

# The Challenges for 21st Century Entrepreneurship

Roger Cowdrey MIBC



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# **THE CHALLENGES FOR 21<sup>ST</sup> CENTURY ENTREPRENEURSHIP**

The Challenges for 21<sup>st</sup> Century Entrepreneurship

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# 1 INTRODUCTION

My original title for the book was *The Definition of Stupidity*. The reason for this title was that we are now facing the 4<sup>th</sup> Industrial Revolution and one that will present us with major challenges. However, in the last two such revolutions we have failed to fully address these challenges in a proactive manner. Rather we have followed Einstein's definition of stupidity that it is 'doing the same thing and expecting a different result'! This book seeks to highlight the need for an entrepreneurial approach to tackling these problems this time and not to make the same mistake.

Although the word entrepreneur has been around for a few centuries now, it has only recently become accepted as a respectable concept to be admired rather than ignored.

For a long time the basis of entrepreneurial activity was the slightly mad boffin. Indeed, Trevor Baylis, the inventor of the clockwork radio that allowed health information to reach remote African villages once remarked that there was a good reason that inventors were called mad scientists.

Trevor pointed out that the patent laws meant that one could not talk about an idea until it had been patented, otherwise patenting would not be allowed. Therefore, the only person that the inventor could talk to was himself or herself. By definition, people that go around talking to themselves must be mad!

Although not termed entrepreneurs at the time, those that took the invention of the steam engine to produce the manufacturing facilities of the First Industrial Revolution were probably the first modern day entrepreneurs.

The second industrial revolution became known as the technological revolution because of its use of electricity and petroleum to fuel major industrialisation. Again, the entrepreneurs were the ones that saw the potential of these new forms of power to increase industrial production.

The most obvious example from this time was the Ford Motor Company, where Henry Ford used the new technologies, together with the conveyor belt already used elsewhere, to mass-produce the Model T Ford.

The third industrial revolution was the computer revolution, where the use of computers created a further impact on industry. We suddenly saw computers used to deliver complex control systems and for robotic machines to take the place of workers on the production line.

All of these three revolutions had impacts far greater than in just the industries themselves. Each had major social implications and disadvantages as well as benefits.

As a consequence, these revolutions all created impacts for individuals as well as for governments, and both were equally slow to identify potential impacts and to react to them.

We now face the fourth industrial revolution that could arguably become the most significant of all. This is the revolution that incorporates robotics, voice recognition, artificial intelligence, cloud computing, the Internet of things and mobile computing amongst others.

Clearly, it is impossible to respond to the challenges that each of the first three industrial revolutions presented so long after the event, but it is possible to learn from them and to identify the failure to respond quickly in the past so that we maximise the opportunities of the 4<sup>th</sup> Industrial Revolution and minimise the potential risks.

Many of the potential risks are already beginning to appear but to date there is little evidence that there is sufficient action being taken to control or eliminate them.

Each revolution in the past has created major social change as well as increased wealth for many and unemployment for others. In its wake it has created reactive solutions and minor tweaks to existing provision at a government level and an ostrich like mentality in the majority of individuals.

But each of these three previous industrial revolutions took place at a time of relatively stable world order, with a less well-informed younger population and a less technically knowledgeable youth.

There is every indication that most parents and people in governments are lagging behind in understanding and awareness of what is happening and the speed at which it is happening.

This book looks at the lessons of the past, the concerns for the future, the potential benefits for the future and the actions that need to be taken in order to maximise benefits whilst minimising the potential risks.

Clearly, changing governments is not the role of a single book, but it is possible to put entrepreneurship back into a position where it helps to solve the problems rather than creating them.

Therefore this book will seek to widen the view of entrepreneurship to cover areas such as sustainability, creative arts, social entrepreneurship and combinations of these. It will not denigrate the work of entrepreneurs that are capable of creating large numbers of employment opportunities, nor will it attempt to change the education system; much as it may need it.

But it will seek to encourage people to see not only the value of alternative forms of entrepreneurship but, in some cases, demonstrate the longterm benefits over what has become to be recognised as traditional entrepreneurship.

## 2 LESSONS FROM THE FIRST THREE INDUSTRIAL REVOLUTIONS

The people that harnessed the new power source of steam were entrepreneurs. The people that developed the cotton mills of the North of England were people that could see the need for cheap and speedy production of materials and could use the new technology to achieve this.

However, such an innovation did not come without cost, albeit the cost was not always a financial one. This revolution required the relocation of masses of people from a rural setting to an urban setting in order to provide the labour for the new factories.

This created a number of side effects that still impacts today. One could argue that it was the Industrial Revolution that started the breakup of the traditional family. Until that point families lived in small rural communities with only about 2% living in towns.

With the need for employees created by the factories, and with the opportunities for financial reward apparent in such employment, the start of the migration to find financially rewarding jobs had begun and has continued until today when such a migration has a global dimension.

Whilst some would argue that this was to the benefit of the individuals that took such a path, to the point where over 50% of the population in developed countries now live in an urban environment, there were clearly many downsides, many of which we are only seeing today. As a consequence, many, including governments, do not recognise or attribute the cause to the Industrial Revolution.

The most obvious effect of the Industrial Revolution was the impact on the farming community who lost many of their workforce to the attraction of the new industries. As a result, countries that were once self-sufficient in food production had to start to import and hence pay more for food products. Attempts to regulate production have failed spectacularly with resulting food mountains, moneyed farmers and no improvement in the situation.

This migration also had the effect of starting the demise of the extended family support that had been inherent in the village system. While it may not have had an immediate effect on young people searching for something other than farming, it is clear today that lack of family assistance is a growing problem for the governments with a need for care at both ends of the age spectrum that is no longer provided by family.

The second impact of the Industrial Revolution was on the education system. Good, targeted education within rural village schools was replaced by a system that was designed to produce sufficient clones to operate the machines of the Revolution.

To achieve this the government turned to the academics of the day who produced a cut down version of the university education that addressed the basics all should know. Over time this process has developed into an education ladder that starts in early childhood and ends at University.

What this system does is to confuse intelligence with academic attainment. It also presupposes that the primary skills for those at the top of the tree are academic ones. The softer skills of communication, people management, creativity etc. are given little or no weight on the academic ladder.

As a consequence, much innate creativity is subsumed through education in the pursuit of academic excellence. Hence it is no surprise to find that those people that started those big earning companies like Microsoft and Apple did so by jumping off of the education ladder. Yet the system with its foundations in the Industrial Revolution is still maintained by academics and civil servants who were the lucky ones that made it to the top of the ladder!

A third effect of the Industrial Revolution was the impact of chasing the money. There is no doubt that the new factories that were fuelled by steam created significant wealth for those that took the entrepreneurial risk. However, once the big profit genie is out of the bottle then it is pretty well impossible to get it back in the bottle again.

Another effect of the industrial revolution was the advent of cheaper goods. This led to a steady increase in the accumulation of wealth as a means of identifying your position in society.

As a consequence the next two revolutions only served to increase this desire for more and cheaper goods. From the Model T Ford through to the smartphone and flat screen TV there has been a permanent lust for the new model of everything. This has resulted in directing revolutions more towards the profit motive that appeals to the vanity of consumers rather than addressing the real needs of society. As a consequence, we have developed a world where more people have mobile phones than have access to clean water.

At the time of the first industrial revolution many countries also had empires and these empires continued to fuel the achievements of the developed world through the provision of resources to support the economic growth.

One would have hoped that the provision of independence to so many of these countries would have stopped the plundering of natural resources. However, as well as needing to sell these resources in order to survive economically, the developed countries found a new cheap resource to aid their development.

Not only did they want the natural resources, they now also wanted cheap labour. Again, this was benevolently seen as assistance in bringing down unemployment and assisting economic development. However, such decisions on use of labour were often designed, not on the basis of utilitarianism, but on the prevailing tax laws and the needs of shareholders. As a consequence, there has never been stability for these developing countries.

Leaving these once colonial outposts also created a further problem. On the surface, they had been ruled for many years by some of the supposedly best democracies. However, in reality, much trade was conducted by back-pocket diplomacy.

Furthermore, many of these democrats that had ruled their country were upper class diplomats or senior forces officers. As a consequence the countries were led by a privileged elite. Small wonder then that when independence came, the new rulers assumed that this elite status and all of its trimmings were a natural reward for ruling!

