

Future back

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The wind in my hair and Nike Air on my feet
Past the roaring deer and exotic parakeets
Historic palaces and ancient oak trees
Imagining what they have seen, and what they will see
This is my time to think, to dream and reflect
We are all inspired by the world around us, by nature and people
Creative people, such as artists, musicians and architects
Inventors and designers, innovators and entrepreneurs
Stimulated by their vision and ideas, enabled by business and technology
Thinking bigger about new spaces and opportunities
Searching for the impossible then finding ways to make them possible
Listening to what people would love, not just what is marginally better
Designing the perfect solution and finding a way to make it profitable
Not just competing, but out-thinking the competition
Not just creating, but shaping the world in your own vision
Creativity is the most exciting thing that we do
Design is the most engaging
Innovation the most exhilarating
Thinking what you never thought was possible
Inspiring you to do the extraordinary
In your work and in your life

Leonardo da Vinci

It is easy to say that a person is 'ahead of his time', but rarely has anyone been so far ahead. He could see the future – his insights suggested new possibilities, his imagination was uncluttered by today, and his inventions really did emerge from the 'future back'.

Leonardo da Vinci anticipated many of the great scientific discoveries ahead of his time, including those by Copernicus, Galileo, Newton and Darwin. He even went further than them, turning their principles into practical applications, from calculators to helicopters, hydrodynamics to solar power.

- ➔ Forty years before Nicolaus Copernicus, he proclaimed '*il sole no si muove*' – 'the sun does not move', dismissing the belief that the earth sits at the centre of the universe.
- ➔ Two hundred years before Isaac Newton, he proposed the theory of gravity – that 'every weight tends to fall towards the centre by the shortest possible way', and that the Earth must be spherical.
- ➔ Four hundred years before Charles Darwin, he argued that man and monkey had the same origins, and how evolution has shaped the natural world around us.

How did he do this? The answers lie not in science or technology, but in the way in which he saw the world around him and how that made him 'rethink'. From the *Mona Lisa* to *The Last Supper*, it is the same approaches that made his paintings so remarkable, that enabled him to create, design and invent many of the aspects of life today.

What was it that inspired, shaped and sustained his creative genius? What were his talents and traits that we could seek to recreate in our own quest for creativity and innovation? Psychologist, and professional juggler Michael Gelb proposed seven components to da Vinci's distinctive approach. He labelled them *curiosit *, *sensazione*, *arte e scienza*, *connessione*, *sfumato*, *dimostrazione* and *corporalit *. Whilst there is nothing futuristic in these attributes themselves, they did enable him to see things differently and, as a result, think different things.

So how can we apply these ideas to business today, and specifically to the challenge of more effective innovation, innovation from the 'future back'?

- 1 **Relentless curiosity** ... an insatiable hunger to learn, to search for better answers and to articulate his ideas in pictures, and propose new possibilities.
- 2 **Seeing more** ... he observed things differently, using all his senses to appreciate richer detail, to align perspective and perception, and thereby to understand his subject better.
- 3 **Thinking bigger** ... appreciating art and science, logic and imagination, he was able to think more broadly, embracing rigorous analysis whilst also trusting his intuition.
- 4 **Making connections** ... to connect the unconnected, to embrace the fusion and intersection between the natural and physical world, the tiniest seeds to the stars above.
- 5 **Embracing paradox** ... thriving on ambiguity and uncertainty, creating mystery and depth, be it the contrast in his sketches or asking questions without obvious answers.
- 6 **Courageous action** ... always seeking to prove his hypotheses, to experiment and test, to make his ideas tangible, and to do what nobody had done before.
- 7 **Enlightened mind** ... constantly renewing mental and physical fitness, exploring new worlds to spark new ideas, not being a slave to work but living a full life.

Leonardo had an insatiable curiosity and an imagination unconditioned by his surroundings. This combination of catalyst and creativity enabled him to make some of the greatest technological advances of the modern world.

Beyond his art, Leonardo is admired for his technological ingenuity. As a scientist, he contributed much to the evolution of knowledge – particularly in the fields of anatomy, optics, mechanical engineering and hydrodynamics. He developed highly original concepts, captured in immaculately detailed designs, for everything from a helicopter, a tank, a calculator and a double-hulled catamaran, to a basic theory of plate tectonics.

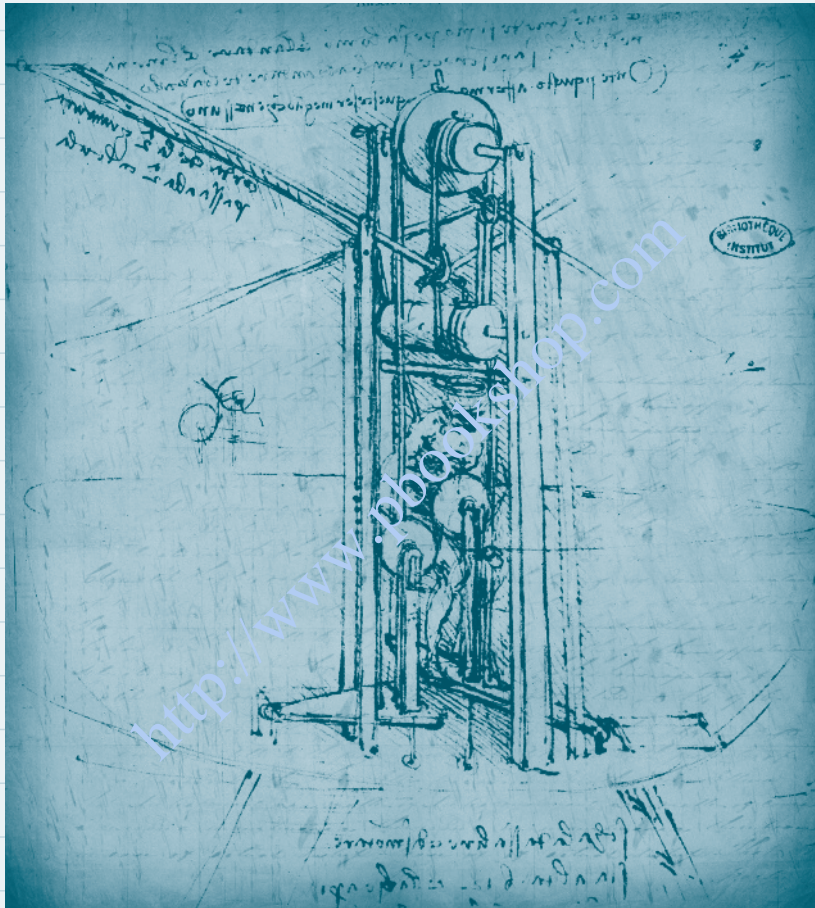
Da Vinci is still thought of by most people as primarily an artist, but his world-changing approach to realistic painting was only possible due to his fascination with science.

He took this fascination with understanding and recording the world around him to extreme lengths, dissecting many bodies and drawing them in great detail. He saw the body as a machine, a complex mechanism that could eventually be understood. He was one of the first, for example, to identify the pumping action of the heart.

He even replaced muscles with strings to experiment and see how they worked with the levers of the bones. His understanding of anatomy and his experimental approach opened the way for others to follow in later centuries.

The Renaissance, and in particular Florence, is famed for its unusual concentration of great men at the time, although they rarely worked together. Leonardo was 23 when Michelangelo was born and 31 when Raphael was born.

Unique to the period was the encouragement by patrons and thinkers of a 'cross-over' between the arts and sciences (or social philosophies as they were regarded at the time), which challenged many of the conventions around, and found newness in their intersection rather than isolated extremes. This became known as the 'Medici Effect', enabled by the gathering of diverse talents encouraged by rich benefactors, such as the Medici family. Leonardo was



Da Vinci's mechanics were inspired by the natural world

a master of cross-over. He combined ideas from animal and plant studies with psychology, fashion, anatomy and architecture. From this he formed his understanding of mechanics, and everything from hydraulic pumps to new musical instruments emerged. He used analogy – for example, he wrote short fables like Aesop, stories that seemed to be to entertain children but were in fact to communicate to adults the danger of greed and so on.

Few of his design concepts were ever constructed. Not because they weren't practical; more often because the technologies and resources to create them were not available at the time. However, some of his smaller inventions, such as an automated bobbin winder and a machine for testing the strength of wire, became reality.

In 1502, for example, Leonardo produced a drawing of a single-span 240-metre bridge as part of a civil engineering project for Ottoman Sultan Beyazid II of Istanbul. The bridge was intended to span an inlet at the mouth of the Bosphorus. Beyazid did not pursue the project because he believed that such a construction was impossible; however, Leonardo's vision was resurrected in 2006 when the Turkish government decided to construct Leonardo's bridge to span the Golden Horn.

So what can we learn from Leonardo da Vinci? How can his life and work inspire us to be more creative, enlightened, inspired by our surroundings, and able to innovate from the future back?

Steve Jobs has many great attributes, but he too is not perfect. Maybe surprisingly, much of advanced technology is Greek to him. His skill is to rise above this, to understand people, the simplicity of user-centric design in all its facets, and the power of communication. Maybe we can learn something from this in today's world – where words and numbers dominate our communication and restrict our imagination. Maybe P&G have the right idea when they stipulate that any new proposal, innovation or investment should be communicated in a one-page poster rather than in lengthy reports or slideshows.

Certainly the ideas of looking further into the future and deeper into the consumer's world are only beginning to matter in business today. Techniques such as scenario planning on consumer immersion are still rare. Going beyond the assumptions and research statistics to live with consumers, to understand how products and services are used, enable people to do more, enrich their lives – by seeing the challenge and opportunity from their perspective.

We now examine Leonardo's seven talents in a little more detail, looking at what they mean for creativity and innovation today, and how you can embrace them in pursuit of your own creative genius.

Talent 1: Relentless curiosity

'*Curiosità*' is translated from Italian as an insatiably curious approach to life and unrelenting quest for continuous learning. It is the ability to constantly question yourself and others; the relentless pursuit of knowledge and truth, learning to ask better questions; the ability to solve the most challenging problems by keeping an open mind.

Leonardo believed that man is not divorced from nature, or any object from its surroundings. And that observation should be accompanied by reason and application. He saw this as a creative challenge. As Vasari put it, 'he taught us that men of genius sometimes accomplish most when they work least, for they are thinking out inventions and forming in their minds the perfect ideas which they subsequently express and reproduce with their hands'.

Leonardo was intensely curious about everything he encountered. His incomplete notebooks are full of spontaneous, random drawings but few words, demonstrating an agile mind: observing, thinking, imagining – capturing new insights or fragments of invention, recognizing that future possibilities are unlocked by a better understanding of current phenomena, and then searching for more.

How does relentless curiosity drive creativity?

Our world is more uncertain than ever. Change is relentless, technologies emerge at break-neck speed, and markets and behaviours are incredibly complex. Neuro-imaging can give us new insights into the mind and space travel is unearthing life beyond this planet. Seeking to understand this world – at least partly – offers you the best clues to making a bigger difference in it.

Thinking from the future back helps you to challenge the conventions of today. Asking why is always a better starting point than asking how; understanding the context is a more useful place to understand a problem than the symptoms themselves; and developing a better product starts by understanding what people seek to do with it, rather than what it actually is.

Steve Jobs, a little like Leonardo da Vinci, has many talents. But like Leonardo's linguistic weaknesses, Jobs readily admits that there are many who understand technology better than him. Yet he also sees this as a virtue, as it means he is not inhibited like others. Instead he takes a human perspective, challenging every aspect of design, usability and communication.

Meet any other entrepreneur – such as Richard Branson, for example – and they are intensely curious about you and your thoughts, about why things are as they are, and how they could be different. In Branson's pocket there is always a small notebook full of scribbled notes, untidy pictures, questions and new ideas. Every situation, every person, every hour, he adds more to his thinking.

How can you be relentlessly curious?

It is easy to be so focused, that there feels like no time or space in which to think. Yet thinking is perhaps your most valuable use of time. The motivation to think does not come from others, but inside. It comes from being curious.

CREATIVE GENIUS

Take a notebook everywhere you go – small and without lines, so that it is more portable and less restrained. Capture ideas and insights, and spend a few minutes every day reflecting on discussions and experiences. Then you can occasionally sit back and review what you have created. Look for patterns both obvious and not, and seek symmetry where there is currently none.

Sometimes it is easier to focus on one theme at a time, or to even force yourself to generate as many ideas as possible around that theme. This is sometimes referred to as 'brainwriting' – a personal brainstorm, unlocking your stream of consciousness. A few minutes of thinking time is the best possible starting point to being a creative person.

- ⇒ Time and space (Chapter 2) explores the places where no business has gone before.
- ⇒ Shigeru Miyamoto (Chapter 3) applies his curiosity to transform Nintendo's games.
- ⇒ World changing (Chapter 4) responds to the shifting power in the world and the implications for innovation.
- ⇒ Future back (Chapter 6) explains how to stretch your people to be more curious.
- ⇒ James Dyson (Chapter 9) describes how running up sand dunes led to vacuum cleaners.
- ⇒ Philippe Starck (Chapter 11) inspires us to stay crazy through creativity and design.

Talent 2: Seeing more

'*Sensazione*' is the continual refinement of the senses, especially sight, as the means to enliven experience. Of all these, da Vinci was most focused on sight, making '*saper vedere*' – knowing how to see – the foundation of all his work.



Seeing more ... understanding how objects relate to their context

Leonardo was not satisfied with his ability to depict physicality, and sought out the anatomist Marc Antonio della Torre to help him understand people and their motion even more closely. Torre was passionate about using the eyes in new ways.

Sight and perception

Da Vinci believed that the five senses were connected to a single point: the 'senses communis', located just behind the eye. 'Who would believe that so small a space could contain the images of all the universe?' he pondered in his notebooks, translated and reproduced as *The Da Vinci Notebooks*.

He considered sight to be the superior sense because it gives more context, adds perspective and enables scientific reasoning, and is therefore the foundation of creative talents.

Leonardo also believed in the *idolum*, the power that all things possess to give off both their physical shape and inner energy, and that only by looking more closely can you see the real intersection between an object and its surroundings.

Light and perspective

Perspective became a defining principle of Leonardo's work, showing how objects relate to each other, and to the distance and angle at which they are observed. Geometry and mathematics became increasingly important to his art.

However, he did not believe art was a 'desk job'. He believed in mingling with the bigger world, thinking big before small, believing that otherwise his detail could be in the wrong place. He recommended that artists walk alone in the countryside to more keenly appreciate the beauty of nature.

He became fascinated with all aspects of nature. Trees in particular mattered to him: he admired their structures and changing colours, and the way they interacted with light. The

shadow of trees, he said, is as much about the light patches as the darker patches, and their vibrancy and transparency.

How does seeing more drive creativity?

We dive into problems and opportunities with little thought for either their context or indeed whether we are focused on the right areas. We are all too keen to understand people today, and maybe in the past, but less interested in things that they do not yet say they need, or for which words have not been created. We are comfortable seeking to make sense of our own world, but we lose confidence as soon as we enter a new space.

Opening up before closing down is key to innovation: exploring possible markets, existing or emerged; understanding possible future scenarios, rather than assuming one; considering non-customers as well as customers, because there must be reasons why they are not customers; and considering more ideas, options and potential solutions before making choices.

By considering different viewpoints, we can see an opportunity from different perspectives – as a customer, competitor, technologist, futurist, artist and more. By spending more time with customers, we can learn far more about their motivations and aspirations rather than just their needs and wants. By giving ourselves time to think big, we are more likely to find the best opportunities, rather than just better ones – to do the right thing rather than just do things right.

Thinking from the future back is perhaps the most useful of all perspectives, because it is without restraint, without prejudice, but with infinite possibility.

How can you see more?

Learn how to draw. Drawing unlocks your creative spirit like no other: it allows you to express ideas without the necessity of established words and meanings, to develop the ideas as you

draw, to connect ideas that are usually addressed individually, to reflect this in a unique and personal manner, and to engage people more emotionally.

Above all, learn to draw with a stream of consciousness – with your 'right brain' rather than your 'left brain'. Whilst the brain is more complex, in simple terms, the right side is more intuitive, spontaneous and holistic, allowing us to make connections and see the bigger picture. However, many of us are slaves to the left side (numbers, logic, structure and focus), which is important but can often limit creative thinking in the initial stages. 'Creativity' emerges from the connection of both.

As you draw, use all your senses. Listen to sounds around you, articulate the most important ideas prominently and then connect supporting ideas around them. Think about the touch and smell, as well as sound and vision, describe them and how they make you feel. Remember sometimes that less is more, simplicity as well as detail. And above all, don't feel embarrassed by your drawing skills!

- ⇒ Seeing things differently (Chapter 12) encourages us to explore different worldviews.
- ⇒ Deep diving (Chapter 15) immerses you in the intuitive world of customer aspirations.
- ⇒ Paul Smith (Chapter 17) reflects on quirkiness and how to embrace parallels and extremes.
- ⇒ Co-creation (Chapter 23) adds new ideas to business that you might never have thought of.
- ⇒ John Maeda (Chapter 27) uses graphic design to find simplicity in our complex world.
- ⇒ Cai Guo-Qiang (Chapter 45) encourages artistic experimentation to find genuine newness.

Talent 3: Thinking bigger

Da Vinci was able to think beyond his peers because he combined opposites and adjacent fields – art and science, man and machines, logic and imagination. This requires new ways of thinking – the ability to synthesize information in new ways, work in parallel at different levels and even hold two opposing views at the same time.

