The Five Essential Steps to Sustainable Viability
How To Grow, Be Profitable And Align With 1.5 Degrees

Christopher Gleadle
Executive Summary

“The more we proceed with the transition towards a de-carbonised world, so more and more do we need to innovate at a system level to achieve productivity gains based on inclusivity, cohesion and zero waste outcomes.”

To flourish, sustainability must orientate from being process-obsessed to result-focused.

Currently all is disconnected.

A sustainable enterprise can be categorised as one that is capable of being maintained at a desired level of economic activity and performance with minimal long-term adverse effect on the environment or society.

Viability provides the conditions for an enterprise to succeed and prosper.

Sustainable Viability is the state of an enterprise that enables it to benefit its stakeholders, the environment and society increasingly and indefinitely.

Sustainable Viability (SV) is a well-validated, proprietary methodology that enables an organisation - its management, people and teams – to identify areas of the business where objectives are not aligned, opportunities are being missed, the environment is suffering damage, society is being disadvantaged and value is being destroyed.

Once these issues have been identified and exposed, the organisation is empowered to reimagine and redesign itself into an integrated, self-sustaining entity by harmonising systems and creating equilibrium.

The SV methodology will then assist management in measuring and validating the outcomes across the whole organisation using novel, proprietary modelling tools and rigorous impact accounting developed over many years.

Sustainable Viability aims to dispel a “silo mentality” and direct the alignment and integration of every facet of an organisation through optimising:
• Workplace talent, problem solving and decision making

• The impact of design on products and services

• Release of cash flow for eco-innovation and growth

• Elimination of waste

• Utility of assets

• Effective stakeholder communications

• Market positioning and disruption

• The organisational structure

The SV influence goes as far as providing the evidence for measuring and validating the SV outcomes using rigorous, holistic modelling tools. The anticipated outcomes are:

• Improved productivity

• Better risk management

• Increased customer satisfaction and retention

• Staff and community satisfaction, cohesion and well-being

• Elimination of wasteful processes

• Reduced environmental impact

• Profitable reprocessing of waste

• Better management information

• Strengthened economic profit

• Harmony and equilibrium

• Sustainable Viability

Sustainability, while flourishing into a strategic imperative, must orientate from being process-obsessed to result-focused to deliver meaningful benefits. The customer is becoming more and more conscious of the conspiring environmental and social risks and costs to their business yet struggle to know how to leverage these impacts for improved economic profit and heightened balance sheet performance.

Systemic fundamental failures include how to deal with pollution, emission and waste all the while pondering how to increase profits and well-being of both the industry, people, and the lives of those whose entire existence touches - and is reliant upon - an organisations success as well as the health of the environment upon which we all rely.
It is self-evident that we cannot continue to draw from finite resources and continue to produce unwanted wastes indefinitely. Improved efficiency may produce less waste, but less waste is still not sustainable, even if the economic model shows a level of profit...

The Five Essential Steps to Sustainable Viability sets out to show the ‘How’ to do sustainability – viably. To see the myriad of interdependent connections between environmental and social impacts and their conspiring risks and costs on your balance sheet. Deep analysis of these connections reveals your entity’s ability to capture, create and deliver more value and serve customers – indeed, all stakeholders reliant upon the success of your organisation - better.

**Improved efficiency may produce less waste, but less waste is still not sustainable, even if the economic model shows a level of profit**

Sustainable Viability (SV) shows a clear path for optimal success; how to expand your Decision Space as far as possible – to open all the possible options that should be assessed and to identify all the factors that may impact upon a decision; to identify as many unknowns and unintended consequences as possible.

Through practical examples readers will learn the basics how to identify current and future environmental challenges and socio-economic shifts that are changing the role of business, Government and institutions in society alike. In applying multidimensional, circular systems thinking, SV will show you how to:

- Shift thinking towards achievable zero emissions
- Move away from single data points to release greater economic performance
- Visualise cross functional impacts that destroy value
- Reveal value cycles across whole systems
- Turn waste streams into profit centres
- Integrate new wisdom into financial and management systems
• Understand the changing face of Enterprise Risk Management to forecast opportunity

Very simply, with SV you will now:

• Leverage your new knowledge to capture, create and deliver more value
• Create authentic evidenced reports and communications
• Improve investor relations and shareholder value
• Validate a sharpened market advantaged position
• Deliver evidenced environmental improvement and abated impact
• Ameliorate the six capitals
• Validate renewable projects from risk and impact over time
Sustainable Viability is Economically Beneficial

What I find notable about Sustainability and its reporting from all sectors is two things: looseness and a lack of rigour.

Organisations don’t have responsibilities. People have responsibilities. People have responsibilities to their businesses, to their NGO, Government, or a Governmental Agency. They will act upon their responsibilities according to their compass of integrity, fairness, ethics, respect, morals, greed or other such social cues. Whether profit is the motive or delivery of a social service, it is an individual’s responsibility to conduct themselves to the highest levels of probity and effectiveness.

However, entities typically cloak themselves in the nonsense spoken by senior executives in the name of sustainability in the sure knowledge that Government and their peers are not going to pull them up, since they all mirror this behaviour creating a condition of less harm, than do better. If half the claims made in the name of Climate Change abatement were true, the situation would not be getting persistently worse. The general public are not children and see through the rhetoric as they become anaesthetised to the same tired platitudes, supported by yesterday’s thinking and education disconnected from tomorrows problems. The general public watch on as individuals in business and Government live in abundance, while they themselves suffer ever more pressing demands on their meagre resources as the ever-marching battalion of living expenses overwhelm them.

People have responsibilities

The story can be so different. Yet, to be different, individual responsibility to the organisation for which a person works and reaps monetary gain must undertake a paradigm shift. This is not a difficult process since all it requires is a focus on results rather than the process. It requires minds being opened to understand the broader sense of what is or is not material to economic performance for organisations of all sizes to see improved productivity and efficiency is simply gained by absorbing neo-materiality into the core of their economic framework.
There is a body of evidence that clearly demonstrates firms that do understand material sustainability issues significantly outperform firms with poor performance on these issues.

This suggests that investments in sustainability issues are shareholder-value enhancing.

It must be noted also, firms with good performance on sustainability issues that are not material to the business do not underperform firms with poor performance on these same issues. This suggests investments in sustainability issues are at a minimum not value-destroying.

Therefore, firms with good performance on material issues and concurrently poor performance on immaterial issues perform the best since they do not waste resources on the immaterial. These results speak to the efficiency of firms’ sustainability agendas. This knowledge has implications as to the integration of sustainability factors in capital allocation decisions.

In the determination of such neo-materiality, it is vital that common sense guides the integration of a systemic approach to understand what adds and destroys value when seen through the lens of enterprise risk management - something Sustainability rarely achieves for all the well-crafted words expressed. For example, in the UK, there was a construction planned maintenance, engineering and integrated services company. It was a multi-billion-pound company, that had systemic failure to understand risk, materiality and sustainability. When the £5.2Bn company went into administration in 2017, it is believed that the pension fund had a shortfall of up to £2Bn. This left 28000 members facing cuts to pension rights, unless the tax payer steps in – the over-burdened poorest. All the while the pension fund was being short changed as dividends were being paid to the wealthiest! The limited liability allowed the directors (individuals) to rack up this pension deficit with no fear of prosecution as they also left the company to walk away from the mind staggering further £2Bn owed to its suppliers and subcontractors. This was a company that even a remedial earlier glance at its accounts would reveal a storm brewing, yet Government, auditors and sustainability advisors were blind. Importantly, it flies in the face of their last sustainability report (2016), which quotes the Chair of the Board Sustainability Committee:
“Sustainability can often be perceived as focused on ‘green’ or ‘social’ issues, but a balanced, ambitious programme has to focus equally on economic and business factors to be truly effective. Carillion continues to build a better business through its investment in sustainability as a core strategic commitment. For us, responsible business delivers consistent operational excellence, inspires employee values and builds trust through strong ethical governance.”

Great words – the right words - clearly not understood; and definitely not delivered. The report went on to state...

“This is our 17th sustainability report and shows how we are continuing to create a better business, better environment and better communities. It is aligned to the material issues identified by our stakeholders...”

When looking at their materiality index, risks of their own individual officers making – their economic mis-behaviour - didn’t feature. In the same report the Group Finance Director was quoted:

“Sustainability continues to make a real contribution to our profit and competitiveness; the 2016 net contribution of £36.1 million was again externally verified to demonstrate a clear business case for sustainability.”

Noted as a contribution to profit and competitiveness suggests Sustainability as a practise was treated in isolation from the business operation. Surely sustainability should be 100%, and not the 0.7% as expressed by the finance director, and the external auditors, on a turnover of £5.2Bn. If parts of the business are operating in an unsustainable manner (using their numbers in this example - 99.3%), then that is not sustainable. Common Sense. Not currently seen by business, Government, or third-party auditors.

What we see by this example is how the individual behaves within the norms of their environment that promotes blindness to neo-materiality that affects risk and value far more than is accounted for. Such mis-behaviour is further promoted by executives that focus on a single number and operate with a disregard to the systems that give sight to material risks that will destroy value from poor Governance and fail to envision opportunity. For
example, this type of limited liability allows individuals to act recklessly, with a complete disregard to others. Remember, businesses do not have responsibilities, individuals do. Individual mis-behaviour, in this exampled case, encouraged a single focus of shareholder value, without reference to what adds or destroys value, and how long-term sustainable viability will underpin excellent risk management to bolster the said shareholder value. This situation was clearly supported by their sustainability and financial advisors, resulting in destroyed shareholder value. This is not sustainable: this is economic mis-behaviour at its most raw, and its most destructive.

Economic Misbehaviour is a disease that can lead to environmental disaster. Environmental and social accounting each has a value and can be accounted for in the whole, each adding value or inhibiting value to the other.

Raw materials, water, electricity, fuels, are inputs to a process, balanced by waste streams, emissions, discharges etc. Each of these inputs and outputs has a place in the accounting system. The closer we get to achieving zero waste, the better the financial outcome; since all the capitals are accounted for in context and comparison.

To truly embrace sustainability using the Circular Economy as a tool, it is essential to view any entity as a series of accounting cycles – each impact circulated to the whole in terms of added or destroyed value. Thus, to create an energised, compliant Circular Economy, requires a movement away from the linear influenced profit to the more robust, circular influenced economic profit: the accounting of opportunity.

Frederick Basitiat, a nineteenth century economist said: “There is only one difference between a bad economist and a good one: the bad economist confines himself to the visible effect; the good economist takes into account both the effect that can be seen and those effects that must be foreseen.” A founder of opportunity economics.

Furthermore, it was an economist who first wrote on the circular economy - Keith Boulding (1966). He stated: “What the economist calls "capital" is nothing more than human knowledge imposed on the material world. Knowledge and the growth of knowledge, therefore, is the essential key to economic development.” And, in his book “The
Economics of the Coming Spaceship Earth”, he identified the need for the economic system to fit itself to the ecological system with its limited pools of resources.

I suggest this thinking must be taken further: to deliver a true circular economy; it is the gaps between the reservoirs of knowledge where true gold is found.

This is why the Sustainable Viability (SV) economic model is designed the way it is. For it enables all opportunities to be synthesised effectively. For example, imagine owning a bottle of wine you bought for €10. After five years on the rack, it would now cost you €100. Would you go out and buy a €100 bottle of wine? You may not. But would you drink the wine you have? You are more likely to do so. Either way, the opportunity cost is just the same.

Similarly, the opportunity to sell something that may be a waste stream. To give it up does not hurt so much as taking the money out of your pocket and paying for it. Opportunity costs are vague and abstract when compared to handing over actual cash. And, that is why the rest of the world does not see it, but merely uses sleight of hand to focus on a single number – with no accounting as to its relevance to the overall system. Individuals use bias to affect a system in their favour, as opposed to creating balance of the overall system, where all benefit.