A further problem with the imposition of the democratic process at independence came from the fact that many of these countries came from a tribal basis where conflicts were settled by which tribe was the strongest. It was naive to think that these tribes would have witnessed, much less experienced the much lauded democracy. Indeed, given the prevalence of the military, it is likely that they saw autocracy rather than democracy. It is quite interesting that the military attaché is still a major player in most consulates.

If you add to this the fact that the democracies of the Western World were developed over hundreds of years, it was foolish to believe that democracy could have been imposed after a simple two year cutover period.

Clearly, one cannot lay all of the troubles of the world at the feet of the three industrial revolutions, but actions taken to support the revolutions, through the use of raw materials and human capital, have not helped them nearly as much as it first appears.

In the first industrial Revolution the impact on employment was largely positive. The use of steam in places like the large cotton mills created a lot of new employment. The same was true of the second industrial revolution, albeit that the work was often repetitive and monotonous.

However, as many of the jobs in the first and second industrial revolutions started to move abroad where there was cheaper labour, so unemployment started to rise. This was further exacerbated with the third industrial revolution, where robotic production lines and computers that did tasks much quicker and more accurately replaced large numbers of people.

With the third industrial revolution things such as the internet, mobile telephones and social networks began to emerge. Indeed, from the time of electronic devices such as video recorders, remote controls, DVDs and electronic games, the gulf between the young people who embraced such technology and parents that grew up in a much simpler environment started to grow.

This gap was further widened by two other things that came as a consequence of things that emerged from the various revolutions. We talked earlier of the desire to chase material wealth, and this led to an increase in both parents going out to work. This in turn led to parents needing to abdicate parts of their parental role to others.

You may also remember we talked about the break up of the compact family unit as people moved away from the villages to take the more lucrative jobs of the revolution. This often meant that the parental role needed to be passed to teachers and child-minders who did not have the same interaction as the old family unit used to have.

As a consequence, at a time when young people were having access to more and more complex technology, their parents were less aware of the potential of such devices and less able to exercise the necessary parental control. Discovering soft pornography magazines under the pillow in the 1950s was a much easier task than detecting what people were doing on a device that you didn't really understand.

Suddenly, keeping secrets was much easier than was the case in the past and the opportunities were potentially much more dangerous. But this was still just the tip of the iceberg before the commencement of the fourth industrial revolution.

So, to date the three industrial revolutions have succeeded in advancing economic activity in many areas. As a consequence, it has increased the wealth of many. However, it has done so at the expense of many more. We now live in a world where 62 people own as much wealth as the poorest 50% of the planet.

Sadly, the reaction of governments to all of the things that we have discussed has been remarkably poor and almost always too late. Governments tend to react to a crisis rather than anticipating and working on preventative measures.

The mass employment into the new industries also created the unions. They recognised that individuals could not take on the big bosses, but that as a representative group they could do so. For a long time unions were effective in protecting their members and ensuring good pay and conditions.

But as soon as a large group forms then a leader or leaders are required. This leads to a desire for power and from that the desire is to protect the size of its membership rather than doing the best for their members. So suddenly members start to become pawns in the power game rather than the 'raison d'être'.

The inability of governments to recognise the need for reasonable regulation in the control of unions allowed them to become too powerful and led to major confrontations. Governments also failed to spot the potential for further union conflict through the advances of technology. For example, with the change from steam trains to electric trains there was no need to have two people in the driver's cab. However, running the train with one was like a red rag to a bull as far as union members wanting to protect their power base were concerned.

Of course, one could argue that the world has muddled through this far, so surely we will continue to cope with whatever is thrown at us. Children are still mainly going to school, although truancy is on the rise; taxes may well be raised to cope with increased numbers of unemployed; but countries are likely to become more insular as they seek self-preservation. Jobs that were once the prerogative of the underdeveloped countries will disappear and hence the gap between rich and poor will widen. This will not stop the pursuit of riches by those in developed countries who will still want the latest of everything.

Sadly, the gap between rich and poor, together with the pursuit of riches by the poorer members of communities will likely cause an increase in thefts, unrest and violence.

If one adds to this succeeding generations living longer and health improvements requiring funding, we are in danger of seeing a society that requires more health professionals, more law enforcement and less workers to generate the taxes necessary to fund them.

So this time around, we need to look for alternative solutions to the problems that Industrial Revolutions bring with them. We need proactive solutions now rather than reactive band-aid after the problems have arisen.

In the following chapters we will look at what the 4<sup>th</sup> Industrial Revolution is likely to look like and try and anticipate the problems that it will bring with it.

### 3 WHAT DOES THE FUTURE LOOK LIKE?

I have always believed that, as the world develops faster and faster, it is impossible to predict what the world would look like in five years, let alone fifty or a hundred.

At the end of 19<sup>th</sup> Century the predicted market for cars was seen as around two hundred because it was thought only the rich could afford to hire a chauffeur! Even when the Model T Ford was made available to the masses at the start of the 20<sup>th</sup> Century, it was assumed that the vehicle had to have a driver. Yet, at the start of this Century we find that Google's self-drive car has already travelled over 2 million miles of public roads and that Tesla has a self-drive car hurtling around in space!

Only recently did I see that work is rapidly progressing on creation of pilotless aircraft and Uber are talking about air taxis as a realistic opportunity to bypass heavy traffic. Fedex is looking to control it's whole network of cargo aircraft across the States from a single hub run by six pilots in the same way that attack drones in the Middle East are controlled from a hub in Nevada.

But the use of artificial intelligence is not just confined to driverless vehicles. With voice recognition, coupled with instant translate capability and rapid web searching, AI is replacing the call centre staff with a more accurate and less emotional alternative. As we get more and more used to products such as Siri, talking to an artificial voice stops being a frightening experience; particularly if it isn't rude to you as a human might be.

The ability to process large amounts of data, to absorb masses of new research and to make connections has resulted in an AI accuracy diagnosis rate for lung cancer of 90% compared with the 50% accuracy of human doctors. AI has the capacity to provide a consistent result that is not determined by the individual knowledge of different humans.

Another area that has progressed rapidly in the last fifty years is that of retail. We have seen a move from local corner shops to supermarkets, hypermarkets, internet ordering, product scanning and personal check-outs. Now we are seeing the first of the staffless shops where one enters through a smart phone app, takes what one wants and gets billed, again through your smart phone.

Many people seem to regard these things as almost science fiction and things that will not really effect them. Are we really going to get into a driverless car, stop going to the corner shop for a chat and a pint of milk or rely on an artificial voice for customer contact?

Yet AI is already affecting large parts of our lives. How often do we seem to receive relevant advertisements; suggestions from sites like Netflix on possible films we might like; suggestions on additional purchases from sites like Amazon and so on. Do we really believe this is the work of some genius storeman or even a clever marketer or is it the work of AI systems analysing masses of data about your preferences and the characteristics of what they are suggesting?

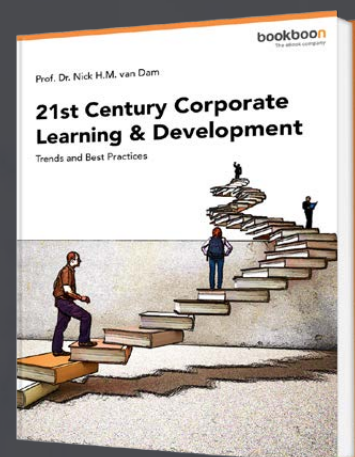
Another effect of dealing with AI is a product like Siri. My wife and I started using this as a novelty by recording supermarket shopping lists on the phone with Siri. Not only did it allow both of us to have a copy of the list as we independently go around the shop, we no longer leave the paper list on the kitchen table!

However, no sooner had Siri won us over on that simple task than we started to explore other possible ways of using it. Soon it was adding diary appointments, writing messages and emails, answering searches, dialing calls and Facetimes and so on. In other words, AI was

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now becoming an integral personal assistant and the home pod became the next must have. No longer do we search for CDs, we simply ask Siri to stream music from our provider suitable for the mood we are in.

Obviously there are many more examples that could be included of what is happening in the immediate future, but the most startling thing about all of them is the speed at which they are all appearing.

What this clearly tells us is that the advance of technology has reached such a point that it is moving much faster than at any time in our history and that it will only further accelerate.

Clearly, the geeks amongst us will regard this as all positive. However, there are many others that need to consider the wider ramifications of this massive change that is much more significant than the first Industrial Revolution. While we need to understand the technology changes that may literally be around the corner, we also need to understand the ramifications of such changes in order to plan for them.

