

# PRESIDENT'S REPORT

It seems that prognostications for each new year start with “We live in exciting times” - a phrase coined in 1898 by Joseph Chamberlain, a phrase falsely attributed to the Chinese – even being known as the “Chinese Curse”, however it seems to get more relevant with the passing of every year.

No longer can we regard each advance in isolation. Just as the introduction of the Model T Ford, known affectionately as the “Tin Lizzie”, in 1908 impacted so many facets of life – social and commercial – right through America, a new technique nowadays in one field can have implications for advancement in a myriad of other fields. Increasingly the necessity for awareness of advances in an ever-expanding gamut of technological applications is the key to new directions in your own field of expertise. Let us consider some directions in which advances are most probable. Some of these are glaringly obvious, but there is a vast difference between “We should be able to ....” and “Here is a product that is commercially viable”.

Probably the first one that springs to mind is AI – Artificial Intelligence – not to be confused with Ersatz Intelligence, the type emanating from the Beehive in recent years!! Yes, I know that AI has been around for many years now, and articles on it have reached the Ho-Hum stage, however it is now taking a leap forward in the complexity of its applications, made possible by the advances in learning and communication capabilities. This widens the range of applications that impact the man-in-the-street.

The development and application of AI programmes to specific requirements has always been an expensive process for most businesses, so most have been based on the three major providers – Microsoft, Amazon and Google. Although expensive, they have been broad in their scope, and require even more expensive custom engineering to fit them to purpose for each individual business with its unique requirements. In the coming year we should see an increased pool of providers with the ability of tailoring apps to the specific needs of each customer. With competition comes more reasonable pricing, which makes the cost of that firm’s product or service more appealing to the customer. In this mass-production technological age margins can be dangerously low, so every cent counts both for local low volume enterprises and for the overseas giants.

Linked to AI, we have customer service systems. The ability of such systems to recognise the huge variety of versions of “English” used by the phone-in customers, then to decipher the nature of the query, which could range from a simple delivery problem to a highly technical malfunction on any one of thousands of items sold by the business, and to provide an answer in a very natural voice giving a totally satisfactory response that does not sound like a machine reading out a list of options calls for a high level of “Intelligence” – frequently surpassing that of any human employee. Some prefer the version in which the responses are in the form of text in response to an on-line query, however the basic system is still just as complex, for all that the former offers is a basic reader programme, which costs nothing. Sure, we already have such programmes, but they are too obviously machines. It is not just a matter of improving the voice. The learning ability needs more attention, and this is a field that will require more research and development.

Then, the natural progression from this are the possible advances offered by the greater speed, bandwidth, reliability and coverage of the 5G network. At the moment the coverage is limited to

certain areas around the major cities, but this will expand eventually to cover most of the country – not all, as it can only go where it is economically viable.

Although 5G was launched in NZ in 2019, it was very limited in coverage and was expensive for commercial use, however this will change quite soon, and the technology that will be able to use it must be ready to roll – i.e. it has to be developed, tested and ready to use now. Fortunately much has been done overseas already, but there are nasty little things like patent rights that get in the way, so if a firm wants to be in at the ground floor, there are many opportunities in that field for those with imagination and an understanding of that branch of expertise. I will not dwell further on 5G, for there has been so much written about it that it is getting a bit ho-hum despite its inevitable impact on practically every aspect of our lives.

What else is close to our thoughts? – Ah, yes, money. In the stock market the use of cryptocurrency revolutionised on-line accounting. Just three years ago, the total of all cryptocurrencies in the world was just a mere \$17.7 billion, yet only a year later there were 1,400 separate cryptocurrencies in circulation, totalling \$836 billion. Obviously the large on-line sums involved made hacking attacks common, so a form of ledger keeping called Blockchain Accounting was developed which gave a degree of security far beyond previous systems due to its encryption and decentralised nature.

In 2019 it moved into the “domestic” market, being used by such firms as FedEx, IBM, Walmart and Mastercard. Even FaceBook is getting in on the act. In June last year they announced that they will have their own cryptocurrency, which will be known as Libra, in 2020. With its inherent ability give protection against hacking, Blockchain will certainly be used for a wider range of businesses, so the ability to utilise this in any business system must be considered. From a recent survey, around 60% of businesses are considering using it to gain greater customer trust and reduced accounting costs.

On a different tack, there is another field that is leaping ahead with revolutionary methods – the field of health. More emphasis is being placed on preventive treatment (predictive medicine) rather than the ambulance at the bottom of the cliff we are used to. Wearable devices such as smart watches and patches are getting more powerful in their ability to detect small changes that can predict problems even before symptoms become apparent to the wearer, so allowing preventive treatment and the avoidance of downtime.

Although this is far from a new idea, due to recent breakthroughs in technology, especially in the field of genomics and AI, it is now capable of recognising significant differences in individual people and their probable individual responses to symptoms and medications, giving better outcomes for particular patients. Google have developed tiny magnetic particles that could search the body for biomarkers that indicate the presence of cancer and other diseases. These nanoparticles would bind to cells, proteins and other molecules inside the body and would be countable by a wearable device. The particles could be delivered by a pill and would make it easier to detect cancer or an imminent heart attack. This is just one of hundreds of radical new applications in health care – and obviously a field in which there exists a massive potential market.

Exciting times? Yes, but the connotation has changed. Originally it was the harbinger of uncertainty, unrest, conflict – it was effectively a curse. One would wish for boring times, where there was stability and certainty. Now, though, we live in a time where changes are exponentially linked, where advancement is explosive, where there are almost unlimited challenges and opportunities for revolutionary new ideas to be applied to almost every facet of our lives. Those

who are just embarking on any one of the fields of technology are so very fortunate – if they keep their minds open and receptive to thoughts outside the square.