and Asia.

Social

The explosion of middle class is likely to bring prosperity, demand and chaos to developing countries in Asia, South America and the sub-continent. However, the reverse is happening in the US. Social change continues to embrace the role of women in the workforce, acceptance of the LGBTI communities and a change in the attitudes towards people with disability.

With the extensive uptake of social media, wearables, biometrics and the amount of information on people now available online, the concept of Privacy is now challenged and will continue to diminish as our data and movement are tracked (Schneier, 2014).

Half the world is vulnerable to social instability and violence due to rising food and energy prices, failing states, falling water tables, climate change, decreasing water- food- energy supply per person, desertification and increasing migrations due to political, environmental, and economic conditions (UN, 2014).

Technology

There are programs underway to understand how the brain works and apply that knowledge to how they relate to us. Work continues on personal Artificial Intelligence (AI) assistants and generic low-cost robots. We are still only scratching the surface with Nanotechnology, robotics and unmanned vehicles but implementation is accelerating. For example, the US Air Force's 7500 unmanned aircraft make up a third of their aircraft (Tercek, 2014).

About 85% of the world's population is expected to be covered by high-speed mobile Internet in 2017. China already has nearly twice as many Internet users as the entire population of the U.S., and 81% of its Internet users gain access via mobile phones. Over 8 billion devices are connected to the "Internet of Things," which is expected to grow to 40–80 billion devices by 2020. According to the ITU, nearly 40% of humanity uses the Internet now. Schneier (2014) believes that we are in the middle of a Cyber-Warfare arms race.

In hi-tech companies, Big Data is the catchphrase along with Analytics, real-time dashboards and visualisation. Enterprise Mobile Management, wearable technology and telepresence are becoming commonplace (iDA, 2015). Most data will be spatially enabled. What is of concern is

that there is little mention of how to manage information and knowledge.

Many of these issues are targeted by the eight Millennium Development Goals (MDGs) which range from halving extreme poverty rates to halting the spread of HIV/AIDS and providing universal primary education by the target date of 2015. Obviously this has not been achieved.

Implementation of effective Social Media technology can reduce rework by up to 35% (Lambert, 2015) if an appropriate strategy and effective change management is put in place.

Possible future - What

Futurists are saying:

Predicting the future is becoming less certain with instability in a number of regions. While many futurists envisage a widening of the gap between the rich and the poor, there is minimal discussion about where the tipping point is for disruption of many western democracies or the possibility of an adjustment before that point is reached.

Anti-Intellectualism (dumbing down) of America

Ray Williams (2014) states that part of the reason for the rising anti-intellectualism in the US is due to the declining state of education compared to other countries. After leading the world in education for decades, the U.S. is now in 12th place in its education of 25 to 34 year olds. In 2010, the World Economic Forum ranked the U.S. at 52nd among 139 nations in the quality of its university math and science instruction. Nearly 50% of all graduate students in the sciences in the U.S. are foreigners, most of whom will return to their home countries to create value in their own economies. While this is less relevant to Asia-Pacific, it does indicate a trend that we could be exposed to.

Media

Paul Higgins (2007) predicts a major extinction event in traditional media. However, big business may save this industry and use this channel to apply greater influence on the markets, consumer behaviours and the political landscape. This may create a divide as younger people continue to access informal and near real time sources. What happens in the media sector will have profound impacts across politics,

business and society.

Economy

Reinert (2007) argues that rich countries acquired their wealth by protecting their manufacturing industries in their infancy and allowing them to mature. Poor countries are so because they do not have the resources required to industrialize using infant industry protection and industrial policy.

Higgins (2007) also considers that financial forecasting is becoming less reliable as the markets become more complex, dynamic and at times, chaotic.

Tyler Cowen (2013) argues that the middle class is disappearing in the U.S. with the widening gap between rich and poor. Three quarters of the jobs created in the U.S. since the great recession pay only a bit more than minimum wage. Still, the U.S. has more millionaires and billionaires than any country ever. High earners are taking ever more advantage of technology to improve their bottom line. Meanwhile, low earners who have few opportunities or an education, or access to new technologies, will continue to have poor prospects. As the dependence on manual labour reduces, a steady, secure life somewhere in the middle class is now over.