For a start, in the first Industrial Revolution the creation of the big industrial mills simply recreated a different form of job rather than destroying jobs in favour of more accurate and efficient technology.

In this new world of automatic shops and AI call centres, jobs will be destroyed without new ones being created. This will have two major effects. Firstly, jobs in a country's own industrial areas will be eliminated. Equally importantly, many jobs were relocated to developing countries because of cheap labour, and these will be eliminated as well, with possibly even worse consequences.

Secondly, the use of technology has already demonstrated the bad side of some uses that were clearly not anticipated when they were created. The most obvious of these is the smart telephone. The use of social media has already denigrated the concept of a friend. Despite research showing that people can only maintain about five real friendships, people attempt to maintain superficial contact often with hundreds of people on social media.

A corollary of this social media frenzy is the need to share every nuance of their life with the world however trivial or damaging. In some cases it can ruin careers and in some regimes it can even lead to arrest! Only recently it was pointed out that insurance companies might not pay out for burglary if the person has advertised that they are on holiday via social media.

But worse than this is the perceived need to be instantly available and in communication. This addiction, for this is clearly what it is, results in the destruction of real communication.

How often do we see couples and groups of people glued to their smart phones in cafes and restaurants without any concern for the person they are with?

Increasingly it has become a pedestrian and driving hazard to avoid people that are looking down at a screen, rather than watching where they are going. With earphones at full volume, they often cannot even hear warning hoots.

Instant accessibility also means that people now make telephone calls in places where quiet respect was the order of the day in the past. Suddenly, in cafes and public transport, we are regaled with the trivia of other people's conversations.

And how many people have been annoyed as smart phones are pulled out in theatres, concert halls and cinemas? It can only be a short time before road rage is replaced by phone rage!

All of these things have led to a different definition of private lives. Indeed, in some cases it seems to have eliminated privacy all together. Now people seem to think you are available 24 hours a day and get annoyed if you don't answer the telephone or respond to a message instantly.

And don't get me started on the 'selfie' fad. It is reckoned that the average teenager of today will take 25,500 selfies in their lifetime; that young females between 18 and 25 are reputed to spend 5 hours a week taking selfies and that you are more likely to be killed taking a selfie than by a shark attack. In 2015 for example there were 12 deaths from attempting to take selfies and only 8 deaths from shark attacks.

Of course, for the Millenials, this is a way of life that they have been born into rather than an evolution for their parents and grandparents. It provides the young with a much more powerful lever over parents than the old style appeal for new trainers based on the cry 'all my friends have them! Invariably the young are far greater users of the additional functions of the mobile phone than the adults around them and this gives them perceived power as they strive to demonstrate adulthood.

However, it also opens them to grooming in a number of forms and opens them to things that would have come under parental control in the past. Which young person worries about movie classifications when they have instant access to much worse on their telephone!

Another strand that relates to entrepreneurship in 21<sup>st</sup> Century is the increase in the socially aware lobby. Sociologists probably have a reason why there is a move away from the selfish and shallow material society that thinks only of today.

Part of this may be driven by resentment by the 'have-nots' of those that have, but much is also fuelled by a concern about the kind of world that is being created for future generations. People are much more concerned about conservation issues than fifty years ago and are also much more polarised in their views.

What all of this means for those with influence in 21<sup>st</sup> Century is that they have to meet these challenges head on and develop solutions that not only solve real problems, but also address the fallout from those solutions. Unfortunately, the people who need to recognise the issues and find solutions are the very governments and civil servants who are the least well informed to do so and move much too slowly even when the problem is identified. Partly that is because of the impact of lobbying on governments and civil servants, of corruption in the worst cases or preservation of their own positions.

For the budding entrepreneur the future gives a wealth of opportunities. Clearly, some of the emerging technologies can be directed in a number of ways. While AI can provide invaluable and improved support to doctors, it can also reduce social interaction and create new addictions for gaming fans.

Replacing everyday tasks with smart phone apps may well reduce the need to go to the shops and other places, but may also have a detrimental effect on people's physical activity.

Over reliance on social media and messaging might well increase loneliness, particularly in older generations. Given the fact that the written word only imparts seven percent of any message, misunderstandings will increasingly arise, and how many people have lost the opportunity of a position because of inappropriate postings or ones that conflict with their CV!

Evidence to date has shown that the profit chasers, the social media addicts and others have so far shown no interest in self-regulation. This is partly because people don't recognise the problem when they are interacting with an inanimate object. But much of it has to do with lack of responsible government from people that don't recognise what is going on until it has happened. Part of it is also due to a lack of education.

Far too often the control of devices is left to parents who don't really know what their offspring are doing, and are enjoying the peace and quiet. Part of it is the result of an education system principally designed in the 19<sup>th</sup> Century and not fit for 21<sup>st</sup> Century.

At the time of the Industrial Revolution the world was much more insular and much more predictable. Today television stations have even dispensed with the long-range weather forecast!

So the 21<sup>st</sup> Century has a number of real challenges to face if it is to benefit from the increasingly rapid change being thrust upon it. Somehow, in order to continue and accelerate the growth of the entrepreneurial spirit in 21<sup>st</sup> Century, the right conditions need to be created.

The public are usually resistant to change and no one more so than governments who love the status quo, particularly for their four or five year tenure. In the 21<sup>st</sup> Century doing nothing is not an option.

Governments need to set the right environment for entrepreneurship to succeed in the right way, education needs to change to encourage entrepreneurship and to develop the skills necessary for future entrepreneurship and parents need to be educated in the dangers as well as the advantages of this new global change.

This means that governments, educators and parents need to come to terms with the truth that they don't know all of the answers, and that to pretend that they do risks alienating future generations. The myth that the present education system will lead to a job for life, or even that we can predict the likely job opportunities at the end of the 18 year cycle of education has to be destroyed once and for all.

If we look at the disruptive politics taking place around the world, we see that people, and particularly the young, are realising that those in positions of power are not tackling the issues facing them and they are prepared to vote in people that will do so, however they may do it.

Entrepreneurship needs a new set of paradigms if we are to get positive development from the 4<sup>th</sup> Industrial Revolution. True development towards the future requires a step change from 'telling' to 'creating the environment for others to discover the truth'.

Deep down we know that we don't know what the 21<sup>st</sup> Century will shape up like. We do know that following a predefined path cannot create individuals that can adapt to change and take advantage of that change.

What we have learnt from the past is that the King Canute approach of trying to turn the tide of technological progress is doomed to fail. We also know that we will see amazing inventions, coupled with a reduction in conventional jobs, with the potential for a widening of the gap between the few 'haves' at the top and the 'have nots'. We will see young people increasingly disillusioned with the education system if it doesn't change. We will see the bad side of technological advancement surface if left unchecked. We will see a continued reduction in social interaction and in physical activity in favour of online games and messaging. We will also discover other potential problems such as unrest in developing countries where work is removed by the developing countries in favour of AI and robots.

In short, we are likely to see much advancement coupled with a plethora of potential problems and both these aspects of the 4<sup>th</sup> Industrial Revolution need to be addressed.

So, I believe there are only two predictions regarding the future that can be made. Firstly, the future will be a period of unprecedented change and technological advancement; and this will create as many problems as solutions if left unchecked. Secondly, that the people who will lead this change will not be the most educated, but those with the characteristics to embrace the opportunities.

I cannot predict that governments, educators or parents will deliver the support necessary to ensure good entrepreneurship, although it lies in their duty to do so. Indeed, the changes created in those in positions of authority are infinitely more important to the global world than anything that can be found on a microchip. What a pity our lack of faith in such people stops us from making this a third prediction unless more disruptive politics takes place.

## 4 DEFINING ENTREPRENEURSHIP

Before we can start to look at the different forms of entrepreneurship that are needed in the 21<sup>st</sup> Century we need to make sure that we understand what we mean by the word.

Of late the term entrepreneur has been inextricably linked to the people involved with starting Apple, Microsoft, Amazon and many other such companies. Now, whilst I agree that the people that started such companies can be deemed to be entrepreneurial in the beginning, I am not sure that today one can call the companies that they formed entrepreneurial companies.

I well remember a presentation where it was pointed out that a well known household products company had not had a major innovative product since the 1960s. What the company had majored on was refining the existing product line with a series of minor improvements.

