

INVESTMENT BULLETIN

MAY 2ND 2020 ISSUE NO. 4



The University of Auckland Investment Club

Bulletin Research Team 2020

Nikhil Luthra Bulletin Editor-in-Chief

Nicholas Simmons	Sam Jain
Senior Writer	Senior Writer
Sean Spires	Kyle Quindo
Senior Writer	Senior Writer
Logan Rainey	Kai Yun Gao
Senior Writer	Junior Writer
Shyam Prasad-Jones	Sean Flower
Junior Writer	Junior Writer
Neha Kumar	Saeyavan Sistabesan
Junior Writer	Junior Writer
Ananya Ahluwalia	Tim Cross
Junior Writer	Junior Writer
Vignesh Nair	Jerry Ren
Freelance Writer	Freelance Writer

Prices as at Friday 1st May 2020 Unless otherwise stated

THE UAIC INVESTMENT BULLETIN FOR 2020, IS BROUGHT TO YOU IN PARTNERSHIP WITH:



Contents

Editor's note	2
The club	
An update from the fund	3
Educational	
Exploring index funds - part 4	4
Opinions	
Globalism and protectionism after COVID-19	5
Gaming culture	8
Construction and the government stimulus	9
STEM in 2020	13
MYOB's Column	15



The editor's note

WRITTEN BY NIKHIL LUTHRA

Welcome to the fourth edition of the UAIC Investment Bulletin!

Level 3 is finally here, as is a hectic mid-semester test period for us students.

It certainly appears that the psychological effects of level 3 on the average consumer have been largely uplifting. Having witnessed 70-80 car lines outside McDonald's and KFC (not that I was going myself) was a bit of a shock. I suppose it is a little ironic with current political sentiment advocating for support of local businesses, that multinational fast-food chains appear to be capitalising on the lowered restrictions.

I was reading an article by Fran O'Sullivan this morning in The NZ Herald which examined the opportunity New Zealand possesses in a post-COVID-19 world. She builds upon sentiment expressed by Simon Kuper of the Financial Times that the country should lure high-value migrants, as well as entire businesses. Marketing itself as a "haven from COVID-19...NZ's isolation has suddenly gone from historic disadvantage to unique selling point". If New Zealand were to succeed it could become the "ultimate remote location for the age of remote working".

Whilst I do not think the majority of New Zealanders would support this movement, least of all, Winston Peters. It remains an interesting point to ponder - to what extent should we embrace change and the potential opportunities it holds?

CONTRIBUTORS THIS WEEK

Saeyavan Sitsabesan is a truly unique voice on Bulletin this year, adding prominent ideologies to our internal diversity of thought. He has chosen to examine the effect of the government stimulus on the NZ construction industry.

Neha Kumar is also one of our more unique writers this year. Seeking out hobbies ranging from fashion to astronomy. She has chosen to write about STEM in 2020 and how it will shape the future.

Sean Flower is pivoting from his previous article on working from home. To discuss the future landscape of globalism vs protectionism.

Shyam Prasad-Jones is sticking with a similar vein of thought, analysing industries that relate to the student's voice. Moving on from sin stocks, he is writing about the gaming industry and the potential it holds.

An update from the fund

A RUNDOWN OF THIS WEEKS PITCHES WRITTEN BY IC CHAIRMAN NEHAAL RAM



ALS LIMITED

Pitched by Raewyn Leow, Junior Equity Analyst:

ALS Limited (ASX: ALQ) is an international analytical and testing business across Testing, Inspection and Certification. ALS delivers three key business streams; Life Sciences, Commodities, and Industrial through a renowned focus on bolt-on acquisitions. Industry trends further validate a strong need for ALS's services, with an ever-increasing need for regulatory requirements and strengthened customer focus on risk prevention. Furthermore, ALS has strong economic moats across superior innovation channels and strategically located laboratories placed internationally. However, the high level of artificial growth through M&A and complexity of quality testing and inspection services do pose risks inherent to the business. The Investment Committee has voted against passing ALS Limited, with the final vote being 5/14.