Cowen (2013) forecasts that the U.S. will:

- ▲ Raise taxes somewhat especially on higher earners
- ▲ Cut Medicaid for the poor by growing stingier with eligibility requirements
- ▲ Shift costs burdens to workers through the terms of the employment relationship, including costly mandates
- ▲ Drive the middle class into cheaper housing with the greatest impact on single mothers
- ▲ Drive efficiencies in the supply chains
- ▲ Become more politically conservative (Author disagrees)

The OECD (2015) observes that income inequality in OECD countries is at its highest level for the past half century.

Fred Nickols (actkm, 2015) sees that the destruction of jobs will equal the destruction of markets and the destruction of the economy. *“Unless there is a shift to some kind of gigantic welfare state it seems to me that bloodshed is indeed in the offering”.*

Transport

Hoegh-Guldberg and Bruno (2010) contend that transport will be the subject of the next major disruption. We have seen the introduction of Uber Taxi and as the cost of transportation continues to increase, unregulated competition for delivery of goods will emerge and provide viable competition for companies such as FEDEX and UPS. Online shops such as Amazon will seek to maintain market leadership by creating more physical stores so that people can drive through and pick up their goods. Others will follow and companies such as food chains and petrol stations will be acquired for their physical location and existing logistics and infrastructure. Uber succeeds because it provides the back-end infrastructure and support for micro businesses to operate and undercut traditional service providers. It is likely that this business model will continue to rollout and disrupt other industries. Automation is set to introduce efficiencies into the industry with automatic steering already available and robotic cars already being trialled. Driving highly or fully automated on public highways could become acceptable within the next ten to fifteen years, once thorny legal issues have been sorted out (iMobility, 2013).

Organisations

Frederic Laloux, a former organisation and strategy consultant with McKinsey & Company, describes most organizations as places of quiet and pervasive suffering, places inhospitable to the deeper yearnings of our souls. He believes that we are capable of creating truly soulful organizations that invite all of our human potential into the workplace (Laloux, 2014).

Organisational learning is becoming a core organisational capability. Ray Stata (1989) is quoted as saying 'the rate at which individuals and organisations learn may become the only sustainable competitive advantage'. However, society will also need to learn and evolve to survive if it is to cope with the global issues.

Decision-making - Watson

IBM's Watson uses predictive analytics to turn uncertainty about the future into usable probabilities. There is considerable value in understanding how confident you are in a prediction before you use it in a decision. Flexible analytics allow you to selectively implement only those elements of a decision

tree in which you are suitably confident. Technology can do this with speed and reference very large sources of data to draw on. An example being IBM's agreement with the Memorial Sloan-Kettering Cancer Center in New York where they are teaching Watson how to understand and accumulate complicated peer-reviewed medical knowledge relating to oncology. This includes 600,000 pieces of medical evidence, more than two million pages from medical journals to assist in the diagnosis of complex cancers. While we all cannot afford a Watson, it demonstrates that technology will play a bigger part in decision support.

Services

Derek Gill et al (2010) observes that many countries face significant longer-term pressures on both the demand for, and the cost of, publicly-funded services. These will exacerbate government's fiscal difficulties. The cost pressures will arise because government services are generally labour-intensive and, in particular, are high users of skilled labour, and the cost of which is likely to continue to rise. The ageing population will provide the demand for increased services and they will become an important voting bloc in democratic societies. Responding to these challenges simply by 'doing more with less' will not be sufficient – the gap is too large for efficiencies alone to bridge. It is expected that this will open up government services to be met by the private sector to a greater extent. This is already a trend in the UK and the long term strategy of some Australian companies.

The EMC (2015) survey on the Information Generation from 3,600 executives looked at what will drive their business in coming years. The report identified that the top 4 customer demands are:

1. Faster access to services
2. Access on mobile devices
3. 24/7 access and connectivity
4. Unique, personalised experience

One of the insights from the study was that executives believe their organizations can improve innovation by increasing co-operation between departments. Empowering staff to see a bigger picture rate fourth.

Technology

Michael Marien (2014) makes three broad

observations in his article for the World Future Society. He considers that the key building blocks of technology are now in place to start achieving significant transformations from ICT. These benefits will be profoundly beneficial as technology will bring us more choice and variety. Digitalisation will create economic disruption as there will be less need for some types of workers. Technology will leave a vast number of people behind as emerging technologies are implemented into organisations with over 50% of the earth's population on-line by 2030 (Caughan, 2013).

Ross Dawson (2015) picks up on most of the preceding underlying drivers. He contends that emerging landscape will be driven by the economy of individuals based on Independence, entrepreneurship, collaboration and reputation.