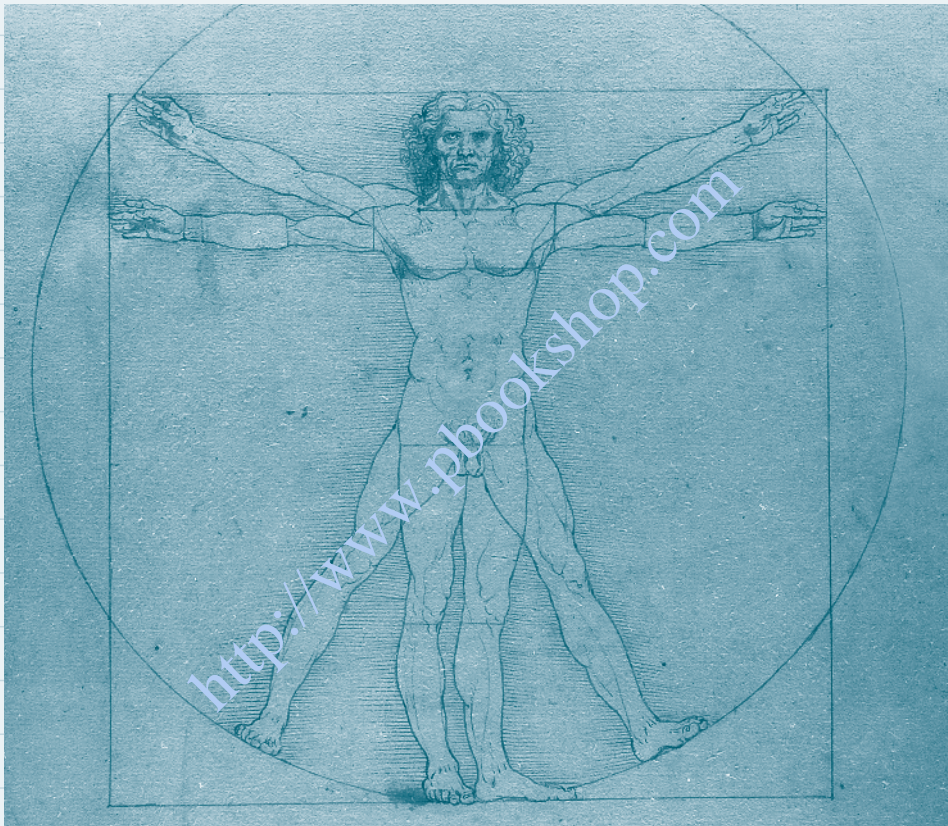
Leonardo was fascinated by the proportions of the human body. The Roman architect Vitruvius had previously related these to fundamental geometric principles, but Leonardo went much further, defining his symbolic drawing of the 'Vitruvian Man':

'... Four fingers make one palm; four palms make one foot, six palms make one cubit; four cubits make a man's height; and also one pace; and twenty-four palms make a man ...'

He was obsessed with finding harmony, symmetry and balance: 'the span of a man's outstretched arms is equal to his height' and 'every man at three years is half the full height he will grow to at last'.

In mathematics, and in the arts too, two quantities (a and b) are in a 'golden ratio' if the ratio between their combined value (a + b) to the larger value (a) is the same as the ratio between the larger value (a) and the smaller value (b). The ratio is a mathematical constant, approximately 1.6180333887. Behind many of Leonardo's greatest works lies this almost spiritual geometry.

His intellectual 'border crossing' was also evident in his mechanical breakthroughs. He explored the human body with meticulous dissections, learning from every muscle as if a masterpiece of mechanical engineering that could be applied on much larger scale in the physical world, from levers and pulley systems to visions of automation and flight.



Thinking bigger ... Vitruvian Man and the Golden Ratio

How does thinking bigger drive creativity?

Reductionism, incrementalism and efficiency: the enemies of effective innovation in business today. With our heads in our spreadsheets, we focus on the minute details. We seek to improve sales, reduce costs or enhance performance by small percentages. We seek to optimize the things we currently do rather than do things differently, and we stick with the ideas we can quantify rather than those that are more difficult. Thinking bigger is about understanding people outside their boxes, our home market as the globe not our locality, and opportunities beyond the three-year plan. It is about understanding a person's surroundings, and then the person; applications before products; attitudes before behaviours. And it is about having the imagination to stretch beyond what is known, comfortable or predictable.

Thinking from the future back is a better starting point, because everything is possible.

How can you think bigger?

The answer lies in this book. To stretch your imagination beyond reality to possibility, and then work backwards to understand how you could do more. To stretch not only in time, in terms of years ahead, but also in space, in terms of adjacent markets. Once you have stretched you can then connect it back to today – future back, now forward – to target an emerging market or leapfrog a convention.

Package your bigger thinking in more acceptable ways for people, for example by saying 'let me propose a hypothesis' rather than being dismissed for crazy, impractical ideas. Hypothesis-thinking is far-stretching but also credible – scientific, if you like – and gives you the opportunity to prove or disprove it, and at least explore it further.

Hold back on the spreadsheets. Use your imagination and intuition to reach new domains before seeking to analyse them in detail, rather than diving into the wrong ocean. Equally, once you have settled on a thinking space, evaluate it for the best opportunity areas – the best potential customers or products, for example – and then focus your creativity on what matters most.

- ⇒ Virgin Galactic (Chapter 2) tells us how a dream of space became reality in a few years.
- ⇒ Tim Berners-Lee (Chapter 12) thought bigger to reconnect the world through his web.
- ⇒ Future scenarios (Chapter 14) develops alternative futures to help make better decisions.
- ⇒ Context reframing (Chapter 22) helps us to redefine situations in more powerful ways.
- ⇒ Market shaping (Chapter 36) recognizes innovations as just the starting point for change.
- ⇒ Zaha Hadid (Chapter 36) never stopped fighting to make her big ideas come true.

Talent 4: Making connections

Da Vinci had a deep appreciation of the interconnectedness of all things. This helped him to find new connections and combinations, and to open up whole new fields of science and philosophy.

'Whatever exists in the universe, in essence, in appearance, in the imagination, the painter has first in his mind and then in his hand; and these are of such excellence that they present a proportioned and harmonious view of the whole, that can be seen simultaneously, at one glance ...'

The Medici effect

Leonardo believed that an artist should not just copy nature; he should understand it, saying that a creative expression is only achieved by a total immersion in a task, finding harmony with the natural world in order to see its detail.

Not only did he revolutionize the use of perspective in art with the mathematical application of proportions, he also introduced a systematic approach to 'immersing' himself in the world of his subject. In this way he understood how life interacts with what surrounds it, and how it succeeds better when it is in harmony. Leonardo believed that an artist's role was to hold a mirror up to nature.

'He should act as a mirror which transmutes itself into as many colours as are those of the objects that are placed before it ... Above all he should keep his mind as clear as the surface of a mirror.'

However, as a scientist, he also believed in questioning what appeared in his mirror, arguing that better understanding enables better judgement, and better art.

Leonardo only believed this was possible by staying in touch with real people – walking the streets, talking to people, observing their behaviour.

'You should go about and often as you go for walks observe ... the actions of the men themselves and of the bystanders.'

But he also said that observation was not enough, that understanding why people behave is more significant – how they are influenced by others and their surroundings:

'... Consider the circumstances and behaviour of men as they talk and quarrel, or laugh or come to blows with one another.'

Art and science

Most impressive of all was da Vinci's convergence of art and science. His observations and drawings were ultimately the enablers of phenomenal scientific breakthroughs and innovations. But it was the purity of art rather than the limitations of academia that enabled him to achieve that. He demonstrated how to lift and draw great weights by means of levers, hoists and winches, or ways to pump water from great depths. He rejected conventional wisdom and accepted truths, preferring instead to trust his own eyes and interpretation.

How do connections drive creativity?

The best ideas are often a combination of smaller ideas and indeed the best solutions for customers are usually a combination of various products and services. Therefore, seeking to solve the problem rather than creating a product is a far more connected approach to innovation.

Working with a wider range of partners enables you to access ideas, capabilities and customers that you would never have been able to alone – through open innovation, joint ventures or affinity brands. Rather than being restrained by specific capabilities, retain more flexibility and reduce risk in an ever-changing world. These connections extend to your customers too, collaborating – or 'co-creating' with them in new ways to develop ideas, produce and evaluate them, and even sell them to others.

Thinking from the future back gives us a bigger picture where we can see patterns and potential connections that are perhaps invisible day to day. Consider parallel sectors that have similar challenges or different worlds altogether. Architects can learn from nature; banking can learn from retailing; public sector can learn from private sector, developed nations can learn from developing nations.

How can you make connections?

Take two different ideas and see how they can produce better ideas. If you want to think how social networks can work for you, then fuse ideas such as Facebook with something completely random, like a birthday cake. Think about the attributes of each – people, friends, profiles, photos, games, candles, icing, flavours, party, annual – and then connect some of them, such as real parties for online friends or a featured profile if it's your birthday.

Talk to a person with similar challenges to you in a completely different market. If you are a bank trying to attract young people, talk to Apple or H&M. If you want to give your shoes more marketing buzz, see what you can learn from Disney or Bloomsbury (the publisher of Harry Potter books). If you want to understand the likely impacts of deregulation, track what happened in industries where similar events have already taken place.

If all else fails, try something completely different. Read a book about something you know nothing about. Watch a different television channel. Go for a walk in the woods, or browse in a shop you've never been in before. Look for ideas and connections to whatever you are working on.

- ⇒ Samsung (Chapter 8) reinvented itself through a design language based on yin and yang.
- ⇒ Extremes and parallels (Chapter 17) drive radical ideas through unusual connections.
- ⇒ Concept fusions (Chapter 26) brings the best ideas together to create better solutions.
- ⇒ Going further (Chapter 38) uses licensing to replicate ideas in adjacent markets.
- ⇒ Lego (Chapter 42) opened its research labs to the kids who can really play.
- ⇒ IBM (Chapter 47) uses 'InnovationJams' to bring people and partners together.



Embracing paradox ... light and dark, shadow and sharpness

Talent 5: Embracing paradox

'*Sfumato*' in Italian suggests a willingness to embrace ambiguity, paradox and uncertainty. This gave da Vinci's work a great sense of mystery or even uncertainty in the mind of others.

Intrigued by light, he saw it as the physical element that stimulated the eye, but also figuratively as what stimulated the mind:

'Light is the chaser away of darkness. Look at light and consider its beauty. Blink your eye and look at it again; what you see was not there at first, and what was there is no more.'

As an artist he considered how to interpret where inner and outer light meet, which gave contrast to his paintings, but also depth to their meaning. His paintings demonstrate infinite graduations between dark and light. He understood the power of darkness as well as light, perfecting the techniques of '*chiaroscuro*'.

How colours mix and contrast, how colours split and give more meaning became his new obsession – he declared that 'where there is most light the true character of a colour in light will be seen'.

The Laughing One

Sitting in the Louvre is perhaps his most famous creation, the *Mona Lisa*.

The painting – also known as '*La Gioconda*', or 'The Laughing One' – is most famous for the mysterious quality of the subject, the elusive smile on the woman's face, brought about perhaps by the fact that the artist has subtly shadowed the corners of the mouth and eyes.

Faces said everything to Leonardo. Not only anatomically, but in the way they reflected thinking, emotions, relationships and surroundings. He conveyed his beliefs in some of the

greatest masterpieces. Of the portrait, Vasari said 'The eyes had their natural lustre and moistness. The mouth joined to the flesh tints of the face by the red of the lips, appeared to be living flesh rather than paint. On looking closely at the pit of her throat one could swear that the pulses are beating.'

The shadowy quality for which the work is renowned became known as '*sfumato*', or 'Leonardo's smoke'. Other characteristics found in this work are the unadorned dress, the dramatic landscape background in which the world seems to be in a state of flux and the subdued colouring.

How does paradox drive creativity?

Paradox is the 'big daddy' of innovation. Finding ways in which to resolve a fundamental contradiction in people's lives, where they want two opposite things but have to choose one, can be the catalyst for significant breakthroughs. How can you resolve their dilemmas?

Ambiguities lie all around us. Brands are often forced to compromise as they try to meet the needs of different audiences, creating average solutions or a whole range of features that many people don't need or want. The small things, like the shading in Leonardo's drawings, can make a big difference – particularly to the aesthetic qualities and the emotional engagement of customers.

Thinking from the future back allows us to address uncertainties by understanding how to reduce risk and concern. It helps us to see how small frustrations or imperfections can have big consequences in the longer term. It allows us to break free of the constraints that cause many paradoxes and create solutions, which we can then set about finding a way to make happen today.

How can you embrace paradox?

Seek out ambiguity in everything you explore – in the lives of customers, in product composition, in channels to market, in ways of making money and more. Look to the margins not the mainstream for ways in which people have adapted standard products and services to their own needs: the person who ties a ribbon around the suitcase because they all look the same, or deliberately makes their designer clothes look worn and dishevelled because it looks cooler than if they were new.

When listening to or researching customers, don't ask them what's good or what they want; focus instead on what's not so good, or frustrating, and understand why. Probe their answers more deeply until you find some fundamental contradiction in their needs or in the solutions available to them. Understand how you could make it better.

Explore possibilities by asking questions to which there is no obvious answer (sometimes known as the 'Socratic method'). Of course, this could just seem like you are being difficult, so it is also worth adding that you understand that there is no obvious answer, but that it is still worth asking the question.

- ⇒ Aravind Eye Care (Chapter 4) transforms sight in India with a non-profit healthcare model.
- ⇒ Creativity (Chapter 7) uses the Jester to challenge your thinking and open your mind.
- ⇒ Patterns and paradoxes (Chapter 13) explores the world of paradoxes and possibilities.
- ⇒ Rule breakers (Chapter 18) challenges you to disrupt normality and embrace discontinuity.
- ⇒ Alessi (Chapter 29) reveals his secret formula for connecting function and form.
- ⇒ Tesla (Chapter 34) demonstrates that fast sports cars can also be environmentally friendly.

Talent 6: Courageous action

Da Vinci was not just a smart thinker; he had a bias to making things happen. Having an idea is one thing but proving it is another: scientific method is all about experimentation and continually testing to prove that the proposal is valid – or to learn through mistakes how to create a better solution.

Mathematics was central to Leonardo's thinking. While much of his interpretation was intuitive, he saw analysis as supporting hypothesis, needing to make a leap of faith before proving it. He supported his proofs with repeated experimentation and only after such rigour did he trust his conclusions. He also found that new ideas often arose through deeper analysis and testing, and often took him closer to the origins of phenomena.

He brought all this together in his scientific four steps method:

- 1 **Observing:** Trusting your eye and other senses to understand the subject, its contextual surroundings and the influence they have.
- 2 **Interpreting:** Making sense of these observations and from them hypothesizing reason, which can be postulated as scientific laws.
- 3 **Demonstrating:** Showing how factors such as mathematical proportion can be found in many different situations, and its implications.
- 4 **Articulating:** Testing the logic through repeated experimentation and visualizing the logic in pictures, diagrams, words or numbers.

Creative engineers

Leonardo designed incredibly sophisticated machines beyond anything that had been articulated before. However, his focus was not on the invention, but on the mechanical engineering

that solved the problems or enabled new possibilities. He was less interested in devices, more in the processes behind them, and their applications that made people's lives better.

His creative engineering created a new world of weights and forces, levers and pulleys, cogs and wheels. From this he created everything from a loom to spin wool to clocks that kept time. His understanding of propulsion led to the first designs for a bicycle; his insight into water displacement allowed him to imagine what a submarine could do.

Fly like a bird

His visions of flight were his most ambitious, fundamentally challenging what people at the time dreamed was possible. Examining motion through air, Leonardo studied the flight of birds to understand how their delicate structures were able to resist the force of gravity. He marvelled at the natural technology of wings and considered how he could replicate it:

'The wing of a bird is always concave in its lower part extending from the elbow to the shoulder, and the rest is convex. In the concave part of the wing the air is whirled round, and the convex is pressed and condensed'.

He sought to understand not only the movement of objects in flight, but the movement of air as it passed by the object. By addressing the problem in reverse, he explored how air could be channelled to keep much heavier objects in flight – and ultimately to create flying machines.

How does courage drive creativity?

Thinking from the future back requires courage. A more conventional approach would be customer-centric, where the customer (or more often the customer research) says that something is wanted so therefore must be the right solution. Too much innovation is still based on the current articulated needs and paradigms of customers. But breakthrough requires stretch

and challenge, perhaps collaboratively with customers, taking you beyond the safety zone of quantitative research, fusing insight, imagination and inspired implementation.

It is one thing to sit around having good ideas and another to make them happen. Test new ideas with experiments and prototypes, either physical builds or computer-generated graphics. Use this testing approach to learn and improve the designs, build commitment from stakeholders, and engage customers and partners.

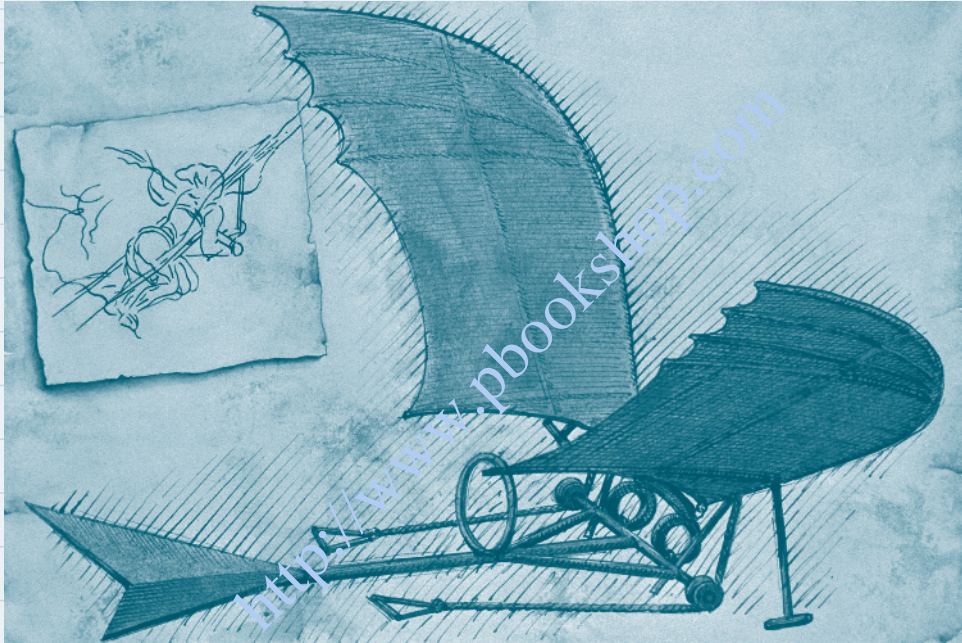
Few of us are confident in our drawing capabilities, less still in our model-making skills. But we can all be tremendously inventive when we try. Draw pictures, cartoons or diagrams of your ideas, rip out pictures and slogans from magazines, and build collages to give a sense of the look and feel of a new idea. They might look ridiculous, but they help you to then describe your new possibility far better than words.

How can you act courageously?

Test and challenge all of your assumptions. Apply it to real situations and consider how it would work, if it's a product, when and where would people buy it from, who the competition would be, and what price it could demand. Ask customers, colleagues and partners, friends and relatives: they don't need to be an expert to have a view – it is better if they bring different perspectives.

Make things happen. Draw your pictures, stick them on the wall. If you are working as a team, consider recruiting an artist or cartoonist who can capture all the best ideas as spoken or developed, and create a visual record of the evolving ideas. Make models – even the most amateur combination of cereal boxes and toilet rolls is good. Engage people with it – 'imagine this is a 60-centimetre LCD screen, and this is a body sensor', or whatever.