Is that not similar to Apple, Microsoft, Amazon etc. today? At the time of writing there is feverish anticipation of Apple's next iPhone. Regardless of when I finish writing this book we will all probably be awaiting a new Apple iPhone! But is the new telephone likely to be an entrepreneurial breakthrough or is it a refinement on an existing product? More importantly, will it simply contain new features, not to solve a real need, but to justify bringing out a new model.

I do not deny that Apple are probably the cleverest marketeers in the commercial world, or that they were impressively entrepreneurial when they started up. However, I now see them as a company with a small number of products in its product line and which is still the leader in marketing such products.

I certainly don't see Apple going to the wall any time soon, but equally I do not expect anything really entrepreneurial coming from them either. The nearest thing to entrepreneurship will come from the people outside of Apple that write the applications that work on iPhones and iPads.

This view I have of such businesses also covers those who deliver software. I was working in IBM when Microsoft came on the scene and the entrepreneurial way that they removed the physical storage limit of the PC through Microsoft Windows was certainly entrepreneurial. However, we are now several releases on and we are in the enhancing rather than creating arena.

The same applies to some extent to applications like Facebook. When it was created it served a purpose. However, the social media platform has now been clouded by a plethora of applications such as Messenger WhatsApp, Instagram, Pinterest etc to the point that there

is a danger Facebook will destroy itself! It has almost become like a chocolate manufacturer who has too many similar products and none of them ends up selling enough to make them profitable!

Another company that I once saw as entrepreneurial was Amazon. However, even there they have become just another distributor, albeit bigger than most. Now we see the possibility of using drones to deliver goods. Is this really entrepreneurial, or is it just a tweak of the old system of delivery drivers, and where is the option for dealing with out of line situations such as the person not at home. More importantly, what is the problem that Amazon is trying to solve? Is it Amazon who want to deliver faster or is the consumer really saying that getting something next day isn't fast enough!

With all of these technological products and services I have a consistent view that what started out as an entrepreneurial idea has developed into technology for technology's sake without clear consumer demand or consideration of the consequences of what they are doing.

I make no apology for going back to the iPhone as it is a commonly known product. However, I wonder just how many of the app icons on most people's phones are ever used! More importantly, I wonder how many of these apps actually enhance the owner's life. I also wonder if Apple ever consider the social effect that their product has.

While it is easy for manufacturers to blame the individual if they spend mealtimes looking at their phones instead of talking to others, the companies clearly develop and encourage development of applications that imply that one should be instantly available at all times! I wonder how many honeymoon couples are interrupted by a tweet coming through!

So while I would see the early stages of these and many other companies as entrepreneurial, I see them today as much more mainstream companies that prefer not to wear suits!

If these are not entrepreneurial then what is my definition? The first step on the path to defining an entrepreneur is to have a real problem that needs solving. Just because you can do something doesn't mean you have to do it! So all forms of entrepreneurship require a problem that needs solving as a starting point.

Often such problems can be solved by conventional means and hence they will not lead to entrepreneurship. However, if the best solution is innovative then it is likely that one is on the path to entrepreneurship.

A further parameter to consider when trying to find a definition of entrepreneurship is the extent to which risk is involved. Often innovative solutions, by their very nature, will be

risky. However, being risky on its own is insufficient to define something as entrepreneurial. For that to be the case then the risk has to have been assessed and considered to the point where it is defined as manageable even though there may be a possibility of failure as well as of success.

Having got a potential solution and having assessed the risks involved to the point where a business or enterprise is considered worth going for then the real key to being entrepreneurial is to go ahead and do it.

We label people like Steve Jobs and Bill Gates as entrepreneurs. They only became entrepreneurs once they took the leap from idea to implementation. Sitting and dreaming up solutions does not make you an entrepreneur any more than doing fifty leadership courses makes you a leader.

So, for me, entrepreneurship is about someone who has an innovative solution to a real problem, who has assessed the risks and has taken the step of implementing the solution.

## 5 TYPES OF ENTREPRENEURSHIP

As I have said before in this book, there is a danger that people see entrepreneurship as a one channel thing that creates a business and which has its entrepreneurial capital determined by the size of the return on investment. It is precisely this attitude that will create the problems coming out of the 4<sup>th</sup> Industrial Revolution.

Until we understand a couple of things about people we will not understand the true range of entrepreneurial options available to us.

Firstly, it is important to realise that it is not necessary to be a university drop out in order to be an entrepreneur! We are all born creative and despite, rather than because of, the education system, some of us retain that creativity and others can have it reawakened.

It is also important to recognise that entrepreneurship is not limited by size. Yes, it is great that some of the entrepreneurs mentioned earlier have created lots of jobs, but there is equal merit in the entrepreneur that runs a one person enterprise in order to create a living income. For the individual in a small village that identifies a way to store water for the community to cope with drought, that is just as important to the people of the village as any mobile.

There is also a misconception that entrepreneurship in 21<sup>st</sup> Century has to be scientifically or technologically based. I recently promoted some awards for entrepreneurship in the creative arts and I was both pleased and impressed by the ideas that came forward. Most importantly, to me, many of the solutions put forward in the competition showed concern for others or for the environment. There is clearly scope for entrepreneurship that is based on recycling and which is more sustainable and there is certainly scope for solutions that address the problems of the less fortunate in society.

Another place where entrepreneurship can flourish is in communities that have a common problem. When they were first introduced then credit unions were considered entrepreneurial as were village shops run by the community where no commercial option was available. Certainly social entrepreneurship in many forms is another option for communities to consider where there are common problems.

Interestingly, in today's world, there is more need than ever for entrepreneurial solutions to problems as the conventional ones continue to fail. However, in many ways there is less entrepreneurship once one moves outside of the technological sphere.

For years now creative people have been able to make things that people want to buy. These people would use education to hone their craft and then would make a living selling what they made. Unfortunately, running a business as a craftsman or an artist is not considered a proper profession these days. Surely courses for the creative arts should also teach how to turn their craft into a business.

I well remember assisting a new entrepreneur in her early days when she wanted to produce jewellery where she used recycled cats eyes from the highways department as stones because she couldn't afford expensive stones. Today, she is successful around the world and sells pieces priced at thousands of British Pounds and I am still proud of my fifteen year old cats eye cufflinks that started out on a motorway in Oxfordshire.

In the same way as I believe we should credit the entrepreneur from the creative arts, I also believe we should credit the entrepreneur that starts a business on their own and may well never grow to a large business but creates an independent income for the entrepreneur and a few staff.

One of the most undervalued entrepreneurs is the social entrepreneur. These are where the venture is not primarily for profit but for a social benefit.



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One could argue that all of these forms of entrepreneurship have existed prior to the 21<sup>st</sup> Century, if only in a limited form. However, I believe that the need for these forms of entrepreneurship need to come much more to the fore in today's world.

Therefore, we need to adapt to allow for more entrepreneurship in all its forms. We need to recognise that creative arts entrepreneurship is a valued result of a creative education. We need to recognise that small-scale, non-technology based entrepreneurship has a real value. We need to see the value in increasing communication through social entrepreneurship. Most importantly, we need to recognise the importance of the social impact of entrepreneurship in 21<sup>st</sup> Century.

In 21<sup>st</sup> Century it is becoming less acceptable to simply pursue the no consequences, material motive, profit model. Entrepreneurs and those that regulate need to consider the human, social and environmental impact of what they do.

The remainder of this book will look at ways that this may be possible to be achieved.

# 6 MAKING THE MOST OF THE 4<sup>TH</sup> INDUSTRIAL REVOLUTION

## 6.1 POTENTIAL ENTREPRENEURS

As has been said before, there has probably never been a better time for entrepreneurs than there is today. But for young people, in particular, to take advantage of the opportunities, there is a need to understand the new paradigms and also to be able to break free of the old paradigms.

This means that young people need first to understand that creativity is given to all and not just the few. It is also true that there isn't a single type of creativity, regardless of how much the traditionalists would make you believe that there is. If people had accepted that classical ballet was the only true form of ballet then modern ballet would never have appeared.

Young people need to understand that we were all born creative and that it is only the constraints of the present system that have tried to remove it from you either by prioritising academic achievement or even by drugs that suppress non-conformist behaviour.

Therefore, to fully benefit from the entrepreneurial opportunities it is necessary to regain that creative spark that you were born with. There are many suggestions in the book 'Preparing for Uniqueness' that I have just finished, but one suggestion is to draw an alien. Not only does it allow you to be as creative as you want to be, no one can say that it is wrong because no one has seen an alien!