Dawson identifies the trends of Polarization of work and labour displacement, but does not reflect on how organisations will deal with this social issue. High-performance organizations with have internal markets, ad-hoc networks, increased social technologies and distributed value creation.

Visioning the Future

The escalating unrest in Europe, decline and segregation of the U.S. society and the ongoing Instability in Africa and West Asia will mean that Asia will become the dominate economy of the 21st century, followed by South America (if it can capitalise on the wave of technology swelled by the next generation of workers).

The impact on the labour market due to emerging technology is shown in the (US centric) video: [‘Humans need not apply’](#)

Labour displacement and the polarization of work due to emergence of the next wave of technology will have the greatest impact on organisations across the globe with fewer jobs and fractured labour markets. The reduction in jobs will lead to the destruction of markets and the destruction of the global economy. There will be a tipping point, but there are no clear predictions on what that is or when it will happen.

As the Uber-rich continue to squeeze the middle class down into poverty to fund their lavish lifestyles and need for power, many people will scramble to stay above the line. Many will resort

to highly flexible working and living arrangements to cope with increasing uncertainty. The powerful will continue to manipulate governments and the media in an effort to control the growing poor through reduction in state services, dis-information, fear or use of force. (actkm, 2015)

For organisations to be successful in the near future, the efficiency-gaining actions they will take may well contribute to the long term failure of society. The ongoing investment in replacing people with technology must surely dispel the theory of trickle-down economics. This will be compensated in the medium term by the increase in demand for resources and services from the sub-continent and China.

Planning: What to do first

Organisations need to take action where there are threats or opportunities.

Combat the Threats

Before an organisation can leverage off the opportunities provided by the new wave of technology and the millennial workforce, there are a number of threats to be addressed.

Assets

Organised crime has a global turnover that is twice the budget of all of the world's military. The trick is to not be a target. Organisations that understand their exposure and maintain a low profile are less likely to be targeted.

Cybercrime - Previously, if you had something stolen of high value, the police would investigate and the criminals would be put in jail. Cybercrime allows the criminals to take your assets without leaving the safety of their ineffective jurisdictions in West Africa or Eastern Europe. It is critical that you protect your financial assets and your Intellectual Capital by developing strategies for their access/protection and integrate potential losses into corporate risk management programs and Business Continuity Planning.

People

The loss of human capital (held by people) is one of the greatest risks to an organisation. While many are concerned about the retirement of baby-boomers, at least that is a known event and can be managed. Of greater concern is head-hunting and the mobility of Gen Y and

Millennials. This can be minimised with regular review of organisational hygiene factors (Herzberg, 1966) and improved with motivators such as flexibility, purpose and recognition. Organisational need to consider and influence where they are going to get the next generation of workers and leaders from. Personal security is also an issue.

Supply Chain

To ensure the security of your supply chain, it critical to develop and maintain Business Continuity plan that covers more than fire or IT failure. It should address access to basic commodities such as:

- ▲ Power
- ▲ Water
- ▲ Comms
- ▲ Environmental controls
- ▲ Security
- ▲ Legal, political and social stability

The exercise of considering the scenario of losing access to any of these resources is a powerful activity.

Market

Competition due to globalisation will provide significant uncertainty in the value of companies.

Stephen Bounds (actkm, 2015) contends that apart from the obvious increase in telecommuting, one of the differences will be the increased focus on networks rather than of organisational structure. We see that already in the service industry where smart people are leaving to set up their own agile businesses and compete against the industry giants. Will this start to break down larger organisations into modular business units in order to survive and be more competitive or will big corporations continue to dominate and retain control of their industries? Irrespective, there should be ongoing outsourcing of backroom services to drive down costs and improve efficiencies.

Not only is it important to develop and maintain relationships with your suppliers and customers, the expectation is now to manage their experience in receiving the service. Customer Experience Management (CXM) is now the buzzword for managing the experience that your customer has, rather than just the relationship. Virgin airlines is a leader in this field with their quirky and creative activities.

Organisations who perform well in this area will know their market, their competitors and the industry and be alert to disruptions or competition.

Complexity

As markets move quicker and societies become less stable, the ability to detect weak signals and react to them ahead of the rest of the market will be paramount. This is possible in complicated markets, but less so in complex and chaotic markets. Snowden's Cynefin (2015) model dictates that the trick is to at least do something and see what happens.

