Comments on Reaching for the Frontier

By John Turner, 31 May 20

Preamble

My background and expertise are in manufacturing and specifically biased toward the heavier industries. It is difficult to read the paper (Reaching for the frontier) (**the paper**) without connecting the various items discussed in **the paper** to my own experiences and as a consequence my comments here tend to be quite specific and oriented toward my background. When I read **the paper** initially, I started making random notes as various items prompted my thoughts. Consequently, my comments here may be somewhat disjointed and for that I apologise. They are in absolutely no order of merit. I have not attempted to answer the questions posed within **the paper** at this stage because I do not believe that is where my contribution can best assist in finding some solutions. I have tried to make practical suggestions where I can and some, even most, may appear simplistic but time and time again in my career I have found solution in simple logic. I also rely heavily on examples taken from my career because a picture is worth a thousand words.

Where I stray into the domain of the economist it is not because I think I have anything much to offer in this field but rather to demonstrate or example my thoughts and to the extent I am incorrect then that might offer some insight to those "skilled in the art" as to what may be a fallacy believed by the lay person such as me.

I have a deep feeling of unease as we exit the Covid lockdown and contemplate unemployment in the order of 10% minimum but of more concern is the long term effect of the deficit that is now of such a magnitude that there is nothing left in the tank for rounds 2 or 3 or 4. So it is clear that there is some urgency to finding optimal solutions to the problems highlighted in **the paper**..

One of the most alarming factors in **the paper** was just how badly we fair in the productivity improvement stakes. I knew it was not good but did not know how bad it had got. Not many amongst us lay people realise the absolute criticality of productivity improvement to the sustainable improvement of the Country's wealth. I guess I shouldn't have been surprised when we are everyday surrounded by bureaucratic red tape, a pervasive legal industry that adds little value and disproportionately rewards itself, an occupational health and safety industry that feeds on itself and now represents a significant on-charge to productive endeavour, the resource management act that though well-conceived now acts as a road block to well-intentioned endeavour and an immature capital market to name a few. Bad though those things are in isolation it is the sum total that can squeeze the lifeblood out of an individual or organisation as they simply attempt to make their dream come true or reward their stakeholders. Make no mistake, it is those individuals and organisations who are prepared to take a risk and try to create some wealth that will provide the way forward and it is high time that others who add no value got out of the way.

It is not without a certain feeling of Déjà vu that I find myself considering the mixed issues of productivity and innovation and competitive advantage. I wonder if some lessons of the past may have been forgotten. In 1990 Michael Porter published a book called "The Competitive Advantage of Nations." I remember it came out to great fanfare and was essential reading for managers at the time. I read it and was also in the audience in Auckland listening to Michael Porter present his follow up study on the NZ economy that the Government at the time contracted him to do. If there is one principal that appeared to underpin internationally competitive industries that Porter identified and kept hammering it was the concept of cluster whereby related industries would cluster and lever off each other. It all made much sense but like every fashionable idea it was soon forgotten it appears to me. Forgotten it may be but that does not diminish its validity. It would be remiss of any Government not to review the thesis of Porter as they try to restart economies that have had whole industries effectively closed for what might be years. Certainly I have benefitted from the cluster effect as we, quite serendipitously chose to build and then operate our first packaging factory in Hamilton that had then and still has a sophisticated cluster of engineering related businesses that service the dairy industry. As a location for an engineering related start-up it does not get much better as we were to find out when attempting the same in Sydney and Hobart.

The productivity commission is in a unique situation and have been gifted possibly the greatest opportunity in a lifetime to be instrumental in steering Government policy in ways that innovation and efficiency and productivity improvement come to the foremost in policy, legislation and regulation going forward. There is no alternative unless we are prepared to accept that we will be no better off at the end of what is probably to be a painful deleveraging of the economy.

I notice that the Australian Productivity Commission appears to be actively involved in sorting out competing infrastructure projects. I am not sure about that but what I do know for certain is that infrastructure in Australia happens lightning fast compared to NZ and infrastructure is not nearly as political. In New Zealand it appears to be a mixture of pork barrel politics and party-political favourite projects. This is unacceptable.

A discussion on productivity would not be complete without a consideration of shared objectives (or the lack of them) and honesty from our politicians. It seems to me that there are no checks and balances on electoral promises and no ownership by the population of problems that must be addressed, and I believe the Productivity Commission has a role to play here. Some of the promises made in the last election were simply outrageous. For example, <u>1 billion trees by 2030</u> (14 years). NZ Forest Products Ltd took possession of the forest estate of New Zealand Perpetual Forests in 1935 picking up all their forests planted in the depression. They added continuously to the estate right through to the 70s and beyond but in about 1975 when NZFP Ltd was New Zealand's biggest Company they had planted the total of 100 million trees. Then suddenly up pops a politician and says they are going to plant <u>10 times as many trees in about ¼ of the time.</u> Yeah right. It is a good idea, but it is impossible and not based on credible science and shouldn't have seen the light of day. If projects are vetted by the productivity commission the public can make an informed decision and they will automatically become a shared objective.

The Pioneering Spirit

What has happened to our pioneering spirit where we prided ourselves of "giving it a go" and "punching above our weight". Why is it not evident now when it was so prevalent in my earlier years? Why did I see it more ingrained in the Australian psyche that what I see now after my return to New Zealand?

Let me give you an example from my life of how things have changed here that perhaps illustrates this.