"Testing its limits to deliver high quality solutions for its clients" - Raewyn Leow, Junior Equity Analyst





Exploring index funds

PART 4: WRITTEN BY CHRISTOPHER WONG

ADVANTAGES OF INDEX-INVESTING

One advantage an index fund can provide to investors is diversification. An investment in an index fund means that an investor has exposure to a diversified selection of securities without incurring high brokerage fees and time spent on monitoring securities. Some index funds provide exposure to hundreds of securities in a single fund which reduces risk. Moreover, index funds may also be specialised based on features such as industry and market cap.

Concerning the operating expenses of an active fund, tracking an underlying index costs comparatively less. This is due to the reason that index funds do not require expenses incurred by an active fund. A prime example is the costs associated with research dedicated to finding the next winning stock, even when the evidence demonstrates that in the long term, research does not add value. As such, the reduced operating costs will be reflected in an index fund's lower management fees compared to actively managed funds. For example, in the US, the expense ratio for an index fund is between 0.1% to 0.7%. This is significantly less than that of an actively managed fund with an average of 1.1% to 2.5%. Though this may seem insignificant, this difference may eat into gains, and the adverse effects will compound year over year.

Due to its nature, active investing will involve a higher turnover ratio than passive investing. A turnover ratio is a measure of the proportion of holdings within a fund which is replaced within the period of a year. To demonstrate this, if a fund has 20 holdings and 10 were replaced in a year, this would mean the turnover ratio would be 50%. Naturally, a high turnover ratio will translate to higher fees for investors of an actively managed fund which tend to have a turnover ratio of around 15%-20%. This is due to the fact a high turnover ratio translates to more frequent trading which

increases broker fees. In comparison, index funds have a lower turnover ratio of 1%-2% per year. Therefore, this contributes to their lower expense ratios.

Moreover, the reduced costs translate into lower account minimums in comparison to actively managed funds. Some actively managed funds have account minimums upwards of \$10,000. Thus, the lower account minimums of index funds facilitate accessibility for everyday retail investors such as you and I. Another strength is that index funds are simple to understand. All an investor needs to know is the underlying index in which the index fund is tracking to identify which stocks are held and in what proportion. Due to this, maintaining one's index fund holdings may involve rebalancing once every six month or less. This allows investors to set-and-forget, providing more free time and less worry.

Globalism and protectionism after COVID-19

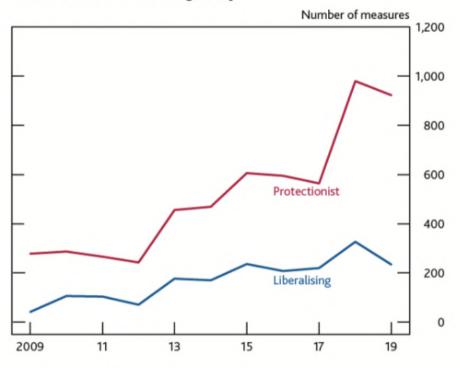
WRITTEN BY SEAN FLOWER

IN THIS DEFINING TIME, A CRUCIAL DECISION LIES ON THE HORIZON; GLOBALISM OR PROTECTIONISM, CO-OPERATION OR ISOLATION. THE VERDICT OF WHICH WILL REDEFINE OUR WORLD. I BELIEVE WE MUSTN'T MAKE THE MISTAKE OF TURNING INWARDS AND CLOSING OURSELVES OFF, RATHER RECOVER COOPERATIVELY WITH OTHER NATIONS, AND ACT AS MEMBERS OF AN INTERNATIONAL COMMUNITY.

PROTECTIONIST FUNDAMENTALS HAVE BEEN GROWING IN POPULARITY LEADING UP TO THIS CRISIS. SUPPLY CHAINS SHIFTING INWARD, TRADE WARS, AND A VARIETY OF OTHER POLICIES AND RHETORIC HAVE BEEN INCREASINGLY PREVALENT SINCE THE GLOBAL FINANCIAL CRISIS. IN THESE DIRE TIMES, WITH COUNTRIES ISOLATED FROM ONE ANOTHER AND WITH MASSIVE ECONOMIC STRESS, PROTECTIONISM IS MANIFESTING ITSELF AS A POTENTIAL 'SOLUTION' TO THIS UNFOLDING NEGATIVE ECONOMIC SITUATION.