Learn from failures (yours and others') and find ways to make it better. Persevere, keep trying, each time getting a little closer to your dream, and to a practical solution. Enjoy the journey, not just the result. If the idea is good enough, the reality will be worth the effort.



Courageous action ... turning insights and ideas into practical designs

- ⇒ Muhammad Yunus (Chapter 6) is transforming third world business with micro-credits.
- ⇒ Honda ASIMO (Chapter 13) is the cute little robot that makes the future more possible.
- ⇒ Launch pads (Chapter 31) focuses on getting ideas to market fast and effectively.
- ⇒ Innovation process (Chapter 44) defines the disciplines of new product development.
- ⇒ Reid Hoffman (Chapter 46) is the networking and investment star of the digital world.
- ⇒ Game changing (Chapter 49) keeps us thinking bigger, about creating a better world.

Talent 7: Enlightened mind

A healthy body creates a healthy mind. More than an artist or scientist, da Vinci was a thinker, a philosopher. He reflected on life and its meaning, problems and possibilities.

And he was more still. As a court entertainer, he designed sets and costumes, often loaded with symbols and significance. Sometimes this symbolism reflected his patronage, but it was also just another aspect of his curiosity.

Leonardo became a great storyteller, partly in his role as entertainer, but more importantly as a way to communicate and spread his ideas. His stories were thoughtful and amusing, and his company was sought by royalty and nobility across Europe. One of his most famous, or lasting, is 'The Ant and the Grain of Millet', simple yet provocative. It made people think.

'The ant found a grain of millet. The seed, feeling itself caught, cried out "If you do me the kindness to allow me to accomplish my function of reproduction, I will give you a hundred such as I am." And so it was.'



Enlightened mind ... from art to aeronautics, imagination without limits

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Leonardo pushed the boundary of knowledge, exploring things that did not become accepted and physical until hundreds of years later. His notebooks were not published until four centuries after his death, and in them people were amazed to find that what they had thought was the latest discovery had been imagined many years before.

Yet his contemporaries also realized that they lived alongside a supremely gifted man – a genius – a man who could see things differently, and think different things.

A man who redefined his world from the future back.

How does enlightenment drive creativity?

It sounds almost spiritual, and certainly requires spirit... the personal energy to stretch yourself, to look wider and deeper, to listen harder and interpret better, to think what has never been thought and to connect the unconnected, and to turn ideas into practical solutions for implementation.

Thinking from the future back is exhausting but exhilarating. Like a racing driver or tennis player, it doesn't look too physically demanding, but it requires immense mental presence. There is no magic formula, no definitive process, just a number of talents that you can embrace. The rest is up to you, to embrace curiosity and perspective, and all the other factors. Yet if there is one essential ingredient, then it is an enlightened mind that has the fitness and agility to think beyond the norm.

The agility comes from mental fitness and, like physical fitness, this requires training. It demands regular stimulus in many different ways – artistic and scientific, business and personal, analytical and creative, the big picture and the detail.

How can you enlighten your mind?

Develop your aerobic conditioning. Build body awareness, spiritually and physically – yoga and dance, juggling and fitness. Morning runs, lunchtime swims or an evening at the gym. Do it regularly – not as a lung-bursting, muscle-burning workout, but a sustained effort that can be repeated often, and from which you feel better than when you started.

Physical fitness heightens your mental agility, ready for your mind to be fuelled with new and interesting stimuli. You can achieve much of this in the way you live, your interests, the magazines you read, the people you meet, in the workplace and even the food you eat.

Break your conventions. Encourage your ambidexterity, using your non-dominant hand at least once every day. With colleagues and teams, shake things up a little – throwing in some random ideas, changing the subject regularly, work on multiple projects at the same time and make unusual but interesting connections.

It can be a little disorientating at first, but it breaks you and them out of your conventions, and eventually becomes fun and inspiring.

- ⇒ Creative genius (Chapter 10) defines the nature of 'genius' in today's business world.
- ⇒ Steve Jobs (Chapter 10) is the 'reality distortion field' that we all want to learn from.
- ⇒ Dave Stewart (Chapter 35) transforms himself from rock star to ideas man at Nokia.
- ⇒ Creative people (Chapter 45) explores the attributes that drive your own creativity.
- ⇒ Niklas Zennström (Chapter 49) stays on the edge, always looking for the next big thing.
- ⇒ Now forward (Chapter 50) inspires you to stay crazy in practical and profitable ways.

Future back

Leonardo da Vinci created a future way beyond most people's imagination, in which so much innovation and so many people have been inspired.

He imagined and shaped the future like nobody else. His peers were not just his contemporaries, and his context was not just the world as it is. He looked beyond the science and conventions of the time, to understand people and nature like never before. He rewrote the rules of science and technology, many of which we still use today.

His ideas were centuries ahead of his time, his insights had a depth not before encountered, and his results were extraordinary.

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Time and space ... exploring the future world

'Now here, you see, it takes all the running you can do, to keep in the same place. If you want to get somewhere else, you must run at least twice as fast as that.'

Lewis Carroll

Imagine that you are a time traveller. Explore the world centuries ahead, meeting your future generations and seeing what has become of the world we live in. Go backwards into history to stand alongside the great figures, or maybe even do something to change history and our world today.

For most of us this is pure fantasy – we are satisfied to live in the world we do. Yet predicting the future has never been easy. In a time of accelerating change and unpredictable turbulence it is even harder. The future is no longer an extrapolation of today; visible insights and trends are rarely the source of the best ideas or breakthrough innovations. They help but we need to do more, to use our imagination too.

As David Pescovitz, research director of the Institute for the Future in Palo Alto, reflected in a recent interview with *The Times*, 'things are more volatile than they have ever been, and we are barely at the beginning. The World Wide Web emerged in 1993, which wasn't really that long ago. It's an incredibly transformative time.'

How will your world change in the next ten years? Where will the best opportunities emerge? Will people still want what you do today? What will most influence them?

We struggle to keep pace with today, let alone take time to look ahead. If we do, we have a tendency to dismiss it as uncertain. We prefer to exploit the opportunities closest to us. But without a view of where we are going, we are unlikely to move forwards; we fail to 'future-proof' our investments and innovations, and we create more rather than less risk in our businesses.

Nobody wants to always be a step behind – never shaping your world, always being shaped by others.

Future possibilities

Ever since Jules Verne and H.G. Wells, scientists, philosophers, writers and artists have tried to imagine the world of the future. The optimists believe that progress, largely driven by scientific research, will conquer problems and uncertainty, and continue to make our lives better. The pessimists believe that problems are intrinsic and inevitable – a little like Frankenstein's monster eventually coming back to destroy its creator – and that mankind only has itself to blame for an imperfect world.

The early twentieth century saw the rapid emergence of cars, trains and planes. Fuelled by this growth, the 1950s vision of the future was shown in *The Jetsons*. The cartoon pictures a traditional family living in a hi-tech flat, high up in a towering skyscraper. Dad goes to work in his personal space vehicle. He calls Mum from the office on the videophone to tell her when he will be back. She is at home with the children, helped by a semi-human robot who is also the cook, cleaner and babysitter. The children play with futuristic toys, including a robot dog and an incredibly-fast spinning top. Summer holidays are a trip to the Moon.

So we could assume that everything will just become bigger, faster, more powerful and more efficient, while culture and society remain basically the same. A century later, however, we have not found ourselves living the life of *The Jetsons*. We still drive cars and fly planes,

although with a little less amazement and more concern about their impact. Few of us have progressed to personal planes. Robots are still largely the stuff of science fiction and despite having taken our first steps on it, the Moon still seems distant and surreal.

Some things have changed. We don't need robots to do the washing, because we developed more intelligent washing machines. We have found ways to work more remotely, rather than just having gadgets to take to work. As many women work as men, and the social dynamics of family and community have changed too.

So innovation is not just about a technology timeline, or mimicking existing behaviours in faster or more efficient ways. Cultural attitudes, behaviours, needs and expectations change more. The context for innovation is perhaps more important than the innovation.

Time matters, but space matters more.

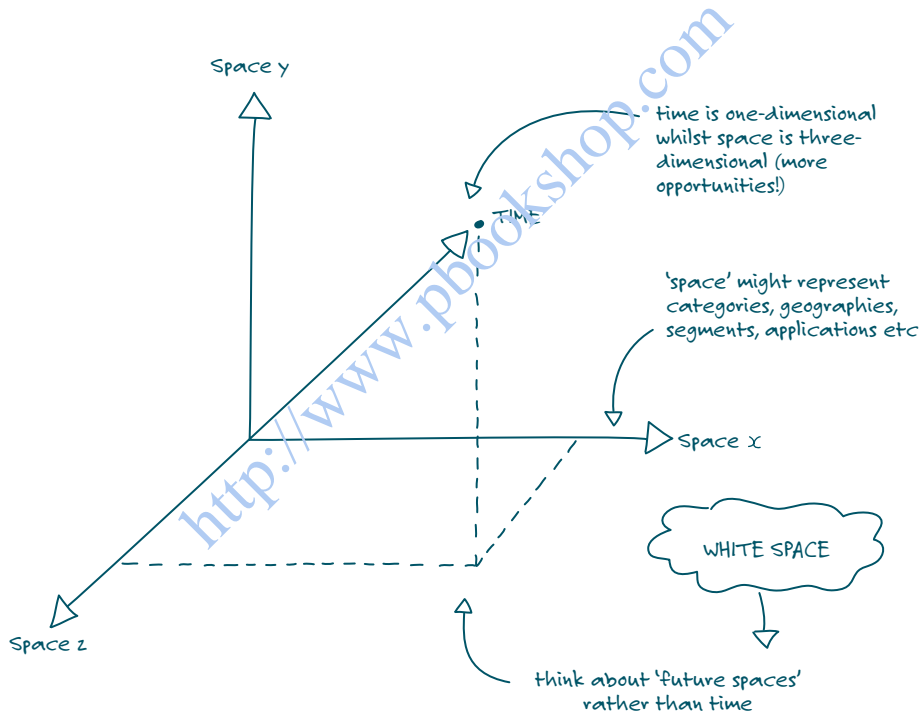
Spacetime

Time is easy to measure; space is more difficult. It has many different formats, and multiple dimensions. We might interpret space in terms of geography and witness the rapid globalization of our culture and markets. In life, we might have changing lifestyles, interacting with different people with evolving priorities. In business, companies and markets evolve over time. The opportunities of evolving and emerging spaces are much more interesting than the future in itself.

In physics, 'spacetime' is about considering space and time in the same context, or mathematically in a single continuum. Spacetime is usually interpreted with space being three-dimensional and time playing the role of a non-spatial fourth dimension. By connecting time and space, physicists have significantly simplified a large number of theories, be they super-galactic or sub-atomic.

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In classical mechanics, time is treated as a constant, independent of the state of motion of an observer. However, Einstein taught us that life is not so simple and all perceptions are relative. Time cannot be separated from the three dimensions of space because the rate at which time passes depends on an object's velocity relative to the speed of light and also on the strength of intense gravitational fields, which can slow the passage of time.



Opportunities emerge in space not just in time ... finding the best 'whitespaces' from the 'future back'

In *Doctor Who*, The Doctor describes himself as 'the last time lord'. Maybe because he understood that time was not enough, and instead transports himself across centuries and parallel worlds in his TARDIS, which stands for 'time and relative dimensions in space'.

The point is not to baffle you with science, or fiction. The point is that timelines are not enough.

We cannot simply understand the future based on an extrapolation from today. We need to open our eyes to a bigger, complex and changing world where the spaces we do business – the 'marketspaces' – are likely to evolve the most. The Institute for the Future no longer focuses on timelines or trends; instead, it looks for 'blobs' of interesting areas where newness is emerging. The sources of new ideas and opportunities are less about the future itself but instead about these blobs – or, more eloquently, the 'whitespaces' that are likely to emerge in that time.

Whitespace

Insight is much more than understanding what people currently want. Markets are much larger than their existing limits and new opportunities emerge in many different ways. Instead of focusing too much creative energy on the existing definitions of our world (the 'greyspace'), we should invest more in finding and exploiting the emergent areas (the 'whitespace') – the differences between the two are shown in the following table.

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Greyspace	Whitespace
Focusing on markets that are defined by current products and competitors	Focusing on markets as defined by our imagination, by focusing on solving people's problems, and redefining the context
Addressing the articulated needs and wants of existing customers	Addressing the motivations and aspirations, and the articulated and unarticulated needs, of customers and non-customers
Guided by customer research that is limited by current paradigms and data that reflects averages	Guided by 'insights', more stretching and deeper, by bringing together many sources of knowledge to find new and significant opportunities
Seeking to implement one idea from a quick brainstorm; tactical and cosmetic	Seeking to create more disruptive change, through breakthrough concepts that connect many ideas to form better solutions
Innovating around the 'what', creating an innovative product or technology	Innovating the 'why, what and how', creating an innovative solution or experience, or an entirely new business

Predicting the future is easy and largely irrelevant, because it could take an infinite number of forms. Creating it is much more important: why should we stand back and let others shape it for us, and live by their visions?

Virgin Galactic ... spaceships and stardust

'To be able to float around in Zero-G, I just wish everybody could experience this. The view is so hard to describe, it's moving, it's emotional,' reflected John Glenn on returning to Earth.

Glenn, and many of his fellow astronauts over the last 45 years, have struggled to convey the enormity of what they have experienced and how their perceptions of our world have fundamentally changed. Now Virgin Galactic seeks to extend that privilege.

On 4 October 2004, Burt Rutan's *SpaceShipOne* rocketed into history, achieving what only three of the world's most powerful nations had managed to achieve before him and claiming the \$10 million Ansari X Prize. Soon he will launch the world's first commercial space business, although over the longer term he sees Virgin also replacing intercontinental travel on Earth – using space hops to reduce long-haul flights from hours to minutes.

Indeed, nothing excites Virgin's founder Richard Branson more than his ground-breaking venture into 'space tourism'. Sitting interviewing him, he talked about his life and his business experiences – a familiar story to many of us. But when I mentioned space, his eyes lit up as he recalled his schoolboy excitement of watching the first moon landing at home on a black and white television in 1969. He was spellbound, he said. From that moment, he promised himself that one day he would follow those astronauts into space.

Making the impossible possible

Branson described the challenge in defining what at the time seemed impossible, and then finding a way to make it happen: 'Space travel is absolutely, unbelievably exciting. For a British company to be preparing to be the first to take fare-paying customers into space is phenomenal. Having registered the name Virgin Galactic, we spent a decade looking for potential engineers to build a reusable spaceship.'

'We explored mad, zany ideas, and then found Burt Rutan who's the absolute genius in this area. He'd come up with the idea of turning the spaceship into a massive shuttlecock, to slow the vehicle on its dangerous re-entry phase. The whole project is almost carbon-neutral. Each space flight will generate fewer emissions than a flight to New York, whereas NASA uses the power of New York City to send up the Space Shuttle.'

Back in 1996, the Ansari Foundation launched its X Prize to be awarded for the first non-governmental space flight. Initially supported by Microsoft co-founder, Paul Allen, *SpaceShipOne* was developed by Burt Rutan, and a month after Branson got involved the spacecraft flew to an altitude of 112 kilometres and claimed the prize.

Further developments led to *SpaceShipTwo* (subsequently renamed *VSS Enterprise* after his love of *Star Trek*), which is twice as large and built of an incredibly light but strong composite material. This, combined with the innovative horizontal launch concept from its mother-ship, would deliver a launch process of relatively low cost and significantly less noise and carbon pollution. Inside, a fully pressurized cabin with floor-to-ceiling windows would create a unique experience for the six passengers and two pilots.

Better than climbing Everest

Launching initially from Spaceport America in New Mexico, Virgin's astronauts will need to pay around \$200,000 and undergo three days of preparation. There is a medical check before travel, although no upper age limit – Branson's father Ted is particularly excited about being on the maiden commercial flight, despite being well into his eighties.

The venture's leader, Will Whitehorn, argues that the price is equivalent to the cost of climbing Mount Everest, which hundreds of people now do every year, an 'almost as exciting' experience. More strikingly, he compares it to the alternative way to travel in space, costing around \$20 million and two years of training with the Russian space agency. He sees Virgin's prices falling by around 50% once the business is fully operational.

Around 300 individuals had already signed up for space travel, even before the official launch. They include designer Philippe Starck, scientist Stephen Hawking and James Lovelock, one of Branson's heroes and inventor of the Gaia concept that the Earth functions as a single connected organism. They will experience six minutes of weightlessness during what will be a two-hour end-to-end flight, and just to add to the drama of the first voyage, Duran Duran will play live in-flight too.

'It's incredible to think only 450 people have ever been into space; that's including all the Russians, all the Chinese and all the Americans put together,' said Branson. 'We should be able to take maybe 1000 people, or should I say astronauts, in the 12 months once we start.'

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Creative minds ... new thinking for the new world

'When it comes to the future, there are three kinds of people: those who let it happen, those who make it happen, and those who wonder what happened.'

John Richardson, pioneer of future modelling

We live in a creative world, an ideas economy.

This is a world where people engage more emotionally, intuition beats logic, imagination fuels insight, pictures say more than words, form matters as much as function, ideas are the most valuable assets, and creativity the most precious talent.

In business, we slowly realize that analytical spreadsheets, focus and efficiency are unlikely to uncover the best opportunities, or win us competitive advantage. Despite the many hours with heads down in our Excel spreadsheets, we realize that ideas and imagination can deliver more success.

Scientists exploring new super-string theories, engineers working with nanotechnologies, designers working with 3D graphics, teachers seeking to educate digital native kids, artists in ambient media, retailers delivering experiential theatre, social networkers, bloggers, tweeters ... Richard Florida calls them the 'creative class': people who are defined by their ideas, are largely dependent on creativity to create value and inspire others to create too. In developed markets they now account for around 30% of the workforce. Florida estimates that in the US alone, there are around 40 million creative professionals.

Every profession is becoming more creative: healthcare is more about people and wellness, accountants develop all sorts of elaborate schemes to improve the bottom line, lawyers seek to find ever more imaginative ways to defend their clients, and even politicians need to work harder than ever to engage their audiences. By 2020, around 50% of all workers will be creative professionals of one sort or another. They bring together information and experience, insight and imagination to solve problems in better ways, and to customize solutions.

But creative people are different. They reject sameness and structure. No longer are they prepared to work 9 to 5, sometimes coming in earlier and/or leaving later, but otherwise wanting to be more flexible with their time, which becomes their most precious commodity. They throw off their white shirts and ties, they express themselves as individuals, they give much more, and expect much more in return.

