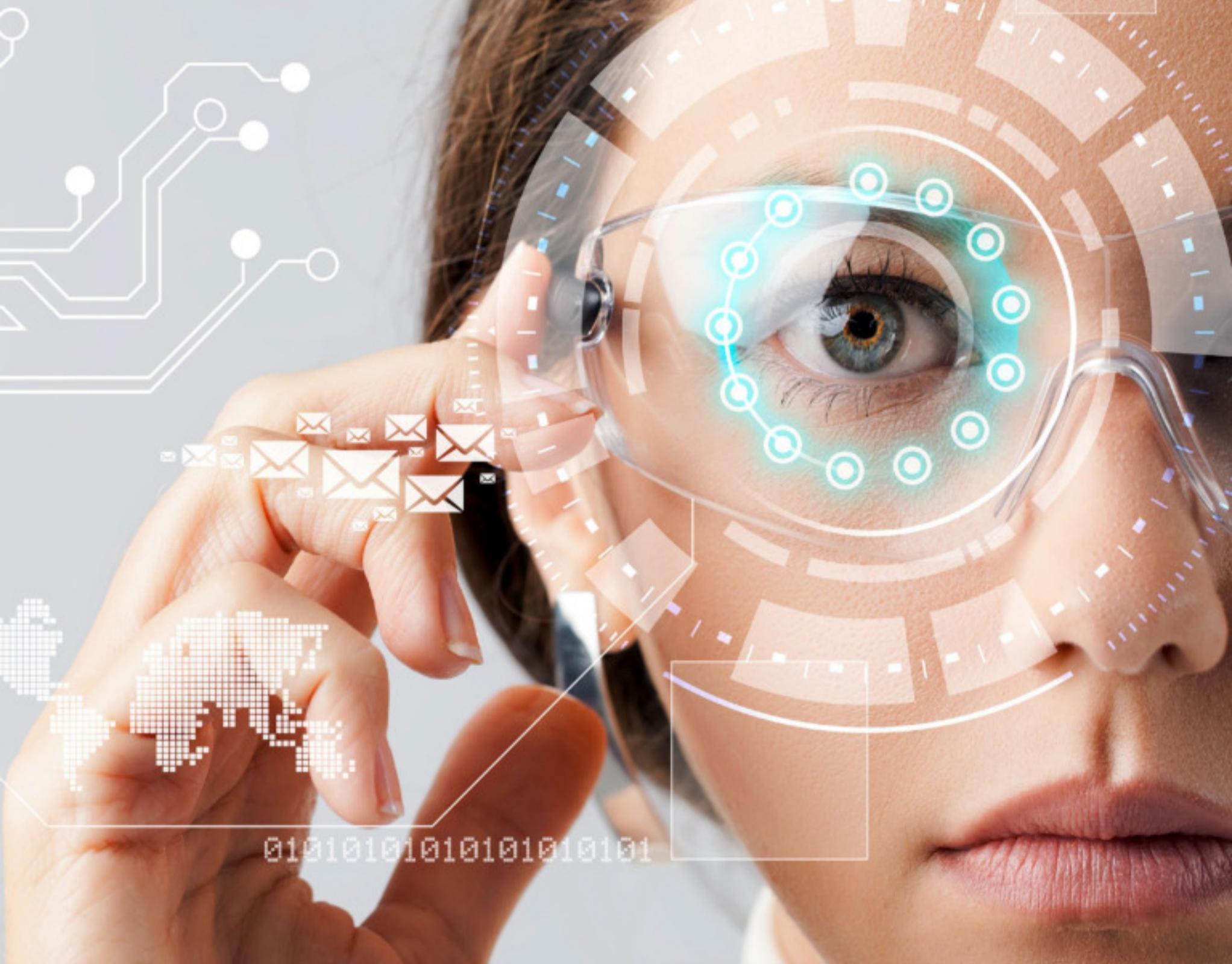


Your definitive guide to

The Future of Work

Looking beyond the hype to what you really need to know (and do)



AI & Machine Learning | IoT & Smart Buildings | Automation | Diversity | Data & Privacy
Leadership | Creativity & Innovation | Learning Organizations | Workplace Strategy

Contents

Chapter 1 - Why we need to redesign the way we work..... page 4

Massive inflexible beasts: Lessons in agility from the (steam) factory floor..... page 5

The top 3 forces shaping the future of work..... page 6

Chapter 2 - The impact of emerging technologies..... page 7

How stuff will get done: The rise of automation..... page 8

Chapter 3 - Artificial intelligence & the future of work page 12

What does AI really mean?: Rather a lot, it turns out..... page 13

... And machine learning?: The difference between AI, machine learning & deep learning..... page 14