My father was a builder and during the latter years of the 2nd world war and after, he built a house (where I grew up) in his own time whilst working full-time. Consequently, I saw no issue with building a house myself. It seemed a normal thing to do. So, I did (starting in 1978). I did the design (according to the appropriate codes) and the drawings and obtained with little hinderance from the council the necessary consents. With our friends and family for assistance my wife and I built that house from scratch. OK that seemed normal and whilst the building inspector kept his eye on it there was <u>no one</u>

saying we could not do it. I did a similar thing in Australia in the early 2000s and the only requirement for me to act as an owner-builder was to attend a 2 day course at a polytechnic so I could learn the legislative and other specific responsibilities of an owner-builder. So far so good. I returned to NZ in 2016 and decided to do something similar with my son. The first thing I am told is that I cannot do the drawings unless I am a certified draughtsman notwithstanding that I am at least a competent draughtsman. Then I am told I must be a certified builder to carry out any form of permitted construction. So that skewered that project. What is so sad here is that the old Kiwi ethos of building your own home is well and truly dead and worse than that the whole house building industry has been handed on a plate to the registered builders who feel entitled to make up the price as they go along. Small wonder we have a crisis in the house building industry when perhaps the ultimate discipline on pricing has been regulated out of the market. In the pursuit of purity, the "unknown people" have put the dream of home ownership further out of reach for all, but especially for those who were/are prepared to give it a go. Let them have a go. They will make mistakes for sure but out of it they will learn not only how to build a house but discipline and self-reliance that they will lever off for the rest of their lives. The building Inspectorate can then perhaps earn their money by ensuring the construction is in accordance with the appropriate codes and work cooperatively to keep these projects on the rails.

Postscript: Added after Govt. announced the removal of permit requirements for small constructions.

After I heard this, I thought that that was a move in the right direction. Then I heard on TV from 2 builders and a council officer, all in succession. The first builder said it was a good thing and would help get things moving. That surprised but pleased me. The second builder said it was not a good thing and gave the normal self-interested remarks about safety and compliance with codes etc. That sounded more normal. Then the Council Officer said regardless of the new edict there were still other considerations and approvals that were necessary, and he quoted the Heritage Act and RMA. That was a one fingered salute to the Govt. To me it sounded like the story of the 3 little pigs in reverse.

I note that Australia has recently changed the rules regarding renovations etc. Don't know the detail but it is effectively a green light to renovations/granny flats etc up to about $30K

The pioneering spirit must be re-established in The New Zealand psyche. I would not have thought that would be so hard given that most still mistakenly think it is still there. There needs to be a root and branch review of legislation and regulation that unnecessarily hinders entities from creating wealth and a coincident encouragement of the "Kiwi can" ethos. That is a job for the politicians but are they up to it? If I was going to start somewhere, I would start with the house building industry and review all of the roadblocks that delay building consents and especially review the grounds under which local bodies can deny building permits. In addition, to hasten construction work and reduce on cost I would look to where Government (Central and Local) could assume responsibility for some of the newly mandated overhead such as geo-surveys. At present where a geo-survey is necessary every property must carry out the same exercise whereas if it were a centralised responsibility a single survey could cover a much wider area and the property owners could simply share the cost.

I wonder how many newly unemployed Kiwis might take up the challenge of building their own house for a couple of years whilst the world digs itself out of the global recession and instead of borrowing to pay a builder they borrow to do it themselves. I am sure there are many civic minded builders who would happily refocus part of their business into a self-builder supervisory model.

If ever there was an example to me of how our country was losing the plot it was in 1991 when they announced the formation of The Waikato University Law School. That was the 5th Law School in New Zealand when we had only 2 Engineering Schools. It is no use pouring money into education unless it addresses the country's needs and I haven't known a time in my career when there have been sufficient engineers to assist with the task of creating wealth be it in existing organisations or new ones. I am not saying that young people should be prevented from studying whatever they wish but the rewards should flow disproportionately towards those that add value to our economy and not the other way around as it appears to be now. Similarly, a one size fits all approach to education subsidies just promotes mediocrity. Our society does not give sufficient recognition to those that add value. My subjective assessment of Australia is that they too suffer from the same malaise but not as badly.

Innovation

What is innovation? Or at least what is innovation for the purposes of this discussion that is about productivity improvement? It is not necessarily about moving a good idea through to a marketable product. It can simply be seeing a new, better way of doing something.

Innovators are born. They are not made. From personal experience it generally involves the connection of 2 or more seemingly unconnected events or effects that explain a different effect or event. The lightbulb moment so to speak. If someone has an enquiring mind, then it is more than likely they will be capable of some degree of innovative thought. So just to continue with myself as an example. I find that I can recognise events or effects in my orbit of expertise that I will loosely call engineering because of my formal education/training as an engineer. So, an enquiring mind by itself is not enough. The combination of enquiry and learning are necessary albeit still not sufficient to produce an innovative individual.

Having said that, talented managers can create an innovative team from people who as individuals may not be so innovative. So, no discussion on fostering innovation can be divorced from a coincident discussion on management and nor can it be divorced from a coincident discussion on education or learning. This may, on the face of it seem to complicate the issue and that might be so but the practical reality of this situation is that it may be easier to address management and learning deficiencies than find the right innovative all-rounders. If you did find them – what would you do with them? Because that is another conversation.

Successful innovation is hard work and can be incredibly stressful if the risk is high. In my experience it is not a simple linear process of conception through to success although that is what one thinks at the start. It is a circular path of continual, alternating setback and go-forward. It is not for quitters. For most, the rewards will likely ultimately come from self-satisfaction rather than from financial reward, albeit that the ultimate objective is of course financial reward.

One thing is for certain and that is that in respect to innovation New Zealand must lift its game. In my opinion there are 2 routes to do this and each route is necessary. A) Encourage the innovators and B) train the teachers and the managers. It is the teachers and the managers that will control the culture and environment within any organisation and hence improve the performance with respect to innovation if that is what we seek. Without that engine running smoothly we are going nowhere.

During the second world war a training program was developed in the USA by the Dept. of War. It was/is called Training Within Industry or TWI. TWI is a concise program that teaches how to teach someone a skill. It had its genesis in the requirement to teach millions of jobs to new people as people were called up for service. Many years ago, I did a TWI course and the techniques I learnt have remained with me for life. My point is this: Whatever solutions this crisis generates at some stage there will be a requirement for managers to be trained in new techniques and practices and employees to be reskilled and it may have to be done on a large scale over a short time frame. The example of TWI proves that it can be done and can be done quickly and efficiently so bold initiatives in the training and reskilling field should not be shied away from and standard methods will smooth the way. No point in reinventing the wheel.