The secret of high performance and satisfaction – at home, school or work – is the deeply human need to direct our own lives, to learn and create new things, and to do more for our world. Dan Pink, author of *Free Agent Nation*, argues that we increasingly want to work for ourselves rather than others, and that autonomy, mastery and purpose will be our new guiding forces.

As we approach the future, we need to rethink what skills and knowledge are needed. Schools today should be preparing children for very different careers from their parents. These will typically be more creative roles, combining the potential of new technologies and human performance, supporting the innovative practices, and adding value to society in new ways. Imagine these professions of the future:

- ➔ **Memory guards** – neurosecurity experts responsible for the protection of our best ideas.
- ➔ **Personal branders** – managing our identities and reputations, the future stylists and publicists.

- ⇒ Social network counsellors – helping you through the trauma of multiple online relationships.
- ⇒ Time-traders – banks that deposit, and trade time as a valuable asset, rather than money.
- ⇒ Avatar managers – personal knowledge assistants replacing teachers and advisors.
- ⇒ Weather controllers – firing rockets with silver iodide into the air to provoke rainfall.
- ⇒ Ethics advisors – helping you to make the right choices in a complex and confusing world.

Shigeru Miyamoto ... the ultimate game designer

When the great Walt Disney died in 1966, Shigeru Miyamoto was a 14-year-old aspiring cartoonist who adored the classic Disney characters. And when he wasn't drawing, he made his own toys.

Shigeru Miyamoto is now the world's most famous and influential videogame designer – the creator of legendary games such as *Donkey Kong* and *Super Mario Bros.* and more recently, the Nintendo Wii. Yet he is still a hands-on artist, working with colleagues, sharing ideas and passions, smiling and having fun, virtually unknown outside of his design studio, but the hero of game-players around the world.

As the creative mastermind at Nintendo for almost three decades, Miyamoto has seen a transformation in mass entertainment – riding the waves of digital technology progress – from the early personal computers to sophisticated wirelessly networked devices. His products are at the top of most children's gift lists, and many parents' too.

Compelling, irresistible, relentless – his games have led to phenomenal financial success too, unparalleled except perhaps for Disney. He has transformed the gaming industry as well as aspects of modern culture, and is personally responsible for the consumption of more billions of hours of human time than anyone else alive.

Miyamoto joined Nintendo in the late 1970s and rose quickly through the company, first standing out in the early 1980s when his *Super Mario Bros.* games helped save the industry after the collapse of Atari, maker of the first broadly popular home console. Nintendo's NES game console, released in 1985, became the best-selling game machine of its era. Since then Miyamoto, supported by his 400-strong team, has given the world at least 70 games, including recent hits such as *Mario Kart Wii*, *Super Smash Bros., Brawl*, *Super Mario Galaxy* and *The Legend of Zelda: Twilight Princess*.

His designs are meticulously detailed, engaging and compulsive. This is because of much more than the impressive graphics: it's the way his characters move and stories unfold, the incredible environments in which they find themselves, and the endless goals set for them. Who would have expected a generation to become addicted to a strange, frantic plumber in blue overalls? And beneath this is a rigorous system design that enables more.

Life in Kyoto

If Miyamoto had grown up in a different world – San Francisco rather than Kyoto, perhaps – then he would be a celebrity on par with Jobs and Spielberg. He would have set up his own studio, probably licensing his games to the leading brands – a celebrity everywhere he went and worth billions.

Instead, despite being a cult figure at Nintendo HQ, he almost comes across as just another worker, rushing home to his wife and two school-age children at the end of the day. Maybe this normality is a big part of his (and Nintendo's) success. Focusing on the games, creating

new ones, and making the others better, is the obsession, not money or fame. His ideas are well established, and protected, and he attracts the best talent to work alongside him. 'What's important is that the people that I work with are also recognized and that it's the Nintendo brand that goes forward and continues to become strong and popular,' he said in an interview with *The New York Times*, when comparing Walt Disney's role with his own. He has the trust and admiration of senior management, meaning that creativity and the creative process can flow without interruption or compromise.

Mario, the moustached Italian plumber he created almost 30 years ago, has become the planet's most recognized fictional character, rivalled only by Mickey Mouse. His games have together sold more than 350 million copies, and Miyamoto – despite his anonymity – was voted the most influential person on the planet by *Time* magazine.

Wii and Mii

More than games, his influence is through the Wii, an innovation that has largely reinvented an industry. The idea was revolutionary in its simplicity: rather than create a new generation of games for existing players, Nintendo wanted to reach out to new audiences – and developed the Wii as an easy-to-use, inexpensive diversion for families, to women, to parents and even grandparents.

Largely thanks to Miyamoto, digital games have become Japan's most successful cultural export, and Nintendo has become one of the most valuable companies in Japan. It is often said that without Shigeru Miyamoto, Nintendo would still be making playing cards, the original focus of the games maker when it began in 1889. Indeed he has been such a driving force to the industry that there might not even be videogames today without him.

His inspiration has shifted over time – from the desire to dream up new worlds and characters, to a realization that his own personal experiences can be just as significant inspirations.

Nintendogs was inspired by his Shetland sheepdog at home; then there is his love of rock music (particularly the Beatles) and his love of playing the piano and banjo, from which emerged *Guitar Hero* and *Rock Band*.

As consumers want to become a part of their entertainment, and shape it, Miyamoto is creating a new star in his fantastical stable of characters: you, or rather Mii, the avatar that Wii users create of themselves. In the interview with *The New York Times* he reflected that Miis were 'the most recent character creation'. Each Mii is unique and much more relevant to the player, who is now part of the game rather than just playing it.

Shigeru Miyamoto: the Walt Disney of the digital generation.

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World changing ... seismic shifts that are transforming markets

'All is flux, nothing stays still. Nothing endures but change.'

Herculitus in 480BC

Look East not West.

If you're looking for the hottest fashions go to Shanghai. If you want the best website designers, try Mumbai and Johannesburg. For game designers, Tokyo is still the place. If you're seeking funding for your new business, Shenzhen is where the venture capitalists hang out. If you want high quality production try Taiwan, or the Philippines for clothing. Education and knowledge is centred on Singapore, and for making it all happen, Hong Kong.

The rampant spread of economic crisis in 2008–9 demonstrated the way in which the world has become interdependent, the foolish practices of undisciplined moneylenders in California having an almost cataclysmic impact on the fortunes of businesses in London or Lagos, and the lifestyles and ambitions of people in Moscow and Mumbai.

And whilst people focused on the problem, the turbulence that it caused and how they could get back to how they were, they didn't realize that the world was fundamentally changing.

They missed the real cause of the disruption – a fundamental shift in wealth and power. We felt that impact on stock markets and in our pockets, and the economic crisis acted as a 'tipping point' for seismic change.

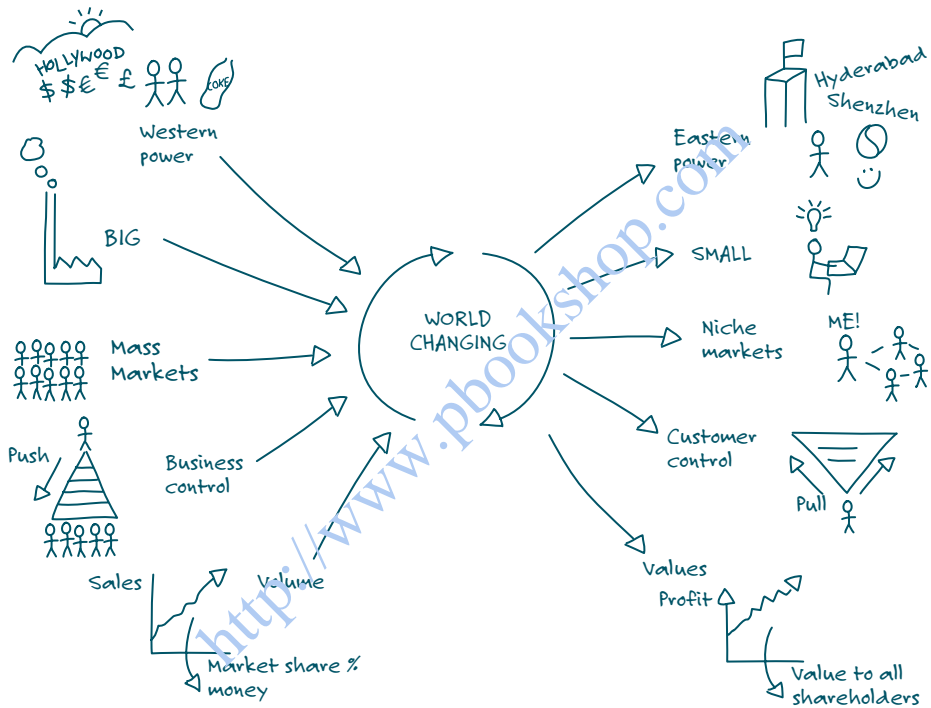
Fuelled by changing attitudes, networked technologies and emerging industries, the change is not always visible in our daily lives. But look more closely and it is all around us:

- ➔ the simple, colourful styling of the Flamenco or pop-art influencing the designs in H&M;
- ➔ the organic cheese from the local, trusted dairy rather than the big-branded multinational;
- ➔ speciality Jones Soda drinks that are not for everybody, but loved by some; and
- ➔ Threadless T-shirts designed and voted for by you.

The brands that realize it's better to be distinctive for some, rather than average for many. People are less interested in that old cliché 'value for money'. They want a piece of the action.

We need to reset our prejudices and expectations, recreate our businesses based around the new value drivers, and refocus our brands, innovation and marketing on the new opportunities.

CREATIVE GENIUS



World changing: the seismic shifts that are transforming markets and business

West to East

Asia is no longer the shop floor of the Western consumer, power and ideas have swapped sides and the roles are being rapidly reversed. Companies such as Infosys and Reliance are driving the business agenda, whilst culturally we immerse ourselves in Japanese gaming or Indian meditation. The new Asian currency unit, the ACU, will accelerate the trend, becoming a third global reserve currency and a strong rival to the dollar and euro.

- ➔ The economic growth of China and India far outstrips Europe and North America, so where would you invest your money? Shenzhen is the new Wall Street.
- ➔ The hottest start-ups, the most sustainable businesses, the best creative talent? No longer in California or Scandinavia; try Shanghai or Hyderabad.
- ➔ The most likely business to acquire you, and your most dangerous competitor? No longer the Americans or Germans; look out for Hon Hai and Haier.
- ➔ The most advanced laptops and televisions? They will be from South Korea not California, made cheaper and better by Lenovo, not IBM.
- ➔ Eastern or Western Europe? Communism is largely forgotten, replaced by a young, entrepreneurial and sophisticated workforce.

Of course, it is not so simple. North to South is a longer-term trend, the fast-growing Brazil being followed by its South American neighbours, and eventually Africa. But it's also about the connection points, partnerships and combinations. Istanbul is the new centre of the world, and the Chinese are now the largest investors in Silicon Valley.

Big to small

The status symbols of the new decade are not the big cars, swanky offices and excess of before. A new altruism has emerged. The BMW Mini is far cooler than the latest Mercedes Benz or 4 × 4. Home-based offices or hot-desks are the cool workplaces.

- ⇒ **What kind of brands do people trust most?** Smaller, more human brands, local not global, rather than big faceless corporations.
- ⇒ **Where do the best ideas emerge?** Not in one of the big corporate R&D labs, or in the largest corporations, but through entrepreneurs, often with a social purpose.
- ⇒ **Which companies can adapt fastest in a changing world?** As Darwin reminded us, it is not the biggest or most intelligent, but those who evolve who survive.
- ⇒ **What kind of company are you more likely to partner with, or seek out for specialist help?** Small companies who will be fair partners rather than monoliths who like to dominate.
- ⇒ **Which is a more enjoyable and flexible place to work?** Small companies where you can learn faster with more responsibility, not big organizational bureaucracies that make you conform.

New ideas 'trickle up' rather than impose themselves. Markets are now 'long tails' of niche customers and specialist businesses. Alibaba, a worthy rival to eBay and a platform for a million small Chinese businesses, enables small companies to have a big impact.

Mass to niche

At one time Starbucks was on course to take over the world, opening three new stores every week on yet another street corner of a global city. And then, as with McDonald's before, came

the backlash. Whilst the coffee was fairtrade and organic, and the service came with a smile, people just didn't want to be the same.

- ➔ **Unfocused to focused:** No longer do we create multi-sector conglomerates with unrelated businesses, instead seeking coherence and synergy by focusing on particular markets.
- ➔ **Many to few:** Instead of reaching out to as many people as possible, we want the best potential customers.
- ➔ **Average to individual:** 'One size fits all' is no longer tolerated. Selling average products to average customers doesn't work. Customization is the new norm.
- ➔ **Irrelevant or relevant:** People connect with companies that reflect their own values and aspirations.
- ➔ **Same or special:** Being famous for something. When physical boundaries disappear, what are you going to do uniquely in the world, and who are you going to be special for?

Markets are huge collections of niches, either within them, or working across them – a particular kind of product, or a particular attitude that can work across product categories. The challenge is to choose the niche(s) that you want to focus on, firstly from a customer perspective and then in terms of meeting their needs in the most relevant, tailored ways.

Business to customer

Vodafone recently changed its tagline from the 'power of now' to the 'power of you'. Technology and global markets have created a transparency that puts the customer in control. They can choose to buy from suppliers anywhere, prices can no longer be concealed, and customization is expected.

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- ⇒ **Product to customer:** From Philips to P&G, organizations are reshaping around customers rather than categories, enabling more focus, relevance and integrated solutions.
- ⇒ **Standard to personal:** From Build a Bear Workshop to Nike ID, customers have become used to designing, or at least cosmetically modifying, their products and services.
- ⇒ **To you or to them:** No longer can you open a store on the High Street and expect people to come to you during working hours. M&S Food went to rail stations and road junctions instead.
- ⇒ **To them to with them:** Instead of 'value for money', customers want a piece of the action. Giff Gaff reduces your phone bills the more you contribute ideas or refer others.
- ⇒ **With them or between them:** Customers rarely want relationships with brands, but they do want to be connected with communities of like-minded customers.

In markets of surplus supply, rather than surplus demand, customers call the shots. Business needs to learn to do business when, where and how the customer wants, rather than what is commercially most convenient and efficient for the business. Instead of seeking to impose relationships, companies should become facilitators of customer-based networks, enabling and supporting them to do what they do.

Volume to value

Corporate egos obsessed with size and market share have come unstuck as markets have changed, costs risen or sales fallen. The objective of business is not to sell as much as possible, particularly when revenues don't lead to profits. Market share was the goal when economies of scale were derived from covering manufacturing costs. That is rarely the business model any more.

- ➔ **Volume to profit:** Economic value creation is driven by profit growth, not scale. The largest companies are not the most successful – look at the decline of Ford and GM.
- ➔ **Market share to customer share:** Some customers will never be profitable, but you want as much as you can from the ones who will be.
- ➔ **Cost to perceived value:** Companies should spend more time improving their perceived value, by reframing context and adding value rather than falling into downward discount spirals.
- ➔ **Scale to focus:** If scale and share are no longer priorities, then portfolio management is – getting the best mix of markets, segments, channels, products and customers.
- ➔ **Biggest or best:** So what is market leadership? Instead of being big ... be the thought leader, the customer champion, the innovator, the market shaper and the best.

Value creation is not about being a slave to financial numbers, or even to the shareholders. Profits created this year, and the stream of profits likely in future years through the right choices and innovations, can be invested in all stakeholders – to fund more strategic and significant innovations, to attract the best talent, to support communities and environments in mutually relevant ways, and to ensure that investors realize a more sustained return on their investments.

Aravind Eye Care ... bringing a new vision to India

Madurai is best known for its spectacular Hindu temples, but in recent years, it has been attracting thousands of new visitors. In Madurai, they have heard, there is one of the finest eye hospitals in the world.

Over the last three decades, Aravind Eye Care has been on a mission to cure blindness in India. The centre has developed a wide range of affordable solutions, from low-priced intraocular lenses to rapid cataract surgery that allows high volume at lower cost.

Aravind Eye Care was founded in 1976 by Dr Govindappa Venkataswamy. Given the magnitude of blindness and the challenges in the country, the Indian government could not address the problem alone. At that time there were perhaps no more than eight ophthalmologists across the country. Realizing this predicament, Dr Venkataswamy wanted to establish an alternative healthcare model that would supplement the efforts of state hospitals and also be self-supporting.

The network of not-for-profit hospitals and 'vision centres' carry out more than 300,000 eye surgeries each year, 70% of them at no fee. This is only possible through an innovative care model that ensures speed and efficiency. Operations continue 24 hours, broadband connections are used to on-call doctors in city hospitals for instant diagnosis, and nurses handle most of the non-essential activities rather than them taking up the time of doctors. This model allows the company to give away free surgeries to the poor while still earning a profit. More than 1500 eye care 'camps' in rural areas screen thousands more patients weekly.

Today, Aravind is more than an eye hospital. It is a social organization committed to eliminating needless blindness through comprehensive eye care services. It supports a training centre for ophthalmic professionals all around the world, an institute for research that contributes to the development of new eye care techniques, and even a large guest house to accommodate all its visitors. Aravind also runs Aurolab, which manufactures a wide range of around 700,000 pairs of affordable lenses every year, a quarter of which are used by Aravind and the others exported to other developing markets.

Over 30 years, Aravind has treated over 2.4 million poor Indians. In 2008, he won the prestigious Gates Award for Global Health.

Whitespaces ... women, water and 50 billion devices

'He who does not expect will not find out the unexpected, for it is trackless and unexplored.'

Heraclitus

Are you interested in the future of your market? Where your future customers will come from? What kind of business will you be in 20 years' time? Are you out-thinking your existing and future competition?

Five factors that will define an ever more dramatic future are:

- ➔ **Speed** – the rate of change, driven by technology and expectation.
- ➔ **Complexity** – an avalanche of seemingly unrelated forces as they collide.
- ➔ **Risk** – from crime and terror to economic and environmental.
- ➔ **Change** – learning to adapt to ever more turbulence inside and out.
- ➔ **Surprise** – more frequent, more dramatic, life is ever less predictable.

So what are the big opportunities that will emerge out of these seismic shifts in our world? How can we adapt our existing businesses or break out into completely new domains in order to exploit these opportunities?

There are many excellent sources of trends and patterns. For example, specialist organizations such as Trendwatching, where founder Reinier Evers has a network of 5000 volunteer trendspotters all around the world, crunch it all together and articulate the emergent zeitgeist through evocative language – nowism, foreverism, (f)luxury, infolust, maturationism, sellsumers, generation g(enerosity), perkonomics, ecoiconic, crowdclout, trysumers ...