Which brings me to the next thing that young people need to address, which is not to be afraid of failure. Unfortunately we live in a world where we are led to believe that success is everything as defined by others. We are not encouraged to define success by our own parameters. As a consequence, failure is too often seen as a person rather than an event.

Not only can this be life-defining for some young people, it also suppresses the entrepreneurial spirit. To succeed as an entrepreneur it is essential that one can accept the possibility of failure and be prepared to learn from it. Whether like Edison you need 10,000 attempts to produce a light bulb, or like WD40 you need 40 attempts to succeed, an unwillingness to risk failure will halt entrepreneurship before it even starts.

In harnessing this creative ability, it is important that young people recognise the alternative outlets for their creativity. Clearly, they will be conversant with the potential for high-tech

innovation, but they should consider other forms as well. Entrepreneurship from the creative arts is a growing possibility as people look for items that are less mainstream and mass produced. They also look for items that exhibit sustainability, and hence environmentally friendly and recycling entrepreneurship is a real opportunity.

Young people also have a real opportunity to demonstrate entrepreneurship in the form of new social enterprises. Many existing enterprises in this arena operate across country boundaries. This often involves one for one matching so that when you buy a product then an equivalent one is donated to an area in need. This has included glasses, shoes, medical equipment and medical scrubs.

Experience of working with young people has demonstrated that there is a significant moral awareness amongst many of them and they are often best placed to deliver such social enterprises.

But for the 4<sup>th</sup> Industrial Revolution to become a reality for the young, they need to understand the reality of the world in which they are growing up. They need to understand that, however gee-whiz the inventions of tomorrow may be, they will further decimate the idea of a job for life.

We now live in a world where we cannot predict the jobs of ten years hence, let alone for children just entering the education system, nor can we predict the numbers of jobs that will be replaced by AI and robotics. So following the route of their parents in a blind, unquestioning manner, is not really an option.

Not only will job types change regularly, and often within a few years, the loss of employment may well require a change to a job-sharing model to replace the one where the employed pay taxes to fund the unemployed.

Entrepreneurship will continue to be an increasingly likely option for people wishing to create an income in this new world. This will require people to look more closely at what they intend producing as entrepreneurs. Simply because the entrepreneur thinks it is a good idea doesn't automatically mean that someone else has to buy it. In this much more competitive, entrepreneurial world, satisfying real need is going to be key to success.

That in turn means that listening is going to be a key skill for the 21<sup>st</sup> Century entrepreneur. That means really listening and understanding what customers really want and how they want it. To achieve this then the entrepreneur needs to understand that messages on phones send 7% of a message, telephone calls give 45% of the message, but that for the whole message you need face to face, with words, intonation and body language.

The successful entrepreneur of the 21<sup>st</sup> Century will be the one that doesn't rely on the smartphone for customer relationships but gets back to real communication. I was interested to see that Simon Cowell of X-Factor and Britain's Got Talent fame has not touched his smart phone for ten months!

So for the young entrepreneur, the message has to be to start to question everything especially yourselves. Start asking yourselves the same questions that drove your parents mad which all started with WHY!

Ask yourself why you do things on that smart phone, whether taking selfies, or posting pictures of your whole life. Who in the past went into the town square with their physical photograph album and asked passers by to view it? And yet, isn't that what so many do with Facebook, Instagram and other sites? Do you really need to take 25,500 selfies in the course of your lifetime? This amounts to almost one a day for every day of your life!

If you are going to a concert, a show or a film, surely the purpose is to listen or watch or both. It is not to ignore what is going on in order to play with messenger or to make illegal recordings that annoy those around you.

But question other things as well. Ask yourself whether your education choices are those that you wanted to make or ones that adults chose or said were best for you. Remember, in today's fast moving world their guess about the future is likely to be no better, and probably worse, than yours.

Ask yourself how you want to spend the rest of your life. Make sure you consider what you want to do in work and in leisure. Remember, as jobs become in short supply, as job-sharing becomes more common and as AI means the working day can become shorter, what you do with the extra leisure time becomes increasingly important.

While private schools have always recognised the importance of leisure activities, albeit out of school teaching time, the state system is much more limited in its choices because of the numbers involved. Certainly, video games are not going to keep you fulfilled or develop the sorts of communications skills and social awareness necessary to survive in the 4<sup>th</sup> Industrial Revolution.

What this section is really saying to young people is that we have reached a stage in human development where young people must take responsibility for their own choices. They must stop waiting for others to tell them what to do and must stop playing the blame game when they discover that abdication of life decisions to parents, teachers and careers advisors knew less than they did is counterproductive.

## 6.2 PARENTS

In many ways it is parents that will play the biggest part in shaping the success or failure of the 4<sup>th</sup> Industrial Revolution. Unfortunately, at this point in time they are probably the least able to do so.

There are many reasons for this from their upbringing, through the changes wrought in the 1970s, 1980s and 1990s to the lack of understanding of the rapidly changing technical environment that conflicts with previous understandings of how things are or should be.

Most parents will have come from an upbringing which was largely non-technical, unless we count things such as the creation of the twin-tub washing machine. We came from an era where computers were mammoth machines in air-conditioned rooms run by a few long haired geeks. Our interaction was largely through basic functions for running the finances of a company.

Moreover, we lived at a time when we believed all, or at least most, of what our parents told us. Interestingly, parents then seemed to know more given that requests for information were more parochial and parents had more practical experience of solving problems. Dad was often a necessary genius with a screwdriver and mum could make fantastically filling meals with seemingly few ingredients.

At the same time as this was happening, our horizons were extremely limited. Holidays were either taken by the seaside or at a beach in a nearby country. Jobs were mainly sought in the near vicinity and globalism was a fantasy except for the very rich and famous.

However, as new inventions and marketing techniques caused people to want more material wealth, there became a need to finance it. The first reaction was for workers to demand more money even if productivity was not increased. This caused a major decline in manufacturing industry to the point that it hastened the globalisation of manufacturing.

As people sought new employment to fund their loyalty to materialism, more women entered the workplace. While this removal of the barrier between the worker and the home provider was seen as a step in the right direction towards more equality, paradoxically it worked against what would really be needed to cope with the future.

Much of what was achieved in this equalisation was destruction of any gender specific roles. While house husbands or female firefighters may be great for those that want to do it, the changes started to set governments on a path to legislate for all aspects of equality. Interestingly, the most important area of equal pay has been the most difficult to achieve despite being so important for true equality.

What it has done, is to create many rules such as gender neutral toilets and a culture that adopting past traditional roles is somehow failing either yourself or your sex. Being a mum, instead of being the most important role of society, has now been downgraded to ‘just a mum’!

The trend from the 1<sup>st</sup> Industrial Revolution continued with present day parents as mobility became key to gaining employment sufficient to sustain the material world that people craved. This became even more of a trend with globalisation. What it also meant was that the stability of the extended family finally reached the same state as the dodo! So, not only were parents limited in the time they could apply to parenting, but the support of other family members became impractical as families moved away.

This reduced time, coupled with the advances of technology, meant that the instant society took a giant leap forward. All day TV, videos and later DVDs and streaming became the quick fix to replace real adult and child play. Fast food and microwaves ensured that most cooking of healthy meals went out of fashion. This has all added to the obesity crisis affecting the Western World.

We now have a society where less than half of children have access to a bicycle, whilst 80% of teenagers have a mobile telephone and are far more likely to use the internet than their parents.

This has further led to a society where the young people have the knowledge but not the experience to identify the dangers of the technology, and parents do not have the knowledge of the technology and also cannot easily identify the dangers.

To exacerbate the situation, parents try to maintain their primary role over their offspring by falling back on what they knew as young people themselves. They try and put restrictions on their children with no real knowledge of how to achieve this. Going to bed early merely means that grooming takes place under the sheets instead of in the lounge!

This falling back on the past also leads to an outdated and wrongly conceived idea of the educational needs of the modern child in the era of the 4<sup>th</sup> Industrial Revolution. So, pushing a child down the conveyor belt of education in search of a degree, whilst seen by the parent as caring, fails to recognise the likely lack of opportunity at the end of the road.

The hardworking parents also find that their work commitments reduce the likelihood of their being able to foster the creativity necessary in today’s entrepreneurial world. If you work until late in the evening, then after-school dance classes, music lesson, sports etc. are clearly on the back-burner.