When I look back at the formation and development of the moulded fibre packaging business, I was involved in I see clearly where our competitive advantage lay. It was the team that I and my two colleagues formed that had most bases covered. We all had different but complimentary skills and as a team we were a formidable unit such that we took on and won against the likes of Carter Holt Harvey Ltd. As an innovative team carrying no dead weight, we could move far faster than a large company. Let me give you yet another example.

When we started our business CHH Ltd had 100% of the apple tray market to itself. Our first factory took about 30% of that market. Our second factory (constructed and operating within 2 years of the first) could produce about 65% of the market. So CHH Ltd had a problem. One of their solutions was to offer one of the big packhouses a few automatic tray stackers (manufactured in France) that would reduce the packhouse staff by one. Each tray stacker was to cost about $50,000. We could not afford that sort of money, so we swung all of our engineering resource into designing an automatic tray stacker of our own. We had a prototype running within a month (utilising a PDL VSD – see section on PDL) and the cost price about $20,000. So, by being able to move quickly and utilise our innovative resource we could stay ahead. CHH Ltd quickly withdrew from that course of action and all it did was foster our reputation as the industry leader. When CHH withdrew so did we. In retrospect we should not have because we had developed a piece of machinery that would have improved the productivity of every packhouse that would have chosen to buy one. However, we had limited resources and were deep into our Australian expansion.

We always used to remind ourselves and all our employees that Microsoft turned their business on a dime once they saw Apple's graphical interface gaining traction and the result was MS Windows and it involved a complete change in direction for that huge company. Innovation is a continuous process that never stops but it needs to be worked at.

On the flip side of the coin there is the destructive process of firms losing their innovative drive and I address that in the section about first- and second-generation firms.

Add-Value – easier said than done.

In this section when I say "Add Value" I mean in the literal sense of taking a product and adding value to it. E.g. taking a lamb carcass and turning it into gourmet cuts of meat. I am always amused at the politicians that preach how New Zealand must stop exporting raw materials and start exporting finished products as if they were the first to have noticed it and they will teach these industries how to do it and even regulate for it. It is happening in the solid wood business as I speak. I have heard it all before. What they fail to realise is that mostly what they are referring to is trying to swap one commodity product for another commodity product and export them into the exact same market. To change the mix means changing the market and that is not easy.

Look at the wood fibre industry in New Zealand. It is dominated by Radiata Pine and whilst it has been a useful specie for New Zealand, compared to Northern Hemisphere softwoods it is of a lower standard generally and a lower structural strength. It is not by mistake that most of the fibre exported to the big Asian manufacturing centres ends up as packaging. Additionally, Radiata Pine is a variable resource producing all sorts of grades of timber both within the tree (from centre to outside and from bottom to top) and by region and according to what silvicultural practices were used during its growth. The forest owners of New Zealand manage their forests with an eye for creating value in about 20 years when the trees are harvested. That means they must somehow predict what the market will want and what the market will pay for what. If that is not difficult enough the customers purchase from all over the world and they have their own processing plants that means they do not want added value. So, it is not as simple as saying "We aren't going to export these logs but instead we will direct them to local or even new sawmills say." That is a sure-fire way to destroy an existing export market whilst at the same time probably losing a bunch of capital. Yet it is happening right now with the Forests (Regulation of Log Traders and Forestry Advisers) Amendment Bill. It is my experience that all things being equal forest owners will prioritise local manufacturing, but you cannot expect them to subsidise it. Forestry is a low yield business at the best of times. At the end of the day unless the New Zealand based forest processing plants improve their productivity the fibre will continue to be exported in a raw state. Having said that and having had a reasonable amount of experience negotiating fibre prices I can sympathise with the processors to some extent because generally the log suppliers come to the negotiating table with more options (and more arrogance).

The business of trying to increase add-value to Radiata Pine is primarily a technical one and a marketing one. There is no shortcut here. Wood processing is not different from any other industry. Productivity will improve in response to the normal drivers of R&D, innovation, entrepreneurialism, capital and good management. Over the years that I had an involvement with the industry the Forest Research Institute was a central resource for the wider industry and many developments occurred that added value to that difficult to handle resource. I know it suffered as one Government after another tried to turn it into a profit centre and I don't know what the current status is but with the crop the size it is now it is a research organisation that needs to be strengthened. The central role of forest products research needs greater recognition and robust funding and it is the forest owners that should foot the bill because improved productivity in the processing sector will increase fibre prices and in turn that will drive up the value of the forest estate. This is where government should focus.

Every industry has its champions. Now is the time to find those champions and ask that they assist in driving policy WRT their industries. I am not talking about the hot shot MBAs that dominate the CEO ranks of public companies but the people with a passion for their industry. People that have lived and breathed it and seen it through good times and bad. These are the people that can add the most value in the shortest time and whilst there is still industry assistance on offer now is the exact time to get these people on board. I can point you at one such person in the solid wood industry. His name is Keith Reay and his knowledge of the solid wood industry is unequivocally unsurpassed over a broad functional mix from operations to marketing. I am sure that finding those champions over all manner of industries would not be a difficult job and I am also sure that most if not all would gladly make an honest contribution.

The Value of Cross Functional Skillsets.

The value of education and training is a given. I will go one further however and say that that education and training can be levered-off to great effect when applied to a different discipline or different function. For example, a maintenance engineer can have a significant effect on productivity if put in charge of production. An accounting or business graduate can offer a better quality contribution if working for a while in the operations of the business unit they are employed by, such that they gain an understanding of the physical constraints the business operates within.

The same effect occurs when university students widen their field of study at the latter stages of their study and especially if doing post graduate work. Often this widening allows under-graduates and graduates to find satisfying niches and at least to bring the focus of a different discipline to bear. I know I found my exposure to public health engineering (a civil engineering discipline) absorbing and almost career changing. Similarly my return to university in the 80s to gain an understanding of accounting and to a lesser extent economics (I found mathematical economics beyond my diminished mathematical ability at the time) was of critical importance to my effectiveness as a manager for the rest of my working life.