Behind the names are tales of new business ideas or social behaviours that we can observe on the fringes of our daily lives. Springwise is an excellent place to explain the margins of your particular business, as are sites such as Coolhunter and Trendhunter. For more colour and interpretation, keep updated with some of the most observant, and thoughtful, bloggers around. Richard Watson from Now and Next, and Ross Dawson at Future Exploration Network, are two of the best.

Trends are observed behaviours, patterns in the zeitgeist that rise above fashions and fads. 'Future spaces' are the new marketspaces that emerge because of the trends, where new needs and desires are established, with creative and practical ways to exploit them commercially.

Whitespace 1: Women and boomers

Women now control around \$20 trillion in annual consumer spending, anticipated by Harvard Business School to increase to near \$28 trillion by 2015. Their \$13 trillion in annual earnings could reach \$18 trillion in the same period, giving them enormous spending power and influence beyond.

Women represent a growth market bigger than China and India combined: between 2009 and 2014 China's GDP is likely to grow by \$2.2 trillion, whilst India less so, by around \$0.6 trillion. Women represent 51% of the population, but influence closer to 80% of consumer purchase decisions and therefore around 67% of global GDP.

It would be foolish to ignore or underestimate the female consumer. Yet many companies still do, like Dell's pink-coloured Della website, which emphasized colours and style, and the computer's ability to find recipes and count calories. It caused uproar amongst female audiences for its 'slick and condescending' style. Within weeks it was gone.

Similarly, older people will have enormous influence on our futures. People are living longer, and more people are getting older. The median age across the world was 23.9 years old in 1950, rising to 26.8 in 2000, and predicted to shoot up to 37.8 by 2050. In more developed countries, people are even older, from 29.0 in 1950 to 37.3 in 2000, and rising to 45.5 by 2050.

Asia and Europe have the most ageing populations. Japan has one of the world's fastest-ageing populations – something to do with the diet and lifestyle, perhaps – and by 2025 will have twice as many people over 65 as under 20. In China, more than 150 million people are aged over 60. That represents 10% of the entire population and is predicted to increase to 30% by 2050.

Older people tend to have more savings than younger people, but spend less on consumer goods. They have more time than younger people, with grown-up families and retired from full-time jobs, they want to travel the world, having missed out on gap years when they were younger.

The new over-60s don't sit at home with their cardigans and walking sticks. They are the baby boomers, the kids of the 1960s, they wear jeans and listen to rock music. A few of them are fuelled with Viagra, but most of them with unfulfilled ambition – they still have much to achieve, and to give.

Whilst the growth of female consumers is good news for fashion and cosmetics, the impact of an ageing population will be most significant on healthcare and, to a lesser extent, travel. The big opportunity is to realign businesses that had previously not addressed female audiences in more relevant and engaging ways.

Whitespace 2: Cities and communities

Less than a century ago, only 5% of the world's population lived in a city. By 2010, that figure had grown to well over 50%. In the last two decades the urban population of the developing world has grown by an average of 3 million people per week. By 2050, it will have reached 70%, representing 6.4 billion people.

Most of this growth will be in developing markets, with the Asian megacities hosting 63% of the world's urban population (or 3.3 billion people) by 2050. I witness this every time I go to a city such as Istanbul. Each time I visit, sometimes only weeks after the last trip, a new tower block has been added to the skyline, or an outer-city forest has been transformed into another housing complex or shopping mall.

In cities of the developed countries, urbanization was driven by a concentration of human activities and settlements from the countryside or from other countries. This led to impoverished city centres. In more recent times, inner city redevelopment schemes have reversed this effect. Look at Docklands in London, or the renovation of industrial slums in Bilbao. In developing countries, huge sprawling 'shanty towns' grew up on the edges of cities.

As cities lost their soul, people built stronger affinities to local communities with their own centres – towns within London, villages within Manhattan – and local government. Immigrants clustered together, giving different areas distinctive cultures, and cities became a mosaic of wealth and poverty, languages and ethnicity. This has an effect on rural areas too, draining talent and local economies. Governments concentrate resources on these urban majorities, often meaning that rural communities get less.

Yet there is also a backlash against this concentration as people start to appreciate the value of their environments. Rural areas become niche and farm shops go premium, serving the Range Rover set rather than their own farm communities. Despite this, people increasingly value communities, localness and the people around them.

The big opportunity is to do more for urban communities, enabling them to be small and local whilst still part of a bigger place.

Whitespace 3: Individuality and identity

People want to express their individuality in what they buy and in what they do and say. Indeed, they want to express themselves in ways never before possible – telling the world about every movement through Twitter or capturing every special moment in photos uploaded to Flickr. Self-publishing is easy: 50 million blogs are being published and updated every day. And as people want to be more different, identity becomes more precious.

This leads to a paradox. On the one hand they want to tell the world everything about themselves, but on the other hand they protect their identity and their privacy like never before. Footballers, musicians, movie stars and others use their images to influence our lives, yet they are the first to call in lawyers if we seek more than they want to give, to learn the wrong things about them.

Customization is the new norm, recognized as worthy of a premium. Personal service, personal shoppers, personal bankers, personal advice – we want it all tailored just to us. These are traits of the 'experience economy', where standard products and services are the commodities from which to add value. At the same time, identity theft and identity protection have both become big businesses, as will identity management in the future.

The big opportunity is to enable people to express their individuality, achieve customization and build their identities in positive as well as profitable ways.

Whitespace 4: Carbon and water

The issues of climate change are complex and how to resolve them even harder – for example, how to support emerging nations in their pursuit of growth whilst trying to do it in a cleaner way. Around 47 billion tonnes of CO₂ are emitted annually into the atmosphere worldwide. This figure is due to grow to 54 billion tonnes by 2020, but has to be cut to at least 44 billion by then to avert irreversible and dramatic shifts in our climate.

Whilst business and politicians focus on carbon reduction, other factors matter just as much. Reducing biodiversity is a huge invisible trend, as our marine life is destroyed by our pollution and greed. The scarcity of fresh drinking water, as well as the rising sea levels, will emerge as even bigger challenges. Today 6.5 billion people share the same volume of water that 1.6 billion did a hundred years ago. By 2050 that figure will be 9 billion. Every year we destroy 44 million acres of forest, creating an increasing imbalance in the way nature produces and absorbs carbon dioxide. We emit 8 billion tonnes of carbon into our atmosphere, only 3 billion tonnes of which can be reabsorbed. We use 160 billion tons more water each year than is being replenished by rain – enough to require a 450,000 km convoy of trucks.

As a result of this damage, 200 million people will become refugees due to flooding and drought if the climate warms by 2–3°C by 2050. Or financially, insurance claims will increase by \$320 billion due to storms and floods if carbon emissions continue to rise at present rates, making insurance premiums too expensive for most individuals or companies. The deforestation will reduce crop yields across Africa by 33%, adding to the hunger. And a five-metre rise in sea levels, caused by melting polar ice caps, will wipe out many coastal areas, with consequences including a predicted 11% decline in China's GDP. A billion people survive on less than \$1 a day, 3 billion on less than \$2 a day. Three billion people have no access to clean water, 800 million are hungry, and 10 million children die before they are five. Yet the people at the 'bottom of the pyramid' seek better lives and demand more. Together, they represent an estimated \$5 trillion market.

'Green' is the new status symbol, although it is often overused by companies jumping on the bandwagon and as a result can also feel fatigued. In the sense of being responsible, caring about social and environmental issues, 'green' is here to stay and perhaps the biggest stimulus for innovation.

Green products and lifestyles are definitely no longer for tree huggers, nor is green a compromise for performance. Tesla is able to create an electric car with superior acceleration, speed and longevity than many of its more famous competitors. Noir has launched luxury eco-fashion products, including organically certified African cotton products, and Linda Loudermilk's Couture line includes glamorous and sophisticated pieces made from bamboo and soya. This new luxury eco-fashion is increasing in scale and celebrities are also jumping on the environmental bandwagon. Lindsay Lohan is wearing second-hand clothing for environmental reasons, and Leonardo DiCaprio co-produced, wrote and narrated the documentary *The 11th Hour* to 'raise awareness about global warming and the problems we face in promoting a sustainable environmental future for our planet'.

The big opportunity is to embrace sustainability as the basis for innovation, finding ways that your services can do more good for people and the planet, and increase profits too.

Whitespace 5: Networks and Web 3.0

It is said that everyone on the planet is separated by six other people. This is the power of networks. YouTube, Facebook, Wikipedia – often described as second generation websites, or Web 2.0 – enable collaboration between users, and where content is largely generated by and shared by users.

They represent online communities that some regard as social networks, but also form the basis of collaborative sourcing, production, communication and distribution. Millions of people worldwide can participate in this economy like never before: selling antiques through

eBay, uploading home-made documentaries to Current TV, remixing their favourite music for iTunes, designing new software, editing school homework, inventing new cosmetics, finding cures for diseases or sequencing the human genome.

And of course networks can be physical too, like FedEx's ability to deliver a parcel from any point to any other on Earth within 24 hours, or Star Alliance's integration of airline route networks to make travel easier and cheaper. Best of all is when physical and virtual networks converge to provide the best of both worlds – digital reach combined with human experience – like the best retail propositions today, or when buying a new car or home.

However it is the emergence and evolution of digital networks that currently offer the most innovative opportunities to reach new markets and add value in new ways.

The value of these networks lies in the content that is developed through their connections.

The scale is awesome. Just in 2007, a staggering 7 billion user-generated videos were streamed each month; 120,000 new blogs were created every day adding to more than 70 million worldwide; in the US 30% of all web users access YouTube, iTunes and Wikipedia each month. Meanwhile, Google paid \$900 million to provide advertising on MySpace, but also got sued \$1 billion by Viacom for alleged copyright infringement on its \$1.65 billion acquisition, YouTube. In July 2009, Mark Zuckerberg, founder of the world's largest social networking site, wrote on his blog:

'As of today, 250 million people are using Facebook to stay updated on what's happening around them and share with the people in their lives. The rapid pace of our growth is humbling and exciting for us, and it affirms that people everywhere are realizing the power of staying connected to everything they care about.'

However connections and content are just beginnings. Web 2.0 does more for people, particularly through user-generated content, and it has value beyond its participants. Customers are only too willing to contribute content – words, pictures, and especially videos – to

something that is of particular interest to them, sharing their passion with other people like them. Yet there is a vision of the power of networks that goes far beyond this too and has real intelligence and ability, where participants immerse themselves more deeply, and the web does more itself. This is labelled Web 3.0, or as Tim Berners-Lee called it when envisaging the potential of the World Wide Web which he created, the 'semantic web' – the thinking web, the ideas web. In his book *Weaving the Web*, Berners-Lee wrote:

'I have a dream for the Web in which computers become capable of analysing all the data on the Web – the content, links and transactions between people and computers. A *semantic web*, which should make this possible, has yet to emerge, but when it does, the day-to-day mechanisms of trade, bureaucracy and our daily lives will be handled by machines talking to machines'.

The big opportunity is to embrace networks in your operations and markets, not just as social meeting points, but in ways that enable you and your customers to do more exponentially.

Whitespace 6: GRIN and 50 billion devices

GRIN technologies are the uber-technological drivers of our age – genetics, robotics, information and nanotechnologies – that together are predicted to generate more than 50 billion futuristic devices that can solve problems from climate change to space travel to aging.

Genetic science decodes our bodies, leading to DNA scanning, and a whole new approach to well-being and medicine. It has the potential to alter the genes of human embryos and to prevent diseases, maximize the functioning of organs and muscles, and perhaps even increase intelligence. Alongside these changes come huge ethical dilemmas, as evidenced by the debate over stem cell research. The movie *Gattaca* provides an in-depth look at what could happen in the future if some people are genetically superior and the rest are discriminated against.

Robots are in heavy use already, but will rapidly become cheap and advanced enough to be practical in many day-to-day as well as scientific and industrial applications. Intricate robotics are already used in modern surgery, but they could eventually replace surgeons. Advancing computing power and new programming seek to boost the skill level and accuracy of robots to eventually be better than humans because of their precision and consistency.

Nanotechnology refers to the practical application of atomic and sub-atomic particles – cleaning fabrics with threads a thousand times thinner than a human hair, and associated improvement in effectiveness, for example, or miniature machines that can move along blood vessels to perform heart operations – and much more – without invasive surgery. For the pharma industry, it represents a step change in the science and production of drugs, and for engineers it means applying big world knowledge to an invisible world.

The smaller size, increased efficiency, and exponentially advancing computing power suggests an infinite evolution of devices, and a challenge to the human brain. As computing power challenges our intelligence, our own brains need to refocus on more creative and emotional purposes, the source of change and satisfaction,

The big opportunity is to consider the relevance of technology to solve your customer's problems, finding practical applications to the new materials and intelligence now possible.

Whitespace 7. Authenticity, meaning and happiness

In the midst of technological breakthrough and environmental breakdown, people are more emotional, expectant and demanding than ever.

Authenticity matters because technologies have greatly increased the scope of the inauthentic. Authenticity drives trust. People's trust in brands is in steep decline, diminished by insincere marketing and superficiality. It has been further hurt by the boardroom scandals and

executive greed that hog the business headlines. Faced with infinite choice from around the world, we struggle to choose which brand to trust amongst all the competing, similar claims. Reality TV, the pseudo-science of advertising and the growth of word of mouth have redefined our sense of reality, making us question everything. Consumers are bombarded with telemarketing and direct mail that is interruptive and crude, annoying rather than engaging us. Networks enable consumers to pass on this frustration, and that fragile asset called reputation is quickly shattered.

Meaning is achieved by having a greater purpose, a product that has reason beyond its basic functionality, a business that seeks more than just making money. Meaning drives engagement.

A business should have a higher purpose beyond the pursuit of profit, or even being the best at what it does. The challenge is to define purpose in terms of customers, or even society at large. How does this business make life better, for the customer, and for society? What would we miss if the business no longer existed? This purpose becomes a belief system. For customers, it is a deeper, richer reason for choosing the brand, particularly if the purpose is directly relevant to them. Shared values are important too, although they emerge through attitudes and behaviours rather than a list of well-worn adjectives trotted out by most companies.

Happiness is achieved by touching people's emotion more personally, enhancing their lives in a way that goes beyond just living. Happiness drives desire. It is rare to make someone smile in markets crowded with sameness, with products and services that are largely enabled by technology – targeted at the (non-existent) average person – and in life that is so focused on quantified achievements in minimum time. On the new search for happiness in business, *Forbes* magazine reflected that 'happy people do better than unhappy people in most realms of life; they have better social relationships, do more volunteer work, have better health and make more money. So money may not make you happier, but being happy may make you more money.'

The big opportunity is to achieve all three: authenticity that achieves trust, meaning that engages people more deeply and happiness that drives unconditional desire.

Pixar ... from Snow White to The Incredibles

Since the release of *Snow White and the Seven Dwarfs* by Walt Disney in 1937, animated films have become one of the most universally enjoyed forms of entertainment.

Disney has a long history of developing, producing and distributing films such as *Beauty and the Beast*, *Aladdin* and *The Lion King*. The stories and characters of these popular animated feature films have become part of our modern mythology, enjoyed by generation after generation. Traditionally, these popular animated feature films have been created using the time-consuming and labour-intensive process of two-dimensional, hand-drawn cel animation.

Pixar Animation Studios became the birthplace of a new generation of animated feature films, combining proprietary technology and great storytelling to develop heartwarming stories that are brought to life through the latest computer animation techniques. In 1986 Pixar was acquired by Steve Jobs, shortly after he had parted company with Apple. As the new CEO, he added capital, focus and vision to the business.

From machines to movies

Initially, Pixar specialized in hardware: its Pixar Image Computer was primarily sold to government agencies and the medical community. One of the leading buyers of Pixar Image Computers was Disney Studios, which was using it in a secret project to migrate the laborious 'ink and paint' part of the animation process to a more automated and efficient method. The system never sold well. In a bid to drive sales, Pixar turned to John Lasseter who had been making mini-animations to demonstrate the system's capabilities, to make more of his

production skills. For some time, Pixar survived on the income from Lasseter's team making computer-animated commercials.

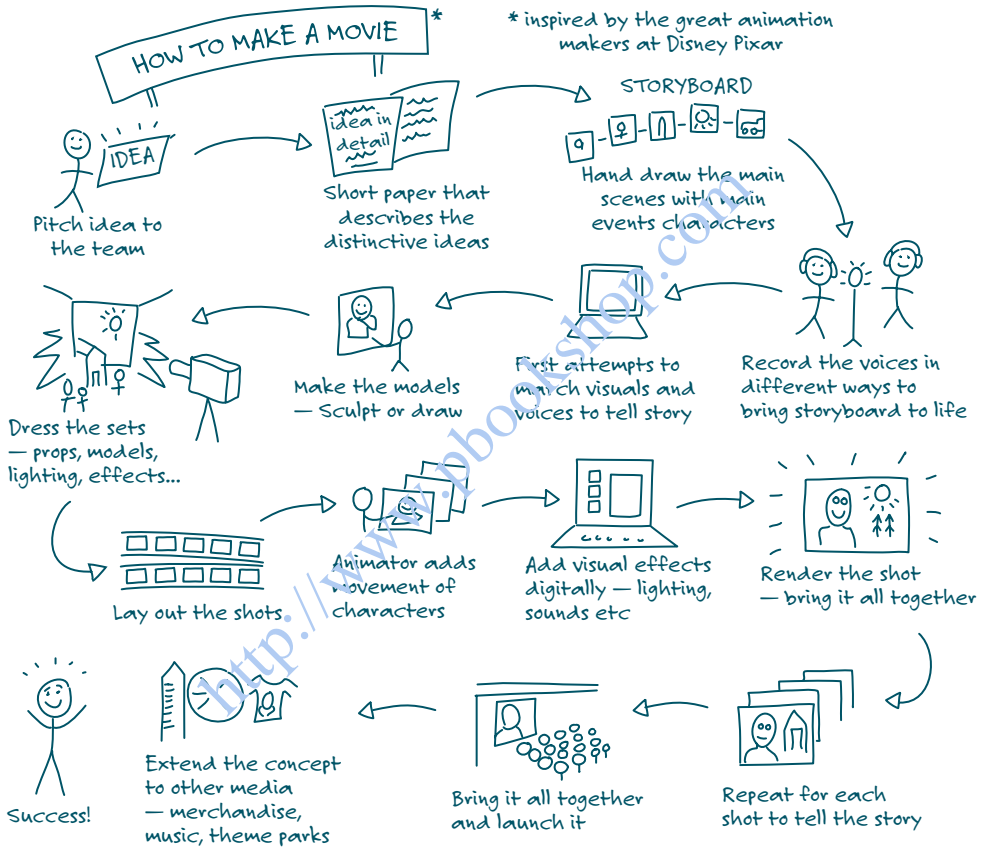
In 1991, after a significant restructuring, Pixar agreed a \$26 million deal with Disney to produce three computer-animated feature films, the first of which was *Toy Story*. The film received tremendous critical acclaim and became the highest grossing film of 1995, generating \$362 million in worldwide box office receipts. *Toy Story's* director, Lasseter, received a Special Achievement Academy Award.

