

# IT'S NOT A REVOLUTION — IT'S EVOLUTION

*Inside FMCG* partnered with Pollen Consulting Group to talk about factories and supply chains of the future, and the importance of moving people, data analytics and ROCE into modern times.

*It's not big and it's not dramatic, but it is time to change.*



# WITHOUT CHANGE, BUST

Seeing through the complex to the simple will help revolutionise your supply chain and keep your business competitive.



BY PAUL EASTWOOD

The evolution of products has been pretty unprecedented over the last couple of decades. R&D spend as a percentage of GDP has gone from 1 per cent in the 1980s to almost 2 per cent now in Australia. South Korea invests over 4 per cent, with Japan and China closing fast on this number and the US is at just below 3 per cent. We see the impact of this in everyday life, with the revolutions of the iPhone, computers, electric cars and many other technology advances, or in solar and wind power. Closer to home, the ready meals, superfoods and innovative products that change daily in our supermarkets are all part of the investment in R&D.

Innovation and revolution does not stop there: business models have been re-invented for customer-facing

solutions: Uber, Airbnb, Amazon, the online grocery stores and more recently the meal kits marketplace.

Yet what has always lagged behind? Well, it's pretty simply the supply chains and manufacturing facilities that sit behind these businesses, and why is this? It's easier to sell an idea and grow a customer base to gain investors than build a perfect supply chain as momentum hits, and when funds are scarce investments in R&D channel towards revenue.

Did you know Ocado was started in 2000 and has had the same CEO since 2002? They are seen to have one of the world's leading models for their supply chain, but it's taken them the best part of 15 years to get there.

**GROWTH IS PAINFUL. CHANGE IS PAINFUL. BUT, NOTHING IS AS PAINFUL AS STAYING STUCK WHERE YOU DO NOT BELONG.**



N.R. NARAYANA MURTHY

The customer-facing evolution is slowing, the latest tech is principally an update of the latest version, the ability to disrupt industries is known and businesses have gotten much better and are using principles like Agile to accelerate new products to shelf. Growth has well and truly left a wake behind it in the supply chain, where the race now is to make revenue profitable.



**ENGINEERING OR TECHNOLOGY IS ALL ABOUT USING THE POWER OF SCIENCE TO MAKE LIFE BETTER FOR PEOPLE, TO REDUCE COST, TO IMPROVE COMFORT, TO IMPROVE PRODUCTIVITY.**

**N.R. NARAYANA MURTHY**

As the great Indian IT industrialist N.R. Narayana Murthy says, engineering and technology is for four outputs: two of these are to make life better for people and to improve comfort. Based on the above they have been the focus to date. To reduce cost and improve productivity? Well, that is the wave that must come next.

I recently saw an article, produced by a consultancy slightly more famous than Pollen, with a diagram that tried to explain all the trends in Industry 4.0 and its sole purpose looked like it was there to confuse and scare people.

Right now Industry 4.0 looks like a political campaign: lots of promises, scare mongering and people claiming to solve everything wrong in the next four years! Is it a revolution? Should we be calling it the fourth industrial revolution, or should we leave that to the future historians? I'm not too sure, but I am certain that now is the time to focus on factories and supply chains as their own competitive advantage.

Industry needs to embark on a significant change. It is 100 per cent coming, but it's not complex.

We need to build the airplane while hurtling down the runway; ignore the hype products and look for only what will be a game changer for your supply chain.

It is the quiet people who can see through the noise, like the characters from *The Big Short* or the even the statistics in *Moneyball*, that we should be seeking out and listening to, and yes this writer is a big reader of Michael Lewis. All of them had

the foresight to see through the complex to the simple (to them it was never actually complex) with a simple overruling message: stick to facts and don't waver in your simple beliefs.

A lot of the hype is old news. Nobody can tell me automation is Industry 4.0 – 3D printers are just a smarter manufacturing methodology; cobots are an evolution in progress for the last 30 years; talking computers are, well, talking computers.

Stand back for a minute from the "internet of everything" and you will realise your business is relying too much on other people for your biggest challenge ahead.