Obviously the richer parents are able to fund private schools that can supply much of this activity, but the state system is increasingly limited in its ability to do such creative activities.

So what are the lessons that the parents of today really need to understand if they are to facilitate the young people who are desirous of following the ideas in the first section of this chapter?

Firstly, there is no longer a job for life, nor has there been for some time. Indeed, many of the jobs that exist today will have disappeared in ten years time. Equally, 65% of the jobs that will be about in ten years time have not even been thought of or articulated. So when you put your child into the education system at 4 or 5 years old, you had better understand that you have no idea of the world you are preparing them for at age 21.

Secondly, given the profound effect of technology over the period of your parenthood and the inherent dangers to young people in particular, there is a need to start to understand what the technology does and particularly what your children are doing with it.

In the past, most parents would form judgements and get to know friends that a child brought home, and yet many parents have no idea who those 300 or so 'friends' of your child are on Facebook. Given that the average millennial will take over 25,000 selfies in their lifetime, do you know what they are photographing and where they are posting them?

If I were in a criminal court I could not use ignorance as a defence. Neither is it a parental defence to say you were ignorant of it when your child goes off to join a terrorist group or to meet a paedophile.

Neither teachers nor childminders are a substitute for parents. They cannot be expected to correct your child's diet, to teach them basic manners, to help them ride a bike or take them to creative lessons. A bit like a dog not being just for Christmas, a child is not just to demonstrate the parent's fertility!

What parents need to come to terms with is that they know far fewer of the answers than their parents did. This is partly because the world is more complicated and partly because their parents prioritised the growth of their children above all other things including material things.

Parents also need to recognise that they know less about their children than parents did in the past. Sitting down to dinner together and discussing the day is replaced by TV dinners and a smartphone. So if parents want to help their children and protect them from the evils of technology then they need to spend quality time with them as well as getting to understand the technology they are exposed to.

In understanding the technology, parents need to not only understand how it operates, but also what the dangers could be. Parents have a right to know what apps their children use and to explain to them the dangers. They also need to demonstrate to them ways to avoid the dangers.

There are other steps that good parenting can take such as holding children's passports in a safe place away from the child and being aware of where their children are going. I do not see it as an infringement of a child's liberty to allow parents to link on 'find a friend' when their child goes out; particularly if they are late home.

As responsible parents it is important to recognise that the skills a child develops are going to be far more important in the future than narrow academic achievement. Schools need to be chosen not on the number of people that go to Oxbridge universities but on the breadth of their curriculum and the level of creative activities in the curriculum.

It has often been said that parents have become too protective of their children in their early years. There is a tendency to wrap children up in cotton wool and not to let them get into any situation that may contain a modicum of risk.

In Scandinavia there is a saying that there is 'no bad weather, only bad clothing'. It was most encouraging to discover that there is now a nursery in the UK that is entirely outdoors regardless of the weather. They have discovered that it is parents, not children, that mainly don't like rain. Interestingly, this particular nursery has a waiting list of over 2000 2–4 year olds.

Most importantly, parents need to stop making their children believe that they must always succeed. Failure also teaches valuable lessons and taking risks will be a necessary attribute in their future where the world is so much less structured. The World Cup is soon to take place, and I suspect that many would not watch if the idea of no one failing was carried from school to this tournament. Imagine if, regardless of the result of the matches all of the teams got the same medal and a part share in the cup!

Much of what has been covered in this section is not much different to the requirements of parenting over hundreds of years. But until the 1<sup>st</sup> Industrial Revolution the environment for parenting remained reasonably static. Since then it has become more complicated, but the role of anyone that brings a child into the world surely remains the same. That child should receive the best possible education and support to be able to fly the nest with confidence and survive.

Parents have one other key role to play in this preparation for the future. Once parents understand the needs of their children, they should use their vote to ensure that only politicians that are proactive in dealing with this new world are put in positions of power.

No one believes that we can put back the clock, now should we wish to. However, parents are a key component of the 4<sup>th</sup> Industrial Revolution and must responsibly adopt their role for the sake of their children and future generations.

### **6.3 BUSINESS**

In this rapidly changing world, businesses too have a significant role to play in ensuring that we benefit rather than suffer from the 4<sup>th</sup> Industrial Revolution. In the 21<sup>st</sup> Century businesses will soon discover that the naked pursuit of bigger and bigger profits is not going to lead to success.

Furthermore, it is not acceptable to expect governments and, by implication, the people to come up with solutions that your advancement may create. Already, this early into the 21<sup>st</sup> Century it is becoming clear that people will not tolerate the ever widening gap between the ‘haves’ and the ‘have nots’.

While robotics and AI may well produce major benefits to businesses, there are some serious implications for those people that are replaced by these new technologies. According to a recent survey, by 2030 nearly 3 million people will lose their jobs in the UK due to robotics and AI. In the worst hit industrial areas the percentage of people losing jobs will be as high as one third.

While it is also true that new jobs are likely to appear, it is likely that such jobs may well be ones that suit people other than those displaced from employment. Simply taking the increased profits and ignoring the problems that occur will not be an option with such high numbers involved.

In addition, it is important to note that people are increasingly requesting that businesses take a more responsible and sustainable approach to business development. One can argue about global warming, the growth of plastics, responsible disposal of waste, ethical sourcing and so on, but the truth or otherwise is far less important than public perception.

Ethical, sustainable development is something that lends itself very easily to the sound bite and the use of social media to spread such sound bites is far more powerful than the two page press release from a business. A simple picture of a bird caught up in a plastic bag

or dishonesty over CO<sub>2</sub> emissions can damage a business in hours if it gets onto the web. A simple Google search on animals damaged by plastics will create pages of photographs.

To date such ideas as fairtrade and recycles materials have appealed primarily to a relatively small group of people that are serious about green issues. But there is a growing trend for a more ethical way of life along with the use of more biodegradable products and more natural solutions to everyday problems.

Businesses also have to recognise that, in today's global world, the benefits of colonialism are being lost and there is a growing trend to see it as a suppressive regime imposed on nations in order to monopolise their natural resources. Therefore, when businesses moved their production to areas of low wage costs it was seen as another form of colonial exploitation.

There is likely to be a similar distaste of business as businesses now take away these jobs by implementing robotic and AI solutions. Certainly, it is likely that major job losses will occur in countries where business was allocated simply because of cheap labour.

Another area that businesses will need to consider is that of customer service. Over the last few years there has been a general improvement in low end customer service through the use of technology. The advent of online shops and the use of computer systems to deliver things rapidly to the door have seen a major growth in such businesses.

However, these technologies have become so commonplace that it is difficult to differentiate between providers. Recently I order things online from three different providers, all of which delivered on the same day and there was no differentiation between their type or level of customer service. This too will become a challenge to 21<sup>st</sup> Century businesses.

A major concern for businesses in this new world is the ever expanding ability to collect personal data. While this has been a common occurrence in past years, the scope now is of a different dimension.

In the past businesses have used basic data to assist marketing. For example, one shop was able to determine that people that bought soap also bought shampoo and hence putting these two items apart increased the likelihood of additional impulse buys.

Collecting basic data to support your understanding of your business will not be a problem in the future. However, online shopping and social media give all sorts of opportunities for gathering more personalised information that has a value far outside that of normal business use. Increasingly, businesses have found an additional income stream from selling-on such information.

With the advent of AI, while people may think they are talking to a human, they will be talking to an application that will be capable of taking the information given, turning it into data and recording it for retrieval in a variety of forms.

The ability of systems to conduct financial transactions through online shopping already exists. However, it is a short step away from adding financial information to personal information on other sites in order to create a total profile of a person.

Those businesses that cannot be trusted with customer data and cannot behave openly and transparently with it will soon find that the 21<sup>st</sup> Century holds real dangers for their business. With an increase in sophisticated hacking, along with temptations to make money by selling data, it is essential for future sales that your customer can trust you.

The 4<sup>th</sup> Industrial Revolution will certainly provide some great opportunities for businesses, provided that they understand these challenges and take steps to deal with them. Up until now, much of what has been done to improve employee welfare has been mainly cosmetic or under duress from government regulation or worker pressure.

At the same time, much of the ecological measures introduced into businesses have been as a result of image enhancement or pressure rather than a real desire to be socially responsible citizens.

The 4<sup>th</sup> Industrial Revolution will require a step change in the ways that businesses approach these and other issues if they are to maintain a competitive edge. Let us look at the three areas of sustainability, employees and customer service as it relates to business.