In his book ‘Misbehaving’, Richard Thaler (2017 Nobel Prize winner for Economics) wrote: “every field of economics could benefit from giving greater scrutiny to the role of humans. Along with finance, development economics is probably the field where behavioural economics are having the greatest impact...Some poor African country is not going to turn into Switzerland overnight, but we can learn how to make things better, one experiment at a time.”

To account for behaviour, and opportunity, is to see where value truly lies. What we perceive as cost or waste is a matter of how it is framed. But to see it for what it is, is to view it in the whole.

When behaviour is anchored by judgement of perceiving a key performance indicator when it is actually just data can cause waste just as much as what we see from a
factory(0). Over consumption of what we need to eat to live well is as large an environmental impact as the food we throw away. One we see. One we don’t. The economic, social and environmental system is broken. The best we can do is repair it, one project at a time.

Expand this notion to businesses of all sizes and sectors and what we can avert is another financial crisis: one which is currently waiting to happen that will further undermine social stability and environmental protection.

Without sustainability being secure and rigorous, how, for example, can a car company meet the health issues its products cause? If such hidden risk was forced in to the open, then accepted accounting and economic practice would have to change radically. Human health and well-being combined with protection of natural resources; the biosphere and our oceans would become front and centre. Human greed would be relegated to last place.

(0) Judgement Under Uncertainty, Amos Tversky and Daniel Kahneman, 1974
Step 1

Understand Impact
“Best strategies for a business are to make clear choices and the allocation of its resources, this being comprised of: the steady accumulation of frameworks promising to unlock the secret of competitive advantage” – Walter Kiechel: The Lords of Strategy, Boston MA – Harvard Business School

It is vital to see all processes, products and services from a waste perspective - as a series of interdependent systems functions and business units: each impacting on the other either adding or destroying value.

Example: working with an SME, it took less than a morning to identify £200K of waste fuel in the service fleet caused by meeting the needs of two separate functional managers. The two managers had worked side-by-side for over ten years and were seen as highly successful. The waste was caused by the CFO setting individual department budgets, with scope and boundary that overlapped causing unseen value destruction in the middle. By quickly seeing the business from a holistic perspective, and understanding how the two functions were budgeted, it was simple to visualise how each function was designed to best suit the needs of the manager - bias. The unintentional consequence was waste. The outcome of the exercise delivered enduring cost saving significantly lowered footprint and improved customer service.

To look at carbon footprinting as an isolated number does not reveal such efficiencies since it misses the interlocked systems – since each system is seen in isolation. The above example bears this out since the company had had its own sustainability and environmental manager for four years.

Life Cycle Analysis relies upon boundary and scope. If too narrow opportunities are sub-optimised and projects, instead of delivering “much better” merely deliver “not as bad”.

The gold lies in the gaps between the two sets of knowledge for example, between functions and how they impact upon one another. Unless measurement and measures to improve are not verified then the situation can be made worse with the decline hidden in another function. This most often explains why business-as-usual sustainability delivers
not as bad instead of much better. This means that opportunity is missed environmentally, socially and economically.

**Where to start**

Think of the process as innovation – eco-innovation. To re-energise your organisation from the interconnecting points of impact across the entire value system is to innovate since hidden opportunities to capture create and deliver more value will be revealed. It is vital therefore this should not be a chore handed off to someone who may have a passion for sustainability and the environment but lacks the necessary multidisciplinary business, systems, integrated impact accounting and economic behavioural skills to leverage the process of environmental and social improvement for economic profit.

SV conducted accurately reveals improvement to enterprise risk management as much as it reveals process and cost improvement and highlights new and exciting opportunities.

To explain 'Eco-Innovation' is to innovate in an ecological way; to do more with everything we have; not in isolation within our business or organisation, but interdependently with the environment in which we operate and the planet upon which we live. Eco-Innovation is not just desirable, but essential, if economic growth is to be in harmony with social and environmental well-being: to create resilience for communities against inevitable future competitive pressures.

We have a history of delegating important concepts to the level of mere buzzwords such as ‘Sustainability’, ‘CSR’, ‘Green’ and others. Let’s get behind the word 'Eco-Innovation' to reveal the common-sense simplicity it implies. We all live on this planet, yet, despite advances in science and technology, we face ever larger, more intractable problems.

Eco-Innovation makes clear how to advance the quality of our lives – more inclusively and cohesively - with mutual benefit for our planet. The outcome is not a cost to our organisation, but a plethora of new profitable opportunities bringing multiple benefits and revenue streams. It takes only the removal of the blinkers of conventional thinking and opening our eyes to the manifold interconnectedness of what is all around to allow us to see what is right in front of us.
Where we are

There is no doubt that advances in science and technology have hugely increased our understanding of the world around us: they have advanced our capabilities in what we can make, do and create. Yet, it seems as though new and larger problems have been created: shortages of water, reduction of agricultural land, increased uncertainty of our future, our businesses, increasing numbers of people, environmental degradation…

Inescapably, our ability to innovate has not had entirely the intended outcome. If it had, we would have more free time, greater wealth for all, live in a contented society and have eliminated poverty, hunger and homelessness. This experience is nothing new in the history of innovation: the best intentions so often have led to unintended consequences: consider the good intention of the Chinese Government in addressing the issue of their population growth; their one child one family policy appeared to make sense. In hindsight, it is easy to now see the inevitability of a future population strongly slanted towards a high percentage of elderly with insufficient young to provide support.

All life depends upon a complex interconnectedness. We are taught from an early age about the oxygen cycle between plants and people. Plants breathe out oxygen and breathe in carbon dioxide; people breathe out carbon dioxide and breathe in oxygen. This is highly simplistic, and we now know that there are many more complex cycles, each interconnected with others - all is connected in some way with everything else. No act is without consequences for others. It is essential we remember the outcome of any process is sensitive to its starting point.

Similarly, investors do not like unintended consequences. Neither do Government decision makers or CEOs of large organisations. Unintended consequences are unforeseen risks. The general view is to avoid risk. Our history is littered with consequences that seem so obvious in hindsight, yet far from obvious at the time of taking decisions.

We can get a feel for this interconnectedness when we think of business, and the market in which it exists. Imagine a single small business and how when that firm makes an advance it forces competitors to react, either on price or innovation in the battle to create greatest value and a market advantaged position. Both take time, cost and lost market
share. Now apply that to the global economy...modelling this complex web of interconnections can be challenging, even with today’s clever fractal algorithms\(^{(1)}\).

Yet this level of complexity, simplified with the right tools, moves us away from describing this action as merely ‘Sustainability’. For, if Eco-Innovation is to be the primary tool for business development it is essential to eclipse the standard language of “Sustainability”, “Green”, “Circular”, with its fuzzy boundaries, where to some, it simply represents blurred marginal business tinkering or to be seen as to ‘do the right thing’. Other companies claim sustainability is embedded into the cornerstone of the business yet use many bright words to mask the lack of substance (see previous example of the multi-billion-pound construction company). See Figure 1 – a non-sustainably viable organisation.

Figure 1

(1) No More Normal, Christopher Gleadle, 2018
Decisions that business and Government need to make

The first step is to make a really simple choice; do we want our lives, our business, our organisation, our country, our world to be more resilient to the unknowns of the future? To be more profitable despite the unknowns of the future? To be more flexible and better able, more agile, to adapt to the rapid changes in society that we are all acutely aware of? To improve our quality and standards of life (innovation), as well as support the ecology of our planet in such a way as to also bring greater benefit (eco) – to all?

Of course, we do. These foundations are time honoured: and Eco-Innovation is a term to describe how we can achieve these aims against the back drop of what is a highly charged, ultra-competitive, rapidly changing world. So, think beyond the confines of tax payer fuelled incentives and look to where the true value lies – stand back and view the complete picture. See for the first time what is thought a Key Performance Indicator is in truth no more than data, risk and uncertainty.

Evaluating uncertainty in terms of how it affects finances and operations reveals to us the effect on strategy: to make visible how much better a business may continue to serve its customers from operational (cost) efficiencies as well as productivity, design, distribution and income. To protect itself from unintended consequences.

In reducing uncertainty allow Eco-Innovation to be a framework; one that will make visible the conspiring resource, environmental and social risks confronting the enterprise. Use this knowledge to understand how assets and liabilities will be affected, and how this will further affect income and expenses. Such visibility aids companies to truly understand the value creation process from the spectrum of inputs and outputs across the value chain to not only serve customers better, but to discover what impacts on the customer can be improved to help serve the customers’ customer. This route will most often free cash for investment and eco-innovation. See Figure 2 – a Sustainably Viable Organisation
Eco-Innovation connects science with the art of Nature, whose millions of years of ‘operation’ have provided us with countless examples of how to do better with what we have. Abundance and resilience are found everywhere in Nature. By learning from Nature, we naturally build in abundance and resilience. Abundance in business is profit, resilience is longevity, both are highly desirable and create Sustainable Viability. Indeed, some of the most amazing innovations have been founded from studies of Nature such as a game changing pace maker that is one third the size of a grain of rice, requires no batteries, and can be monitored from anywhere in the world, and was made possible from the study of whales (2).

(2) Jorge Reynolds Pombo – Electrical and Bio-engineer
There is no real trick to Eco-Innovation. It plays by the rules of common sense. Eco-Innovation is practical; it builds upon nature's lessons - tried, tested and proven. It follows, the first decision for everyone is how to become much more aware of the relationship between your organisation and the ecosystem in which it operates.

When we need a water pipe repaired, we engage a plumber. The same principle applies when we seek to engage an appropriate expert, who can not only identify the potential, but also work hand-in-hand to develop a practical workable plan of action and see it through to implementation. The cost of a plumber is insignificant compared to an unchecked water leak over time. The same is true for your organisation: the cost, risk and losses you are now incurring through missed opportunities, measured via economic profit (not to be confused with operating profit), and vulnerability to future inevitable changes are huge compared to the value of obtaining the insight and wisdom of what could be achieved.

**Data, information knowledge and wisdom**

Today, we are overwhelmed with data. But, is it material? Delivered in the right manner to the right people at the right time? Is it connected across systems to give greater insight into impacts, risks, loss and opportunities? Collected and organised, data becomes information. It can become knowledge and wisdom only if it’s the right data, analysed appropriately. What gets measured badly gets managed badly.

By way of practical example, let us consider a business. Let’s call its activities, its Operations. To perform its Operations, it will have Inputs, and the result of its Operations will be Outputs.

At the most basic level, we can collect the data about inputs and outputs: quantities of raw materials, hours of labour, units of energy, impact of distribution and so on. We can do the same for the outputs: this is quite normal in the accounting of Operations. From the gathered data, we gain knowledge of the Operations, and discover that some small change in one specification can impact a value in another, and so on. However, the standard approach to improving Operational performance is to look at reducing costs without reference to understanding what costs – or their cuts- add or destroy value. This
results in the typical cycle of cost cutting to cost reinstated of about twelve to eighteen months (3). Companies that embed well, mechanisms for increasing yield, efficiency, assets and profits have been known to grow.

The greatest barrier to growth is to see this process as a linear track. The world is not linear: so, to treat business as linear leaves cost efficiencies and growth projections sub-optimised at best. The study of these miscalculations, created from the misbehaviour of decision making, is continually driving efforts to make better decisions - to make visible the internal as well as external systems that are interdependent to any organisation, of any size. Again, Eco-Innovation astutely applied changes the rules of the game to turn information into knowledge, and knowledge into wisdom as it extends the visibility of what are assets and what are liabilities – importantly, what liabilities can be turned to assets, and how current assets can be improved. Taking these steps requires the wisdom to interlock the multiple value systems available to all organisations in one form or another (4).