Businesses do not outsource product development or share it with competitors. A competitive advantage in products will soon be the end-to-end supply chain and it's time to ensure yours is a competitive advantage, not a costly and ageing beast.

R&D spend needs to be channelled into the supply chain, the early adopters of technology have removed the cost edge, the start-up culture of tech means you do not need to commit to a full ERP system roll-out to test and learn.

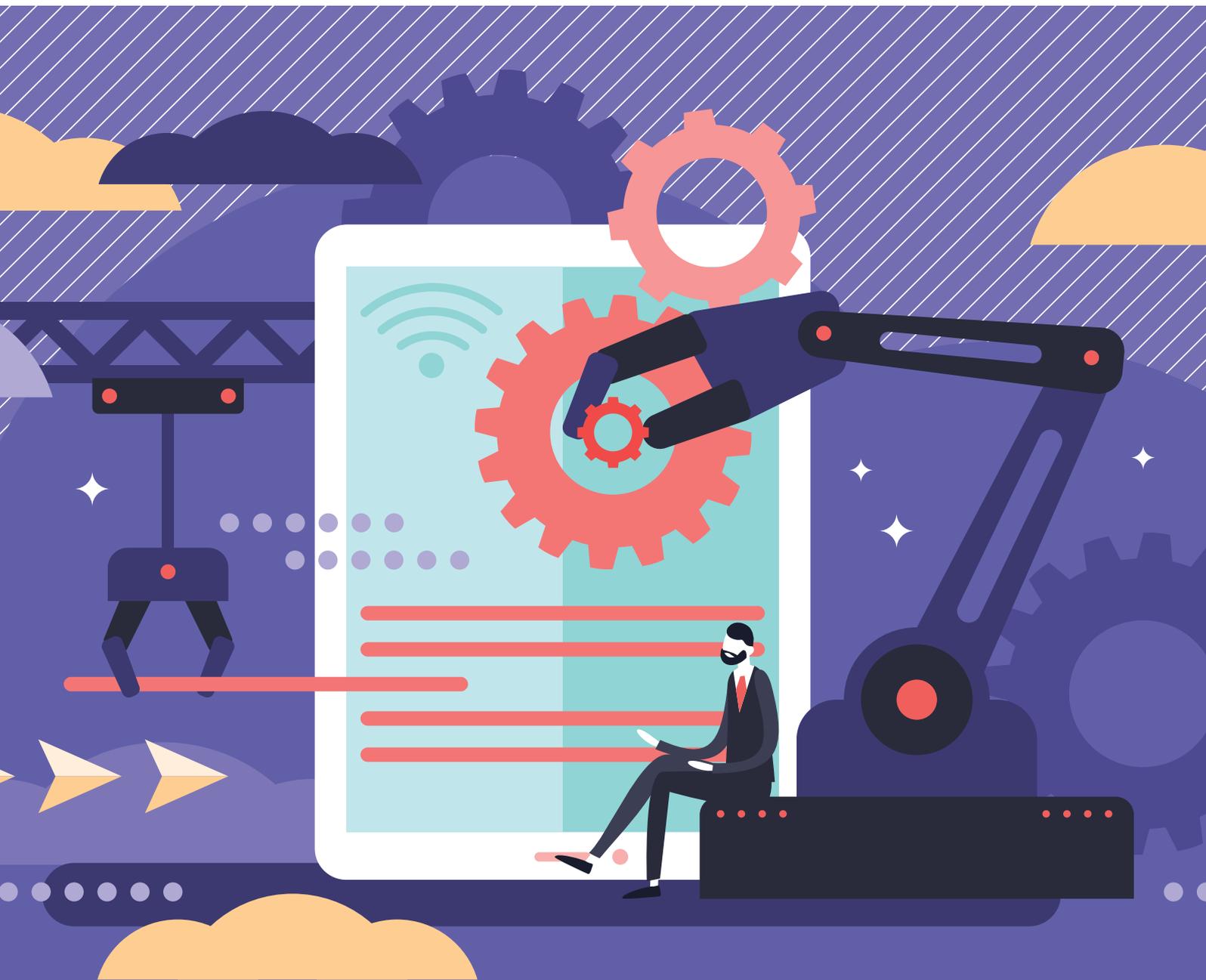
Partner, try, fail, learn and succeed.