We are all fully aware that we live in a global world and that business opportunities spread across the globe. However, different countries are at differing levels of understanding and support when it comes to ecological issues and sustainability.

Simply in the area of recycling, Austria is the top country in the world followed by Singapore and both of them recycle three times the percentage of Japan, twice the percentage of Canada and USA and 12 times that of Russia. It is also true that the USA generates the highest amount of waste per person per year at 760 Kg per person.

For people in the food industries it is worth noting that vegetarians now account for about 10% of the population in Europe, but that India is over 30%, largely because of religious beliefs.

For a long time there has been concern regarding the sustainability of deforestation, and the depletion of fish stocks. For example, Japan and China, together with the USA are prime failures at replenishing fish stocks.

What these and other aspects of life in countries such as religion, culture, natural wealth, state of development etc. tell us is that the opportunities of a global marketplace are counterbalanced by a continuing need to satisfy a wide range of societies and countries.

The first thing that businesses need to deal with is their people. The time for token gestures is long gone and a serious consideration of one's employees in any 21<sup>st</sup> Century plan is essential.

As robotics, AI and other emerging technologies become commonplace, it is essential that businesses understand what this means to the workforce. For instance, either jobs will be lost or else there will be a need for a major increase in job-sharing. Businesses need to recognise that there is likely to be a reduction in the number of hours that a person is likely to work because of changes brought about by these new technologies and therefore an increase in wages based on contribution rather than on hours worked.

As job roles change at an increasing rate then re-training also becomes a responsibility of the business that wants to survive. It is far easier to re-train than to recruit. These reduced hours also mean that the responsible company will also look to provide more opportunities to develop leisure activities.

Businesses also need to be careful in withdrawing from low-wage countries so as not to damage reputations by damaging third world economies. So gradual withdrawal with contributions to schemes that support re-training are necessary for those companies that wish to minimise the impact.

The key to success in the employee arena is around communication. The more people are informed and the more the benefits of new employee programmes are explained the easier the implementation becomes. One employee representative on the board of directors does little to inform and placate a workforce fed on a constant diet of 'fat-cat bosses'.

Clearly, the business of 21<sup>st</sup> Century has to take the sustainability issues seriously. This means looking at ways to recycle where possible, to conserve and replenish resources where possible and minimise environmental damage.

Not only does this mean that businesses have to apply these principles to their work practices, but also in the way they conduct themselves. It is no good offering fairtrade coffee to staff in the coffee machines if directors don't drink it as well. The same goes for company cars and other aspects that damage the environment.

Customer service is where 21<sup>st</sup> Century businesses can either score or lose in a big way. AI has already developed to the point where it is difficult to know whether one is talking to a voice simulator or a human. Technology also ensures that orders can be placed without human intervention and prepared for dispatch with little human intervention if you are using Internet shopping.

However, not only does this approach eliminate all but the lowest level product picking and courier delivery roles, it also produces a service that is similar to everyone else. Therefore, customer service differentiation becomes increasingly hard.

Where the Internet shop wins is when the person knows what they want and does not need to see the article prior to purchasing. Hence companies like Amazon started with books and CDs, before increasing their range to other well known products.

Emerging technologies provide all sorts of possibilities for improving customer service. For example, the camera on a smart phone can be used to effectively project a piece of clothing onto the person so that they can see it in the same way they would if they went into a shop.

The use of virtual reality and 3D could soon be used to move away from the two dimensional representation of items on sale on the Internet. Technology could also be used to solve the problem of having someone to deliver the goods to. Some places have already introduced lockers to put items for collection into. These are mainly near to major work areas and shopping malls.

However, this also opens up an opportunity for the small retailer to become a local collection point. If the retailer also uses the staffless principle through an app and automatic checkout, then there may well be a resurgence in the local shops.

Marketing also has to become much cleverer for the global business. No longer can one produce an identical product with the same marketing messages and hope that it will win in all arenas. While the sustainability message may well succeed in those countries with high social responsibility, other messages may be necessary in other countries. That is not to say that the product itself needs to change, but rather that the product remains sustainable and the sustainability message assumes less importance in some countries.

In highlighting the potential traps for businesses as a result of the 4<sup>th</sup> Industrial Revolution, the biggest challenge is likely to be the way that businesses tackle the control of the increasing amounts of personal data that can be gleaned from systems.

Businesses have already recognised that their online purchasing systems have to be totally secure or people will not use them. But protection of personal data is also important, along with any purchasing habits such as item type and frequency. There is no reason why such data cannot be used to communicate directly with a customer, but to sell such information without their knowledge is not acceptable and must be rejected.

While it is going to be perfectly likely that AI will be able to identify a telephone near a retail outlet that they normally frequent, check their preferences for purchases and send them a text with a personalised offer in order to attract them into the store, it would not be acceptable for that data to be used to attract them into someone else's store because you made money selling data to the other store.

Of course, where takeovers have often happened, it is important that people shopping with one supplier are made aware of other suppliers in the same group and are given the option of whether or not they want the data shared within the group.

However, it is also becoming increasingly common on social media for platform owners to collect personal data as one of the few ways that they can remain solvent. Indeed, such activities can deliver significant sums. However, the evidence is that social platform owners are coming under increasing pressure because of their non-transparent activities.

While options for resisting tracking are belatedly being constructed by the platform owners, it still requires far more information to users and a requirement to opt in to data sharing rather than to take positive action to stop it. As people become more aware of the tracking practices there is a real danger that people are deserting the platforms. Free access is not a benefit if loss of privacy is the real cost. So present and future social platform providers need to start looking at a new financial model rather than the existing one of having the service for free as long as the provider can exploit you.

If people choose to share their lives and the trivia that surrounds them, then that is their right. However, it does not give owners of the platform the right to make financial gain from it. There is a massive difference between knowingly putting something on Facebook that a future employer may see and decide not to hire you, and a company that makes unsubstantiated deductions about you.

Incidentally, the arguments that apply to social media platforms also apply to app creators. There is an increased tendency to provide free apps with in-app purchases. In other words, get people hooked and then charge them for functions that don't come in the free version. As part of the honesty issue, businesses will need to be brave enough to charge for their app and to sell it on the basis of value rather than perception.

But a further area of business that is critical to the success or otherwise of the 4<sup>th</sup> Industrial Revolution is that of the operating system providers. These people have the ability to stop tracking and therefore data sharing at its source. Companies like Apple and Microsoft have made vast fortunes from the technology industry. While some of that wealth has been put towards good causes, it is essential that the real good cause is seen as controlling abuse within the industry that they monopolise.

In summing up the impact of the 4<sup>th</sup> Industrial Revolution on businesses, the most important characteristic in the 21<sup>st</sup> Century is honesty. In a world where bad news can reach globally in minutes, it is essential that there are no short cuts to integrity. If traces of something other than what is meant to be in a product are found, or traces of meat are found in vegan products then that market will disappear overnight. If companies are illegally using data then people will vote with their feet, or at least their delete button!

As with parents, businesses also need to engage responsibly with governments. That does not mean lobbying governments to try and help to bypass the needs of the 21<sup>st</sup> Century, but to come up with solutions that will provide the products, services and people that will fuel the 4<sup>th</sup> Industrial Revolution.

This 4<sup>th</sup> Industrial Revolution gives a wealth of opportunities for businesses that grasp the opportunities responsibly. However, for those that don't the possibility of failure has never been greater.

## **6.4 GOVERNMENTS**

So far we have addressed the potential opportunities for budding entrepreneurs and the needs of parents to support their offspring in their pursuit of the opportunities. We have also looked at the potential pitfalls and avoidance strategies for businesses.

Overarching all of this is government. Unfortunately, governments do not have an enviable record in the areas of entrepreneurship, innovation or proactivity. Too much of government is decided by past precedent and a desire to maintain the status quo. Indeed, governments are probably the best examples of Einstein's definition of stupidity.

Modern democracies are founded on an election cycle that is around four or five years. That means that people looking for more than a single term are likely to tackle projects that will be completed successfully within the election cycle. Longer term reforms are most likely to be pushed to the back burner.

This invariably means that longer term projects are only likely to succeed if the civil servants who support the elected representatives champion such moves across the election period to the new administration. This is unlikely to happen if such action challenges the status quo that preserves their positions.