**Eco-Innovation astutely applied changes the rules of the game to turn information into knowledge, and knowledge into wisdom as it extends the visibility of what are assets and what are liabilities.**

It follows, the framework for Eco-Innovation is scalable. With the SME client discussed at the beginning of this chapter: elimination of waste not only provided a cost saving, but also resulted in productivity enhancements and an increase in customer service: improving economic profit (the accounting of opportunity). I helped the functional managers involved to come to an agreement that served the whole business better. It allowed them to see liabilities, which were turned to assets. What this journey illustrates, is that a fresh approach to the management of assets and liabilities allows firms to make better, more informed decisions which result in greater confidence from the people to whom the long-term viability of the business is important, such as: investors, customers, employees, suppliers, Government and communities. The source of confidence is rooted in the organisation’s capability in optimising economic profit. Additionally, confidence is enhanced from understanding the company’s impact on community, how well it treats employees and partnerships it creates with suppliers as well as environmental impact.

---

(4) Optimise the Circular Economy, Christopher Gleadle, 2018
We have not always made wise choices. And, if we are to move out of the age of information, let us make sure we move into the age of wisdom.

For example, if we look at the top 100 companies in the world from just two generations ago; it's interesting to note only one (GE) still exists today. It is further interesting to realise Fortune 500 companies at one time averaged 70 years of longevity: today, it is merely 18.

And, as the longevity of resilience shifts, we now see 50% of the world's working population earns its own wealth. This rise of competition from start-ups and SMEs creates risk from, what the economist Joseph Schumpeter called creative destruction (Figure 3) (those firms creating value [using Eco-Innovation] successfully will be at the market incumbents' expense.)
We should take this lesson seriously: it creates uncertainty of competitive behaviour. It says, eco-innovation must be disruptive; seek new ways, better ways, to produce products and services to displace older methods and technologies. Help customers to be light on liabilities and asset efficient too for an outstanding customer experience. Just having a great product or service today is no guarantee of future success as Nokia would acknowledge. Nokia used to hold seventy percent of the world mobile telephone market.

But, can we have continued economic growth forever? Surely, there is a natural limit to how many people can reside in a given area: how many businesses can co-exist. When one correlates economic growth to the number of businesses and organisations with their...
respective operations, then the trick is missed. If one views all the interconnections between a fixed number of organisations and businesses, and then views every interconnection as a potential revenue stream, then the potential increase by adding just one more business illustrates the missed potential is exponential, not linear.

This notion allows us to see how true eco-innovation enables a smooth approach to business development. Where a company moves away from selling on price and creates value sharing, symbiotic relationships - an output or waste from one process or business can be an input to another.

Sustainable Viability and Eco-Innovation will deliver change enough to create a business model capable of optimally embedding material Sustainable Development Goals.

This naturally implies businesses, whether a start-up or more seasoned SME, or large organisation, must have the Eco-Innovation mindset to be competitive and disruptive to survive and thrive.

To demonstrate being disruptive, an SME client had spare capacity within their existing buildings. In creating cross sector collaborations, the capacity to rehabilitate and recycle old equipment was created – that being the equipment they tendered for replacing. The sales team moved from selling on price to selling on value from whole life use and removal. This had many immediate effects: firstly, virgin material input was reduced. This reduced risk from price and supply volatility, as well lowered the need for raw materials reducing both environmental input and associated emissions from transport and distribution. Secondly, a new market was entered for selling rehabilitated equipment. Assets optimised, liabilities reduced. Thirdly, the business relationship was more profitable for all parties. Lastly, much larger competitors - who up to this point were more value advantaged because of size, capacity and scale – were able to be disrupted. This is being agile, disruptive, asset optimised and light on liabilities.

While sustainability implies an infinite supply of raw materials tethered to an environment and market with infinite capacity to absorb its products or outputs; the world is finite, so this thinking must be flawed. The only alternative is an economy based upon circulation,
which has infinite capacity to adapt and grow, irrespective of changes in local and global conditions.

Example: working with a client, their waste to landfill was reduced by eighty percent, absolute waste by forty-six percent while income increased by a third. Eco-Innovation provides clear measurable environmental benefits and is a clear winner for financial performance.

See the disconnect between what has brought success up to today, and what will bring success tomorrow; make visible new interconnections.

A common business-as-usual mistake is failure to understand Key Performance Indicators. KPIs are not prescriptive yet are most often accounted as such, which leaves the resultant numbers no more than data.

Example: A FTSE 100 company Sustainability Report lost in its report 103,000 tCO2e,(5) over 10 pages as it appeared to struggle to decide what KPIs it thought material and as it continued to contradict itself throughout the report. Just because a large company allocates a large budget towards sustainability does not mean it is either value for money, delivering what the headline numbers state or even evidence they know what they are doing.

However, KPIs are important for they assist in delivering meaning to what is being measured, provided they are delivered in context to the audience to whom they are intended, and align to the materiality of the organisation. Little point delivering energy efficiency gains to a production manager when correct framing would visualise a productivity gain and garner greater insight to superior improvement from design to use!

Life cycle analysis integrated with the economic cycle foresees connections between impact and how to reduce fixed and marginal costs of production (Figure 4). Again, this must be seen in context of the overall value chain and where symbiotic relations between a unit of production in one process may be connected to another – internally or externally – to improve value across multiple interested parties – how to capture, create and deliver more value and serve customers better.

(5) For consistency, the measure of global warming of greenhouse gases are expressed in terms of CO2. Emissions are grouped as CO2e – e for equivalent and expressed in tonnes (tCO2e). For a list of greenhouse gases and their respective global warming potential (GWP) see IPCC or Sustainable Growth Through Sustainable Business (2011). Christopher Gleadle
To drive ‘eco-efficiency’ it is important to be persistently mindful of the interconnecting systems that join the whole. Take as an example, buildings and facilities management; consider how the buildings are used by humans, the services that supply buildings and their inventory. The combination of these elements will determine the actual load required to run fitted out space, and the intensity of energy use during work hours. This simple fact highlights a shortcoming in the UK of EPCs (Energy Performance Certificates) since they are based on intended design but take no account of (mis)behaviour. Understanding the eco-system of building use and active collaboration between building owners and their users can drive efficiencies where shared value benefits all. To capture, create and deliver
more value can be evidenced using simple tools that analyse and model prospective changes environmentally, financially and socially – creating better work environments that improve the well-being of the building’s users enhancing productivity. Tools that consider:

- Energy
- Water
- Internal Environment (appeal, layout, access, light, air)
- Pollution
- Transport
- Material’s
- Waste
- Management
- Inventory
- Supply Chain
- Embodied emissions, waste and impact
- Others…

“…there is little or no correlation between a building’s design (as measured by its Energy Performance Certificate) and its actual consumption.” (6)

If the mass flowing out is less than the mass flowing in then there has to be a stream unaccounted for, which is typically a waste process – or, an input opportunity to another process. It is by conducting these exercises that the hidden value opportunities for eco-innovation are most often found.

(6) A Tale of Two Buildings; Jones Lang Lasalle 2012
Understanding resource and impact – environmentally, financially and socially - across the capitals of an organisation nudges toward better behaviour to maximise efficiency and make an effective choice. Your choices impact the entire value system not just one element.
Step 2

Infill Knowledge Gaps

Mind The Gap
Education enables us to act wisely, for ourselves and for society, today and tomorrow. Properly delivered, sustainable viability must be inherent in all education across all subjects and disciplines.

When education has become distanced or even isolated from these realities, through too much specialisation, or lack of awareness of the educators, then the concept of sustainability shifts from an inherent property of all subjects to an outside module studied separately.

Only through correct education can sustainability as a separate subject be replaced by sustainability becoming as natural as eating and breathing, present through understanding the interdependence of environmental, social and financial impacts on the long-term future within local, national and international settings.

The importance of education to the well-being and prosperity of the UK; indeed, any nation, is clear. Expanding awareness within specialist subjects that allows inclusion of sustainability within those subjects is less well understood.

Today, sustainability is increasingly recognised as fundamental in addressing the critical global challenges that we all face - ecological, societal, and personal (access to basic needs). What has failed in our learning that has created the situation in which we consume the present at the expense of the future?

Recent reports, including the report from the Further Education Learning and Teaching Advisory Group (FELTAG)(7) and TLRP(8) make it clear that in education there needs to be greater relevancy of the trends in the workplace towards sustainability. The use of technology can both streamline processes and improve effectiveness.

As government funding for education is constantly reduced, new models are needed to ensure both viability and financial sustainability. Innovative use of digital technology will increase the motivation and engagement of learners as well as sustainability by:

- bringing employers and colleges closer together without the need for extensive travel;

• reducing the need to expand buildings by increasing remote access to learning opportunities; and

• adding new levels of authenticity to learning and teaching, as well as offering significant economies of scale.

The FELTAG report adds significant weight to the discussion about employer-college relations stating that “it is clear from the research and sector discussions that a closer relationship should be established between employers and FE and Skills providers so that learning technology in and outside work are more effectively exploited”.

There are a number of technologies that support a sustainable education model such as unified communications and collaboration tools that range from instant messaging, presence, telephony, video and email to social networking, virtual learning environments, flipped classrooms, media studio in a box, 360-degree projection domes, multimedia, mobility, feedback, and information shared and accessible from anywhere to anyone or to groups.

A range of virtual tools such as visual collaboration software allows users to create and capture ideas and notes on any available application, to keep meetings organised and to easily communicate their outcomes - all in a safe, secure and confidential environment.

Sustainable Viability in Education Matters

More and more business organisations recognise the substantial financial benefits to be obtained by integrating sustainable viability thinking and practices into every aspect of their business processes. Business and trade are the wealth creator of an economy – a viable, stable and sustainable economy.

Students are the employers and employees of the future. If they enter the workspace with a thorough multidisciplined understanding of what today we call sustainability, an inner compass resulting from increased awareness, then they will build future capacity in business and industry into which sustainable viability is naturally embedded, including the adoption of appropriate frameworks and tools that will improve efficiencies, cost savings, risk and economic growth. Even today, studies have shown that successful
implementation of sustainability improves morale and retention in business\(^{(9)}\), and that students who learn in the context of sustainable education are found to be more motivated, better behaved, and more attentive in class\(^{(10)}\).

Ensuring sustainability is seamlessly embedded in all college courses can help to equip students to understand how to make decisions that balance the need to preserve healthy ecosystems with the need to maintain vibrant economies and equitable social systems.

Education has the potential to add such value by raising awareness of the implications and importance of sustainable practices, enhancing the student experience and improving retention, as well as outreach to the community and building bridges with business. Students educated with the natural inclusion of sustainability can work with businesses to help them understand sustainable operational systems across a wide spectrum of work situations related to the curriculum taught in colleges.

Practical exercises could encompass the identification of current or future environmental challenges and socio-economic shifts that are changing the role of business and institutions in society. This is a chance to listen to others, to seek out those who are involved in day-to-day operations at a business – from the factory floor to strategy groups and R&D - and to gather insights from expert colleagues, other universities and colleges, consultants, think tanks or the third sector.

**Focus on all three pillars**

Greatest attention is usually paid to the environmental pillar of sustainability (the “green agenda”). As a result, tools, concepts, and principles such as life-cycle assessment, carbon footprint estimation, design for the environment, and product stewardship are becoming more commonplace in business. However, without impact performance measures, it is difficult to judge how a change to a product and its value chain will affect environmental sustainability. Therefore, students should be taught about gathering metrics and the use of associated decision-making tools to help measure progress towards greater overall sustainability and to rigorously communicate this progress to others.


The social dimension of sustainability is also important. There are many challenges in measuring social sustainability, particularly around the treatment of labour and the impact on communities, such as improvements to infrastructure or education. It is likely to be important to address consumer health and safety considerations for particular products. Ambitious organisations may attempt to address the social and psychological impacts of products on consumers, such as the impact of smartphones on social behaviours.

Increasingly the workplace needs new employees who understand the ecosystem of sustainability and how it applies to an economic system, as well as at an individual level.

Incorporating sustainability into studies will improve the relevance of the subject matter to subsequent life chances. A well-designed sustainable education model in colleges will:

- provide students with a firm grasp of the sustainability agenda;
- contribute social, economic and environmental benefits to the college, its community, and the broader community; and
- prove to be an incubator for business innovation, making it viable, stable and therefore sustainable.