Do for your supply chain what you did for your customers.

It is time to change... ■

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**PAUL EASTWOOD**, CEO, *Pollen Consulting Group*.



# FUTURE FOCUSED

New technologies will help the evolution of the factory of the future and drive cooperative innovation.

Industry 4.0 is the phrase of the hour in the manufacturing industry. The way we produce goods today will change drastically and we will see a profound and multi-faceted industrial structural change in the near future.



BY STEPHAN MANG

## WHAT WILL THE FACTORY OF THE FUTURE LOOK LIKE?

**THE FACTORY OF THE FUTURE WILL HAVE ONLY TWO EMPLOYEES, A MAN AND A DOG. THE MAN WILL BE THERE TO FEED THE DOG. THE DOG WILL BE THERE TO KEEP THE MAN FROM TOUCHING THE EQUIPMENT.**



**WARREN G. BENNIS**

Digitisation, the link between machine and internet is an extremely important game-changer. The previous separation between the “real” world of (production) machines and the “virtual” world of the internet is increasingly being erased.

Digital and information technologies now permeate classic industrial production and manufacturing technologies. In the future, physical and digital worlds will integrate more and more and merge into complex cyber-physical systems.

The next factory will be a human-friendly and robot-friendly factory. It becomes a place of knowledge and knowledge creation. That’s why the factory is evolving into a communication platform for operations. More and more developed automation increases flexibility and makes people sovereign players again.

The high degree of automation of the factory of the future will mean humans will be even more supported by machines in production during monotonous or physically demanding activities. The requirements will shift more to the areas of control, planning, maintenance and process control – imagine a factory with no people inside and a NASA-like control centre.

The tasks of traditional knowledge and production work will grow closer together and offer new opportunities, but also require a lot of creativity and new qualification profiles. The factory becomes a place of learning, which shows the knowledge in its application and at the same time constantly questions it anew. The factory becomes a learning ground for employees and requires upskilling of the workforce to work alongside the new technology. To reach this end-state will take time and is not expected to be a revolution as such but rather an evolution over time.

Flexible manufacturing technologies are bringing customer orders and production closer together. In addition to executing in-house work orders and procedures, increasing communication of the factory occurs outside. In the consumer goods sector, the hierarchical supply chains are replaced by global production networks, which need to be coordinated in a timely manner. The factory is going from a commander receiver to the place of cooperation with suppliers and customers. In addition to the classic goals of increasing productivity and minimising costs, flexible production and cooperative innovation occur.

The next factory allows for smarter layouts and flows, a high degree of flexibility of the factory footprint for production facilities, including their adaptations and additions. Material streams are organised on mobile transport units. Movement that is repetitive and simple is where to look for the automation options. Have you ever done a walk through your factory and warehouse to identify opportunities for automation or digitisation?

Robots are becoming cheaper and even more flexible in their applications. In addition, industrial robots acquire skills that have been developed so far for the service sector, such as those for communication, or for the automotive industry. Mobility is also increasing, allowing robots to accompany industrial champions and help

them with serious and dangerous tasks. Robots are far more flexible because they can be reprogrammed and given a new purpose, whereas a case packer can only pack cases.

As a strategic principle we should adopt an evolutionary process of change and can consider technological advances such as visuals and electronic notice boards, goggles where they overlay the machine for engineers on preventative maintenance tasks or for operators on set-up and change-over activities. Implementing radio-frequency identification (RFID) tags or smart labels to track materials and know where the next ingredients are is another example for digitisation.

The era of the air-polluting, noisy and energy-eating factory is a thing of the past. The next factory supplies itself. It is determined by the sustainable use of resources and energy. The use of wind power, solar energy, geothermal energy and the production of biomass are key: the factory is also a power plant, it feeds excess energy into the city network and functions as a buffer in high-energy times. These measures are complemented by closed cycles of water management.