Trade measures introduced globally (a)



we'll be graduating into a different world than that of before COVID-19. Regardless of whether we as an Asia-Pacific trade nation expand due to a globally coordinated recovery, or shrivel back into ourselves as a result of isolation and protectionism, we must keep this in mind: The world is changing, and it is up to us to embrace this change, adapt, and prepare for the future. I believe an open, global mindset is crucial in doing so, and irrespective of how this pans out, an imperative going forward.

Source: Global Trade Alert database.

(a) Number of trade measures introduced in each year. Data have been adjusted for reporting lags.

Vulnerable worldwide supply chains being exposed due to the pandemic, along with the belief that an interdependent world has propagated the virus have been major factors in driving this sentiment. However, contrary to this argument, I believe the lack of a coordinated global response was the key factor in letting COVID-19 get out of control, not the world being too inter-connected.

With the wind in our faces amid the pandemic, we mustn't confuse the responsive protectionism of today - with countries in isolation as a solution to the problem, rather an adverse symptom of it. We need only draw on historically grim times as a guidebook. During the Great Depression, the protectionist 'Smoot-Hawley' bill has been accredited by most economists as being a disastrous piece of

legislation that extended the Great Depression. It resulted in a domino effect of protectionist policies, plummeting global trade by 65%, and devastating the global economy. On the other hand, after the Second World War, the revival of international trade and the trade to increase to pre-depression efforts in these alarming times – on

As students in this strange time,

establishment of international cooperative initiatives, such as the IMF and the World Bank served to drag the world out of the economic perils of the previous decades. These measures allowed levels and contributed to the growth of income-levels and the middle-class primarily across the USA, Europe, and East Asia. As such, it seems blatantly clear where we should concentrate our collectively reviving the world.



Time to game the stock market

WRITTEN BY SHYAM PRASAD-JONES

GAMING CULTURE ENCOMPASSES OVER TWO BILLION PEOPLE WORLDWIDE. DURING THIS PANDEMIC, HOUSEHOLDS AROUND THE WORLD ARE LIKELY SEEING PERSONAL-BESTS FOR MONTHLY INTERNET USAGES. IN NO SMALL PART DUE TO RECORD WEEKLY SALES OF VIDEO GAMES GLOBALLY, BLOOMBERG REPORTED THAT THE NINTENDO SWITCH HAS EFFECTIVELY SOLD OUT IN U.S STORES. AS CONSUMERS SIT IN THEIR HOMES ISOLATED FROM THEIR NORMAL LIVES, THE VIDEO GAMING INDUSTRY IS REAPING THE REWARDS FROM THE INCREASED TIME SPENT PLAYING VIDEO GAMES.

Video games provide another avenue for people to remain socially entertained while at home. The volume of high-quality games on Console. PC or Mobile is almost overwhelming and never-ending, consumers have a wealth of options for which they are now able to invest more time into. It's not hard to see why spending on major console games almost doubled to USD 1.5 billion in March from USD 883 million in February. Unsurprisingly, the gaming industry has been experiencing year on year growth for a long time, estimated to be worth around USD150 billion in 2019. predictions put a near USD200

billion valuation on the industry in 2022. Forecasters expect the growth rate to be +9% over the next five years.

Thus signalling there is a sense of confidence and certainty towards the future of this industry's growth in the coming years. Interestingly, in the last 12 months, video game stocks tracked by the VanEck Vectors Video Gaming and Esports ETF (ESPO) have returned 22.73%. Contrastingly, the S&P 500 is down 6.87%.

The two largest holdings in this ETF are the well-known chip-making company NVIDIA (NASDAQ: NVDA) who are at the forefront of artificial intelligence and machine learning. NVIDIA's most important segment is the graphics processing unit (GPU) business and is mainly purchased by people looking to play graphically intensive games. NVIDIA provides chips for Nintendo, Tesla and is in a partnership with Uber's self-driving business plans.

The second is TENCENT Holdings (HKG: 0700) who are a Chinese tech giant, social media and gaming are among its holdings. While TENCENT holdings are the company behind the multipurpose social media app WeChat.