**Pedagogical implications of Sustainability**

More and more students want to combine studies with work. Lifelong learning is becoming a reality as increasingly people want to find ways to improve their job prospects and enjoy greater economic rewards. Apprenticeship opportunities are increasing which also demand on the job training. Having to leave the workplace to attend college lectures is no longer tenable for reasons of costs and time, especially when the alternative of a blended learning solution can make the learning experience just as valuable and meaningful and provide learners with choices about how to best use the time freed up by not having to travel. Reduced travel also means reduced carbon emissions.

Not many years ago, the idea of buying shoes, clothes, food, etc. on the internet was not just alien, but thought never to catch on. Today, in some countries, it is the tool of choice. Education is at a similar junction.
There are many digital tools available that make blended learning a collaborative learning experience that is far removed from the view of the distance learner as struggling to make sense of new concepts and ideas in isolation. With social networking sites, virtual classrooms and video and audio-conferencing technologies, learners are now in a position where the difference between the in-person experience and the online experience is not just indistinguishable, but in some respects, improved.

With many college courses demanding practical applications of theory and practice in developing skills, time in college can be devoted to these tasks and to remedial sessions to ensure all students can succeed. Much of the theoretical learning can take place in other locations – the workplace, the home, or in community learning centres, such as libraries. Students then have choices about where, when and with whom to study. This also negates the need for additional accommodation as a college expands.

**Flipped classrooms**

If colleges are to become places for project work, practical activity, discussion and collaboration then the spaces provided might need to be reconfigured. Many college and universities around the world have looked very seriously at how they design new learning environments that support new pedagogical models and do this in a way that is cost effective and sustains the vision and ethos being developed. In figure 5, is an example of how one university in Australia, the University of Technology, Sydney, has designed its lecture theatres to turn them into collaborative learning spaces. In the first image students are listening to a lecture, while in the second image, the students have turned around to engage in discussion with their peers. The use of two rows of desks on each tier complete with swivel chairs have transformed a space that supports turning a delivery model of learning into a collaborative one. This is a sustainable design solution because the room now serves a dual purpose. The economies brought about by refurbishing an existing space imaginatively are more than financial, they are also social, because students are given the opportunity to consolidate their learning in situ through discussion and debate.
Digital collaboration and communication technologies also support improved links with employers as well as driving sustainability. Those links can take many formats including:

- Work-based learning opportunities
- Inviting employers to engage remotely with students to add relevance and authenticity to learning
- Apprentices maintaining better links with the college and able to study some of their modules in situ
- Three-way mentoring sessions between students, tutors and workplace mentors
- Maintaining closer relationships between employers and the college, and so ensuring currency of curriculum
- Outreach to the community to increase enrolment

Being able to work with students remotely, employers do not have to spend time travelling from their place of work and are more willing to offer their services to colleges; resulting in wider engagement across more institutions (Figure 6).
Improving staff productivity – teaching within and across campuses

Many colleges have multiple campuses, some of which offer the same programmes and courses. Teaching and learning efficiencies can be gained by teaching across campuses remotely through a range of technology-based solutions, whilst ensuring the student experience is not compromised. Additionally, oversubscribed courses can be accommodated by dividing students between teaching rooms or lecture theatres when there is insufficient space available in one.

A number of experiments have been carried out using different video conferencing solutions as well as virtual classrooms, sometimes in conjunction with one another to help ease the problem and efficiencies. For example, in the US, the Moore School of Law has a lecturer who sits in a dedicated video conferencing studio alone and teaches students in lecture theatres located in three different parts of the college, thus ensuring no one group is advantaged over the other by his physical presence.

In another situation in an Amsterdam college, LCD screens were placed around a room and at each location a different person was seen over a video conference and could contribute equally. The participants who were present at the location were interspersed between the screens so that the guest speaker felt as though they were talking to one group with little need for consideration as to where they were located.

Cisco’s graduate training programme worked with fourteen groups located around the world. Video conferencing units were placed at the back and front of a seminar room in each location with the tutor’s desk situated at the side with a camera directed at him, so all participants felt part of the same teaching environment (Figure 6). A virtual classroom was used in tandem to monitor student progress and filter questions, as well as allowing students to work in groups across sites as well as in situ, thus modelling the world of multi-office workplaces.
Figure 6: Teaching across campuses using video conferencing and virtual classroom technologies

This same technology can also be used to facilitate cross campus meetings saving time and travel costs, ensuring messages are received equitably, and enabling staff to plan together, share teaching and maintain contact.

Video conferencing tools can also be used for practical teaching. In an experiment at the World Skills event in the UK in 2012, remote teaching of motor mechanics was undertaken successfully between students at the venue supervised by a technician and students with the course tutor based at Norwich City College (Figure 7).

Figure 7: Remote teaching of motor mechanics
Curriculum design and organisation

As college budgets are tighter, so there is greater need to understand where the waste is and how to do more with less whilst not compromising the student experience or learning outcomes.

Young people deserve an education that equips them to be successful students, accomplished professionals, effective parents, and productive leaders in our competitive, and increasingly cooperative, interconnected world. They need the knowledge, skills, and stamina to work individually and collectively to solve current problems and to prevent new ones. They must learn to balance the often-conflicting requirements of society, economy, and the environment to contribute to sustainability.

Understandably, it is important to make the change to sustainable education simple as well as practical. This can be achieved by adding to the curriculum project-based learning and extracurricular activities, such as connecting the built environment, food services and facilities operations to learning outcomes.

Do not isolate buildings and facilities management

The sustainability agenda around buildings and facilities management includes consideration and interdependencies of not just the buildings themselves, but the services, inventory and people who service and use the buildings. Here is an area where funds can be released by reducing waste, water and other vital resources simply by understanding the entire eco-system of building use.

For example, a university recently conducted a study of electricity use. To their surprise, they discovered they used just short of 94,000 KWh of electricity, which had cost the University over £8000. In terms of emissions, it had been calculated as 5.1 tCO2e. The disappointing element of these figures is that the calculation was taken over the Easter break when the university was empty! What use could you make of £8000? (It was also the department of Environmental Sciences!).

When considering buildings and facilities management it is worth considering the interdependence of:
• Energy and water use

• Internal Environment (campus appeal, health & wellbeing)

• Pollution

• Transport

• Materials

• Waste

• Management Processes

• Inventory

• Supply chain

• Food

• Embodied Emissions, waste and impact

• Value add opportunities

• And so on…

Sustainable education needs to take a whole-college perspective and requires cooperation and collaboration across faculties. Technology can make a significant impact on course delivery, student numbers, work-based learning, and lower costs with interdependent environmental and social improvements both within the campus, and local, national and international communities.

In addition to the savings and opportunities discussed earlier, technology can:

• Reduce student and staff commuting

• Reduce HVAC and lighting load in buildings
• Reduce space requirement – remove / redeploy / let / sublet for income

• Increase productivity

• Provide innovative new income streams

The above list is not exhaustive, yet we clearly see less need for buildings and less transport yet develop greater access to a larger audience for home based, work based, institution-based education. Take the council that introduced distance working for its staff, which resulted in the releasing of fourteen individual offices, achieved annual savings of around £270,000 and a capital receipt of £200,000. Additionally, commuting and business mileage dropped by 15%. Both achievements resulted in significant carbon savings. Notwithstanding, 61% of managers said employee productivity increased. Now apply this thinking to a college situation and the type of work environment to which students are heading. Invaluable experience combined with significant cost savings and improved productivity through sustainable viability will serve students, staff, community and businesses better.

By involving all stakeholders in the business of the college we can begin to understand the impact of making these changes and embedding technology where it makes sense to achieve sustainability. This will include a holistic view of carbon foot-printing, embodied emissions and water use. Ultimately; this will bridge a vital skills gap between education and the work place(11).

Step 3

Uncover the true extent of risk
“There is only one difference between a bad economist and a good one: the bad economist confines himself to the visible effect; the good economist takes into account both the effect that can be seen and those effects that must be foreseen”

Frederick Bastiat

For any business, large or small, it is vital to assess and understand strategic and operational risks. Indeed, understanding the true extent and nature of risk increasingly separates winners from losers.

Sustainable Viability (SV) and its relationship to Enterprise Risk Management (ERM), think of it as a framework to better quantify strategic, financial and operational risks and, through this understanding create opportunity for cost efficiencies and revenue enhancement. How to capture, create and deliver more value and serve customers better.

The framework holistically manages resource, environmental and social risk confronting the enterprise to achieve its organisational objectives and minimise unexpected threats and volatility to revenue and costs. It too challenges organisations to view risk as an opportunity for growth.

Moreover, since companies must hold capital to absorb the risk of loss, logically, there is less capital to invest in other profit producing activities. Therefore, Sustainable Viability aids companies to determine the right amount they should direct toward risk through better, more informed decisions. For example, factor actual risks to assets in capital calculation. This route is likely to yield opportunity to free cash for investment and innovation.

Furthermore, to aid this movement, functional heads must work in an open and transparent manner. It is amazing what is found when people across different disciplines are together for such conversations – as previously exampled in the SME where poor budget allocation allowed significant value destruction. Allow functional heads to come to a consensus and aggregate the risk drivers.

Sustainable Viability helps to understand the full extent of risk: top-down and bottom-up. See the externalities and how these risks might affect customer demand, and how might
this impact on serving customers and how these risks will affect your revenue. Such environmental and social risk and cost is rarely accounted for, even by those who see themselves as having a mature sustainability programme. The point being, a sustainable viability programme should not be outside strategic and operational priorities.

Furthermore, for effective Sustainable Viability the risks must be understood at a tactical level in order to explore all the opportunities. There needs to be sufficient information about the risk (emissions, waste, human rights, climate, environmental etc) and, once accepted as a risk, how will it be managed? Once a risk profile has been developed, quantify the risks in metrics and consider trade-offs. For example, if a supplier catches a cold, how quickly are you going to get the flu?

Moreover, once risk is formatted strategically, operationally and tactically there needs to be a consistent strategy for managing and monitoring these risks and for reporting. This is where appropriate Sustainable Viability modelling tools add enormous value to organisations of all sizes. From the dashboard we look for competitive opportunities and strategic advantages that will arise from the deft management of risk. It will act as an early warning system to both vulnerability and previously unseen value destruction as well as operate as a road sign pointing to opportunity. When using other third-party tools, never forget the output is only as good as the data inputted and the processes created to report the data. For it is simply data that then has to be configured in to information that then provides knowledge.

Such sustainability risk profiles develop greater confidence in the business to meet the expectations of investors, customers, and employees, indeed all stakeholders who have a material interest in the long-term, sustainable viability of the firm. This extra confidence derives its source from the organisations’ more secure ability to meet its corporate objectives.

And, today, a business needs to have the Framework for Sustainable Viability at its heart to step beyond any mere compliance; for compliance hardly allows an organisation to distinguish itself amongst its peers and create a market advantaged position. So, focus on preventative measures that help you avoid potential disasters and persistent value destruction. For example, the SV dashboard can show increases in impact on resource
from changing consumption trends: from which your business can avoid costly equipment failure that might well result in a shut down, chemical spill, or release of gases, exposing the company’s employees, communities and your reputation to risk – not to mention financial shock.

**Step beyond any mere compliance; for compliance hardly allows an organisation to distinguish itself amongst its peers and create a market advantaged position...**

Additionally, Sustainable Viability reports taken from an ERM position have a different tone to the standard report one encounters on a daily basis. The information is refined and authentic, with proven, material and contextual data with relevant and contextual Key Performance and Key Risk Indicators. Can reports that provide no evidence be trusted? The analysis of 40000 CSR reports developed by the Technical University of Denmark suggested 95% are no more than window dressing. This indicates the investment to produce these reports is seriously compromised.