Technology

The greatest threat to organisations is the rate of change in technology and not having sufficient flexibility in their technical architecture to be able to adapt quickly enough to respond to competition and changes in the market. There is always a fear that technology will develop to a point where Artificial Intelligence will take control of the military, media and the financial markets allowing her to manipulate mankind by keeping us misinformed and poor. This control has already happened, not by technology, but by the male dominated Uber-rich of the West. Vulnerable people are already groomed to allow corporations to defraud them of opportunities and resources, and convincing them to continue voting conservatively.

Opportunities

We have yet to adequately imagine how the world will be different due to the Internet of Things. As objects become embedded with sensing capacities and connect to the Internet and each other, our environments will become substantially more transparent and responsive.

Our homes, and the objects inside them, will fundamentally change as they become networked and connected (EMC, 2015). For instance, our bed could anticipate when we will wake up and then pass that information on to the coffee maker to brew a fresh pot, or on to a government agency assessing a claim for compensation. We will have less privacy and protection of identity will become an even more important social issue. However, the debate is too late. The average person in the UK has gets their image taken 300 times per day (Tercek,

2014). People will not be able to opt out of the connected community without losing access to services.

Education

Although access to education will become more difficult, learning will become more open, continuous, and peer-based in the connected community (edX). This will place greater stress on traditional educational facilities as they risk becoming less relevant and they will seek to partner with industry to a greater extent. The ubiquity of learning will be increased by social change and the entry of millennials into the workforce. The issue will not be access, but motivation and relevance. This aspect will be an enabler for social disruption challenging the status quo of the Uber rich and they will seek to control or discredit this sector. The opportunity exists to develop a more seamless connection with the education sector to better prepare workers for their role.

The OECD Employment Outlook (2014) suggests that, in order to familiarise students more closely with the labour market, not only should work-based modules in VET and apprenticeship schemes be introduced or expanded, but measures that make it easier for all students to gain work experience should be strengthened. Such measures could include removing barriers for firms to take on part-time workers and possibly introducing tax incentives for students working up to a certain number of hours.

Outsourcing

The ageing population will provide the key driver for change. Responding to these challenges simply by 'doing more with less' will not be sufficient. The gap is too large for efficiencies alone to bridge. It is expected that this will open up government services to be met by the private sector to a greater extent. This is already a trend in the UK and the long term strategy of some Australian companies.

The drive to remain competitive will push many backroom services such as HR, finance security and procurement out to expert service providers, decreasing cost but also reducing control. The relationships with suppliers, continuity arrangements and flexibility in services will be critical to effective outsourcing of these services.

While outsourcing of non-critical tasks has become common practice, experts and industry providers believe that the global market for outsourcing is now set for a sustained period of growth. This new growth phase may take outsourcing beyond non-core routine tasks to encompass many business processes that were previously considered too complex or for strategic reasons were best maintained in-house. For some businesses, whole production processes or complex service provision have been outsourced. This approach has, for example, been critical to Apple's global growth strategy. Moving on from outsourcing relatively simple and straightforward tasks, Apple has outsourced the manufacturing of most of its product range, as well as the design of critical components such as screens, and much of the marketing is sourced from third parties. The same is happening in the financial industries (Mooi et al, 2014)

Learn as an Organisation

An international activity still in the development phase proposes that organisations that aspire to make the most of their intellectual capital will develop the following capabilities:

- ▲ Develop the ability to learn as an organisation
- ▲ Apply Intellectual Capital efficiently in the business
- ▲ Shape a Knowledge Capability and Culture
- ▲ Leverage Technology and Infrastructure
- ▲ Evaluate and Measure Performance

People

With the increase in health and longevity of older people, early baby boomers sought to remain active in the community or to travel extensively, earning them the label 'grey nomads' due to their active touring lifestyle. However, the later baby boomers in developed countries appear to continue working well past the age of 55 rather than retiring. These workers tend to be experts in their field and are highly mobile, attracting the term Knomads. The reasons for them continuing to work are unclear, but may be related to the higher level of education and portability of skills. The number of older personnel still active, or seeking to be active in the workforce has grown significantly and are now considered to be an underutilised resource in many economies.