I cannot help concluding that the current administration's well-intentioned policy of free 1st year tertiary education for all, is flawed and does little to create a mechanism to improve productivity and I suspect is quite wasteful. Better by far to assist the final year or encourage post graduate study or cross discipline diploma study.

I welcome the recent announcement of free/subsidised apprenticeships. A bold step but one squarely in the right direction.

Post Graduate Study

I do not think it is too strong to say that the value of post graduate study is seldom recognised by those that have not experienced it. Exposure to the research arm of universities not only creates an awareness of the importance and value of research but also provides a network of high level university staff and colleagues that will remain with the graduate for their entire career and can provide ongoing dividends. Without my contacts at Auckland University School of Engineering that were cemented in place during my post graduate years I would not have had access to facilities to do the essential research work necessary for the development of our proprietary moulded fibre technology.

Any program that encourages post graduate study and research within our Universities would be money well spent especially if targeted at the disciplines and industries that can add value to New Zealand's productive sector.

Importance of Marketing

I will always be in awe of skilled marketers. Having spent much of my working life involved with the manufacturing of commodity products I should know better than most the importance of being able to sell such products. For better or worse New Zealand is heavily into the production of commodity products. There are only two parameters of importance with respect to commodities and they are price and quality. If delivery is a significant factor, then the product may not be a commodity or at least not being recognised as one. Where the skill of the marketer becomes apparent is in ensuring that the quality is exactly the quality required or better and the price is the true price for that commodity and quality. Given that commodities are in general purchased by larger organisations often acting in concert with competitors the marketer's job is not an easy one. I would say that in general New Zealand export producers of commodities are seldom production constrained albeit that a portion of a product mix may be. I have never known a time in my career when I have had at my disposal a sufficiently large marketing budget. Given that marketing is the function that controls the limiting resource I guess that that is a disappointing commentary.

Any assistance in marketing that Government can provide to any organisation but particularly the export industries is never wasted. If ever there was a time to be cranking up that assistance it is right now. Most commodity producers can increase production for not much more than the true variable production cost. It follows that unit productivity will improve for those producers as a direct result of increased sales that arise from improved marketing. Assistance in this area is well targeted and easily controlled.

Further on in this commentary I discuss my time working for the Elders IXL group. It was their culture to force improved marketing performance in all their business units and as an example take Fosters Lager. It went from a local Victorian and Australian brand to a worldwide brand of lager. At the time it was in bitter competition with many established international lager brands. They learnt a lot about effective marketing in that exercise and one lesson they learnt was that you can't market in offshore marketplaces without boots on the ground in those marketplaces.

Following that ethos, I put a fulltime presence in Japan when with Elders and in the solid wood business. After a settling in period of about 3 months all sorts of opportunities started to arise. That is when I learnt another lesson. The boots on the ground must have an absolute understanding of what is possible within the constraints of the production units. It follows that effective marketers must know the production area of their business intimately. They must have a cross-functional skillset.

Importance of Data

In the mid-1980s I spent several weeks in Japan on a Cambridge Corporation quality assurance course. This was an enlightening experience being as it was a multinational cohort of managers being trained by some of Japan's foremost quality assurance experts. If there was one ethic that all the teachers emphasised was the importance of data. Their catch cry was, "Speak to me with data." Now that seems almost a truism and not something you would think that unique, but throughout my career I am continually astounded at how decisions are made on scant or biased or erroneous data. I have come across examples of managers making decisions based on their gut feel even when they have data that indicates that the decision should be different. I guess you cannot teach common sense, but you certainly can teach sound decision making practice and sound management techniques. Improving productivity in a firm is all about sound management practices and insightful decision making and at the heart of these two practices is good, reliable and solid data.

It is not just a matter of collecting data. It is collecting the right data and then using that data in the most advantageous way. That is where managers become so important. The whole concept of productivity is based on data and good managers will ensure the data collected will provide a continuous readout of their organisation's productivity. More to say about this under standard costs but let me bore you with yet another example of how this "seat of the pants" management style can cost a lot of money and destroy productivity.

"Following my exit from the packaging business that I and my colleagues founded and later sold I was asked to do a year in the Company that purchased our business as a roving management/productivity improvement consultant. The business units came up with the problems for me to look at. One job was to look at why the energy consumption in a resin casting factory was so high. I found various heated enclosures that were used to lift the resin temperature up to the point where curing occurred. The factory had been started by an entrepreneurial plastics enthusiast and purchased by the public company. The founder had designed and made the first curing oven and all the following about 5 followed the same design. The factory used about $200,000 worth of gas each

year, so it was not small change. I started looking at where the energy was going and to my astonishment, I found that when the curing process started it was exothermic and generated its own heat. I can't recall the exact quantum of energy required to bring the resin up to curing temperature, but it was a tiny fraction of what they were using. When I pointed out to them what was happening I was met with the explanation that that was the way it had always been done and besides, the flue gas system provided an efficient ventilation and incineration system for the gases given off by the curing process. Try as I may I was unable to convince them that their gas fired systems would be more appropriately replaced with a well-sealed, well-insulated electric system with a small ventilation and gas incineration system to handle the gas-off. The savings in my estimate were in the order of $180,000pa with an up-front cost of about $100,000. To my knowledge this operation has not changed and in the meantime has wasted millions of dollars not to mention needlessly added to carbon emissions.

As recently as 2018 when assisting a manufacturer I found an outrageous example of unethical charging by a utilities company that had gone undetected for years because whilst the data was being collected there was no one of sufficient technical expertise to interpret it and discover the overcharge. I picked it up as a result of putting in place a standard cost accounting system. Yet another example of poor interpretation of data and lack of appropriate technical skills even in an organisation that had technical sophistication.