VANECK GAMING ETF VS S&P500



source:https://markets.ft.com/data/etfs/tearsheet/charts?s=ESPO:NMQ:USD

They also own or have large stakes in the companies behind League of Legends, Clash of Clans and Fortnite.

Two other household names in the gaming industry are Activision Blizzard (NASDAQ: AVTI) and Electronic Arts (NASDAQ: EA). Companies like these are less diversified across the whole industry and are more reliant on the success of certain game franchises such as Call of Duty and FIFA.

The last two months have seen many investors flock to gaming stocks, and for good reason, they are well placed during these imposed lockdowns. But what does that mean for the industry in the next year or two? Companies welldiversified like NVIDIA and TENCENT will be sure to ride the wave that forecasters predict for the future of the gaming industry and they are expected to do so which reflects in their current pricing. In fact, across the industry, many companies are expected to do well in the future as this industry continues to grow. The most

lucrative aspect of this industry seems to be smartphone games, especially in-game purchases. Currently, making up 36% of the industry, the next 2-3 years will see this segment increase to nearly 50% of the industry. The current console cycle is nearing its end as major console makers are prepped to roll out their new editions, which is certain to draw out consumers in droves. Global esports online video game competitions are now a USD 1 billion industry in itself, all these factors point to fresh green pastures ahead. The current excitement and fervour around these companies are not unwarranted however, might be slightly over-hyped. The gaming industry is incredibly competitive, an almost unlimited supply of games flood the market vying for limited consumer time. Trying to pick the next 'winner' of a game is akin to gambling.

Current strong consumer demand for their products has ensured a certain COVID-19 immunisation effect in the video gaming industry, putting many of these companies in a robust position for the future. Overall, the outlook is favourable for the gaming industry, a growing market paired with increased consumer usage has resulted in great market conditions.

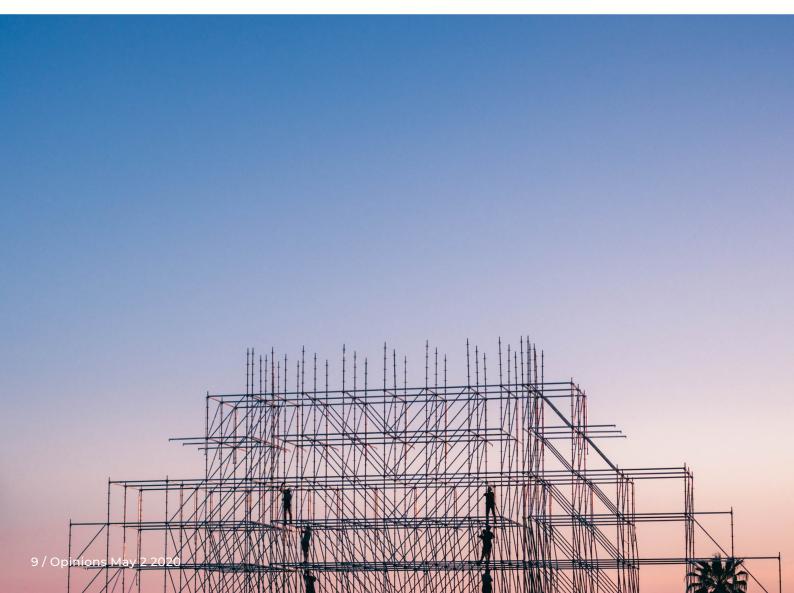


Construction and the COVID-19 government stimulus

WRITTEN BY SAEYAVAN SITSABESAN

CONSTRUCTION IN NEW ZEALAND HAS ALWAYS BEEN RISKY BUSINESS, PROFITS AND COSTS SOAR WITH AN ECONOMIC BOOM, BUT WHEN A RECESSION HAPPENS, CONSTRUCTION IS ALWAYS THE FIRST TO FALL.