Mere waiting and doing nothing is not adequate; the acceptance of incumbent and/or wrong practices is also not conceivable. In many cases, the strengthening and revitalisation of the manufacturing base is the best response to unstoppable new technology and industry disruptors.

As a matter of principle, we need more technology, not less, if we are to preserve the future viability of our manufacturing footprint in Australia.

In the future, the comprehensive digitisation of production will enable all production-relevant factors (human production, machinery, workpieces, plants, suppliers and customers, products and logistics) to be actively involved in the production process and communicate with each other via smart grids. As a result, the internet takes on a new dimension, and industrial production without the use of the internet is no longer conceivable. The question of which side will be in the “lead” in this merger of the machine and the grid is far from settled. The change has only just begun. ■

**STEPHAN MANG**, *director, Pollen Consulting Group.*

# SUPPLY CHAINS OF THE FUTURE

A simple solution to a complex problem.

**T**rying to predict what the future supply chain will be like is as futile as trying to predict what Donald Trump will say next.

That is not to say that we cannot review trends and see patterns in the way future supply chains are progressing. However, there are so many variables affecting supply chain efficiency that it is not simple to predict which will drive change more significantly. One thing is sure though – one size fits all supply chains will lead to a business's demise.

When we talk about trends what are we talking about? At a macro level there is significant volatility across the world; unstable trade tariffs and significant shifts in political allegiances such as Brexit lead to uncertainty in established supply chains, affecting costs and freedom to trade. Global shifts such as a rising labour cost in

China mean that what is today an attractive proposition for offshore manufacture may become relatively less attractive as a place of low-cost manufacture, to be replaced by the next emerging market. Shifting consumer spending habits, increasing demand for more SKU variety and desire for products to be delivered straight to the door all lead to increasing complexity and uncertainty in our supply chains.

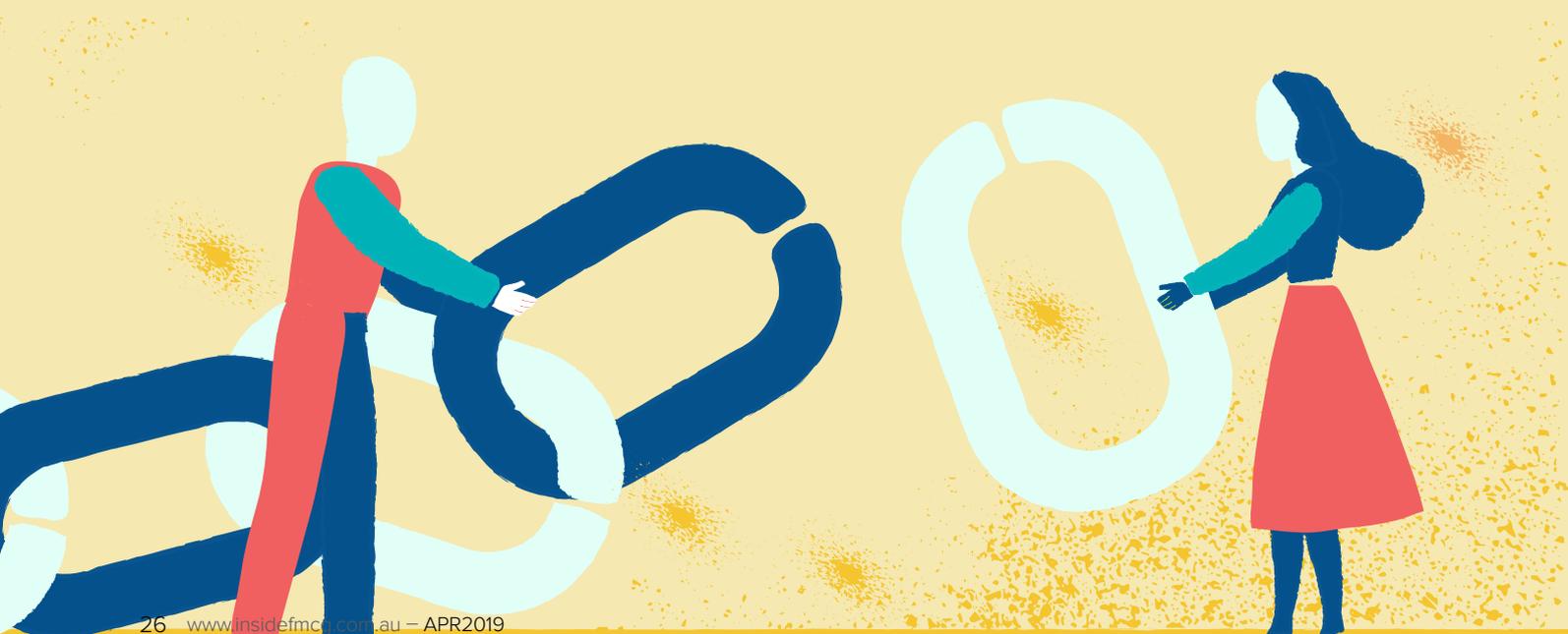
So with all this uncertainty, how can a business best prepare for the future of supply chains? The answer, interestingly, is simple. When the only certainty is that supply chains will require more complexity and face unpredictable shifts, the only sensible option for businesses is to ensure that their supply chains can adapt to this change rapidly, effectively and nimbly. The first step is to understand that traditional methods of optimising your supply chain