1st to 2nd Generation Firms

I don't know what the statistics are, but I suspect not many successful 1st generation firms make it through to 2nd generation firms whereby they prosper after the champions depart. I know our packaging business did not, notwithstanding that we had an exit strategy that was successfully implemented, and we had successfully integrated the business into an Australian public company. I have forwarded to you by Mailbigfile a copy of Managing for Success – a video presentation about Hawk Packaging Ltd put together by Auckland and Massey Universities in circa 2001. This presentation accurately portrays a successful 1st generation business well on its way to becoming a successful 2nd generation business expanding offshore. At the time we saw ourselves duplicating what we had done in New Zealand in Australia and we did to a certain extent, but what we didn't know was that we 3 principals of the business had depleted our energy reserves over the previous 7-8 years of full-on competitive business. In short, we were tired and taking on a new adversary in a new land was a bridge too far. We paid attention to an exit strategy and not enough to the succession plan of building the replacement technical and management resource the business needed. There are several reasons for that, some of them out of our control but we were a victim of our own success to a large extent. The business did not fail so much as it just failed to live up to expectations and its potential.

At the risk of being simplistic our problem was that we were probably 1-2 years too optimistic. What we wanted to achieve in one year was more appropriately timetabled over 2-3 and that would have given breathing space to attend to the deficiencies in the business that would inevitably appear after we three principals departed. Additionally, it would have diminished the financial pressure that we were all feeling.

I can, with absolute clarity see where I personally went wrong and as the CEO, I have to assume the majority of the responsibility for what turned out to be a diminution of value. There is a lesson to be learnt here.

Some background. I started researching the business opportunity in mid-1991. In June 1993 we reached agreement with what was to be our Joint Venture partner the **NZAPMB**. In March 1994 we started our first factory and in 1996 we started our 2nd factory. In 1998 we joint ventured with an Australian public company as the **NZAPMB** sold out. In 1999 we moved our first factory to Tasmania. In 2000 we started our first egg carton factory – located in Sydney. On 31 Dec 2000 we sold our interests to our JV partner. We went from 3 of us in 1993 to over 100 employees in 2000. So, for a full decade we were under the pump and we were tired. We knew it too, but our new partners had bought in based on our enthusiasm and results to date and they rightfully expected it to continue. It did for the 3 years of our management contracts but afterwards the lack of capable replacements saw the business diminish in quality and it was subsequently sold off piecemeal.

My first mistake started in 1996 after our successful commissioning of our second factory. We had recruited a talented team of younger people to build that factory and in 1996 they were pumped as they saw what they had achieved. It was then that we should have locked those people in and in return allowed them to take an equity in the business and a growing involvement in its management. The advantages to us would have been a built-in succession plan but more importantly a sharing of the management responsibility. I might be wrong but with some skin in the game they might have counselled a lowering of objectives to a less risky strategy. New Zealand's immature capital market left us with few alternatives when we needed additional working capital that was necessary if we were to bring in shareholders that added many advantages but lacked capital. Additionally, whilst our experience with joint venturing with the customer for our product had initially been a stroke of genius it turned bad when the **NZAPMB** had a change of management and business philosophy and forced us to deal with a low value buyer. My second mistake in 1998 was to ill-advisedly turn away from that model of joint venturing with the customer of what were products made specifically for them. When we finally did change the model back in Australia to something like the original model, we had already sold out but now 15 years later that business in Australia is extremely successful and has been through its entire existence.

In summary the value was lost because we failed to attend to succession issues adequately and could not access capital to allow us to bring in shareholders that would have added real value to the business. The loss of focus on the correct business model did not help. It seems to me that New Zealand could do with a more diverse capital market incorporating a stronger angel's sector and Government could do worse than foster and encourage this.

It would be a useful exercise to get hold of the other 3 video productions of the Auckland – Massey University study and see what has happened to those companies in the intervening 20 years.

Intellectual Property

For the last 20 years of my life I have been actively involved in the creation and management of formal IP and in particular patents. I have done this not only as an adjunct to my natural tendency to be a mad inventor but because I find it to be creative and stimulating itself. Of course, the cost savings are considerable because the cost of prosecuting a patent through any jurisdiction is considerable. Therein lies the problem because everyone knows that to patent an invention costs a fortune. I honestly do not know how much it would cost through a patent attorney because I have never handed the job over to one in full. I have at times used their guidance and, in the USA, I have always used an agent to lodge a specification and as a go between during an examination.

The direct costs of lodging a patent yourself are not great but the learning curve is steep if you are starting from scratch. Offsetting that, the staff at The Intellectual Property Offices of NZ, Australia and The UK that I have dealt with personally are universally obliging and helpful. Almost to the point that you start to doubt that you are dealing with a Government Dept. It is a pity that protecting IP is generally so expensive because it must prevent many good ideas being appropriately protected. I would like to see grants available to start-ups to assist in protecting IP even if they were on a competitive basis.

I see a place for at least a paper or even a diploma on IP protection to be made available in tertiary institutes for resident and extramural students of any discipline. This would start to change behaviour and culture when more people realised that protecting IP is not only essential but not that difficult or expensive if most of the work is done in house.

There is a place in New Zealand for a simplified patenting process such as they have in Australia with the innovation patents. They provide a limited protection over a shorter period and are not examined until they are challenged, with the challenger footing half the cost. Whilst never having used them myself, I can see obvious benefits to those wanting to protect an idea that has a limited life and/or is of modest value.

PDL Industries

I do not know where in this commentary to put this section that is about PDL Industries variable frequency drive division, but it is so related to productivity improvement that I give it a section to itself. The demise of PDL Industries Variable Frequency Drive Division (**PDL**) was, in my opinion a tragic waste of resource for New Zealand and there must be lessons to be learnt from it albeit 20 years after the event.