Furthermore, in a recent report – *The Current State of Enterprise Risk Management: Update of Trends and Opportunities, by NC State ERM Initiative in partnership with the American Institute of CPAs, 2015* - there appears to be a further disconnect between perception and reality of risk. For example, executives indicate they are receiving increased calls for greater engagement by executives in risk oversight with 68% saying that the board of directors is asking “somewhat” to “extensively” for increased senior executive involvement in risk oversight: large companies (86%) and public companies (88%). Yet, only 23% declare their organisations level of risk management maturity as “mature” or “robust”.

Robust environmental and social risk management positions a company and its operations positively with current and future customers – as well as the wider, material, stakeholder (shareholder) community - notwithstanding the harvest of opportunities to be reaped by such an enterprise risk management, Sustainable Viability strategy.

Example: a well-known sports apparel manufacturer. When child labour was found in the supply chain, their value was destroyed overnight. With action taken, investment made into local communities, schools and healthcare centres, their reputation was restored. (Are
your brand, financial strength so strong you could withstand such an economic shock?). Importantly too, when procurement audited the supply chain what also was discovered was the amount of waste previously unseen in the supply chain. What they found was that the material to make shoes was supplied at a rate to make three shoes for every pair made. Once discovered, $750M a year in wasted expenditure and impact was stemmed.

What is important from this example, it took the discovery of mis-behaviour, child rights, and human rights abuses exposure, and $2Bn wiped from share price, to find the hidden cost and waste. To be proactive via Sustainable Viability is a surer way to deliver shareholder value through better investor relations and communications on greater risk management.

In many sectors we still see reports where there is a race to the bottom in employment practices with absence of minimum wage or a living wage, dangerous working conditions, long-hours for minimal reward.

There are established International Labour Organisation protocols, in addition to UN human rights charters with clear and transparent methods for auditing high risk suppliers. There still remain too many examples of poor supply chain management, that exposes poor Governance and oversight, which when addressed would lead to improvements in management, removal of waste, exposure to opportunity and the improvement in the well-being for the many.

“Human rights due diligence has already become a permanent entry in the lexicon of international business” Professor John Ruggie, representative of the UN Secretary-General for Business and Human Rights, Professor of Harvard Kennedy School, Professor International Legal Studies at Harvard Law School.

Supplies from areas of conflict and high-risk have impact on communities, environment and employees of those areas and creates exposure to the risk of complicity in human rights abuses or military coups. This holds true if companies are seen to purchase, even indirectly, from such areas of high risk without collaboration with on-the-ground NGOs and other agencies. To do nothing or pay lip service is the greatest risk of all.
And, while conflict-affected purchasing typically only affects mineral extraction and exploration for example – and how that can affect local environments, bio-diversity, water, land-grabs and resource exploitation without consent, to name but a few – it is incumbent upon business, through good governance and director responsibilities (remember companies do not have responsibilities – humans do) to understand the full nature of risk. In the UK, under the Companies Act 2006 (amended) directors have a duty to report anything material that could damage the future value of the business.

‘to provide insight into the entity’s main objectives and strategies, and the principal risks it faces and how they might affect future prospects.’ 2013 Companies Act amendment.

As discussed in the previous chapter, it is common to misunderstand what is and is not material to a business and exposes directors of Governance failure to litigation.

In assessing risk, business is increasingly required to know and understand fully the nature of its exposure via comprehensive due diligence. Questionnaires to the supply chain will often highlight the nature of risk and of opportunity to create a more inclusive, cohesive and collaborative framework to capture, create and deliver more value.

Such due diligence shows up the risks stemming from likely community action, or likely risks from climate related disturbances to supply and cost volatility. To ignore these issues could fatally weaken a firm’s reputation and licence to operate as well as build potential for economic shock if contingency plans are not in place. It is not possible to have robust contingency plans in place if the full extent of risk is not known in the first place. To demonstrate understanding of risk from what may be seen as externalities exhibits authenticity and provenance. It heightens trust and value.

**How can you have contingency plans to abate risk if you don’t know what the risks are in the first place?**

Supply chain management is progressively more about partnership and cooperation and less about imposing standards and codes of practice. This is true whether for a manufacturer or a services provider, across all sectors.
Moreover, it is important to consider legislative risk that may result from direct or indirect operations. We see more Governments pursue ‘green’ strategies and see tax as an instrument to achieve their goals. It is worthwhile to understand what tax regimes are in the markets where your organisation seeks to operate. Social taxes may exist, for example:

- Carbon taxes
- Green duties
- Imported goods
- Severance taxes on extracted resources
- Product taxes
- Waste disposal taxes
- Landfill and site value taxes
- And so on…

**Sustainable Viability – fast track from risk abatement to opportunity**

All countries have their own understanding and strategies of practicing circular economy (CE) due to different stages of economic development. China, for instance, as a developing country with a vast population, faces the problem of environmental degradation and insufficient resource per capita. Additionally, its economic development is strongly constrained by environment and resource while the Government is under pressure to improve the life quality of citizens from unbalanced regional development and partial poverty (56 million impoverished people by the end of 2015).

Therefore, sustainable development will be instrumental for achieving stable economic growth and improving life quality of citizens while protecting over extraction from the environment.
1978 signalled the transition from planned economy to market-oriented economy. However, strategy has been to focus on high savings and investment, strong export orientation, manufacturing and construction industries. And, while environmental protection has been gradually realised in China, economic growth has rapidly developed in a short period of time with an average annual GDP growth rate of 10% (Green and Stern, 2016).

Although this economic growth model has lifted hundreds of millions of Chinese out of poverty, this model is not sustainable. The economic, financial, social and local environmental issues have been recognised by Chinese leaders, who have implemented fundamental structural change and policy reform to steer China’s development path onto a more sustainable and desirable course (Green and Stern, 2016).

The economic loss caused by environmental pollution and ecological degradation is equivalent to 10% of annual GDP. Therefore, Chinese economic growth strongly relies on a sustainable, environmentally friendly and resilient development strategy that is required to address the above problems and challenges while maintaining a reasonable growth rate. Thus, CE has emerged and been promoted in China to decouple economic growth from environmental degradation and inefficient resource consumption.

The initial idea of the Circular Economy came from (Boulding, 1966), who stated that our planet is like a spaceship in the universe as a closed system. This “spaceship” has limited resource on it without external input and output, and the resource will ultimately be used someday. Chinese academics inspired by the publication of The German Closed Substance Cycle and Waste Management Act in 1996 first proposed the concept of Circular economy in China (Zhu, 1998, Zhu, 2008).

The Law of Circular Economy Promotion defines the circular economy as: The reduction, reuse and recycle activities during the processes of production, circulation and consumption (NDRC, 2008). This simple definition is unable to well represent the function and connotation of circular economy, but it does imply the core 3R principles.

Reduction aims firstly to minimise the input of energy and raw materials by the improvement of production efficiency, and secondly to reduce all kinds of waste
production during the process of production, movement, circulation and consumption. Reuse refers to by-products, recovered products, remanufactured products and wastes supplied from one company or process to another as a valued resource. It requires optimum use of products and the promotion of durability (as previously exampled). Recycle encourages processing the recyclable materials into new products so that the consumption of virgin materials can be reduced. These approaches are expected to achieve an efficient economy while discharging fewer pollutants.

Yuan et al (2008) concluded that China’s circular economy is an idea about the economic pattern and development strategy in respect of nature rather than environmental management. This indicates, environmental improvement will be as a result of improved economic behaviour.

China’s circular economy respects all scarce resources involved in China’s economic development, including water, land, energy, materials and corresponding waste. Policy makers realised too the increasing need to develop low-level recycling of waste, based on ecological efficiency (reduction on pollution and waste) to high-level recycling of products and services based on ecological effects (prevention of pollution and consumption (Yuan et al., 2008).

The State Environmental Protection Administration (SEPA, formerly the Ministry of Environmental Protection-MEP) started to promote the concept of CE by launching a series of trial projects across the country in 1998 (Yuan et al., 2008). In 2002, CE is formally accepted by Chinese central government as the main development strategy (Yuan et al., 2008). By the “12th Five-year (2010-2015)” national plan, CE is regarded as the main task task to build up a resource conserving and environmentally friendly society (NPC, 2006, 2011).

Table 1 examples of policies, guidelines, regulations and plans for circular economy published during 2005-2015:
Table 1

The main tasks for 13th five-year plan (2016-2020) are to fully promote circular production and construct a circular industry, agriculture, service sector and a circular society. The Circular Economy strategy requires complete reform of the whole system of human activity, which includes both production processes and consumption activities.

Promoted by a series of projects across the country, these projects focused on waste recycling yet provided a guideline for a three-layer approach to promoting CE.

1. Cleaner Production (CP) auditing, which is obligatory for heavily polluting enterprises.

2. Develop an eco-industrial network that will benefit both regional production systems and environmental protection by energy cascading utilisation, and sharing of local infrastructure, and exchanging by-products and recycling wastes.

3. The practice of CE is developing eco-cities, eco-municipalities, or eco-provinces.
Yet to achieve the aims and goals of zero emissions, economic growth, and true environmental amelioration the common challenges of CE implementation must be overcome. These challenges include poor information system, insufficient advanced technology, immature leadership and management, incomplete system for performance assessment and shortage of public awareness.

Systemic information is crucial to decision making, since it enables the decision maker to find more financially beneficial and environmentally friendly plans for the management of resources. It delivers capacity to design a specific scenario for optimal reduction, reuse and recycle activities (Geng and Doberstein, 2008).

An enterprise not only needs internal information, but information of a larger economic system. Although economic modelling is transforming, the importance of science and technology does not change. 3R principles require advanced technology, with advanced system thinking and development as well as the updating of facilities and equipment (Su et al., 2013). Here, SV can help break China free from the gravity of resource inefficiency. For example, resource efficiency in China is still much lower than OECD countries (Mathews and Tan, 2016).

In terms of public awareness, the experience of Germany and Japan indicate that public participation is crucial to the development of a circular economy. It could be more important for China due to the spectacular effect that can be created by such a vast population (Geng and Doberstein, 2008). However, China lacks the human and institutional capabilities to encourage public participation in CE. Also, environmental management programs and facilities at many Chinese academic institutions are limited (Su et al., 2013). Again, Sustainable Viability can implement each project with the SV Integrated Design Process: bringing together all actors in an iterative, flexible process – see table 2.
Table 2

<table>
<thead>
<tr>
<th>S.V. IDP Principle</th>
<th>Benefit of S.V. IDP</th>
<th>Overall Project Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diverse collaborative and trusted team from outset</td>
<td>Interdisciplinary team from outset to identify optimal impact and opportunities</td>
<td>Clarity of goals and objectives</td>
</tr>
<tr>
<td>Well defined scope, boundary, vision, goals and objectives</td>
<td>Ensures inclusive understanding for maximal buy-in</td>
<td>Realisation of high performance plants</td>
</tr>
<tr>
<td>Effective, open communication</td>
<td>Builds trust, ownership and avoids costly disputes and harnesses enthusiasm</td>
<td>Realisation of optimally integrated inverse systems</td>
</tr>
<tr>
<td>System level innovation and symbiosis</td>
<td>Broadens decision space to achieve optimal performance technically, economically, socially and environmentally</td>
<td>Maximised benefits to Government, society, investors, and environment</td>
</tr>
<tr>
<td>Systematic decision making</td>
<td>Creates better choices from life cycle, holistic long-term thinking for authentic sustainable development</td>
<td>Efficient cost base with secured supply chain and downstream markets</td>
</tr>
<tr>
<td>Iterative process with clear feedback loops</td>
<td>Allows continual loop of improvement</td>
<td>Bonded trusting team delivers lasting partnerships for all and future projects</td>
</tr>
</tbody>
</table>

More systemic assessment standards should be established with consideration to the process of data collection, calculation, submission and prevention-oriented, with absolute energy/material consumption reduction indicators, to set specific and quantitative goals (Geng et al., 2012).

The quality of data collection and evaluation can result in a lack of transparency, poor monitoring and unreliability of auditing. The rigour of SV impact accounting harmonises the systems between economic development, resource utilisation, environmental impact, technology, and community improvement.