Lasseter built a creative team of highly skilled animators, a story department and an art department. To attract and retain quality animators, those with superior acting ability and who could bring characters and inanimate objects to life, the company founded Pixar University, which conducts three-month long courses for new and existing animators. Pixar also has a complete production team that gives the company the capability to control all elements of production of its films. Blockbuster animated movies quickly followed: *A Bug's Life*, *Toy Story 2*, *Monsters, Inc.*, *Finding Nemo*, *The Incredibles*, *Cars*, *Ratatouille*, *Wall-E*, *Up* – and most recently *Toy Story 3*, which is the first ever Pixar film and first ever animated film to make \$1 billion worldwide.

Pixar has been responsible for many important breakthroughs in the application of computer graphics for filmmaking, and a top talent school too. Technical and creative teams have developed a wide range of innovative production software used in-house to create its movies. This proprietary technology allows the generation of animated images of a unique quality, richness and vibrancy. However Pixar has continued to share its research and technology with the industry, not least by selling its RenderMan production technology.

In 2006, Pixar became a wholly-owned subsidiary of The Walt Disney Company in a \$7.4 billion deal that saw Jobs, who was the majority shareholder of Pixar with 50.1%, take a seat on Disney's board of directors, and with 7% of all stock, the largest individual shareholder. A new brand name 'Disney-Pixar' was created, although Pixar and the Walt Disney Animation Studios continued to operate separately, with their own structures, processes and cultures.

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Movie making: how to turn your ideas into engaging experiences

Future back ... start with the impossible, then work out how

'Imagination is the beginning of creation. You imagine what you desire, you will what you imagine and at last you create what you will.'

George Bernard Shaw

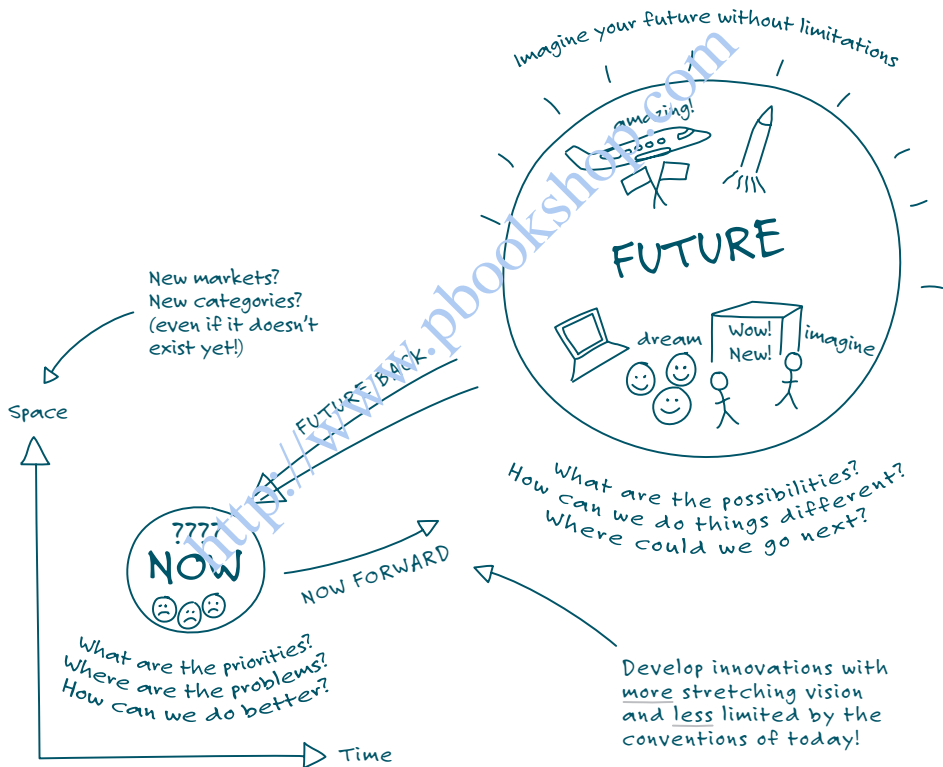
Most innovation is incremental, imitated and quickly becomes irrelevant. It is limited by the priorities and conventions of today. The future is a much better place to start, and working backwards enables you to make better decisions about where to go, what to invest in and how to innovate.

'Future back' is less about imagining years ahead, more about simply 'thinking bigger': thinking about what is possible, or apparently impossible, and then thinking how to do it. The problem with looking from where you are today is that the most interesting things sit on the blurred horizon and getting to them is not easy. Physically we find the future hard to embrace because it requires new practices and behaviours, which can conflict with our shorter-term priorities. Mentally we find the future hard to adopt because we are conditioned by our prevailing attitudes and conventions, and because we lack courage to do so.

Another way is to take a giant leap forwards and then work backwards from the future. If you 'leap-frog' the limitations of today, you ignore the technology challenges or market regulations, all the thousands of reasons why you should not do something, and instead focus on what you could do. Only by having a clearer view of these possibilities, by understanding their potential impact and therefore their value to you, do you then have the motivation to find ways to overcome the reasons why you should not.

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However, 'future back' is only practical if it is combined with 'now forward' thinking. The reality is that your customers need help in adopting new technologies, and technologies need more work in order to enable relevant applications. The key point is that you do the future thinking first, and then work backwards to understand which aspects you can make happen, when and how.



Innovation from the future back: the future is a better starting point for creativity and decision-making

Timelines and wildcards

H.G. Wells' 1933 book *The Shape of Things to Come* was written in the form of a history book published in the year 2106. It could almost have been mistaken for a real history book, containing numerous footnotes and references to the works of prominent historians of the twentieth and twenty-first centuries – some real, others not.

Sci-fi authors use a storytelling device called a 'future history', a creative history of an imagined future, that serves as a background for their fiction. They might even create or imply a future history timeline to help the reader understand how the future evolved. To do this they must start at the end and then work backwards.

The Futurist, the magazine of the World Future Society, recently asked its readers to think up a series of wildcards. Richard Watson summarized some of the themes in his blog:

- ➔ A new spiritual paradigm takes hold, changing values and behaviour.
- ➔ Climate science is proven wrong – the world is actually cooling.
- ➔ Mankind invents a new energy source comparable to oil.
- ➔ Cloned humans threaten the entire population.
- ➔ Intelligent life is confirmed in space.
- ➔ Total collapse of the world's food supply chain.
- ➔ A catastrophic weather event.
- ➔ Rapid political shift to the far right or far left globally.
- ➔ Widespread food or water poisoning incident.
- ➔ Backlash against fundamentalism.

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- ⇒ The Internet is disabled.
- ⇒ A disruptive new business model emerges.
- ⇒ President Obama is assassinated.
- ⇒ China collapses economically or politically.

Possible and plausible

Whilst wildcards are unlikely, but possible, there are many other emerging ideas that could provoke you to think differently about the future of your business. Consider some of these real, emerging ideas and how they could be relevant, either as parallel ideas, or direct applications, into your own business:

- ⇒ **Neurosecurity:** In a world of ideas, what's in your brain is much more valuable than documents or computer records. Companies such as MDSC can provide encryption implants that protect your conscience from 'neurobandits'. The digital security brand Kaspersky is even experimenting with updates in tablet form.
- ⇒ **Monster mash-ups:** Wikipedia is just the beginning of knowledge aggregation. Imagine being able to synthesize the best of any art, literature or music, customizing books, galleries and albums to your own whims or specialist interests. This is intelligent iTunes and more, editing and synthesizing a world where it is all too easy to be overwhelmed by the availability of everything.
- ⇒ **Crowd knowledge:** Bottom-up collaborations are mapping our streets and capturing our news, much faster than top-down developers such as Google Maps or News International. Aggregating individual news, photos and updates delivers a much faster and richer view of your locality. Look out for Open Streetmap or next-generation Twitter.

- ➔ **Backchannel media:** The story behind the story, rapidly growing in popularity on cable networks. Live blogging, status updates, photo and videostreaming enables audiences to gain a much faster, richer insight into what is driving events as they unfold. Tweetmeme and Collecta are dedicated to this task, which will eventually consume the controlled presentation styles of mainstream media.
- ➔ **Open evolution:** Forget your concerns about GM crops – nature is much more intermingled than the conventional evolution of species might suggest. Look at you own DNA and the diverse mosaic of genes that make you. Bdelloid rotifers, a type of freshwater invertebrate, gave up sex 80 million years ago because they found easier ways to extract genes from the animals they eat, and gerbils have recently been found to possess some snake DNA.
- ➔ **Digital relationships:** Gadgets are distracting, social networks suppress real social skills and emails lack emotion and literary richness. So they said. But instead our BlackBerries and iPhones have brought us closer together, knowing more about each other, and the world around us, more responsive as individuals, and more powerful collectively, to events and causes.
- ➔ **HQ Africa:** Much of West Africa is small, poor and has little going for it. However, Ecobank in Togo is a continent-wide retail bank, growing at 100 branches a year, with a balance sheet of \$3 billion in 2009 symbolizing the new pioneering spirit of African businesses, unfazed by a global downturn. As its CEO says, 'if Warren Buffett can be based in Nebraska, then it's not where you are but what you do'.
- ➔ **Renewable products:** Maximum ideas, minimum stuff – this is more of a way of thinking that recognizes the sustainable impact of everything we buy. Indeed, the value of a product is often inversely related to the amount of pollution it causes. Stop thinking how to make people buy more; start thinking how they can last longer. Bookcrossing

encourages book-sharing and Howies have made a retro-virtue out of their 'hand me down' range of clothes.

- ⇒ **Biobanks:** This is a bank not interested in your body, but something far more valuable – your DNA. Biobanks are springing up everywhere to store tissue samples, reproductive cells and blood. Instead of money, these vaults are liquid nitrogen deep freezers. Your materials can be saved for your future use, traded with others, contributed to testing or screened to anticipate future health needs.
- ⇒ **Creative microfunds:** No longer do entrepreneurs need to waste most of their creative energies seeking out rich investors or venture capital funds. Microfunding of the best ideas is often a much faster and more useful way to get started. Ten dollars for a small piece of a cool start-up is much more attractive than anonymous share portfolios, and micro-investors are also a great source of ideas, capabilities and ultimately sales too.
- ⇒ **Eco Intelligence:** More than IQ or EQ, we now need an EcoQ to understand the full impacts of the choices we make. Take a fairtrade, organic cotton T-shirt: what about the 10,000 litres of water required to make it (whilst locals went thirsty), the dye process (and polluting chemicals involved), the transportation costs (carbon not financial), and the local competitors (who have just gone bust)? Complex world, with non-obvious choices.

Whilst these are just a collection of ideas and innovations, plucked at random from around the world, they help you to stretch and they allow you to start imagining a different future for your business – and then thinking how you could apply that to today.

Muhammad Yunus ... Nobel prize-winning social entrepreneur

Muhammad Yunus was an anonymous professor of economics when he first wrote a paper about his vision for 'microcredits'. He envisioned a financial model where small loans were

made available to entrepreneurs too poor to qualify for traditional bank loans, but with ideas and ambitions. Inspired by the vision, he soon founded Grameen Bank.

In 2006, Yunus and the bank were jointly awarded the Nobel Peace Prize 'for their efforts to create economic and social development from below'. He is one of the founding members of Global Elders, a network of people brought together by Richard Branson and Peter Gabriel to find better solutions to significant problems.

Yunus's entrepreneurial journey began in 1976 when he visited some of the poorest homes in Jobra, a central district of Bangladesh. He learnt how local women made bamboo furniture, but in order to buy the raw materials they had to take small loans at extortionate rates from local money lenders. They often gave away most of their profits, or ended in debt despite their enterprise. Yunus realized the need for a better way to give local people small loans to help them do business. 'I am a firm believer that all humans are entrepreneurs. Two-thirds of the world's population are not eligible for bank loans. What kind of system is that?' he told a recent gathering of business leaders at the World Economic Forum.

He began to give small loans himself, small amounts of around \$25 from his own pocket. With similar loans to 42 Jobra women, they were able to start making a small profit on their furniture, and from that they were able to buy more raw materials and make more furniture – and their profits began to grow.

Whilst traditional banks were not interested in making such small loans available at reasonable interest rates to the poor, believing them to have too much risk, Yunus believed that, over time and with scale he could create a sustainable business model for himself and a means to help thousands of Bangladeshis to find a way out of poverty.

Twenty years later, Grameen Bank had issued more than \$6 billion of loans to 7.4 million borrowers and now lends \$1 billion-plus every year to small entrepreneurs. To ensure repayment, the bank uses a system of 'solidarity groups' that apply together for loans. Its members act as co-guarantors of repayment and support one another's efforts at economic self-

advancement. More than 97% of Grameen loans have gone to women, who suffer disproportionately from poverty and who are more likely than men to devote their earnings to their families, and to eventually repay their loans. Before Yunus, only 1% of Bangladeshi bank loans were to women.

Yunus was asked in an interview with *Director* magazine about the secret of his innovation, responding:

'It was simple: all we did was look at how conventional banks do it and do the opposite. Conventional banks go to the rich – we go to the poor. Conventional banks ask for collateral, we say forget about collateral. And conventional banks use lawyers, we say forget about lawyers.'

<http://www.pbookshop.com>

Creativity ... the extraordinary power of ideas

'To see a world in a grain of sand, and a heaven in a wild flower, hold infinity in the palm of your hand and eternity in an hour.'

William Blake

Arthur Koestler, author of *The Art of Creation*, reflects the process of creativity in three characters – the artist, the sage, and the jester:

- ➔ The artist represents the traditional view, composing music, writing a novel, acting in a play or drawing a picture.
- ➔ The sage represents the scientific or philosophical thinker, most relevant to business, and the inspiration to develop a new idea.
- ➔ The jester represents challenging conventions, like the court jester was the only one willing challenge decisions of the king, but through humour and without offence.

All three matter in the business world of creativity.

Until the 1900s, creativity was thought of as a gift, an inherent ability, rather than something that we could all learn and embrace. It was Alex Osborn who made creativity an applied science, and therefore much more useful to business. He believed that people have vast amounts of experience and influence, but are only conscious of a small amount at any time.

He proposed that as a process, creativity was about helping people to access and apply this vast amount of conscious and unconscious knowledge. This also involved delaying our natural inclination to evaluate and dismiss our ideas too quickly, and thereby to suppress our creativity. This is even more the case with others, always ready to judge on ideas prematurely. Holding back enables refinement, and time to rethink.

To overcome this, Osborn created brainstorming: free associations, generated rapidly, without judgement. It was adopted by businesses, academics and consultants everywhere. But it was not enough; it assumes that future success can be found in a list of 50 ideas generated in ten minutes. It needs to go deeper: adapting, combining, rearranging, rearticulating. However, such concepts didn't capture the imagination in the same way, and to this day many businesses brainstorm their list and then go off to make a few of them happen.

Jane Henry defines different views on the sources of creativity in *Making Sense of Creativity*:

- ⇒ Grace – out of the blue, something magical, you have it or you don't.
- ⇒ Accident – good fortune, serendipity, when you weren't looking for it.
- ⇒ Association – lateral thinking, connecting the unconnected.
- ⇒ Cognitive – the logical process of observation and understanding.
- ⇒ Personality – natural talent that can be developed and focused.

Whilst all of these matter, creativity is ultimately about 'creation' – creating something new.

New ideas

Creativity is a thinking process for discovering new ideas, or new associations between existing ideas, and fuelled by conscious or unconscious insight. It goes beyond ideas themselves, most commonly in art and literature – it is about creation, doing and making something. It

can be influenced by a deliberate cognitive process, by environments, by your own personality traits and by chance, accident or serendipity. Some say it is a talent that we are born with, whilst others argue that it can be learned, and enabled with simple techniques. In the business world, it is the front end of innovation, but also fuels every other aspect of work.

Despite (or perhaps because of) the ambiguity and complexity of creativity, entire industries have spawned from the pursuit of creative ideas – ad agencies, design houses, ideas companies. Creativity has been associated with right or forehead brain activity, the side of the brain that sees things more holistically, intuitively and emotionally. However, creativity is best achieved by left *and* right brain thinking, by combining focus and the big picture, analysis and intuition, and logic and emotion.

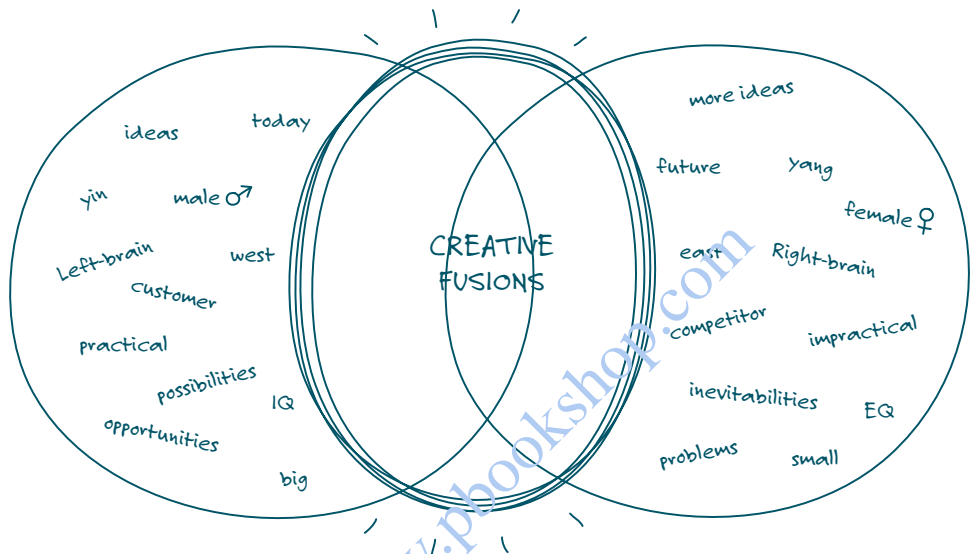
Fusion

Out of all the creative techniques that you will come across, the one that I found most powerful is the ability to connect two unconnected ideas. Like the Medicis of years gone by, it is about bringing unfamiliar ideas, situations, talents, challenges and solutions together. Consider Ravi Shankar bringing together the music of India and Europe, Paul Klee combining the influences of cubism and primitive art, or Salvador Dali combining scientific perspective with random visualization.