By way of background **PDL** entered the newly developing market for variable frequency drives (**VFD**s**)** when that technology was in its infancy during the 1980s. Variable frequency technology is now frequently referred to as inverter technology. Simply put, the technology involves taking a fixed frequency AC power supply and using solid state circuitry to convert the power supply to firstly a DC power supply and then back to an AC supply but with a variable frequency. So typically, in New Zealand the fixed voltage and frequency 3 phase supply of 415Volt, 50Hz will be converted to a variable voltage and variable frequency 3 phase supply of say 0-200Hz. With a variable frequency supply the robust workhorse of electric motors – the induction motor, can now be used as a variable speed motor capable of easy and reliable speed control. This technology revolutionised the electric motor industry and these motors are used literally everywhere. I suspect this technology is one of the biggest contributors to productivity improvement in world-wide manufacturing ever made and **PDL** were right there at the cutting-edge developing drives at their Napier factory and selling them world-wide.

In 1993 when I and a colleague built a prototype moulding machine to demonstrate to the **NZAPMB** that we had the technology to manufacture apple trays, I went to **PDL** to discuss our requirement for a controllable power supply to drive our machine. They lent us at no charge a programmable **VSD** and we discovered that not only did we have the means to control the speed of our machine but also the means to sequence our entire moulding process with it. Their technology became the bedrock of our moulding machine technology that was subsequently patented in NZ, Australia and USA. We used their **VSD**s on just about every electric motor in our factories and became a showcase for their products. As a consequence, as they developed better and more versatile technology, they shared it with us, and we were only too willing to trial their technology before its release. It was a symbiotic relationship and the more they developed their products the more we found innovative uses for them with consequent improvement in productivity. I don't think I'm exaggerating when I say they were the catalyst for our unique technology that allowed us to break into an international oligopoly for moulding machine supply and then break the monopoly for apple tray supply in New Zealand. The pip fruit industry in NZ reaped the benefits with tray prices reducing from 16c each to 13c and subsequently 10-11c. But that was just the start.

Now because we were technically advanced and had the industry low cost of production The Apple and Pear Marketing Board asked us to develop a different range of trays that allowed them to palletise and containerise the export crop. This was done and the entire export crop of about 17m cartons was containerised at a shipping cost saving to the industry of about $50m pa. we were told.

PDL worked with us cooperatively and we levered off their technology to force productivity improvements into not only the moulding machine supply business but the pip fruit packaging business and eventually even the pip fruit export business.

Around the turn of the millennium PDL sold their VSD business to the French giant Schneider and their Napier facility initially downgraded and is probably now closed. Certainly, the innovative team at Napier was disbanded. They stopped making their range of VSDs and they were replaced with the French technology that we tried working with but found the programming too clumsy and not at all versatile, so we moved to a competitor.

What is the take-out from this? We were small. PDL supplied all sorts of manufacturers in NZ and particularly the dairy industry I understand. So, the leveraging effect must have been high. How they must have hurt when PDL disappeared. A world leader, or in your terminology an internationally frontier firm was destroyed, and I am sure the downstream cost to NZ manufacturing would have well eclipsed the vendor payments made to the PDL shareholders. I remember thinking at the time after the reality of what had happened became apparent that somehow NZ Inc. had been badly dudded. It is not often that a New Zealand firm can build a place in the sun in an emerging technology so widespread and important as electric motor control and it was all wasted. Such a shame.

I don’t know what the solution would be here but I do know that there needs to be some alternative for vendors of innovative technology when they eventually want to cash-out as they inevitably do at some stage if it is not to disappear overseas because whilst the vendors may optimise their return the wider effects on other industries aren’t in the equation. Perhaps assistance by the Government in times of need should be tagged to an obligation back to the country.

Standardised Comparisons and Standard Cost Accounting Systems

This section may be one of the more important in this commentary.

Putting aside for a moment the discussion on standard cost accounting systems there is in my opinion an essential measure of a firm’s performance and that is overall efficiency. Whenever I visit a firm to assist them, I simply ask, “How efficient are you?” I am inevitably met with the answer that that is an impossible metric for them to quote because there are different processes and different products and blah blah blah. So, my response is that their efficiency is probably less than 50 percent. At this, I generally get a reaction that “That is ridiculous – we wouldn’t be in business if our efficiency was that low.” So my point is proven – that they do have an idea of their efficiency but to a large extent it is an amalgam of data that they consider and then form a subjective opinion albeit that they don’t try and formalise it. My point is this: All businesses should know how efficient they are. It does not have to be the guiding metric, but it should at least be a metric. To get a single efficiency figure there must be standardisation such that dissimilar objects or practices can be compared and combined. It matters not that the algorithm for combining said objects or practices is dead accurate, only that it is formalised and capable of adjustment and improvement over time. Then one must bend one's mind to what constitutes a favourable efficiency and what constitutes an unacceptable efficiency. Again, the initial algorithm should be formalised and capable of being refined and altered to suit changing circumstances, but it will of necessity require a consideration of what constitutes the limiting resource. Is it the market, available time, available raw material etc? By an iterative process an overall efficiency can be calculated for most businesses but as a bedrock it will require standardisation of some metrics. Standardisation is a prerequisite to a standard cost accounting system. This seems simple and it is simple, but time and again the ethos of not mixing apples with oranges gets in the way. It is worth the effort because it reduces an operation to a single metric that everybody bar none understands. It does not have to be perfect it just has to be meaningful.

Right from the start, if you asked me to recommend one essential ingredient to improving a manufacturing firm's productivity, I would say **put in place a standard cost accounting system**. Well-designed standard cost accounting systems provide a productivity pulse for an organisation. I have had first-hand experience of this over many years. Few firms use their accounting systems as an operational management tool and this wonderful source of data is left to the accountants. It is for the most part only used for the purposes of compliance and to generate financials. By combining data in the general ledger with physical data from operational records productivity data is automatically produced that can identify in real time all sales variances and production variances for management to act on. Operational management warm quickly to anything that allows them to drill down into their operations and whilst they might not understand the financials, they certainly understand the physicals. This might seem to be too simple a solution for what is a complex problem, but my thesis is that productivity improvement is not a complex problem. It is a quite simple problem, in manufacturing at least. One of the benefits of a standard cost accounting system is that it is a continuous audit of suppliers and quite often in unforeseen ways. Plenty of examples of that to offer.