Sound Sustainable Viability CE implementation requires good design and accurate calculation for every step of a production or service cycle to reduce waste and mitigate risk. A solution to the world’s resource-security problem is to transform the outdated linear
economy to a sustainably viable circular economy. China’s circular economy strategy is a significant step forward in bridging the global gap between economic and ecological sustainability and promoting achievement of sustainable development goals.

More partnership and cooperation can abate risk.

It is important to see risks from a customer’s perspective. Increasingly relevant in the SME space is the Carbon Disclosure Supply Chain Reports.

“Suppliers that do not measure, quantify and manage their greenhouse-gas emissions will soon see their business move to competitors that can provide better information and clearer evidence of change… Only 23% of supplier organisations that responded to the 2017 CDP supply chain questionnaire report engaging their suppliers, which shows that large portions of global supply chains remain untapped, representing foregone business opportunities, overlooked carbon reductions, and unrealised financial savings.” Carbon Disclosure Project (CDP Supply Chain Report 2018)

Example - in purchasing a P.C. - where can the risk be in that? The risk is most likely hidden. Common constituents of electronic equipment are rare earths and minerals that can be sourced from areas of high-risk and conflict. Such minerals are the standard four, known as 3TG – Tin, Tantalum, Tungsten and Gold. Find out from the PC supplier if they have a source trace for the minerals that make up their P.C.s? If they do not, do they have plans to obtain a source trace? Positively influence their (mis) behaviour.

If such minerals are sourced from regions such as the Democratic Republic of Congo, payment could have gone to fund and support armed conflict, genocide, other human rights abuses. Or equally funds could have gone toward the destruction of environments, bio-diversity and the communities reliant upon those resources.

Additionally, through understanding the source elements for the manufacturer of a PC, one starts to understand the embedded emissions in products purchased. Embedded emissions are the cost and waste put into production and supply of the purchase before taking account of the use phase. These are Scope 3(12), impacts and to any organisation are typically the greatest impacts – in scale, far beyond their own accountable operations.

(12) Greenhouse Gas Protocol Corporate Value Chain Scope 3 Accounting and Reporting Standard. The author (Christopher Gleadle) was contributor to the development of this standard and the Scope 3 Technical Guidance amongst others.
Influence here can reveal large scale risk and opportunity to capture, create and deliver more value.

In co-creating customers and suppliers alike into allies, you discover synergistic and symbiotic relationships. Such SV relationships uncover opportunities to share value improving whole life cost and contract value. SV frees cash to eco-innovate and disrupt markets to compete against much larger competitors who previously would have been market advantaged due to size and scale. See example in Chapter 1.
Step 4

Leverage Your New Found Knowledge
“Often value is increased by combining a product with services, or by the complete substitution of the product with a service” Alex Osterwalder

The important message so far is to do more with less and understand many of the hidden risks and opportunities material to your organisation. The emphasis from here will be learning how to harness this new knowledge and deliver it in a material, contextual and relevant manner. Expose and create opportunities by removing the barriers to growth. Sustainable Viability is more than just a way to cut costs; for it is designed to reveal the risks that can free cash flow for eco-innovation to capture, create and deliver more value.

Having focussed on understanding carbon emissions, waste, water and other resource use, attention can now be turned to streamlining processes, production, logistics and other support services. This includes revision of structure and understanding the implications of the impact you place upon customers through your products and services related to the burden of impact from the supply chain.

Example: working with an SME, together we reorganised the structure of the business, how the strategy was implemented as well as sales and marketing approach. We co-created a new service where they became de-installers as well as installer of the new equipment they manufactured. This revealed an opportunity to recycle and reuse a vast amount of 3TG (as discussed earlier). It was agreed to share the value of collection, recycling, reuse and rehabilitation with the customer. This increased their value with customers in terms of increased competitive tendering, contract supply and end-of-contract service that reduced significantly the whole life cost and supply cycle. They reaped a value advantaged position from the competition, increasing sales significantly at a greater margin. Furthermore, they were able to increase employment in an employment stressed area.

McKinsey noted: “Improving resource productivity is likely to develop structural cost advantage and improve the ability to capture new growth opportunities.”

Sustainable Viability enables an organisation to see, analyse, model and understand the interdependent connections between the environmental and social footprint and how the two create hidden waste, risk and cost to the balance sheet. By viewing the organisation
from a three-dimensional aspect allows a clear image to emerge of the connections between inter and intra functions and business units. This will expose fresh opportunities. Additionally, it expands the decision space to make better, more informed decisions and produce reports in a material, contextual, relevant and honest way that we have already demonstrated is value enhancing. These new SV reports are the user manual to overcome barriers to growth to capture, create and deliver more value.

As for the customers you serve, you will now understand them better to deliver improved services that will give your company a value advantaged position with enhanced shared value to make the relationship more profitable for both entities. You will in effect now view the world through your customers eyes. You will be in a position to create alliances.

From alliances and the supply of products it is a short leap to see the introduction of services that maintain ownership of the product since customers extract value only from their use - not the ownership. The outcome of such an approach is to reverse the current trend of designing in obsolescence to products in order to fulfil manufacturers’ reselling cycle’s and replacing that model with designed-in durability and recyclability. Thus, both quality and value proposition are enhanced as reliability becomes of great value. Risk is reduced as is cost due to supply chain vulnerability from disrupted sources and commodity price volatility. This reduces environmental impact considerably and the increase in services takes up slack in the job market.

Better behaviour has far reaching outcomes for abating resource use and extraction, reduced need for oil and gas, lower impact through landfill, pollution, water use. Improved behaviour increases the effect of a sustainably viable circular economic model where value is emphasised over price.

Micro economic systems consistently fail to reflect value over price. This creates waste. Waste is a cost: most often not seen, but there. Micro economic systems are flawed but using Sustainable Viability we can repair them - one project at a time.

All too often sustainability, the circular economy, life-cycle analysis, emissions management, waste management, and the many other techniques employed to improve economic, social and environmental behaviour at best deliver less bad. Many companies
project these statements to indicate they do better. Very rarely is there any evidence to support these statements. Where there is any evidence it is often seriously flawed, because it is incomplete and not referenced to and contextualised within an overall system in which the information presented resides.

Let us take Life-Cycle Analysis as an example, the measurement of greenhouse gas emissions, or energy use, or waste etc.

My years building a leasing business reinforced my impression that economic misbehaviour is founded on the propensity to look at a single number, a single data point: it is viewed out of context, yet, decisions are based on it in the misbelief what is being seen is a key performance indicator that will deliver value.

Example: a company for which I wrote an integrated sustainability report (before the International Integrated Reporting Council was created) asked me to advise on new service vehicles. Taking my advice, they procured a range of quotes for vehicles of capacity equal to the existing fleet. What was different was the technology to power the vehicles. I was asked to attend a board meeting, where upon I was asked to justify my advice since the lease payments for the vehicles were £50 per month more. On a fleet of 210 vehicles, this was seen as a considerable extra cost to the business. I pointed out that over the typical three-year replacement cycle, there was the opportunity to gain sizeable savings (from month two) by changing to these more expensive vehicles, since fuel burn as well as maintenance schedules, and time released, would deliver considerable value add when analysed in the whole. I also indicated that if they were to rotate vehicles between engineers, they could improve on that even further. My evidence allowed the FD to act on my advice immediately.

While this is a simple example, it illustrates how opportunity is most often missed when it is not seen, why sustainability and the circular economy are most often delivered incomplete and therefore sub-optimised. Those tasked with its delivery have neither the tools, knowledge or experience to connect the systems. They do not see where the real opportunities reside, and that is between the subsets of knowledge – in the gaps – which connect the whole.
Step 5

Create Authentic Reports and Communications

It’s much more than just profit...
“Economic Profit is a strategic yardstick you can’t ignore” McKinsey

The Sustainable Viability of an organisation is reliant upon all parts of the system working together smoothly, completely and in an orchestrated manner. We have shown in previous chapters the damage that poor sustainability reporting can cause. It leaves high risks unchecked, it blinds boards and investors to the true picture of risk, and financial health.

Bias can cause sustainability reports to be produced with skewed perspective creating sub-optimal outcome at best.

As I have evidenced previously, sustainability reporting is often poorly aligned to the intention of the organisation for which, at great expense, and use of resources, it has been produced. For, the people in charge of sustainability are typically ill-equipped to fully understand the interdependent systems and environment in which they work because they are sustainability specialists rather than systems experts. Therefore, they are likely to fail to uncover what is hidden in order to produce an optimal report.

Bias is a root cause for poor impact accounting, procedure, analysis, interpretation and communication. Once we understand this, we need to neutralise bias and up-skill the people involved in measurement, analysis and reporting. Their perspective must be aligned with that of the organisation in order to create a collective intent that will reap far superior value for the organisation and the sustainability movement.

The overconfidence expressed in current reporting stems from Self-Attribution Bias and Hindsight Bias. Self-Attribution Bias is the tendency to ascribe success achieved in some activity to their own talents; while failures blamed on bad luck, rather than ineptitude. This repeatedly leads people to the erroneous conclusion that they are very talented. While Hindsight Bias, causes people to believe, after an event has occurred, that they predicted it before it happened. If people believe they predicted the past better than they did, it follows, that they believe they can predict the future better than they actually can. This gets amplified in the case of sustainability when there is no real commercial experience on which to base authenticity of prediction.
This leads naturally to optimism and wishful thinking. Most people display unrealistic views of their attributes and prospects [Weinstein (1980)]. Indeed, in a recent survey, over ninety percent of those surveyed think they are above average in areas such as driving skill, getting along with people and sense of humour. They also display a systematic planning fallacy - they predict tasks will be completed much sooner than they actually are [Buehler, Griffin, Ross (1994)].

We are now seeing a pattern of behaviour, where bias is deeply affecting the reports being generated, as data is skewed to create information that is in the interests of the compiler and not the interests of the organisation. To uncover, and make visible this bias, reveals the skewed perspective of the report from the compilers point of view and its shortcomings.

When people try to determine the probability that a data set (A) was generated by a model (B), or that an object (A) belongs to a class (B), they use representativeness as a rule-of-thumb. For example; when A is highly representative of B, the probability that A originates from B is judged to be high. On the other hand, if A is not similar to B, the probability that A originates from B is judged to be low. While much of the time this is helpful, it can cause other bias, such as Base Rate Neglect – when the mind is in the receipt of both general information and specific information, it tends to ignore the former and focus on the latter.(13)

Example: a UK study looked at mortality rates within the NHS for those admitted to hospital at the weekend compared to those admitted during the week. The expectation prior to the study was that mortality rates for those admitted at the weekend were going to be higher. The result published in the British Medical Journal was yes, there is a weekend effect. Jeremy Hunt, the then Health Secretary, cited the article published in the British Medical Journal and claimed “thousands” of extra deaths were caused because of the weekend effect.

However, a further study conducted by the University of Oxford suggested that it is actually the result of "the way medical records are coded for data returns".

(13) Judgement Under Uncertainty, Amos Tversky and Daniel Kahneman, 1974
Professor Peter Rothwell, who led the study, said "Most of the studies of the weekend effect have used hospital administrative data – diagnostic information extracted from medical records at some later date by non-clinical clerical staff," Rothwell said. "These coding data are fairly accurate for some things – surgical procedures or clearly specified chronic diseases, such as motor neurone disease – but are much less reliable for acute medical conditions such as stroke, infection or other vascular events." "So, these acute admissions, which have the highest risk of death – and therefore 'drive' apparent weekend effects, are precisely the ones that are most likely to be miscoded." Professor Rothwell went on to argue that differences in the data quality between weekday and weekend admissions could "completely skew any analysis of weekend effects".

The first study expected to find a weekend-effect. Arranging the data in a particular way, provided ‘evidence’ to support the expectation!

This example shows how bias skews reports. Evidence suggests this is common and creates a gap between perception and reality(14) where 74% of business leaders say their company measures both positive and negative impacts of their sustainability activities, with only 17% of investors believing this to be true.