SINCE THE EARLY 20TH CENTURY, LARGE-SCALE CONSTRUCTION PROJECTS HAD BEEN DOMINATED BY THE MINISTRY OF WORKS AND DEVELOPMENT. THE MINISTRY HAD BEEN RESPONSIBLE FOR THE COMPLETION OF VITAL PROJECTS TO THE ECONOMY, WITH PROJECTS FROM THE NORTH ISLAND MAIN TRUNK RAILWAY IN 1908, ALL THE WAY TO THE CLYDE DAM IN 1989.



The industry faced a rapidly changing political and regulatory environment in the mid-'80s. The industry went from pricecontrolled housing developments with too much regulation in the '70s to self-regulation in the '80s. Further deregulation of treatment of wood used as a building material led to the leaky homes crisis. Deregulation of housing standards led to the construction of the unpleasant towers randomly scattered across Auckland's suburbs, in the early 2000s. Perhaps firms all around the country, presented with an opportunity to double or even triple their margins, couldn't resist the temptation. One such example is Carter Holt Harvey, who had quadrupled their assets from \$577 million in 1985 to \$2.73 billion just four vears later. The failure of Rogernomics and deregulation has been attributed to both the absolute deregulation that did not incrementally take place and the lack of economies of scale in the New Zealand market. New Zealand is a small, isolated country at the bottom of the world. The lack of size in our market means that we are unable to have a true economies-of-scale advantage when producing goods.

In recent years, the public sector has been increasingly focusing on large scale projects that will take many years to complete and have greater costs rather than smaller improvements. Many of these projects had a benefit-cost ratio greater than 1, that is to say, that the returns from these projects would exceed the investment. Examples include the Waterview Tunnel, that completed the Western Ring Route, and the CRL, which will increase the capacity of Auckland's commuter rail network by two-fold.

HOWEVER, MANY OF THE RECENT PROJECTS ANNOUNCED DO NOT MAKE ECONOMIC SENSE NOR PROVIDE THE BENEFITS OF COMPLETING A NETWORK, RESULTING IN THESE AND SUBSEQUENT PROJECTS HAVING DIMINISHING RETURNS FOR THE ADDITIONAL CAPITAL INVESTMENT.

The New Zealand Upgrade programme announced by the Labour-led government on the 29th of January 2020. This was launched to address and appease the loud calls from the NZ Infrastructure industry over the lack of a project pipeline guaranteeing work for the future. This programme included many large-scale infrastructure projects that make economic sense for neither the government nor the major construction companies involved in them.

Some notable inclusions of the programme include the Otaki-Levin Expressway, costing \$817 million with a BCR ratio less than 1. and the Marsden Point link costing \$692 million also with a BCR less than 1. The cost of these projects isn't justified by the benefits the public receive in terms of time savings, increased safety, and network completion. It is worth noting the indicative business case for the Otaki-Levin Expressway explained that minor safety improvements with a cost of \$5 -\$10 million has a BCR greater than 3. From a government perspective, it makes far greater financial sense to implement this alternative. The political desire to appease rural communities with the objective of better connectivity and the need to appease the infrastructure industry motivated the inclusion of these projects.

The major horizontal construction industry participants invested heavily on expanding their capability as part of the tendering process for the projects announced as part of the Roads of National Significance programme. As the RoNS programme came to an end, the industry realised that their investment in training and hiring higher-skilled employees will not be fruitful. This resulted from the



under-pricing of these costs with the expectation of these investments providing returns in the future. For those returns to be met there needed to be projects available in the future. The industry started jumping on the tail of the government for a pipeline of projects. The lowballing of these projects with the expectation of future projects of similar size was a near-fatal mistake. fuelling some of the woes faced by the industry today. New Zealand never had the size to warrant such a focus on large-scale infrastructure projects.

These major players faced far greater levels of risk associated with cost overruns and far greater levels of capital investment per



project. This coupled with the avid under-pricing of projects in a booming market, lead to the failures of many firms, including the likes of Ebert Construction.

The construction industry in NZ faced solid long-term growth prospects, fuelled by increased government and Industry initiatives to grow the construction industry workforce, coupled with a growing local appetite for construction and infrastructure with a growing population and economy. New Zealand currently faces a housing crisis, with very low supply for affordable housing units, and a \$130 billion public infrastructure deficit.