Not only is the solution simple but the tools to do it with are freely available and every firm will have them to hand. All that is needed is the general ledger package and MS Excel spreadsheet package. Ask a business systems software vendor for a Standard Cost accounting package and the $ signs will start rolling around in their eyes. Sure, there are excellent systems available out there but most of the benefits can be gained from low cost solutions. To many this might seem to be too good to be true or only suitable for small firms but to put the lie to that I will relate yet another example from my career.

In the late 80s – 90s I had the good fortune to work as a senior executive for NZ Forest Products Ltd before, during and after the take-over by the Elders IXL group. Consequently, I worked under the influence and within the culture of the senior Elders executives and in particular John Elliott and Geoff Lord. These were adrenaline charged times as I learnt first-hand how these two ex Mickinsey & Company executives went about creating shareholder wealth. Contrary to what is probably still a misconception of how they operated I learnt that one of the biggest tools in their armoury for creating shareholder wealth was a single-minded focus on productivity improvement. Furthermore, they had an absolute insistence on a standard cost accounting system in a standard format across the entire Elders IXL group, This, regardless of what business unit or what industry and that covered a myriad of types from mining to brewing to forest products. The standard cost accounting reports were all formatted in MS Excel and generated monthly: profit and loss (in standard cost format), balance sheet, cashflow forecast and most importantly year end forecasts and earnings/capital employed ratio. There was no interest in the slightest of what general ledger package was being used *by what business unit and expenditure on new general ledger packages was difficult to impossible to justify. All that was being used was the database capability of whatever GL package was being used combined with other data on physicals. As all business units had the same format reports, business unit and then group consolidation became a simple matter of adding spreadsheets together. It was simply inspired. To assist in putting these systems in place with all new business units as they entered the Elders Group was a single person. His name was from memory, Tom Monone. He was not an accountant – he was an engineer with a deep interest in accounting and a power user of MS excel. So here was one of Australia's biggest Companies (I think second behind BHP) eschewing the common practice of installing mega sized SAP or similar management information systems in favour of an off-the-shelf spreadsheet package and an imaginative approach to data collection, combination and display. The value of this approach was not just to enable senior executives to interrogate their businesses, but it enabled all operational managers to get monthly reports on the productivity of their operations. Of course, it did not take business unit managers long to see that they should push the exact same system down the line to individual operations. So in my case as CEO of the solid wood business I pushed it down to individual sawmill site profit centres and in turn the sawmill site managers pushed it down to operating units such as sawmills, planer mills, treatment plants etc. Now, the managers not only had data on their own operations, but they also had access to identical data from other members of the solid wood business unit. The effect on productivity was profound and the quality of management decision making at all levels in the organisation improved significantly. I used those exact same Excel report formats when I put together the Hawk Packaging business. Our Chairman at the time The Late Sir Laurence Stevens (ex Reserve Bank Board Member, Chairman of Fay Ritchwhite and Auckland Airport Coy) told me in all his business career he had never come across a management reporting system as topical and informative as that one. To me, that was the ultimate vindication of that approach taught so assiduously by people who at the time were often dismissed as corporate cowboys.*

Of course, putting in place a system such as that, relies on the cooperation of the various managers and it takes a change of mindset to accept a standard cost accounting format over that of a conventional financial accounting format. In a large corporate it is easy – *just do it or move aside for someone who will.* For a private organisation it is not that simple. The managers must be convinced first that what they have been doing hitherto is suboptimal and therein lies the problem.

Being practical here - if the covid situation is such that the tax payer is to gift money to various firms to keep them in business then to my mind at least, it is not unreasonable that we expect those firms to pay more attention to their productivity and be obliged to report on it at least.

How do you go about teaching the principals of something like standard cost accounting or even productivity measurement and improvement in general? What seems obvious to me is that The New Zealand Institute of Management be resourced appropriately and be charged with pushing a productivity improvement ethic into New Zealand business across the board. Businesses that are the recipients of tax-payer largess should be obliged to cooperate.

Importance of Sound Accounting and Financial Management

I was once told that the problem with accountancy is that it is performed by accountants. Whilst I do not agree with the implication of that statement, I can understand why it could be made. I think a more reasonable statement is that accountants and accountancy could deliver much more value to enterprise in general than they do. Accountants understand (or at least they should) how the money goes round in a business and they can see immediately where in the financial management of an enterprise things are wrong. The problem is that there is often a disconnect between the operational management and the financial management of the enterprise and the accountants can't get their message across because firstly they talk a different language and secondly they don't understand the operational implications of their message. Financial management trumps all and it is vitally important that barriers between financial management and operational management are eliminated.

The opportunity here is to improve the contribution of the accountants. I have had the mixed fortune of working with good accountants and some not so good. Good accountants are an extremely valuable resource, but it is not that simple. Most accountants are financial accountants only, but it is the management accountants that are the ones that can bridge the gap between financial management and operations management. It follows that improving the availability and quality of the management accounting function will automatically improve the mechanism of productivity improvement. This does not seem such a big ask.

Importance of Stopping Anti-competitive behaviour

Nothing will stop an innovative start-up quicker than knowing that the playing field is tilted towards the existing players. Existing players generally have a bigger arsenal than a struggling start-up. Having been there I know what it is like.

I am not overly familiar with the NZ Commerce Commission, but I have heard no complaints about it from businesspeople so I can only assume it is not doing its job properly. In Australia, within the business community, the ACCC is universally hated and from my observation they are effective. I certainly would not want to be on the wrong side of them. They seem to be able to sniff out anticompetitive behaviour and if anything, they are over-zealous in policing it.

Some anticompetitive behaviour is hiding in plain sight. Let me give you an example:

Bunnings - "If you can find the same stocked item at a cheaper price, we'll beat it by 15%."

On the face of it, it is the antithesis of anticompetitive, but it is not. What it really means is that if you are my competitor then follow my lead on prices or we will whack you. Play the game and we will all have a comfortable life. So, if you are a Mitre 10 it's easier and more profitable to go along with it. Besides who is going to go to the trouble of finding the same stocked item and if you did Bunnings would quietly give you the 15%. It is selective undercutting and that is about as anti-competitive as it gets.