Suzanne Lucas (2014) contends that Millennials will have a major impact on the workplace. Lucas refers to a report this year by the US Department of Labor that shows that millennials have held an average of 6.2 jobs by age 27 and stayed in 57 percent of those jobs for less than a year. A separate study by Fidelity (2013) said that millennials stay with a job for just three years, on average. Despite this, being happy at a job is more important to them than to their older counterparts. Lucas contends that Millennials look for more frequent and social breaks, but are happy to blend work in with and around the other aspects of their life. So it is not uncommon to see them missing in the middle of the day and providing services for clients late at night.

The 2012 Dell survey reports that six in ten employees want to be measured by the quality of the work they deliver rather than time spent in the office.

More than half of CFOs in a Duke University study (Peterson, 2014) thought that millennials were less loyal to their companies, while 46% said they have an attitude of entitlement. And 31 percent said millennials require more intense management. While 27% said millennials are more interested in their own personal development than they are in the company. The perception is that companies need to offer a lot of perks like yoga classes, free lunches, and game rooms in order to attract the younger employees, but they are also accepting lower pay. But really, everyone benefits and other generations will thrive in that sort of environment.

Millennials are going to be more multicultural and diverse than previous generations. The challenge is, how does a company invest in an employee that is only expected to stay for three years?

To obtain the best productivity out of Millennials, it is expected that organisations will need to provide tools to increase efficiency and a motivating, productive and social (playful) environment. Hot-desking, cubicles and separate offices are out.

Communication

The days of formal memos are gone in favour of email, instant messaging and text. Business deals can be closed through a series of text

messages at 9:00 p.m. or later. Contracts are formed by the push of an accept button. Clients are now expecting service providers to be accessible 16 hours a day and respond immediately. Informal communication is here to stay and will bring with it commercial, HR and legal complexities and challenges. Technology advances and competition by small expert firms will make this a standard practice.

Technology

Technology continues to impact on our organisations. Technologies that are now becoming common-place include:

- ▲ Analytics and Big data
- ▲ Data virtualisation and visualisation
- ▲ Wearables
- ▲ BYO/SYOD
- ▲ Social media
- ▲ Telecommuting
- ▲ Telepresence
- ▲ Geo-tagging
- ▲ Automation and robotics

The “Internet of Things” is expected to grow to 40–80 billion devices by 2020. Robotics have been around in specialised fields but are the next disruptor as they become cheaper and more versatile.

Enterprise Mobile Management, wearable technology and telepresence are becoming commonplace (iDA, 2015). Most data will be spatially enabled. What is of concern is that there is little mention of how to manage information and knowledge.

The 2012 Dell survey reports that 42% of Chinese workers claim to currently use the latest Technology in their workplace, but a staggering 80% expect to within the next 10 years. 46% expressed a desire to be able to use their computer and other devices for both work and personal use. The need to provide flexibility in selection and use of devices will become an issue in attracting professionals in the future. Similarly, access to social media and current versions of software are also an issue.

Oracle won the America’s Cup from 8-1 down due to extensive real-time data feedback on their performance. In October 2012 the Oracle TEAM USA boat capsized and was destroyed. What seemed like a disaster at the time actually forced the team to innovate. Their success lay in the performance data and the trust built

between the operators and the technologists.

In theory, new technologies should make it easier for groups of individuals to set up networks of small businesses. In practice, the level of industry concentration (& related oligopolistic behaviours) seems to have increased (Moore, 2015), but this may be a short term anomaly.

The workplace

To address the four areas of awareness, agility, personalised service, responsiveness, [Activity based workplaces](#) will become the trend for the 'workplace of the future', with open layouts and creative desk spaces enabling greater flexibility for employees to work in areas which facilitate productivity and create a community with vertical and horizontal connectivity.

As Rosemary Kirkby outlined in the 2014 Foenander lecture, it's about understanding that work is now something that we do, not somewhere we go for set hours of the day.

The business is no longer just a place where people come to work. For most of the employees, the firm confers on them that sense of belonging and identity — the firm has become their "village", their community. The firm of the 21st century is not just a hierarchy which ensures maximum efficiency and profit; it is also the community where people belong and grow together, where their affective and innovative needs are met.

Closed doors and allocated offices are replaced by collaboration spaces which promote integration and movement throughout the workplace. Open spaces and atriums make leaders more accessible and more accountable, with status conveyed not by an office or space, but by membership of a community.

With mobile and BYOD technologies we are no longer confined to one space to do our work and supervisors can gain better visibility of what their staff are doing. This increases trust and delegation of responsibility.