BY OLIVER NORTH

will be a thing of the past. Examples all over the world across multiple markets have already shown that fracturing your supply chain into customer-facing segments can significantly reduce inventory and improve time and cost to serve. But in order to achieve this, successful businesses will need to act fast, or ideally have already started.

So, how can you prepare for change? We believe that other than early preparation, there are four main areas which will determine successful supply chains within FMCG, and rather more morbidly for those ignoring these shifts, will determine which businesses cannot compete.



## INTELLIGENT FRACTURE

Let us start with fracturing or splitting your supply chain. Traditional supply chains have a one-size-fits-all mentality. However, in order to ensure the right level of service for ever-disparate customer groups, businesses should look to develop multiple supply chains to meet varied demand. Essentially, by shifting the focus of the supply chain to be more customer-centric and tailored to meet the customer segmentation-demand volatility and needs. For example, high-volume low-demand volatility customer can be serviced by more traditional supply chains, where lower volume, high-

er demand volatility will require a higher skill base ideally situated closer to the end-customer.

Customer-demand volatility against volume is one way to segment customer groups. However, consideration of what requirements the customer demands may drive different segmentation to ensure each segment has a fit-for-purpose supply chain. Understanding your customer needs, what drives cost in your supply chain and what affects your ability to meet those demands will help shape how you should segment your supply chains.

## TECHNOLOGY UPTAKE

Embracing the power of new technology is critical to ensure agility and speed to react to changing environments. While discussing Industry 4.0 there is still a significant portion of FMCG professionals who relate technology implementation to historic ERP integration projects taking years and costing millions. This is, however, not the case. There is a host of agile technology software that has been designed as a modular compliment to existing systems, and which can tap into vast computational power and solve or optimise even the most variable and complex supply chain problems.

Adopting technology in your supply chain first requires a business to forget about technology. The initial step must be to map your supply chain from your suppliers, to your customers' customers and identify where the pain points are. Only once these areas are identified should solutions in

technology be sought. These solutions should be specific and fit for the purpose of solving that problem.

Think about your mobile phone. Everyone has a host of applications they use daily, designed to meet a specific purpose. We as the user utilise apps to solve very specific opportunities. The applications are made by a host of vendors, and often do not communicate with each other but are important to ensure we have the functionality we require from our phones. This is how we should consider technology in our supply chain.

The ability to rapidly adopt new technologies and leverage their power to influence decisions made by supply chain teams will be critical to surviving in such a dynamic environment.