Consider the case of someone who finds a source of a cheaper generic product (say nails) and sees a niche by selling it at say 15% cheaper than Bunnings. It would not take long for the builders to start sourcing from them and it also would not take long for the more enterprising to see the opportunity to get not a 15% discount but a 30% discount. The local Bunnings Store would end up selectively undercutting the start-up and only the most loyal would stay. So, what if Bunnings were compelled to advertise:

"If you can find the same stocked item at a cheaper price, we'll reduce the price of that item across all of our stores permanently by an additional 15%.

Yeah right. Cannot see that happening but that would at least bring competitive pressure on Bunnings and it would give the start-up a bit of oxygen. This story is not so far-fetched because within the last 12 months I have priced a full range of stainless steel builders hardware and I know that I could offer it at about 15% cheaper than the local Bunnings store but knowing they will undercut me I wouldn't bother taking the risk.

It seems simple to me. Selective undercutting by large corporates should be considered anticompetitive and they certainly should not be able to advertise it. They should instead rely on the competitive practices of monitoring their competitors' prices and adjusting theirs if they see fit.

In my opinion the NZCC should be appropriately resourced and tasked with the job of actively policing anticompetitive behaviour but concentrating on any behaviour that prevents new entrants from a market. Entrepreneurs would be heartened by such action. Again, the place to start is the construction industry. In a previous life I served on The Board of Benchmark Building Supplies Ltd., so I am not unfamiliar with culture in the building supplies industry.

Government and Taxation of Growth Companies.

I do not have too much to say here because more intelligent minds than mine can add value. However, what I can do is relate how the taxation system helped us to a limited extent and got me thinking that maybe there is an innovative alternative, so I'll put it out there.

When we constructed our 2nd moulded pulp factory in 1995/6, we needed $2.0m in round figures. Our first factory was generating good profits and cashflow and the shareholders were not taking a dividend. At the time there was a first year of operation deferral of tax for 12 months, so we utilised that and that gave us 12 months use of $200,000. The balance was made up from cashflow, shareholder equity and an increased bank loan but the fact was the IRD funded $200,000 for a year. That was helpful.

At the time I thought "why should the Government take anything from a company that needed every cent to fund its growth and provide employment?" There is no intention by the Government to tax twice and that is why we have imputation credits. Provided the money stays within a company and is utilised actively for growth I do not believe it should be taxed but an unpaid tax balance accrual should be provided. Any money extracted from the company by way of dividend should be taxed and the accrual reduced. Any other form of extracting money from the company by the shareholders should be taxed and the accrual reduced. The unpaid tax accrual should be attached to the shares so issuing shares would spread the accrual. This would have the effect of partially at least hindering the issue of options as a means of providing obscene camouflaged salaries to corporate executives as well as focussing shareholder attention on profitability and growth and risk management.

I have discussed this at length with accountants who universally think I am nuts but somehow if a Government is serious about promoting growth and employment then taking money off growth companies does not seem the right thing to do.

Occupational Health and Safety

I have been involved with machinery all my life from childhood to now. I have had the good fortune to work for NZ Forest Products Ltd that was years ahead of its time in this field. I have designed machinery with the full knowledge that I was responsible and liable for the safety of others. I have seen the introduction of the ACC system (a good thing) and I have seen the principals behind the ACC system get compromised such that the ACC system that was meant to stop the legal bun fight of suing for compensation get overridden by the Government itself fining employers for negligence (a defacto suing action) for even minor injuries. Not only that but the fines have no uniformity and Government Depts. seem to have more favourable treatment.

A company I dealt with recently had an employee burn his hand rather badly substantially through his own negligence. Management however accepted responsibility as there was a deficiency in a safety system. He was treated in hospital and the company continued to pay him until they found out he had taken alternative employment whilst still accepting his pay. The work-place inspectorate charged the Company and they were ultimately fined $60,000 and had to pay about $40,000 to the employee. In the same city within months of this action the City Council was charged following the death of an employee as a direct result of the Council's cost cutting actions. Their fine was $38,500 and an ex gratia payment of a sum greater than $10,000. There is no logic or even justice in that. In short it is a farce, yet it is accepted.

Small wonder that the current act has led to an entire industry that seems to add little value, acts as a handbrake on productivity and I suspect is making a few people rich. Employers are paying three times for the same risk management. Once through the shared insurance scheme that is ACC and then again through penalties imposed by the courts whenever there is an accident requiring hospital treatment and then again by ex gratia payments. That is a drag on labour productivity and in my opinion immoral. Better by far for employers to simply organise their own insurance.

One only must look at the traffic management industry to get an idea of how out of hand this OSH industry has got. We all have our outrageous stories of this utter waste of money. It wouldn't be so bad if it was logical but from what I can see it appears the people ultimately responsible for safety, i.e. the roading contractors, have abdicated their responsibility to professional traffic managers who have a financial self-interest and have no regard for cost. I travel From Whangamata to Auckland and back often and I frequently come across long sections of road with hundreds and hundreds of cones out and not a contractor to be seen anywhere. This is not isolated; it appears to be normal. I suspect the low productivity of our road maintenance program is due in no small part to the on-cost from such wasteful practices hiding under the guise of Occupational Health and safety and no doubt a pricing model that puts the revenue generation directly under the control of the recipient.

I accept totally that an employer has a responsibility to their employees (and to the public) but that's a 2 way street and all employees have a responsibility to follow safe work practices and look after their fellow employees as well. It all comes down to shared objectives and in a large measure common sense. When employees have a mindset that says the employer is in the wrong regardless of the circumstances, accidents happen. Safe workspaces are a shared responsibility and in my experience are in the main affected by the culture of the organisation. You only need to see the abrupt reduction in lost time accidents that happens when the entire workforce has a financial interest in reducing them.

John Turner

31 May 2020