For the sustainability movement to truly advance, those with the responsibility to measure, analyse and report need the tools to help them be better. They must be shown how to expand the decision space of the organisation to make better, quicker and more accurately informed decisions.

Sustainable Viability implemented correctly with the right skill sets balanced to the overall material system, and leveraged properly, will provide a comprehensive 3-dimensional picture of how sustainable a company’s business model really is. Such a model delivers insight to real performance and Economic Profit. As McKinsey have reported, “Economic Profit is a Strategic Yardstick you can’t afford to ignore.”

Economic profit - or loss – is calculated by taking account of the opportunity costs - alternative returns foregone by using the chosen inputs - which are then deducted from revenues earned. Such unseen vulnerability and risk undermine an organisations performance. It means an entity can have an accounting profit but run an economic loss.

(14) Companies Continue to Struggle to Communicate Sustainability Effectively – CSR Wire, Christopher Gleadle, 2014
Sustainable Viability and its novel tools uncover such vulnerability to optimise performance since SV reveals an organisation could better be utilising its resources.

The higher the economic profit the more sustainably viable your business – this suggests taking proper account of economic, environmental and social impact.

“First understand before making yourself understood.” Stephen R Covey, The Seven Habits of Highly Effective People.

SV reporting is the window through which continual improvement in a material and contextual manner is delivered to all those who have a material interest in the business. It too is the reference manual for future proofing your business against risk and cost since it reveals the real accounting strength of your organisation.

Additionally, it is the manual by which you can accurately measure your assets and liabilities – a manual to which all staff can refer as it also speaks to the oversight and Governance of the entity.

For comparability, investors can see the true nature, strength and value of their investment as they can bench mark an SV report against a business-as-usual sustainability report as illustrated earlier.

Lastly, it is the reference manual for your customers to understand your excellence, efficiency effectiveness and your integrity. Customers can understand the impact you make on them and collaborate to improve.

**An SV Report is a firm’s certificate of authenticity - a highly valuable asset.**

Moreover, a Sustainable Viability report will translate into share-holder value since investors seek long-term risk-adjusted returns. Increasing evidence suggests Environmental Social Governance (ESG) factors manifest themselves as investment risks and opportunities to impart value creation in portfolio companies in the search for Alpha. ESG is therefore increasingly material to the investment process. The global worth of professionally managed assets that incorporate ESG factors had reached $13.6 trillion by the end of 2011! (Global Sustainable Alliance (GSIA)).
“In our view, any macroeconomic analysis and investment strategy focussed on long-term, fundamentals driven performance should incorporate ESG factors as a key pillar of its analysis” Michael Hasenstab, Ph.D., Executive Vice President, Chief Investment Officer, Templeton Global Macro

Within financial markets there is a steady growth in renewable energy applications. Additionally, Socially and Environmentally astute funds are mitigating the risks and grasping the opportunities revealed. We have an opportunity to compellingly join the two, elevating their portfolio return.

Barriers to growth are rapidly eroded in portfolios that illustrate lower systemic risk by traction in emergent markets that also protect the supply chain of other portfolios. This point is illustrated in a report issued as a guide for British Pension Fund Trustees:

“Climate risk can have a real impact on portfolio holdings. There is a growing case for trustees to attain some level of knowledge around these issues, and to take steps to mitigate any negative consequences of not taking action.”

The take away from this statement is that not taking any action is a risk.

There are several initiatives to investigate the issues surrounding the mitigation of environmental and Sustainable Development risks to the financial sector. One is the Principles of Responsible Investment (PRI). A voluntary code that carries gravitas since it comes with a United Nations endorsement.

The principles are a set of guidelines, goals and submissions. The signatories to PRI currently exceed 2000 and include banks and well-known financial institutions from across the world.

Briefly, the principles are:

• We will incorporate ESG (Environmental, Social and Governance) issues into investment analysis and decision-making processes
• We will be active owners and incorporate ESG issues into our ownership policies and practices

• We will seek appropriate disclosure on ESG issues by the entities in which we invest

• We will promote acceptance and implementation of the Principles within the investment industry

• We will work together to enhance our effectiveness in implementing the Principles

• We will each report our activities and progress towards implementing the Principles

It is now firmly established that applying Environmental, Social and Corporate Governance (ESG) principles will positively affect the performance of an investment portfolio. See Figure 8

Figure 8

Adapted from MSCI ESG Research
Issues, which may affect performance, would of course vary dependent on sectors, region, and asset classes.

Increasingly, investors (Institutional, mutual or impact for example) make investments based upon some form of sustainability criteria - and integrate sustainability performance data in their capital allocation decisions.

However, few investors understand the need to distinguish between material and immaterial sustainability issues. There is a body of evidence which clearly demonstrates that firms which understand material sustainability issues significantly outperform firms with poor performance on these issues. This suggests that investments in sustainability issues are shareholder-value enhancing.

It must be noted also, firms with good performance on sustainability issues, which are not material to the business do not underperform firms with poor performance on these same issues. This suggests investments in sustainability issues are at a minimum not value-destroying.

Therefore, firms with good performance on material issues and concurrently poor performance on immaterial issues perform the best. These results speak to the efficiency of firms’ sustainability investments. This knowledge has implications for asset managers who have committed to the integration of sustainability factors in their capital allocation decisions.

**ESG**

Evidence has led to sustainability issues being strategically important and has led to the release of a wealth of information in the form of ESG data.

However, the materiality of the reported sustainability investments for corporate value is regularly questioned as many companies release an increasing amount of information that might be immaterial from an investment standpoint.
For example, the *UN Global Compact - Accenture CEO Study on Sustainability in collaboration with the Principles for Responsible Investment* shows that 88% of investors surveyed do see sustainability as an opportunity for competitive advantage yet, only 38% of CEOs believe they can accurately quantify the business value of their sustainability initiatives, with only a meagre 7% of investors agreeing(15).

Despite this, an increasing number of investors commit to the integration of ESG data in their capital allocation process, but which of the ESG data should be taken into consideration is still a point of tension.

The efforts of many organisations providing guidance on reporting of ESG(16) issues (for example, the International Integrated Reporting Council, the Global Reporting Initiative, and the Sustainability Accounting Standards Board (SASB)) are now concentrated on identifying material issues by industry to guide both company disclosure and investor integration of sustainability data in asset allocation decisions.

The research, know-how and integrated impact accounting and reporting developed within Sustainable Viability provides investors with the information, they express they want to see. See Figure 9.

(15) *Companies Continue to Struggle to Communicate Sustainability Effectively* – CSR Wire, Christopher Gleadle, 2014
Importantly the research, product and service development can not only be quantified in their own-right but are also able to spin off to authentic sustainable development in the regions and communities where their application in supply chains is focussed. This, therefore addresses security and reliability issues within the supply chains of many of the organisations where investors will also have investments.

Therefore, investing in Sustainable Viability reduces risk and vulnerability of other constituents of investors’ portfolios.

Therefore, SV reporting within investor portfolios will aid the protection of those assets, not just from the delivery of ultra-efficient energy security, but class leading deployment of systems that will elevate the value of those assets too.

Additionally, since Sustainable Viability spurs systemic market leading research in the emerging markets of renewables, water, food, waste chains etc, SV Research will garner
both industrial and political confidence to securitise both level of fund returns as well as surety of return in search of Alpha.

**How to Influence behaviour**

An early example of corporate power to do social good, by influencing reaction based on self-interest:

It was 1964, and Dr Martin Luther King, a son of Atlanta, had been awarded the Nobel Peace Prize. The mayor of Atlanta prepared a dinner in his honour and invited the ‘elite’. To his shock, few responded. Alarmed, but undaunted, he mentioned this to Robert Woodruff, ex-president of the Coca Cola Company. Robert Woodruff sent the following note to the so-called elite:

“It is embarrassing for Coca Cola to be located in a city that refuses to honour its Nobel Prize winner. We are an international business. The Coca Cola Company does not need Atlanta. You all decide whether Atlanta needs the Coca Cola Company”

Tickets sold out in two hours.

Here we see the influence brought to bear when companies in which we invest – and we all invest in some way, either through a pension contribution, or taxes for example – do the right thing and operate in accordance to our values. They want to make the world a better place. But what I want to discuss here is that values-based investing can help make better investment decisions.

**Problems and Solutions**

Investors typically see the externalities of market volatility, or elections, for example, as the predictors to reach financial goals. Yet I argue, what matters most is behaviour. But, since most investors are in denial that behaviour is influential, it is an area that is largely ignored.

Over a period of thirty years, ending in 2013, the S&P (Standard & Poor’s) 500 achieved an annual return of 11.1 percent. Yet, average stock mutual fund investors earned only 3.69
percent. About 1.4 percent of this underperformance was due to mutual fund expenses, but this still leaves about 6 percent down to investors making poor timing decisions.

I suggest this behaviour gap shows many investors are taking on risk just to keep up with inflation! I know investors know this, but they just cannot stop themselves.

In contrast, when a portfolio comprised of holdings an investor finds more personally meaningful, it does seem possible this attitude could shape behaviour.

Let us imagine jars on a kitchen shelf in which we keep money – budgets – that we use to manage our expenditure. One jar for electricity, one for gas, one for food, one for going out and having fun, one for clothes, one for saving…and so on. This we would call earmarking our money.

Now, imagine the same approach for investors – it’s how we label the investments or funds that can help influence behaviour and their investment strategy.

In a paper Earmarking and Partitioning: Increasing Savings by Low Income Households; Soman and Cheema (2009), it was found that earmarking savings in an envelope labelled with a picture of the couple’s children nearly doubled the savings rate of very-low income parents.

So, as these ‘buckets’ of money become less abstract and more personally managed: behaviour changes and improves.

Let’s look at some experience: back at the time of the 2008 financial crisis. There were marked differences in behaviour between investors who took a traditional approach to investment portfolios, and those who had meaningfully, goals-based investment strategies. Using statistics from SEI Investments:

Traditional Portfolios

♣ 50% chose to fully liquidate their portfolios, or at least their equity portfolios, including many high net-worth clients who at that time had no need of cash.
 nowadays make significant changes in equity allocations, reducing it by 25% or more

Personal, meaningful, goals-based investment strategy

♣️ 75% made no changes

♣️ 20% decided to increase the size of their immediate needs pool, but left the longer-term assets fully invested.

The key finding from this experience is that personal, meaningful, goals-based investors are less likely to panic and make ill-informed changes to their portfolio. This suggests that from this research such investors are more likely to be stable, patient and committed investors; essential ingredients for long-term, research-based, sustainable development.

Therefore, evidence points us to see that where investment takes on a more personalised approach, behaviour changes accordingly.

However, it is worth remembering that emotion can obscure rational thought just as much as compel positive behaviour. Yet, as we improve our awareness of how investments impact our world, behaviour will improve in kind.

Furthermore, behaviour influences the M&A market. A survey conducted by PwC for the Principles of Responsible Investment entitled Integration of ESG & Governance issues in M&A (Mergers and Acquisitions) Transactions, Trade Buyers Survey Results, shows that poor performance on ESG factors is used as a lever to reduce the valuation of a business by as much as 10 percent. It is assumed that excellent ESG is accounted for in the selling price.

Once the demand for 10 percent discount is exceeded, the willingness to do the deal may well be removed altogether. This suggests that the sale agreement for a £100M company could be lowered by £10M for poor ESG performance – if the deal goes ahead at all. (This is a great deal of money to lose for not taking a Sustainable Viability route; notwithstanding the lost value opportunities along the way, which would have raised the
book price). Additionally, 80 percent of deals have shown a reduced valuation, or the deal has not gone ahead based on poor ESG factors.

Sustainability performance is becoming ever more inextricably linked to financial value, whether private or public business of all sizes. In the pursuit of a more sustainable and just world, it is the translation of that vision, delivered in appropriate language to the appropriate audience where value can be shown to be captured, created and delivered.