## STRUCTURAL AGILITY

In order to manage and rapidly adopt multiple supply chains across different customer segments, the role of the supply chain management will shift. They will be leaned upon much more to offer flexibility and rapid adoption of technology, and collaborate cross-functionally.

Firstly, the traditional functions of IT and capital project teams will need to be considered holistically. Technology adoption is not just software or machines, it should be across both. Thus, IT and capital project teams will need to consider solutions as a collective.

The supply chain function and optimisation will involve multidisciplinary teams rather than single functions. Much more integrated and customer facing, forging inter-functional partnerships rather than siloed thinking.

The supply chain manager will be more of a supply chain architect, able to wield technology, to embrace change and act nimbly to meet changing demands with a more innovative thought process.

## COMMUNITY – YOU SCRATCH MY BACK AND I'LL SCRATCH YOURS

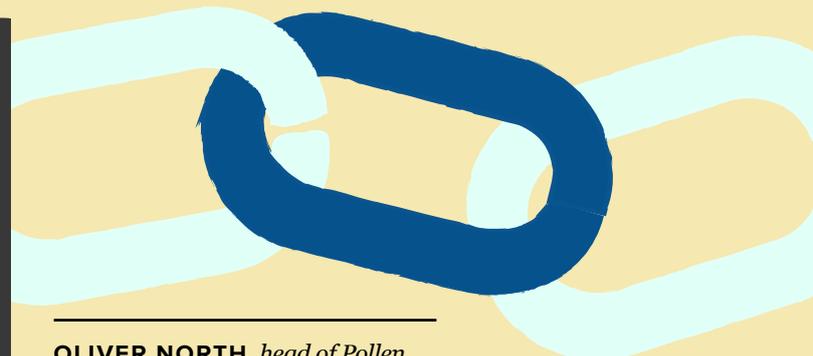
Lastly, probably the largest shift will be the ability for a business to identify partners with other businesses, using shared resources and use of third-party assets to flex and add low-cost adaptability. One example is shared warehousing. Rather than all elements of the supply chain holding a level of

stock, retailers, for example, would hold the stock and suppliers would manage the level of stock in that warehouse. This would eliminate the bull-whip effect and lower the overall inventory needing to be held in the supply chain.

## CONCLUSION

In order to ensure you are setting yourself up for the future, businesses must:

- adopt emerging technology; think big, start small, fail fast
- invest in innovation and collaborative thinkers to lead your supply chain of the future; supply chain architects
- consider the pressures caused by different customer segments; consider which segments would be served by differing supply chain strategies
- build partnerships to leverage flexibility and sprint capacity; retailers, suppliers and competitors. ■



**OLIVER NORTH**, head of Pollen Technology.



# A PROACTIVE APPROACH

With the inevitable arrival of Industry 4.0, putting people at the centre of strategy planning will pay dividends and boost your business.



BY ASHLEY DARLEY

The modern-day luddite worries about their job being replaced by a robot. They claim we will lose the human touch. But this time the machines are not chasing the physical activities – they are after the thinking tasks, because the robot's brains are developing faster than their bodies.

From mechanisation in the first Industrial Revolution (1.0) through to mass production in the next (2.0) and on to automation, computers and electronics (3.0) there has been the underlying theme of humans being replaced by some sort of machine or process. The introduction of Industry 4.0 is no different, with computers set to replace some of the office functions through smart connectivity and use of big data.

While there remain several unknowns around the true likely impact of 4.0 or exactly when it will take hold, there is one thing we know for sure: it is on its way. So rather than react when it hits, businesses should get ahead by being proactive, especially where people are concerned.

Advancements of this kind should be viewed as an opportunity, rather than a threat. It is essentially a step-change in the skillset required to manage and run the factories of the future, rather than a replacement. How can businesses embrace this? By having strategies for their people...

In business, people are our greatest asset. Even with the advances in technology over

the last few years, the machines still lack several things that people bring. At the end of the day it is a person ultimately buying the product or service on offer, so it stands to reason that people be involved in the concept, development and manufacturing. People should complement what technology offers rather than be replaced by it, which can result in the loss of knowledge, emotion and brand ambassadors.