Workplaces of the future are about flexibility and choice. Investing in a 'workplace of the future' is investing in cultural development, by creating conditions which allow employees to grow into the environment around them.

How organisations work

It is not just the physical space that needs to transform, we need to operate differently. Techniques such as the creation of collaborative communities is crucial to competitiveness in the future.

The increase in the extent of outsourcing will increase productivity and service levels, but this requires better management of contracts and the relationships with service providers.

In a survey of 3,600 business leaders, in 18 countries, the EMC Information Generation report (2015) identified the following five business attributes for success:

- ▲ Predictively spot new opportunities
- ▲ Demonstrate transparency and trust
- ▲ Innovate in agile ways
- ▲ Deliver a unique and personalised experience
- ▲ Always on, operating in real time

Structure and governance

Before the Industrial Revolution (1793), large organisations were confined to the State, the military and the church. The invention of steam enabled manufacturing to evolve from country cottages to industry centres in cities, drawing thousands of people in off the land. In 1854, Daniel McCallum created the first organizational chart, while J. Edgar Thomson developed the concept of line-and-staff management and the "divisional" organization. Both men and other leaders in the railroad industry helped define the modern corporate structure. Taylorism emerges in 1911 to embed organisational structure as a management science.

Divisional (centralised) structures gave way to Functional (decentralised) organizational structure and we flirted with Matrix organisations in the 90s.

We now have concepts such as Hierarchy-Community Phenotype Model of Organisational Structure (Lim et al, 2010) where employee's formal, hierarchical participation and informal, community participation within the organization, as influenced by his or her environment, contributes to the overall observable characteristics of the organization.

Another fad is the Holacracy structure which contains autonomous, self-reliant business units.

Taking an 'Agile' approach to organisations and non ICT operations is currently a point of discussion in the KM4DEV forum. Nag (2015) summarises the discussion in that the application of Agile in non-IT areas is still evolving with cautious optimism. While providing flexibility, Agile seeks to achieve incremental wins and often overlooks multi-dimensional nature of time critical programs or enterprise change strategies in complex situations or longer fixed funding cycles.

Network Enabled Management is where organisations contract out any business function that can be done better or cheaper. In essence, managers in network structures spend most of their time coordinating and controlling external relations, usually by electronic means.

Laloux (2014) contends that even large organizations can empower people to operate entirely on self-managing principles, without layers of hierarchy.

The current paradigm concerning strategy and the role of leadership is to set a vision, define a strategy, and then execute that strategy. (Laloux, 2014) He believes that we should consider the organization to be like a living entity, with its own sense of direction, energy and presence. The role of the leader is not to arbitrarily set a direction. Instead, to listen deeply to where it wants to go, and then dance with it to help it get there.

'Customers don't care how the company is organised internally. All they care about is the product or service' (Kelk, 2014).

Case study

The home care organization Buurtzorg (meaning neighbourhood care) was created to focus on patient value by putting professionals in the lead through reverse task shifting. The program empowers nurses (rather than nursing assistants or cleaners) to deliver all the care that patients need. While this has meant higher rates for care, the result has been fewer hours and a significant improvement in service levels. By changing the model of care, Buurtzorg has achieved a 50 percent reduction in hours of care, improved quality of care and raised work satisfaction for their employees. In 2011, Buurtzorg was chosen as the Dutch employer of the year.

One of the keys to the program's success is that

Buurtzorg's home care nurses organize their work themselves. Rather than executing fixed tasks and leaving, they use their professional expertise to solve the patient's problem by making the most of their clients' existing capabilities, resources and environment to help the patient become more self-sufficient. Buurtzorg professionals aim to make themselves superfluous as soon as possible, versus other providers who expect the care contract to continue for the long term.

Buurtzorg uses small self-steering teams (with a maximum of 12 nurses) who attend to an area of approximately 15,000 inhabitants and work together to ensure continuity of care. These professionals build durable relationships with their community, which further strengthens their ability to find local solutions for patients' problems. Although the teams are independent and self-steering, they are supported by a centralized service organization which provides management information to both the team and the organizations' leadership in order to minimize local overhead and maximize the professional's face-to-face time with patients.

What makes Buurtzorg different?