Much of what has needed to be tackled by governments in order to support the growth of entrepreneurship falls outside the favourable five year window and hence is not likely to happen. However, that does not stop the identification of the potential pitfalls of the 4<sup>th</sup> Industrial Revolution, or of the opportunities it presents to a forward thinking and less ego driven elected government.

The first challenge that the 21<sup>st</sup> Century creates for governments around the world is their lack of real understanding of the nature of the world they are now called upon to administrate. They are increasingly restricted by their lack of exposure to the new paradigms as political dynasties with no 'outside of politics' experience begin to appear.

Their second inhibitor is their lack of understanding of the true nature of government and the restrictions that they artificially place upon themselves. Governments do not really understand that they create little or nothing when it comes to wealth creation. In reality they are little more than a charity that receives donations in the form of taxes from the people that do create the wealth.

It is interesting to note that governments have been very critical of the Trump administration because of his desire to approach government like a business negotiation. But, governments of all persuasions have been doing precisely that for generations. Is there really any difference when they trade tax breaks for more jobs so as to appear to bring down employment? Equally, if deals for the powerful were not possible, why are there so many lobbyists?

Finally, when they do decide to act then governments seem only to have legislation as a tool within their armoury. Unfortunately, this sledgehammer approach simply provides opportunities for smart non-governmental lawyers to find ways around the legislation.

Given the weaknesses and inertia built into the present system, it is hardly surprising that governments in their present form are considered past their 'sell-by date'. Suddenly we have seen a growth in election victories and near victories in countries where candidates actually propose doing something radical.

The first thing that I tell entrepreneurs to do is to listen to their customers and potential customers. Entrepreneurs need to stop trying to tell customers what they need and provide what the customer says they need. Government is no different.

As we have seen, the 4<sup>th</sup> Industrial Revolution can bring great benefits, but it can also create real problems for governments unless they understand the issues and start to act now. That means that they need to start really understanding what they have coming down the line and the implications of it.

A major potential problem for government is the loss of jobs because of the implementation of robotics and AI. Conservative estimates put the disruption and subsequent unemployment, leading to worker unrest, at significantly higher than that of the British miners strikes of the 1970s and 1980s. Failure to identify new approaches prior to its occurrence will create a major headache for government.

A second area of concern is that of education. Despite the loss of the job for life and the need for a more adaptable workforce, governments still lay most store in an education system that focuses on a single path to academic excellence with knowledge rather than skills being the driving force.

This academically based curriculum, coupled with the need to be able to test achievement, and a fear of litigation through health and safety legislation has meant that learning by experiment and the possibility of more than one right answer have been eliminated.

Financial cutbacks and this over-emphasis on academic achievement has also resulted in the reduction or elimination of many of the creative subjects. This, in turn, has led to a common belief that creativity is of less value than academic certificates.

The governments of 21<sup>st</sup> Century need to be able to deliver an environment where there is not high unemployment, where change is embraced rather than feared and where learning and re-learning is more than a fifteen year period through childhood and teenage years.

Another area of real concern is the potential impact on society of the emerging technologies. We are seeing misuse of data without the individual's permission, we are seeing people making large profits from such misuse. We are seeing the breakdown of real communication in society in favour of texting and social media.

So, what is government able to do, and what should it be doing to ensure that their country benefits rather than suffers from 4<sup>th</sup> Industrial Revolution?

Given the importance of this change, it is essential that every politician and government official understands what the 4<sup>th</sup> Industrial Revolution is about. They will no more be able to predict what the future will look like in 10–20 years, but they will start to understand the sort of environment that will enable people to cope.

Once they have understood the issues then they need to start by removing the lies that have surrounded the population for so long. They need to inform parents that the job for life no longer exists. They need to tell them that neither they nor anyone else can tell what the world will look like when their children leave school. They need to tell them that skills are of more importance than just academic knowledge and that you don't get this sitting in front of a smart phone, TV or tablet.

Then they need to look at a total overhaul of the education system. Although children still need to have some basic knowledge. They also need to develop skills. That means that they need to have the opportunity to discover for themselves rather than learning facts that lead to only one right answer; even if it makes marking more difficult!

There needs to be a greater emphasis on creative subjects and this can be achieved by allowing those tax breaks for businesses to go to creativity and arts centres. People should be encouraged to enjoy all forms of the arts and, if governments want to pass a regulation they should make it mandatory that all cinemas, theatres and arts spaces fit smartphone jammers so that people can concentrate on the performance.

On the subject of improving social interaction in place of social networking and texting, governments could easily ensure that companies that offer free Internet services to customers are charged a significant fee for doing so in order to discourage the companies from offering it.

Most mobile telephone networks either have a government licence or are part government owned. It is a simple matter to increase a graduated usage cost that increases by use and hence acts as a limiter of usage.

Governments also need to look at the uses and abuses of technology by the large high-tech companies, whether platform providers, technology providers or operating system providers. For any of these to be available in that government's country, they need to satisfy defined conditions on use of data, elimination of unauthorised tracking and content auditing.

For governments to survive in the arena of 4<sup>th</sup> Industrial Revolution they need to engage with businesses, not through lobbyists, but from a position of strength in that failure to act responsibly means the opportunity in that country is removed. Deals for contributions to campaign funds or a blind eye to taxes in exchange for jobs is not acceptable in the 21<sup>st</sup> Century.

As far as unemployment is concerned, there needs to be a real dialogue between businesses and governments. Working together there needs to be a solution created to the eventual loss of jobs. Part of this may be to look at job-sharing rather than eliminating one job in

every two. This may need to be a method where payment in a job-share is more than half of a single job in order for the person to survive.

Such a solution may require a subsidy to the company that would otherwise have needed to be spent on unemployment pay by the government. It is also through businesses that the ideal of life-long learning and retraining can be fostered. What is important is that such solutions start at the top of businesses and then work their way down to SMEs.

Other options to encourage creativity and earning from such creativity could be done by creating small craft centres in old unused buildings. These could be rented out at a peppercorn rent to artists and others with creative hobbies. Whilst I have witnessed this in some countries to encourage women to use their talents, there is no reason why such a facility could not be used for men as well as women with creative skills.

At present many countries regard leisure as an optional provision for its citizens. Given that the 4<sup>th</sup> Industrial Revolution is likely to mean shorter working hours then leisure should become a mandatory service within all municipalities.

What is interesting about much of what is in this section is that much does not so much rely on legislation but on a dialogue with key players, a refocus on the important matters facing people and a level of creativity not witnessed for many years within governments.

It remains to be seen whether Donald Trump is good or bad for the USA, whether Brexit will be good or bad for the UK, whether elections in Italy will be good or bad or whether many other forms of this disruptive style of politics will work.

What is certain is that people are increasingly voting for candidates that will try something new rather than sticking to the old protectionist, ego-driven and self-centred politicians and civil servants. The world is increasingly demanding change and politicians should remember the old quote that says 'those that say something is impossible should get out of the way of those of us that are doing it'.

## 7 CONCLUSION

As I have tried to make clear throughout this book, the 4<sup>th</sup> Industrial Revolution provides great opportunities for mankind. We can see the rapid development of driverless cars and monorails, smart houses controlled from afar by artificial intelligence, a plethora of tasks controlled simply by voice, operations carried out by robots and many other things not even dreamt about.

As someone that speaks at events that cover such topics, I also see the concerns and even the Luddite approach of many of the general public. Sadly, some of those most opposed are politicians at different levels; hopefully not because they don't want to deal with the fallout.

What I cannot do, despite all of my studying, is to predict the world even a couple of years ahead. What I am trying to do in this book is to wake people up to the fact that they cannot predict either but that, like me, they can see the potential downside of this latest step forwards in technology.

Once people can see the potential benefits and the potential issues that such progress creates then they can plan for it and take steps to guard against it.

What is very clear is that, for maximum benefit from the 4<sup>th</sup> Industrial Revolution it requires a paradigm shift for young people, parents, businesses and governments. Whilst we can dream of them all working together, even if they work independently of each other, the benefits will be greater than if they do nothing.

One thing is sure and that is that the 4<sup>th</sup> Industrial Revolution will not be stopped. Obviously everyone has two options. The first is to adapt and change to the differing circumstances and the other is to do nothing and hope it will all work out in the end. But remember that there are three types of people in this world – there are those that make things happen, there are those that watch things happen and there are those that say 'WHAT HAPPENED'!

Just remember the words of Einstein that the definition of stupidity was to keep doing the same thing and expecting a different result!