One of the easiest ways to think more creatively in business is to apply existing ideas from outside your market. Look at what is happening in other sectors, countries or companies, and creatively explore how you can apply these to your business. The great thing about these ideas is that they are already tested: they can be produced and people buy them, albeit in a different context. The challenge is to find the relevant 'parallels' and to apply the lessons in new and relevant ways.

The simplest but most provocative questions are ones like 'How could we "do an iPod" in our industry?' This would encourage people to think of the whole business model by which

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Creative fusions: making new connections is at the heart of creativity

devices, content, distributors and customers work together and make money. It might actually deliver an idea for digitalizing the basic products into components, renegotiating relationships with suppliers for exclusive content and letting customers select and combine them like iTunes, or it might be about creating the most aesthetically pleasing storage and usage device like the iPod itself.

Fusion might also be about more radical crossovers. Whilst it is many years since I studied particle physics, I still use some of the simple ideas in my innovation projects with clients. Understanding atomic structures is a model for thinking differently about how products and services work together. Applying the characteristics of astrophysics gives me a categorization tool for managing portfolios.

Donna Karan ... creative elegance in a chaotic world

Always energetic, sometimes a bundle of creative nerves, Donna Karan has been described as passionate, wild, insane, and sometimes even 'cuckoo'. She typically finishes her brochure notes for her fashion shows with the phrase 'To be continued,' reflecting her conviction that her styles and designs are an ever evolving process, and one that lives far beyond the runway.

She was obsessed with fashion from an early age. Donna Karan, as she started life, grew up in a rough part of New York City, her mother a model and her stepfather a tailor, and selling her first designs at a small store on Central Avenue at the age of 14. She studied at Parson's School of Design and then left to work for Anne Klein, making mid-priced sportswear. Ten years later, and with the support of her husband Steven Weiss, she founded Donna Karan New York.

Launched in 1985, her first collection created a new system of dressing, particularly for those used to Eighties power dressing. She combined elements of tailoring with sportswear to ensure clothes were luxurious and practical, and fitted well. Her clothes had a discrete style, rarely grabbing the headlines at fashion shows, but afterwards they were in high demand. She wanted them to be easy-to-wear in a luxurious blend of cashmeres and lycra, and typically discrete in blues and blacks. In particular, she was credited with introducing 'the body'.

Donna Karan was an innovator in styles, but also in developing derivative labels which were more accessible to more people. DKNY created a business model of bridge lines which generated huge demand for labels influenced by their premium sister brands. DKNY was initially inspired by her daughter, Gaby who wanted something cheaper but just as stylish. The Donna Karan and DKNY labels rapidly diversified into menswear, jeans, accessories, hosiery, fragrance and cosmetics.

In April 2001, she sold Donna Karan International, to the French luxury goods house LVMH for around \$250 million. LVMH had already acquired the license-holding company, Gabrielle Studio, meaning that in total she received \$643 million. Having moved the company to Italy, Karan quit within five years but remains honorary chairwoman and designer in charge of the Donna Karan brand.

Today the label is overseen by Peter Speliopoulos, a former Cerruti designer, with Karan contributing ideas and tweaks. The DKNY line is looked after by Jane Chung who was with Karan since her early days. Most other items are licensed to partners – for example, Liz Claiborne for DKNY Jeans, Van Heusen for DKNY men's shirts, Esprit for DKNY children's apparel, and Estee Lauder for cosmetics.

At a recent event at her new-age, Japanese-furnished West Village loft space in the heart of Manhattan, she describes to a small audience her approach to creativity and design, and the five principles that have served her well:

- ⇒ 'Work where the consumer is' – nothing replaces natural intuition, which stems from being with real people as they look at clothes, try them on, and take the deep plunge to buy.
- ⇒ 'Celebrate artistry and creativity' – these are the wellspring of design, and when combined with instinct and passion can turn the most mundane into the most inspired design.
- ⇒ 'Look for the void' – the bright shining light, as she describes it, of unmet consumer needs, which can never be found through conventional research – you have to find it yourself.
- ⇒ 'Use world cultures' – this is her greatest inspiration, combining ideas from every part of the globe, with a particular fondness for Balinese and Australian cultures.
- ⇒ 'Make the difference outside and inside' – she sees a breed of conscious consumers, who see fashion beyond a statement, and instead feel it more personally, and what it does for society too.

Karan remains passionate about fashion, people and style – studying different cultures and disciplines, fascinated by Eastern philosophies on spirituality, and yoga devotee who is consumed by alternative medicines and practices. She set up her Urban Zen foundation which explores the intersection between the complex reality of our busy lives and the simplicity and focus of a more spiritual existence. 'It's about finding the calm in the chaos', she says. It almost describes her signature style too.

Design ... the fusion of function and form

'We have to replace beauty, which is a cultural concept, with goodness, which is a humanist concept.'

Philippe Starck

From coffee pots to high-heeled boots, digital user interfaces to soaring skyscrapers, wallpaper to newspaper, design is all around us. As James Dyson said in Ford's customer magazine, 'good design is about looking at everyday things with new eyes and working out how they can be made better. It is about challenging existing technology.'

As a verb, 'to design' refers to the process of originating and developing a plan for a product, structure, system or component. As a noun, 'a design' is used for either the final solution or the result of implementing that plan – the final product of a design process. It is about function and form, rational and emotional, process and solution.

Designing requires a designer to consider the aesthetic, functional, and many other aspects of an object or a process, which usually requires considerable research, thought, modelling, adjustment and redesign. Tim Brown, CEO of a leading design firm IDEO, promotes the concept of 'design thinking' as an essential discipline for anyone in business. That it is a process applicable to every aspect of business: innovation is essential to differentiation and growth, but design adds the real difference – adding simplicity and elegance, stimulating all the senses.

Historically, design has been treated as a downstream step in the innovation process, argues Brown – the point where designers come along and put a beautiful wrapper around the idea. Whilst this approach has stimulated market growth in many areas by making new products aesthetically attractive, design is much more than the cosmetic finish.

Looking back over recent decades, design has become an increasingly valuable competitive asset in, for example, consumer electronics (remember those first iMacs), cars (the iconic styling of a Porsche 911) and consumer packaged goods (everything from Nike Air to Tetra-Pak's drink cartons). But, in most others, it remained a late-stage add-on. Now, however, Brown believes that rather than asking designers to make an already developed idea more attractive to consumers, companies are asking them to create ideas that better meet consumers' needs and desires. The former role is tactical and results in limited value creation; the latter is strategic and leads to dramatic new forms of value.

Samsung ... innovative design, inspired by the Tae Kuk

'It's our aim to develop innovative technologies and efficient processes that create new markets, enrich people's lives and continue to make Samsung a trusted market leader. Everything we do at Samsung is guided by our mission – to be the best digital e-company', said the company's enigmatic chairman, Kun-Hee Lee, in his annual report.

Samsung – which means 'three stars' in Korean – was founded by Lee's father in 1938 as an exporter of rice, sugar, and fish. Based in Taegu, South Korea, it remained a commodity company well into the 1990s. Its managers cared little about customers and innovation, design or branding.

In the mid-1990s, Samsung revolutionized its business through dedication to making world-class products. The brand changed rapidly in terms of perception from cheap import to pre-

mium design, and 17 different products – from semiconductors to computer monitors, LCD screens to colour picture tubes – entered the top five players in terms of category share.

Soon after, Lee started to look around the world for new inspiration. On visiting a downmarket electronics retailer in Los Angeles, Lee found his company's products gathering dust on the store's back shelves, ignored by even the salespeople. US consumers, he realized, regarded the Korean company's goods as cheap, toy-like knockoffs. He asked his design adviser, Tamio Fukuda, to assess the state of Samsung design. Fukuda concluded that Samsung lacked a design identity: its product development process was primitive and its top managers discounted the value of design. Building a 'sustainable design culture' became a priority.

Lee decided on fundamental change. He reduced his workforce by 50,000 and sold off many of Samsung's non-core subsidiaries. To shatter old work habits, he ordered that, henceforth, every Samsung employee must report for work two hours early. He issued a manifesto to his top managers and repeated this in the book, *Change Begins With Me*: 'management is still clinging to the concept of quantity at the expense of quality ... We will become a third-rate company. We must change no matter what.'

Lee's ultimate aim was simple and audacious. To seize the future, Samsung would have to catapult to the uppermost ranks of the world's first-class brand. It would have to become a company whose vast array of digital products not only met people's needs but also captured their imaginations. He demanded that design become a core asset in the company's bid to transform itself. He sent a team of executives to the Art Center College of Design, in Pasadena, California, to work out how to launch an in-house design school back in Korea. It resulted in the \$10 million, state-of-the-art Innovative Design Lab situated in the heart of downtown Seoul.

Samsung's in-house school gave its designers the tools and confidence to risk thinking differently. But it still needed an ethos, a distinctive style that wasn't Apple or Nokia. It found it in the *Tae Kuk*, the yin-yang symbol found on the South Korean flag, which represents the

simultaneous unity and duality of all things. From there, the brand developed its ethos: 'the balance of reason and feeling', combining simplicity and complexity, technology and humanity.

The result was a 'softer' Samsung – intuitively simple but still embracing the latest technologies. Whilst Apple embraced simplicity and Sony delighted in complexity, Samsung believed in both. Squares became rounded, buttons were decluttered and the Koreans found their new language of innovation and design. Samsung has been calculated over the last five years to be the world's fastest-growing brand, supported by bold and beautiful products. Lee describes its transformation as 'opening itself to the outside world, and looking deep within its Korean heart.'

Samsung has come a long way in a decade. Whilst it is by no means perfect (taking knocks recently for its pricing strategies and tax issues), it now has Apple and Nokia in its sights with an ethos of yin-yang design driving its business. It has a leading share of the world's markets for colour televisions, flash memory and LCD panels. In 2008–9 it delivered \$10.3 billion in earnings on \$55.3 billion in sales, making it the world's most profitable technology company.

Innovation ... making life better for people

'Great things are not done by impulse, but by a series of things brought together.'

Vincent Van Gogh

Innovators are rarely motivated by the thought of the final product, or even the money and fame that very occasionally come with successful products. Alexander Graham Bell's invention of the telephone transformed the world. Yet he was just a tutor of the deaf, keen to help them succeed. His favourite student was Mabel Hubbard and, as weeks went by, they grew closer. Her mother was not keen on a relationship.

Bell, turning up at Mabel's Nantucket home one rainy night, but it was made clear to him by Mother Hubbard that he was not welcome. He left despondent, but soon resolved to use his technical ingenuity to find a different way to reach Mabel. Whilst the telegraph was not new, lines were singular and expensive. He set about finding a way to jam many distinct signals down one line, instantly revolutionizing the applicability and economics of the phone line.

The multiplex telegraph was born out of a young, Scottish, immigrant boy's love of a Nantucket girl, and the world became a different place because of it.

'Nova' means newness

As Theodore Levitt said, 'creativity is thinking up new things, innovation is doing new things'. Innovation is about making ideas happen – involving incremental or revolutionary changes in thinking, products, processes or organizations. It is the total process, embracing creativity and design as well as the implementation and commercialization of ideas. It is the opening up and closing down process, and can also be used to describe the outcome of that process – the innovation.

Innovation might include invention, which is making an idea real. But to be innovative, the invention must be applied practically and successfully. Innovation is most often applied to areas of significant change. Whilst objects are more significant when described as innovative, the innovation process is often swamped with incremental rather than breakthrough ideas.

The goal of innovation is positive change, to make someone or something better. Innovation leading to increased productivity is the fundamental source of increasing wealth in an economy. In business, innovation seeks to increase value for customers, as well as for business – or, to return to that phrase, to make people's lives better.

Most new ideas fail!

However, most new ideas fail. 3M estimates that it needs around 3000 clearly specified ideas, from which emerge around 300 prototypes, from which they get 30 strong concepts, which are eventually whittled down to three market entries, in order to get one successful innovation.

Ideas fail for many reasons. Most common is that they emerge from mediocre beginnings. A quick brainstorm is not enough; creativity takes time. It is an opening-up process requiring

stretch and challenge, time to see perspectives, time to think. The acceleration part is the process that makes the great ideas happen. Even the best ideas can fail because:

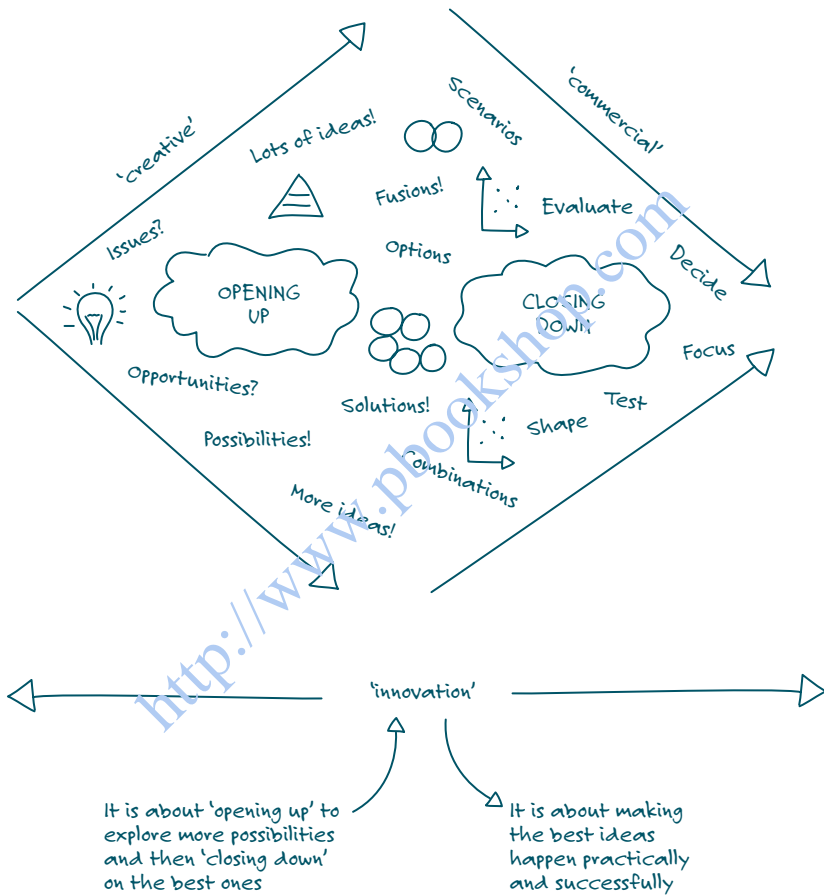
- ➔ Leaders are not open to new ideas or changing what they do.
- ➔ Organizations have too many 'sacred cows' – things nobody wants to change.
- ➔ Nobody cares about innovation in some companies – it is not tangible.
- ➔ There are no boundaries to focus on – no urgency, no 'burning platforms' to address.
- ➔ There is no structure or method – no consistent process has been adopted.
- ➔ Not enough time is allowed – thinking is seen as a luxury and is not urgent or important.
- ➔ The organization hasn't thought creatively about how to do it.
- ➔ They are not seen as a priority – the short-term matters more.
- ➔ Generating new ideas is seen as another fad – something the textbooks talk about but real companies don't.

Opening up and closing down

The simplest model of innovation is one that makes ideas happen by embracing the disciplines of creativity, design and implementation. It is about opening up the possibilities through creative thinking, exploring the future potentials, generating ideas from many different perspectives, stretching the context and exploring the extremes.

It is then about closing down, focusing in on the best ideas and maybe making connections between them, evaluating them in terms of impact and practicality, understanding how they would work and how they would make money, where best to target them, and what is the

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Innovation makes the best ideas happen profitably, by 'opening up' and 'closing down'

compelling proposition by which they will stand out from a sea of commodity, noise and competition.

In our context of innovating from the future back, opening up is more about the future and how it could be shaped in our vision; closing down is more about working from the future backwards to connect it to now, in the most practical and profitable ways.

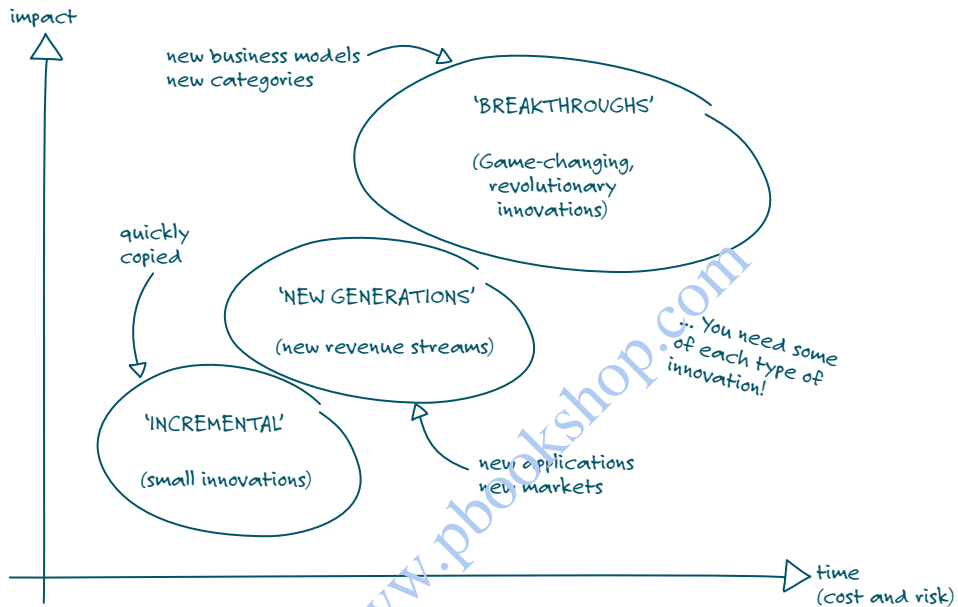
Degrees of innovation

Breakthroughs in business are rare, but they are the moments you live for. In 20 years I've experienced a few: flat beds in airlines, phones that do more for you, drinks that entertain you, paper that is about health, cement that is about growth, fertilizer that turns muck into green ...