- ▲ The self-managing team approach allows the best solutions to be applied to attain independence and improved quality of life. It allows nurses the autonomy to practice to their highest level of training.
- ▲ Nurses are responsible for promoting and providing outstanding care. They focus not only on current needs, but also on preventing future problems.
- ▲ Nurses act as "a navigator" for the patient and family, helping them find the most relevant and innovative solutions to receiving the care they need at home.
- ▲ Nurses are supported by a simple and streamlined organization with modern IT technology to facilitate "real time" information that is directly connected to the care process and reduce administrative overhead.
- ▲ The quality of Services are measured in near real time
- ▲ Services are supported by a back office of less than 5% of personnel

<http://buurtzorgusa.org/about.html>

Conclusion

Proposing actions for organisations in general is not possible.

However, to survive and thrive in an increasingly hostile and chaotic environment, organisations will need to address the four tenets of awareness, agility, personalised service and responsiveness.

The global trends indicate that there are a number of actions that organisations can take to meet future challenges:

1. Listen for weak signals – what might happen in your industry in the future and what signs may indicate something is about to happen.
2. Become a learning organisation – one that can observe, create, share and use knowledge more effectively than your competitors.
3. Protect your intellectual assets and resources.
4. Build the flexibility into your workforce, technology and structure to be able to respond to changes in the market.
5. Test the market for non-core activities.
6. Worry less about structure and more about delivery.
7. Keep talking to your clients (and your suppliers) – how can they help you help them when they need you.
8. Become a global citizen – with the spread of social media, your reputation is even more important now.

The challenge for us is to have the agility to operate within the evolving social, political and economic environments while still providing a safe and secure future for our families, employees and community.

Bibliography

- Association of Professional Futurists (2015) What is a Futurist? [accessed 17 May 2015] <http://profuturists.org/futurists>
- Australian Government (2007) Baby boomers, [accessed 20 July 2014] Available at: <http://australia.gov.au/about-australia/australian-story/baby-boomers>
- Centre for Workplace Leadership (2015) accessed 17 May 2015, <http://www.workplaceleadership.com.au>
- Coates, J. (2005) <http://www.josephcoates.com/articles.html>
- Cowen, T (2013) Average Is Over: Powering America Beyond the Age of the Great Stagnation, Penguin New York
- Dawson, R. (2015) The Future of Work [accessed 17 May 2015] <http://rossdawson.com/frameworks/future-of-work/#ixzz3aP2tIDbt>
- Dell (2012) The Evolving Workforce - Report 2: The Workforce Perspective
- edX (2015) interactive online classes and MOOCs [accessed 17 May 2015] <https://www.edx.org/>
- EMC (2015) Information Generation, [accessed 17 May 2015]** <https://www.emc.com/information-generation/index.htm>
- Forbes (2015) Future-of-Work accessed 17 May 2015, <http://www.forbes.com/future-of-work/>
- Gill, D. S. Pride, H. Gilbert, R. Norman and A. Mladenovic (2010) The Future State Project: Meeting the Challenges of the 21st Century, Policy Quarterly – Volume 6, Issue 3 – August 2010
- Glenn, Jerome C., Theodore J. Gordon, and Elizabeth Florescu (2014) 2013-14 State of the Future. Amer Coun for the Univ, 2014.**
- Gore, A. (2013) The Future: Six drivers of global change, Random house, New York
- Herzberg, F. I. (1966). Work and the nature of man.
- Higgins, P (2007) Emergent futures <http://www.emergentfutures.com/page.php?pid=1>
- Hines, Andy. "An audit for organizational futurists: ten questions every organizational futurist should be able to answer." foresight 5.1 (2003): 20-33.
- Hoegh-Guldberg, O. and J.F. Bruno (2010) The Impact of Climate Change on the World's Marine Ecosystems in Science, 18 June 2010: 328 (5985), 1523-1528. [DOI:10.1126/science.1189930] <https://www.uber.com/about>
- iMobility (2013) Automation in Road Transport - iMobility [accessed 20 May 2015] <http://www.imobilitysupport.eu/library/imobility-forum/working-groups/active/automation/reports-3/2185-auto-wg-automation-roadmap-final-report-june-2013>
- INFOCOMM Development Authority of Singapore (2015) <https://www.smartnation.sg/innovations>
- Kelk, A, (2014) #foenander14, @andykelk Twitter, [accessed 20 May 2015] <https://twitter.com/andykelk/status/502016281592094721>
- Kirby, R. (2014) Designing the 21st Century Workspace: Shaping Business Culture and Practice, Melbourne University accessed 17 May 2015, <http://fbe.unimelb.edu.au/alumni/events/public/2014/foenander2014>
- KPMG (2012) Netherlands: Buurtzorg empowered nurses focus on patient value, accessed 17 May 2015,** <http://www.kpmg.com/global/en/issue-sandinsights/articlespublications/value-walks/pages/netherlands.aspx>
- KPMG (2012) Netherlands: Buurtzorg empowered nurses focus on patient value [accessed 20 May 2015] <http://www.kpmg.com/global/en/issuesaandinsights/articlespublications/value-walks/pages/netherlands.aspx>
- Lambert, M. (2005) the Social Media Navigator <http://smnavigator.com/>
- Lucas, S. (2014) How Millennials Are Changing the Rules at Work [accessed 17 May 2015] <http://www.inc.com/suzanne->