Therefore, alongside any technology strategy there must also be a people strategy that applies to bringing in skills from outside the business and harnessing those that already exist.

Rather than losing employees at the hands of technological advancement, we should look to take them on the journey with us. For example, a production planner role may soon be a thing of the past, replaced by smart systems hooked up to machines to optimally plan and sequence production at the click of a button. Wouldn't it be better to proactively retrain the existing production planner in a new role that will be required, such as IT security, data analytics, coding or programming in order to retain the knowledge and passion for the business?

This doesn't just apply to the office. In factories of old, one of the greatest barriers to change and improvement has always been the burden of additional process: manual measurements, new QA paperwork, calculating KPIs, filling in visual management forms. Why not

leverage technology and introduce the factory of the future where visuals, KPIs and forms are all digital, automatically generated and user friendly? Taking out the non value-added elements not only improves productivity, but improves the chance of change sticking. After all, who doesn't prefer a fancy gadget to paper and a calculator?

Both examples above require planning and a strategy for people aligned to a clear technology strategy. Acting after a new system is implemented will be too late and our people will get left behind.

Remember the days when applying the principles of lean set you apart from your competitors? Unfortunately, those days are gone; instead, that is becoming a prerequisite to merely survive. Those who want to get ahead of the pack now are going to need a new competitive edge and it is becoming more and more likely that it will be embracing and taking advantage of some (not all) of the technologies of Industry 4.0. Whether it is harnessing big data to create a digital twin and make strategic decisions or predicting future performance based on live data analytics, change is on the way and, as has always happened in the past, people will be central to the success. ■

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**ASHLEY DARLEY**, head of Pollen Academy.

# PLANET OF THE DIGITAL APES



BY MATT NIXON

In the digital information age, businesses need to embrace new forms of technology.

The world we know today has been defined by data. The vehicles we drive to and from work would not exist without the countless hours of experiments and data collection dating back to the times when Newton proposed the three laws of motion. However, unlike the days of Newton, now humans live in the information age where enormous amounts of data are created and collected every second.

Big data is defined as very large sets of data that are analysed using powerful computers and software to reveal insights into the world. Big data is most famous for its use in marketing, where consumers are sent tailored ads according to their buying patterns and internet search history. However, big data is already in use in a wide variety of industries. The finance industry has utilised big data for a few years now in order to detect early and prevent devious activity online, and to create analytics to assist in trading. Another phrase that is thrown around frequently with big data is “the internet of things” (IoT), which is the interconnection between different technologies via the internet to send and receive data. Big data, coupled with IoT technology, has the capacity to produce hyper-intelligent, automated systems that respond rapidly to changes in consumer behaviour, supply chains and much more. The question is: why aren't more companies within the FMCG industry utilising this technology?

One major hurdle is the cost of the infrastructure required to be able to analyse and utilise big data. Complex computer systems, data storage facilities and IoT technology do not come cheap. It is also difficult to justify the large cost of installing a technology system capable of utilising big data when your current technology works fine. So why even bother with it? This question can be answered with one popular phrase: adapt or die. History has

shown that companies that are unable to keep up with technological advances meet their demise quickly thereafter.

New forms of technologies are not the only change that businesses will need to look out for within the digital information age. With the use of big data in the workplace comes the birth of a new corporate species: the data analyst. Although supercomputers can analyse more data within a second than a human could within the entirety of their life, they are still unable to think critically. There still needs to exist a human interface that can look at the data critically and determine the validity of big data insights. In the information age, the data analyst creating insights will be your main driver of value for your products.

A company that has the capability to utilise big data and IoT technology will

be placing themselves far ahead of the competition. The ability in the digital information age to process large amounts of data at the customer's end and then use the insights from it to make decisions internally is priceless. Imagine being able to change the volume of product you produce, purchase variable amounts of raw materials to create your products, and sell variable amounts of product to vendors in different geographical locations, all depending on real-time data from customer buying trends, availability of materials, marketing campaign influences and even the weather forecast! ■

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**MATT NIXON**, *digital architect, Pollen Technology.*





# MANY HAPPY RETURNS

Want to know how your business is doing?  
It's time to get to grips with ROCE.