The 1987 Black Tuesday Stock Market Crash and the Great Recession were the two previous recessions New Zealand faced. The construction industry was devastated, with large flows of skilled human capital out of the country. On the basis that NZ is already facing a severe skills shortage in the construction industry, a large out-flow of skills will only hamper our ability to build crucial infrastructure and rebuild the economy.

A RECESSION COULD DECIMATE THE WORKFORCE, REDUCING POTENTIAL FUTURE OUTPUT SIGNIFICANTLY.

Government stimulus is essential for the construction industry as it's the first sector to face the recessionary headwinds, with the industry comprising a significant concentration of SME's working with low margins and high cash flow. The COVID-19 lockdown has caused a long period of minimal cash flow for many firms, likely causing many firms to go under or tinker on the edge of failure.The government and local authorities are preparing a stimulus package that focuses on shovel-ready projects. These projects will require less work around the bureaucracy of consenting, resulting in faster start times. The focus on these projects will inevitably lead to smaller-scale projects that can be completed more quickly. This enables Government stimulus to pick up the reduction in employment in the industry and act as a substitute to the private economy.

So, the government is going to spend big on small scale infra to rehire all the people in the construction industry who have lost their jobs due to the recession. All's well that ends well, right? Unfortunately, there are still flaws in the way we're addressing our response to infrastructure.

The construction industry is made up of three major sub-sectors; Horizontal, Vertical and Residential. Major infrastructure investment such as airports, highways and roads are part of Horizontal construction. whereas vertical construction. as the name suggests are buildings that stretch upwards.Workers in each subsector have skills built up that are mainly non-transferrable, meaning that if the current horizontal construction labour capacity is exceeded, labour will be imported, and the government will end up overpaying.

The second issue with this programme is that horizontal construction is far more capitalexpenditure intensive than other sub-sectors. A major cost of the Waterview tunnel was the purchase of the single-use tunnel boring machine. Alternatively, Vertical and Residential projects are more labour intensive than Horizontal construction. As a major objective of the stimulus package is to minimise unemployment, a proportionally weighted investment approach in all three sub-sectors would be far better than only investing in new infrastructure. In an ideal world. the stimulus package would include projects such as the \$5b backlog in maintenance public assets face or bringing back large state housing construction projects, combined with the investment in infrastructure.

WHAT DOES THIS MEAN FOR THE CONSTRUCTION INDUSTRY?

A stimulus package is very likely to focus on small scale projects, delivering immediate economic impact. This would increase the number of public projects that SMEs within the industry could take up, injecting desperately needed liquidity into the economy. The package could be key to providing enough confidence to SME's to keep their employees employed and preventing a mass brain drain of skilled construction workers. The prevention of the outflow of human capital will benefit consumers in the long-run, as it will minimise the supply side restrictions the industry faces in terms of hiring and training workers.

Larger firms in the construction industry are likely to benefit more from the influx of smaller-scale projects, as they present far lower levels of risk associated with cost overruns and far lower levels of capital investment per project. Larger firms will also benefit as they will be able to initiate projects from the moment the economy is ready, not imposed by any restrictions such as needing to train an entirely new batch of workers.

The change in market structure is likely to force larger firms to suffer in the short-term. However, they will return as leaner, far more efficient, and more competitive firms.

The industry shake-up shifting the focus on smaller projects may prove the proverb, Crabs dig holes according to the size of their shells, to be true.





STEM in 2020

WRITTEN BY NEHA KUMAR

COMPANIES THAT FOCUS ON STEM TO FURTHER INNOVATION AND STIMULATE GROWTH WILL BE ABLE TO RECOVER FASTER FROM THE COVID-19 ECONOMIC DOWNTURN, AS WELL AS THRIVE IN INDUSTRY 4.0.

We are currently in what is called industry 4.0. Industries are moving towards automated computer systems where AI and machine learning use large amounts of data to drive production. Essentially, all systems are interconnected and feed off of the information they create and provide. This cloud of information allows for maximum efficiency. Recognising industry 4.0 is crucial to adapting to a changing work environment; the move towards cloud-based artificial intelligence streamlines production, which allows for flexibility for workers, and can assist in innovation, both through Al and more time for managers to discuss innovative ideas. 4.0 is

consumer-oriented, it can adapt to changing trends in consumer markets and alter production at a faster rate than ever before. Minimising communication errors between facilities and allowing for swift executive decisions to be made, contributing to consistent customer satisfaction.