- [lucas/how-millennials-are-changing-the-rules-at-work.html](#)
- Mccaughan, D. (2014) By 2030 53% of all people will finally be on-line [accessed 20 May 2015]
<https://www.linkedin.com/pulse/2030-53-all-people-finally-on-line-david-mccaughan>
- Nag, A. (2015) [Agile international development - DM for opportunistic propection in km4dev-l discussion group May 15, 2015 7:11 PM]
- OECD (2014) OECD Employment Outlook 2014, OECD [accessed 20 May 2015]
http://www.oecd-ilibrary.org/oecd-employment-outlook-2014_5jz2rqdzmv0s.pdf?contentType=%2fns%2fBook%2c%2fns%2fOECDBook&itemId=%2fcontent%2fbook%2fempl_outlook-2014-en&mimeType=application%2fpdf&containerItemId=%2fcontent%2fserial%2f19991266&accessItemIds=
- OECD (2015) Inequality and income [accessed 20 May 2015]**
<http://www.oecd.org/social/inequality.htm>
- Pereira, M. (2015) Universities on the line, IBISworld,**
<http://media.ibisworld.com.au/2015/01/28/universities-line/>
- Petersen, K. (2014) Are millennials too spoiled for the workplace? [accessed 17 May 2015]
<http://www.cbsnews.com/news/are-millennials-too-spoiled-for-the-workplace/>
- Porter, M. E. (2008). Competitive advantage: Creating and sustaining superior performance. Simon and Schuster.
- Quirk, M. (2014) How Do Uber and Lyft Work And Why Should I Even Care? In Consumerist, [accessed 17 May 2015]
<http://consumerist.com/2014/09/18/how-do-uber-and-lyft-work-and-why-should-i-even-care/>
- Reinert, Erik S. How rich countries got rich... and why poor countries stay poor. London: Constable, 2007.
- Slaughter, R (2015) foresight International
<http://www.foresightinternational.com.au/>
- Salt, B. (2015) ABC News 24
<http://bernardsalt.com.au/media>
- Schneier, B (2014) BT Managed security solutions.[accessed 17 May 2015]
<https://www.youtube.com/watch?v=JbQeABloO6A>
- Snowden, D. (2015) Cynefin Framework, Cognitive Edge [accessed 20 May 2015]
<http://cognitive-edge.com/>
- Stata, R., & Almond, P. (1989). Organizational learning: The key to management innovation. The training and development sourcebook, 2.
- Steadman, I. (2013) IBM's Watson is better at diagnosing cancer than human doctors
<http://www.wired.co.uk/news/archive/2013-02/11/ibm-watson-medical-doctor>
- Tercek, R. (2014) [accessed 17 May 2015]
<https://www.youtube.com/watch?v=JbQeABloO6A>
- The Millennium Project, (2014) State of the Future report launch:
<http://www.wilsoncenter.org/event/report-release-2013-2014-state-the-future>
 March 20, 2014, Woodrow Wilson International Center for Scholars, Washington, DC
- United Nations (2014) The eight Millennium Development Goals (MDGs) [accessed 17 May 2015]
<http://www.un.org/millenniumgoals/>
- United Nations (2006) UN Millennium Project [accessed 17 May 2015]
<http://www.unmillenniumproject.org/index.htm>
- Williams, R. (2014) Anti-Intellectualism and the "Dumbing Down" of America in Psychology Today, Sussex Publishers, [accessed 17 May 2015]
<https://www.psychologytoday.com/blog/wired-success/201407/anti-intellectualism-and-the-dumbing-down-america>
- World Future Review (2013)
<http://wfr.sagepub.com/content/by/year>