BY SCOTT VARKER

**W**e all want a good return on our savings, superannuation and investments. We get a shiny report each year that tells us how they performed in great detail – the question is, do we take that rigour into our factories and supply chains? We should ...

ROCE or Return On Capital Employed has traditionally been the sole domain of the CFO and investment analysts, but more and more we are seeing this measure cascaded down through organisations. But what is it? Why is it important?

In simple terms, ROCE is an efficiency ratio used as an indicator on how well a business is doing, or



more accurately how well a business uses its cash and assets to deliver profit. It may be declared in your company's annual report and is one of the indices used by fund managers in assessing company performance. ROCE is shown as a percentage, with higher values indicating better performance. However, it should not be viewed in isolation; it needs to be read in the context of the business decisions that are being made and its overall trend. It is also normal for the ROCE to change over the lifetime of a business. As an example, a company may have a strong ROCE, but a major investment in production capacity, to meet

increasing sales demand, can lead to a reduction in the ratio. While there may be no direct impact of a poor ROCE, it could be a real indicator of a decline in the overall business and can prove to be a real challenge when seeking external funding.

Why is it important to operations? The old adage "what interests my boss, fascinates me" could easily be extended to those who control the purse strings. Getting capital investment approved can be a challenge. Do you understand the language your CFO speaks, and more importantly can you deliver the goods on their terms?

To understand ROCE we need to look at how it is calculated and the levers that can be pulled to influence it. The calculation is a simple one: it is found by dividing an operating profit (EBIT) by the Capital Employed. Correspondingly the levers are also remarkably simple: anything that increases EBIT or decreases the capital employed will improve the ratio.

So when the CFO asks how does this improve ROCE, as an operations manager you need to know what levers you can pull.

Anything you can do to improve profit will have a significant impact including the usual operations KPIs such as reducing waste, increasing throughput, decreasing labour and increasing plant utilisation. But the real trick in the ROCE calculation is ensuring that capital project benefits are delivered and your investments are made where the business returns are available, not just shared across whoever shouts the loudest.

A consistently managed portfolio of capital investment is important to ensure a balance that drives profit and growth as well as delivering quality and safety improvements. If ageing equipment needs to be replaced, always ensure that the latest technologies are considered to deliver further improvements in efficiencies thus supporting lower costs and improved profit. In multisite businesses, do sites really get that the best move for the business is to free up funds to invest into another site where the ROI of a project is higher and work together in true portfolio

management, rather than compete for spend at what would be a lower overall ROCE?

We have all seen the junkyard of failed capital investments, which quite often are still being depreciated. This has a huge impact on ROCE, tying up cash and delivering nothing on the bottom line.

These junkyard exhibits are what nobody wants to be associated with. Phased investment strategies or running at an operating loss by using good old humans, knowing you can invest to automate when volumes are stable, is one way to get this right. The other is to be sure in the outcome by using digital modelling to test both the needs and the final results before you even invest.

On the other side of the equation is the option to minimise the need for cash and assets. The easiest levers to influence are inventory levels including raw, pack, consumables and spare parts as well as ensuring longer terms for payment of suppliers. The timing of investment in new assets is also a significant driver; while sweating old assets is beneficial, it needs to be balanced against delivering improved efficiency and reliability.

Leasing used to be a common way to avoid direct investment in assets, thus minimising the capital employed. However, care should also be taken when considering leases as under the new accounting standard operating leases may now need to be taken into account on the balance sheet.

From an operations perspective just about every decision and action you take will impact the ROCE. I would like to say it's easy and all under control, but you will find every lever you pull has consequences. Many of these you already know, but when it comes to capital investment the impacts on ROCE are far greater and can swing from positive to negative very quickly, so put the hard work in on finding the right solution and make sure the business case is well and truly tested. ■

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**SCOTT VARKER**, *director, Pollen Asset Advisory*