Innovation can also be applied at many levels, both in terms of its intensity and its scope. The intensity of innovation relates to how ambitious it is – how much time, resource, cost and risk it embraces – and how great the impact we see in the market and bottom line as a result. There are three levels of innovation intensity:

- ➔ **Incremental:** Innovation as improvement, keeping pace with change and expectation, adapting designs and applications to evolving needs. In the car market we see a new version of the same car emerging frequently, maybe with slightly enhanced features.
- ➔ **Next generation:** Innovation as change, moving ahead of the competition to define a new level of performance, tapping into emerging needs and exceeding expectations. In the car market, this is a significantly new model, launched every few years, with a new brand name.
- ➔ **Breakthrough:** Innovation as revolution, changing the rules of the market, challenging the behaviours of customers, maybe redefining the market altogether – 'game-changing'. In the car market, this is the SUV or the hybrid engine creating a new genre or category.

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The three levels of innovation - a mixed portfolio of projects balances impact, risk and time

You need a balanced portfolio of innovation projects at each of these levels being developed simultaneously. Incremental innovations keep you in the market, little noticed and quickly imitated; next generations get you ahead for a short time, maybe opening up a new revenue stream. Breakthroughs are what make you famous, shaping your markets: they inspire customers, attract investors and deliver leaps in value creation.

The scope of innovation relates to how you apply innovation: which aspects you should consider, a new product or service that will be delivered by the existing organization, or an entirely new business model that creates value in new ways. There are four types:

- ➔ **Market innovation:** Creating new sectors and geographies, new audiences within the market, new channels to reach them, new applications for existing products, new propositions to reposition and communicate them, and new experiences to deliver and support them.
- ➔ **Product innovation:** Creating new products and services, new components within them, new solutions that bring them together in different ways, new fashions and styling to make them more attractive, and new ways to package and deliver them.
- ➔ **Organizational innovation:** Creating new processes and structures inside the organization, new ways to improve profitability and effectiveness, new partners to collaborate with, new suppliers, new tools and techniques, and new ways of managing and rewarding people.
- ➔ **Business model innovation:** Creating new ways of doing business, with new revenue and cost streams, new ways of working with customers and partners, and even creating new market models – the ways by which customers buy and use products and services.

Again, it is about balance – considering which levels of innovation are most appropriate to your market, demanded by your customers, acceptable to your stakeholders. Business model innovation can be most disruptive and change the game, but also involves most risk. These four types of innovation also work together, supporting each other for greater advantage and impact.

The world's most innovative companies

Business Week's annual ranking of the world's most innovative companies has become the definitive league table across sectors. It is compiled primarily based on the views of almost 3000 business leaders, and also on financial results (80% weighted on peer perception, 10% on shareholder return and 5% each on revenue and profitability growth).

There is perhaps little surprise in which companies lead the table, with the likes of Apple and Google consistently on top. Rising stars include Amazon, South Korean electronics giant

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LG and Chinese electric vehicle maker BYD. Leaders are also asked to say which aspect of innovation they admire the companies for. Increasingly, products are the least common way through which companies achieve significant innovation.

Rank	Company	Focus of innovation	Revenue growth, (%) 2006-9	Profitability growth, (%) 2006-9	Shareholder return, (%) 2006-9
1	Apple	Product	30	29	35
2	Google	Experience	31	2	10
3	Microsoft	Process	10	-4	3
4	IBM	Process	2	11	12
5	Toyota	Process	-11	-	-20
6	Amazon	Experience	29	6	51
7	LG Electronics	Product	16	707	31
8	BYD	Process	42	-1	99
9	GE	Process	-1	-25	-22
10	Sony	Product	-5	-	-19
11	Samsung	Product	17	-9	10
12	Intel	Product	0	12	3
13	Ford	Process	-12	-	10
14	RIM	Experience	75	-6	17
15	Volkswagen	Business model	0	14	8
16	HP	Process	8	9	9
17	Tata Group	Business model	-	-	-
18	BMW	Experience	0	-	-8
19	Coca Cola	Experience	9	1	9
20	Nintendo	Experience	22	3	-8

Source: Business Week, 2010

James Dyson ... 'dual cyclone' inspired by running up sand dunes

As a teenage runner, James Dyson became a fan of Australian Herb Elliott, the 1960 Olympic 1500 metre champion, and his coach Percy Cerutti, who was famous for his training on sand dunes. Compared to roads and tracks, the beach was more fun, freer and built up more strength and endurance. As Dyson reflected in an interview with *Runner's World*, 'interacting with nature seemed to be what running was about. I latched onto that.'

From this came a wild side, a love of nature, and a relentless determination to do things different and better ... and sand spilling out his shoes when he arrived home, for which he needed a better vacuum cleaner.

Most vacuum cleaners still used bags or filters, which clog and lose their suction. After 15 years of tinkering and 5126 prototypes, Dyson famously developed a bagless, 'dual cyclone' vacuum – the first that doesn't lose suction. Inspired by the cyclone technology he'd first spotted on a sawmill work, he ripped the dusty clogged bag from his old vacuum and replaced it with a prototype that he slowly evolved to perfection. It was quirky but also stylish – function and form at its best – and can even be found in most museums of modern art as well as in many homes around the world.

Dyson studied architecture at the Byam Shaw School (now Central Saint Martins College of Art and Design), specialized in furniture and interior design at the Royal College of Art, and then focused on marine engineering. His first invention was named the 'Sea Truck', launched in 1970 while he was at the Royal College of Art. The wheelbarrow hadn't changed for 2000 years, but Dyson designed a smooth-edged plastic bin that, unlike the normal metal bin, didn't rust or cause damage. He replaced the wheel with a ball that gave it stability and stopped it sinking into soft ground. He called it the 'Ballbarrow'. But then things went wrong. He assigned the patent to a partner company who would make and market it. Although a shareholder, he soon found himself diluted by frequent cash calls as the business sought to

grow. Eventually he was overruled by other shareholders who wanted to sell his invention, and the business was no more.

Out of frustration he was slowly learning from mistakes and to take risks, whilst his passion to create a successful invention fuelled his creativity both technically and commercially. The bagless cleaner took another five years to develop.

By 1985, Dyson had perfected the 'G-Force', a bagless upright cleaner that used a spinning technology to better keep its suction constant. However, no manufacturer or distributor was prepared to launch it in the UK, feeling that it threatened the current, profitable market. Instead he launched it in Japan through a catalogue channel. It was bright pink and sold for \$3500; it also won the 1991 International Design Fair prize in Japan. At the same time, his designs began to be imitated by competitors – including Hoover, who he sued for \$5 million in damages. He had learnt the importance of protecting his ideas.

In 1993 he opened his research centre and factory in Malmesbury, Wiltshire, and launched 'the Dyson' in the UK market. Interestingly it was the 'say goodbye to the bag' advertising strapline that proved much more appealing to consumers than an emphasis on technical performance, such as greater suction. The product became the fastest selling vacuum cleaner ever to be made in the UK, outselling many of those established brands that previously had rejected his idea, and by 2005 became the market leader in the US based on value.

He continued to work on his vacuum designs. New models emerged with more suction. He achieved this by adding a smaller diameter cyclone to give greater centrifugal force, which allowed 45% more suction than a dual cyclone and removing more dust by dividing the air into eight smaller cyclones, calling it the 'root cyclone'. He even made use of one of his original ideas, adding a wheel ball from his Ballbarrow concept into a vacuum cleaner, creating the 'Dyson Ball', enabling more movement and suction.

Looking beyond cleaning, he expanded his appliance range to include a washing machine. Called the ContraRotator, it had two rotating drums that moved in opposite directions and

came in his usual bright colours. Whilst claiming it washed better and saved water, the invention did not take off and was quietly discontinued. In 2006 he launched an ultra-fast hand dryer called the Airblade, which produced an air stream flowing at 400 mph through a 0.3 millimetre gap, whipping moisture from hands. It claimed to dry hands 87% more effectively than other dryers and was soon a hit.

Most recently, he has been lauded for his fan without blades, known as the Air Multiplier. Without any visible movement, and no blades or motors, it draws in air and amplifies it 15 times. It took four years to develop – much faster than with previous designs because much of it was prototyped using computer simulations – and was recently launched to great acclaim.

'Anyone developing new products needs one characteristic above all else. Hope.' said Dyson in an interview with *The Daily Telegraph*. 'This comes down to having high expectations that you will succeed despite any setbacks, having the sense to break down an imposing task into smaller, manageable ones; and believing that you are able to achieve your goals'.

Remembering back to his days running up those Welsh sand dunes, he believes innovators need to be 'dogged and determined', and never afraid to be different.

Creative genius ... welcome to 'the Genius Lab'

'The test of a first-rate intelligence is the ability to hold two opposed ideas in the mind at the same time, and still retain the ability to function.'

F. Scott Fitzgerald

Genius is expressed in many different forms. It may show itself in early childhood as a prodigy or later in life by natural talent or by hard work. Either way, geniuses eventually differentiate themselves from the others through great originality: they often have crisp, clear visions of situations in which interpretation is unnecessary, and they build or act on the basis of those facts, usually with tremendous energy.

Inspiration and perspiration

Thomas Edison famously remarked that 'genius is 1% inspiration and 99% perspiration'. To illustrate this, consider these outputs:

- ⇒ Shakespeare penned 154 sonnets.
- ⇒ Bach wrote a cantata every week of his adult life.
- ⇒ Mozart produced more than 600 pieces of music.
- ⇒ Einstein published 248 other papers in addition to his first and most famous.

- ➔ Darwin wrote 119 other publications beyond his theory of evolution.
- ➔ Maslow produced 165 papers, despite only being remembered for a triangle.
- ➔ Rembrandt created 650 paintings.
- ➔ Edison filed 1093 patents for inventions.
- ➔ Picasso delivered an incredible 20,000 pieces of art.

Not all of these were great, but were maybe part of their greatness.

Research collated by Malcolm Gladwell in *Outliers* illustrates just how much sweat and toil it actually takes. Studies of top sportsmen, musicians and chess players show that it takes someone around 10,000 hours of lifetime practice to reach the top in their chosen discipline. Talent and luck are important, but it is practice that makes the difference between being good and being brilliant, argues the research. Gladwell describes practice as the key to The Beatles' success, pointing to their early career when they would play eight hours a night, seven days a week while in Hamburg. By the time they hit the big time, they had performed live an estimated 1200 times – more than most modern bands play in their careers.

Welcome to 'the Genius Lab'

No book can promise to make you a 'creative genius'. However, the rest of this book gives you the building blocks and offers a sprinkling of inspiration to do significant, maybe even remarkable things. Whilst creativity, design and innovation are the practical disciplines, it is really about problem-solving, positive change personally and in business, and making people's lives better. Over the last 20 years I have worked with many organizations, addressing challenges both obvious and abstract. Some have long, complicated processes for innovation; for many others, there is little structure. Innovation isn't part of their business – it rarely has

a dedicated manager or resource – yet companies are unanimous in recognizing innovation as essential to their future.

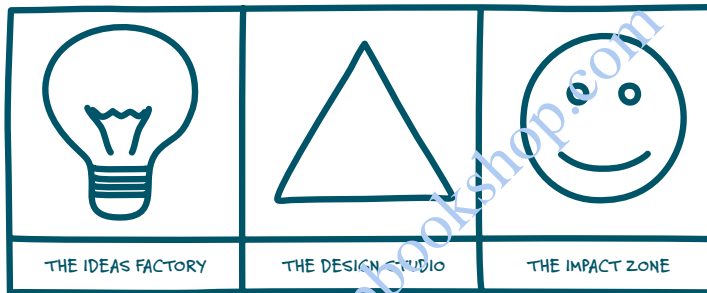
The best ideas are usually already inside a business – inside the heads of people who know their markets best, inside the many documents and databases which sit unexploited, and maybe inside the heads of their customers and partners too. The problem is how to unlock them in a fast and effective way.

'The Genius Lab' is an approach to accelerated innovation. The approach has three phases that bring together established (and some new) processes and activities for accelerating your ideas into practical action. Much of it can be done in-house, bringing together the right teams and disciplines from across your business, but it works best with a little added structure, facilitation and stimulus.

Over those two decades I have worked on all kinds of innovation challenges. What have I learnt? That innovation needs leadership and a cross-functional team that is committed to doing something significant. It needs energy and pace to cut through the organizational treacle, and it needs a clear and simple structure so that people know what's happening and where they are going. I have also learnt that most companies spend too much time on research and too little thinking about the insights and using them. They struggle to think bigger, from the future back or outside in. They lack the confidence to turn the big ideas into actionable projects and are often too scared to even propose them. And they fail to engage the decision-makers until the last moment, when it comes as something of a surprise, which is usually compromised or halted.

Innovation needs a guiding hand to give it direction and momentum, space to explore and create, and structure to focus on the best ideas and practical actions. Small improvements always help, but it's ultimately about doing extra-ordinary things (yes, anything but ordinary) in extra-ordinary ways.

The three phases of the Genius Lab define the rest of this book: the ideas factory, the design studio and the impact zone. It's a simple process but with much underneath, taking ideas from the future back, as well as the inside out and outside in, using left- and right-brain approaches, creativity and innovation to make the best ideas happen 'now forward' and deliver extraordinary results.



The three phases of the Genius Lab to achieve more significant, accelerated and successful innovation

Phase 1: The ideas factory

This is about insights and ideas – from the future, in partnerships with customers and experts, and our own imagination – from which we develop understanding and inspiration, direction and hypotheses.

We explore the possibilities, based on future scenarios, customer immersion, parallel worlds, emerging trends and creative ideas. Insights emerge out of the collation of knowledge from

different perspectives – ‘flashes of inspiration’ or ‘penetrating discoveries’ – that are then fused with creative thinking.

Insights are much more than information, and create new platforms from which to generate stronger ideas. Ideas are much more than actions, but concepts for making life better. By understanding the problem or opportunity better, we have more chance of creating successful solutions. By focusing on real insights, we develop better ideas that are distinctive and powerful.

Phase 2: The design studio

This is about creativity and design, shaping the best ideas into more concepts that are compelling, practical and profitable – articulating, testing and evaluating each of the best concepts.

We work at the best ideas and hypotheses, reframing the context in which they are positioned, fusing ideas together into richer molecular structures, considering the function and form of these bigger ideas, enhancing their practical usability and aesthetic appeal.

Concepts work beyond products and services. They emerge as propositions, solutions and experiences, perhaps requiring new business and market models. It is then about evaluating each of the best concepts for their value potential for customers and business, how they will make people's lives better, and how we can make them happen distinctively and profitably.

Phase 3: The impact zone

This is about development and commercialization: making the ideas happen, launching them into the right markets, making them contagious and sticky, and ensuring they deliver sustained results.

We focus creatively on the opportunities that will deliver the most return and the best markets, customers and solutions. Don't try to do everything for everyone; do things that are significantly different and better. And we don't stop at market entry – that is the starting point for bringing ideas to life, changing people's attitudes and encouraging new behaviours.

Delivering sustained results is about finding space in the market that you can make your own, defend and grow. That is achieved by telling your story in ways that are compelling and contagious, and shaping markets in your own mind rather than being a slave to somebody else's vision, stretching and evolving ideas so that can have even more impact, and staying a step or two ahead.

Steve Jobs ... the reality distortion field

In today's world of innovation there is nobody more inspiring than Steve Jobs.

He has not only redefined the world of technology but the music and entertainment industries too. From the early days of Apple's Macintosh to Pixar blockbusters such as *Toy Story 3*, and back to the 'i' world of Apple, he is a revolutionary, intelligently making sense of markets, and applying technologies to existing and emerging consumer needs.

Jobs grew up in the Californian apricot orchards that later became known as Silicon Valley at a time when technological innovation and psychedelic music were competing local influences. He studied physics and literature but dropped out to found Apple Computer with his friend Steve Wozniak in 1976, based in his parents' garage and financed by the sale of his VW campervan. By the age of 23 he was worth more than \$1 million; more than \$10 million by 24; \$100 million by 25 ... and now a billionaire many times over.

He grew the business by focusing on niche markets, charging a premium for his novel products. However, 1985 saw him lose out in a power struggle with John Sculley as Apple began to crumble under the competitive might of Microsoft. This led him to Pixar Animation Studios,

which has since created some of the most successful and loved animated films since the early days of Walt Disney.

Apple was struggling, and turned to Jobs in 1997 to come back. He was uncertain that the business could survive, recognized that the computing world was changing quickly. In the same way that Pixar had transformed movies, the likes of Dell had disrupted the computing world. But Jobs saw the future of technology differently from others. He realized that technology needed to learn something more from Pixar – how to connect with people emotionally, and to have a story that endures over time.

He re-kindled his passion for well-designed computers, this time with open systems, and the launch of his funky coloured iMacs – blueberry and tangerine instead of plastic grey. People loved them and they became the icon of a new generation of individuals and businesses. He kept working on every aspect of design: launching the Mac OS X user interface in 2000, he told *Fortune* magazine that 'we made the buttons on the screen look so good you'll want to lick them'. He focused relentlessly on innovation and marketing, outthinking rather than outspending his peers. 'Innovation has nothing to do with how many R&D dollars you have. When Apple came up with the Mac, IBM was spending at least 100 times more R&D. It's not about money. It's about the people you have, how you're led, and how much get it,' he added in the *Fortune* interview.

More significantly, Jobs recognized that the music industry was in desperate need of innovation. In 2001 the iPod was born, with the staggering ability to hold 1000 songs. iTunes closely followed – the real innovation, since it transformed the way people buy music and therefore changed every other aspect of the industry. New iPod releases were ever smaller but more powerful.

Pixar became part of Disney in 2006, in return for \$7.5 billion, making Job's Disney's largest shareholder, and taking a seat on the board. And a year later came the iPhone, a sensation that threatens to transform the communication world not least through its open platform

for apps. The MacBook Air brought the magic back to computing in 2008 and then came the iPad, heralding the tablet computing revolution of 2010.

Jobs takes a deeply personal approach to business. He is also a phenomenal communicator, the master of the message, rehearsing for hours to perfect every line that he will speak in public. Yet Jobs is a business superstar, voted by *Fortune* at the end of 2009 as 'CEO of the Decade'. Bringing together his contributions to Apple, Pixar, Disney and others, *Fortune* estimated that he has created more than \$150 billion in shareholder wealth.

He has become the dominant personality in four different industries, transforming the world of music, movies, communications and computing. He is admired by his leadership peers across the world, and by many more of us who use his products, and he leads the most awe-inspiring, creative, and arrogant team of innovators around.

We know little about what makes Jobs tick, but perhaps the best insight came in his 2005 Commencement Address at Stanford University, which can be viewed and read online. In it he encourages his audience to believe in themselves, to grasp every opportunity, just like he does:

'Your time is limited, so don't waste it living someone else's life. Don't be trapped by dogma ... living with the *results* of other people's thinking. Don't let the noise of other's opinions drown out your own inner voice. And most important, have the courage to follow your heart and intuition.'

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