STEM subjects (science, technology, engineering, math) are often interconnected and overlap in their teachings. The skills that STEM teaches is just as important as the content of each of the subjects, such as critical analysis, creative problem solving and digital literacy. Needless to say, a STEM skillset is useful in a techand-cloud based work environment; a rising number of professions require some form of STEM skills. As we further into an Industry 4.0 based economy, this number is still likely to grow.

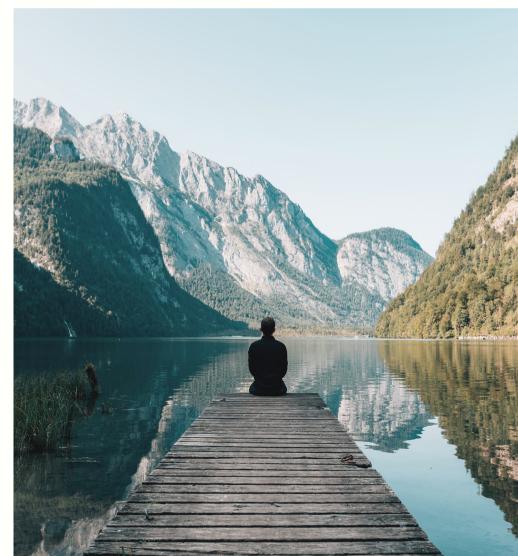
Al and big data will bring about a new wave of disruptive technology-that is a technology that alters the way businesses/industries operate. STEM has been used to create disruptive technology before; assembly robots disrupted the manufacturing line, and with Netflix disrupting the entertainment industry. Now STEM and Al are next in line to potentially disrupt many industries

dramatically. Procter & Gamble's(NYSE: PG) Olay is a brand that is bettering its customer service through AI. Their Skin Advisor programme analyses photos of a persons' face and recommends products to better their skin. The ability to get a personalised skincare routine without having to see a dermatologist and being able to provide those products betters the experience for the customer and creates brand loyalty. Since its launch in 2016 Procter & Gamble has credited Skin Advisor for the high demand in Olay products, leading to exceeded expected sales for the company in 2018.Creating a consumer-oriented AI service has improved Olay's sales and brand loyalty and is an example of how STEM-based technology can lead to success in an Industry 4.0 world.

Companies that choose to invest in STEM will have an advantage above those that do not, as this could progress their innovations and overall success that other companies will not be able to achieve. Larger companies are likely going to have more resources to spend on STEM, post-COVID-19. Furthering their potential to be more profitable and have long term growth. We have already seen the positive externalities of STEM during COVID-19.

Businesses that were already cloud-centric have transitioned in the work-from-home environment seamlessly. Whilst the slow adopters have struggled; creating demand for the cloud-based industry. Rich Petersen, president of JetStream Software agreed on the matter. "Enterprises are postponing large CapEx purchases and looking to cloud-based services to sustain their business operations". A STEM skillset and Industry 4.0 technology could level the playing field for businesses, giving a chance for disruptive innovation and technology to arise that in turn betters industries and the economy as a whole.

The correlation between a company's investment into STEM and its ability to innovate and adapt directly correlates to the growth of the company. In a work environment changing towards cloud-based technology, STEM skills in the workforce are becoming more common and should be encouraged for a company to thrive in an Industry 4.0 world.



MYOB's column

BEYOND TOMORROW: How to raise capital in New Zealand

Will Trafford from NZ Herald and MYOB Country Manager Ingrid Cronin-Knight discuss what to do when faced with tough financial business decisions, and how you could take on new investment to help you not just survive, but succeed. In this episode of the Beyond Tomorrow Series they are joined by Suse Reynolds, Executive Director at the Angel Association

Watch the full episode here





UNIVERSITY OF AUCKLAND INVERSITY OF AUCKLAND INVERSITY OF AUCKLAND CLUB