Authentic reporting heightens the inclusive and cohesive nature of an entity’s value system. Sustainable Viability and its authentic reporting break down the barriers and silos that inhibit value generation. Time and again they have shown to promote more productive, cohesive teams driving eco-innovation and serving customers and stakeholders better.

Numerous examples of academic and business research consistently indicate heightened employee engagement improves the well-being of employees (reduction in sick days, absenteeism and improved morale). It also improves motivation, creativity, innovation and loyalty to the brand – making that brand one that employees are more likely to recommend to others as an organisation to work for. This in turn results in lower employee churn to aiding retention of top talent, reduction of costs and process interruption and improvement of eco-efficiency and eco-intensity. Indeed, research further indicates that staff engagement scores directly against earnings per share performance that delivers a 28% advantage (Gallup)(17) against competitors.

When employees are positive about their organisation’s Corporate Responsibility commitment, employee engagement rises 85%", (Sirota)(18). This set against contrasting information where fewer than 1 in 3 employees worldwide (31%) are engaged and 1 in 5 (17%) are actually disengaged (Blessing White).(19)

This suggests that the process of Sustainable Viability delivers the capacity to consistently enter into open dialogue and engage employees in Sustainability. Furthermore, it galvanises employees’ behaviour to remove barriers to growth and unleash potential to make a difference with elevated feelings of self-worth. Indeed, this continues to their

(18) Sirota Survey Intelligence (2007) – Corporate Social Responsibility Contributes to Bottom Line, Improves Worker Engagement and Customer Loyalty
(19) Blessing White – 2011 Employee Engagement Report
private lives too, helping them make better choices that serve them, their families, communities and the environment, better.

SV reporting will enhance your ability to beat the market to create security for your business and all those dependent upon your success. You will make a difference and help make the world a better place to live and create societies that will be more inclusive, cohesive and equal. You will be helping to create a more stable environment and protect bio-diversity and aid the better use of resources turning away from the linear world of extract, use and dispose: a world based on greed and fear business models. Your business will be run better, and be a place where people want to work and be associated with.
Conclusion
No organisation can function in isolation. All are interlinked to varying degrees with each other and within communities in which they operate and the environment upon which we all depend.

Profit is dependent upon the internal efficiency of the organisation and its external relationships (such as with other organisations, communities, and the environment). More and more business organisations recognise the substantial financial benefits to be obtained by integrating sustainable viability thinking and practices into every aspect of their business processes. How the profit is made is increasingly becoming the competitive differentiator for business. Business and trade are the wealth creator of an economy.

To maximise profit requires an understanding of trends, costs, wastes, revenue and opportunities.

The traditional approach is to collect as much data as possible - often with a disregard to understanding the difference between available data and the relevant data - and then process, interpret and convert in the hope that the resulting information has a value that will enable wiser decisions and actions to be made for a more desirable future outcome.

The challenge - of converting large quantities of data to reliable, understandable information suitable for vital decision making - is problematic since the interpretation is subject to many influences: including the personal biases and intentions of the analysts and decision makers that may not always be well aligned. It is not uncommon to find ‘other agendas’ embedded in the output information that perhaps serve some concealed purpose.

The result is less than optimal performance: giving way to missed opportunities, mixed with costly, time consuming additional reviews to put information into context. If contested, the process may then be repeated, drawing and processing yet more data to support another interpretation. In other words, the link between data and information contains much that is not visible with value destruction between the reservoirs of information leading to false-positive knowledge that is misleading since it indicates a position that is not there and will erode trust and confidence.
As shown in this book; Sustainable Viability takes a radically different approach to data, information, knowledge and wisdom for better decision making. By linking human (mis)behaviour within interdependent economic, environmental and social systems SV creates materiality and context to remove confusion and opens up of often unseen possibilities. SV provides clear, credible, common sense outcomes that can be directly acted upon to guide decision makers away from unintended consequences, uncertainty and risk to confidence and security.

SV empowers organisations to better achieve their core objectives and better understand, interact, and integrate with their local and global environment. A bi-product of SV is to be more eco-innovative and reach meaningful sustainability and environmental targets.

SV is in distinct contrast to normal intelligence gathering from raw data, where uncertainty tends to be processed out of the outcome, and where human input, as previously discussed, is likely to be coloured by invisible biases and hidden intentions. This so often results in decisions that have unintended consequences. (see previous examples).

SV is about relationships, not objects. Just as data, such as a number, has no meaningful value unless it is related to something (See Table 3), so the true value of an organisation, cannot be ascertained unless related to society (the stakeholders) and the environment. It follows that decisions to increase the value of a company or organisation cannot be best made without an understanding of these relationships.
Table 3

SV provides a clear representation of the subject organisation and its internal relationships as a closed sphere, and its relationship with everything external such as other companies, suppliers, regulators, eco systems, etc. The dynamic relationships between the two represent the ever-changing environment in which we operate. SV delivers the ability to visualise and communicate in this medium and to breathe life into data and information thus re-awakening enthusiasm across teams to see problem issues in processes far more speedily, raising productivity. SV allows for more informed decisions from better communication, problem-solving, knowledge sharing and adaptability.

The obvious benefits are of converting risk to opportunity, improving environmental and financial performance as well as removing potential unintended consequences.

<table>
<thead>
<tr>
<th>Data</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>45</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Carol is a Virgo and has brown hair. She was born in 1973 and lives in Kansas, USA. Her land-line phone number is +17855551234</td>
</tr>
<tr>
<td>Brown</td>
<td></td>
</tr>
<tr>
<td>+1 785 555 1234</td>
<td></td>
</tr>
</tbody>
</table>
SV immerses users into a three-dimensional interactive world (Figure 10) that accurately reflects the present situation and the intended future, making visible the direct and indirect impacts of decisions. The immediate effect is to reveal the wider implications of decisions: on the organisation and environment now, and in the future. SV expands and diversifies the decision space to open up possibilities and opportunities never considered.

SV removes blinkers we simply did not know we had. It opens a new power to achieve the decision makers’ true intentions; illuminating fully the road ahead making visible the linkages and interconnections with the surrounding landscape. It uniquely avoids focus on just one aspect, for example, reducing carbon emissions or ‘being green’. These concepts have their own negative consequences, since they are not systems approaches, but linear.
References
References

Carillion: X

Frederick Basitiat; Economist: XI

Keith Boulding; The Coming of Spaceship Earth, 1966: XII

Richard Thaler; Misbehaving, 2015: XII

Amos Tversky and Daniel Kahneman; Judgement Under Uncertainty, 1974: XIII, 62

Walter Kiechel; The Lords of Strategy, Boston MA – Harvard Business School, 2010: 15

No More Normal, 2018: 15

Jorge Reynolds Pombo; Electrical and Bio-engineer: 15

McKinsey: 22, 57, 61

Joseph Schumpeter; Creative Destruction, 1942: 23

IPCC; Greenhouse Warming Potential: 26

Energy Performance Certificates: 28

Jones Lang Lasalle; A Tale of Two Buildings; 2012: 28

Further Education Learning and Teaching Advisory Group (FELTAG): 31


Sirota Survey Intelligence (2007) Corporate Social Responsibility Contributes To Bottom Line, Improves Worker Engagement And Customer Loyalty: 33

University of Technology Sydney: 36

Cisco: 37

Norwich City College: 38

British Chambers of Commerce survey of 3000 firms, 2014: 41

Technical University of Denmark: 45

NC State ERM Initiative in partnership with the American Institute of CPAs; The Current State of Enterprise Risk Management: Update of Trends and Opportunities; 2015: 45

International Labour Organisation: 46

Professor John Ruggie; Professor of Harvard Kennedy School, Professor International Legal Studies at Harvard Law School: 46

Companies Act 2006 (as amended): 47

Fergus Green and Nicholas Stern; China’s changing economy: implications for its carbon dioxide emissions; 2016: 49

German Closed Substance Cycle and Waste Management Act 1996: 49

Zhu; Circular Economy; 1998 and onward: 49

National Development and Reform Commission: 49

Yuan: 50

State Environmental Protection Administration: 50

National People’s Congress: 50
Yong Geng and Brent Dorberstein; Developing the circular economy in China: Challenges and opportunities for achieving 'leapfrog development'; 2008: 52

Mathews and Tan; China’s Renewable Energy Revolution; 2016: 52

S.V. Integrated Design Process: 53

Carbon Disclosure Project; Supply Chain Report; 2018: 52

Greenhouse Gas Protocol Corporate Value Chain Scope 3 Accounting and Reporting Standard: 54

Alex Osterwalder; Value Proposition Canvas: 57

Base Rate Neglect: 62

Weinstein; Optimistic bias; 1980: 62

Buehler, Griffin, Ross; Exploring the planning fallacy; (1994): 62

Professor Peter Rothwell; University Oxford; The Weekend Effect; 2016: 63

Global Sustainable Alliance (GSIA): 64

Stephen R Covey, The Seven Habits of Highly Effective People: 64

Michael Hasenstab, Ph.D, Executive Vice President, Chief Investment Officer, Templeton Global Macro: 65

British Pension Fund Trustees: 65

PRI – Principals of Responsible Investment: 65

International Integrated Reporting Council: 68

Global Reporting Initiative: 68
Sustainability Accounting Standards Board (SASB): 67

UN Global Compact - Accenture CEO Study: 68

United Nations Environment Program Finance Initiative: 68

World Business Council for Sustainable Development: 68

MSCI ESG Research: 69

Robert Woodruff; President Coca Cola Company: 70

Dr Martin Luther King: 70

Standard & Poor: 70

Soman and Cheema; Earmarking and Partitioning: Increasing Savings by Low Income Households; 2009: 71

SEI Investments: 71

PwC: 72


Sirota Survey Intelligence (2007) – Corporate Social Responsibility Contributes to Bottom Line, Improves Worker Engagement and Customer Loyalty: 73

Blessing White – 2011 Employee Engagement Report: 73

**Figures**

Figure 1 – Assets and liabilities for a non-sustainably viable organisation: 18

Figure 2 – Assets and liabilities for a sustainably viable organisation: 20

Figure 3 – Creative destruction: 23
Figure 4 - Impact with reduced fixed and marginal costs of production: 27

Figure 5 - Lecture theatre at University of Technology Sydney: 36

Figure 6 - Teaching across campuses using video conferencing and virtual classroom technologies: 38

Figure 7 - Remote teaching of motor mechanics – workplace / academic education: 38

Figure 8 – Scope of ESG to affect the performance of an investment portfolio: 66

Figure 9 – Workshop series of World Business Council of Sustainable Development and United Nations Finance Initiative 2010; What Investors Want: 69

Figure 10 – Sustainable Viability (S.V.) immerses users into a three-dimensional interactive world: 79

Tables

Table 1 – Examples of policies, guidelines, regulations and plans for circular economy published during 2005-2015 (China): 51

Table 2 – S.V. Integrated Design Process: 53

Table 3 - Data, has no meaningful value unless it is related to something to become information: 78
Acknowledgements

I would like to gratefully acknowledge and thank Robert Woodthorpe-Browne MBE and Neil Thomson for their tireless support, encouragement and help in the writing of this book.
The Author

Christopher Gleadle is a respected authority in operational sustainability strategies. His system thinking skills honed from large-scale system and application software development as well as training programme development.

His own businesses were founded on the development of intuitive programmes for the management of fuel, logistics and financing, which led to his being a contributor in the development of international standards such as the Greenhouse Gas Protocol, Greenhouse Gas Accounting; material reporting and communication for Environmental Social and Governance (ESG) as well as international standards for Sustainable Development, BSI. Chris has further developed novel integrated impact economic, environmental and social modelling tools.

Widely published, his papers are recommended reading by notable sources such as UNEP, Thomson Reuters Corporate Responsibility Indices, Finance Middle East et al. On the back of this, Chris has been invited as Key Note speaker at international conferences: the emphasis of his talks is critical multi-dimensional thinking skills, novel training, Sustainable Viability, and innovative technologies integrated to practical workable systems that capture, create and deliver more value for all.

Email: chrisgleadle@pm.me