More on deep learning..... page 15

The three levels of AI: From the fairly mundane to the totally insane..... page 16

How far have we come?: What AI can and can't do today page 17

S curves and toasters: The sneaky nature of change page 18

The shape of change..... page 19

Back to AI: So what happens if we crack Strong AI?..... page 23

Electricity, fire & AI: How is AI being used today? page 25

Powers of prediction: AI & augmented analytics..... page 27

Performance vs privacy: AI, data & your vision of an ideal future page 29

Look who's talking: AI & the rise of chatbots page 31

Look who's listening: AI and the rise of voice assistants..... page 32

A more beautiful world: Can AI bring about an explosion in creativity? page 34

Chapter 4 - The future workforce & your role within it..... page 35

Will the robots take *my* job?: Who's in for the chop from the bots..... page 36

Developing your AI / automation strategy page 37

Future in-demand skills: The rising importance of EQ, collaboration & creativity..... page 38

The workforce is a'changin': Where Gen X, Millennials & boomers converge..... page 40

Different is good: Diversity & Innovation..... page 41

Chapter Five - Learning, up-skilling & leadership..... page 42

Creating a learning culture: Is your company a learning organization? page 43

How to create a learning org: Tips for developing a sustainable high performance culture page 45

Growth vs fixed thinking: The mindset of future leaders & learning orgs..... page 48

Chapter Six - Looking beyond employment page 49

The open talent economy: Preparing for a transient workforce page 50

Chapter Seven - The rise of agile working practices page 53

Hierarchies vs networks: How information flows..... page 54

The future shape of teams page 55

The rise of agile working: A new age of autonomy..... page 56

But agile isn't for everyone... : Th importance of face-to-face page 59

Design thinking: applying design thinking to the employee experience page 60

Chapter Eight - The future workplace: optimising spaces..... page 61

IoT & smart buildings: creating a sustainable, intelligent workplace page 62

HR, Facilities & UX design: Coming together to design the workplace of the future page 64

Chapter Nine - How to design your workplace strategy page 66

Your workplace strategy: The 'why', 'what' & 'how' page 67

Chapter Ten - Lessons from marketers & lean startups page 72

Talent borrows, genius steals: Growth hacking change..... page 73

How to get started with the Biz Model Canvas..... page 78

Chapter Eleven - Keeping the main thing the main thing page 79

What the !&\$% is going on?

Introducing... The Future of Work

There's no escaping the dizzying swirl of jargon and rhetoric around 'the future of work'.

No matter which industry or job you're in, distinguishing between the smoke, mirrors and important stuff is hard. Really hard.

So the first question is this: why bother?

Whether you're in HR, facilities, customer service, IT, sales, marketing... is it truly vital that you become a student of the future of work?

Do you *really* need a strategy in place for managing a blended workforce of humans and machines?

The answer is both yes, and no.

Buzz around tech trends like AI, machine learning, blockchain, virtual reality, augmented reality and the internet of things has permeated every sector. That's before we even get started on the augmented workforce, the kinetic enterprise, the open talent economy and countless other terms that describe some kind of tectonic shift in the way we work.

The bad news?

Deciphering the wood from the trees isn't going to get any easier.

Clarity and focus remain elusive when there are always new tools, more information, more opinions and more jargon.

To confuse us even further, new concepts and tools intersect and converge over time. This leads to perpetual attempts at defining and re-defining new buzzwords. A lucrative pass-time

for consultants, perhaps, but a draining hamster-wheel for anyone under pressure to deliver tangible results day in, day out.

Today's hype gives rise to all sorts of questions:

"What do these terms actually mean?" Or more specifically, "How come I think I 'get it', then find myself revisiting definitions and explanations over and over, in a perpetual loop of confusion?"

"Should I be scared of these changes, or excited by them? How will they affect me, my job, my team, my company, my industry?"

And when you've just about got your head round the theory, reality looms. "How do I know what to implement and where to begin?" And the pressing, stress-inducing, "How on earth will I find time for anything new when my day-job is barely doable as it is?"

It's little wonder we're so fascinated by the future of work. If we can just catch a glimpse in the crystal ball - see a clear vision of this workplace of the future - we'll feel less anxious and better prepared. We'll regain a sense of control.

One thing is for certain: to be prepared for the future, you have to understand it.

This guide to the future of work is an attempt at cutting through the noise. The hope is that reading it will provide you with a framework for making better decisions about what to focus on and what to *do*.



Jane Young, *Smartway2*

Why we need to redesign

the way we work



Massive inflexible beasts

Lessons in agility from the (steam) factory floor

In the early 1880s, Edison built the world's first power station for generating electricity.

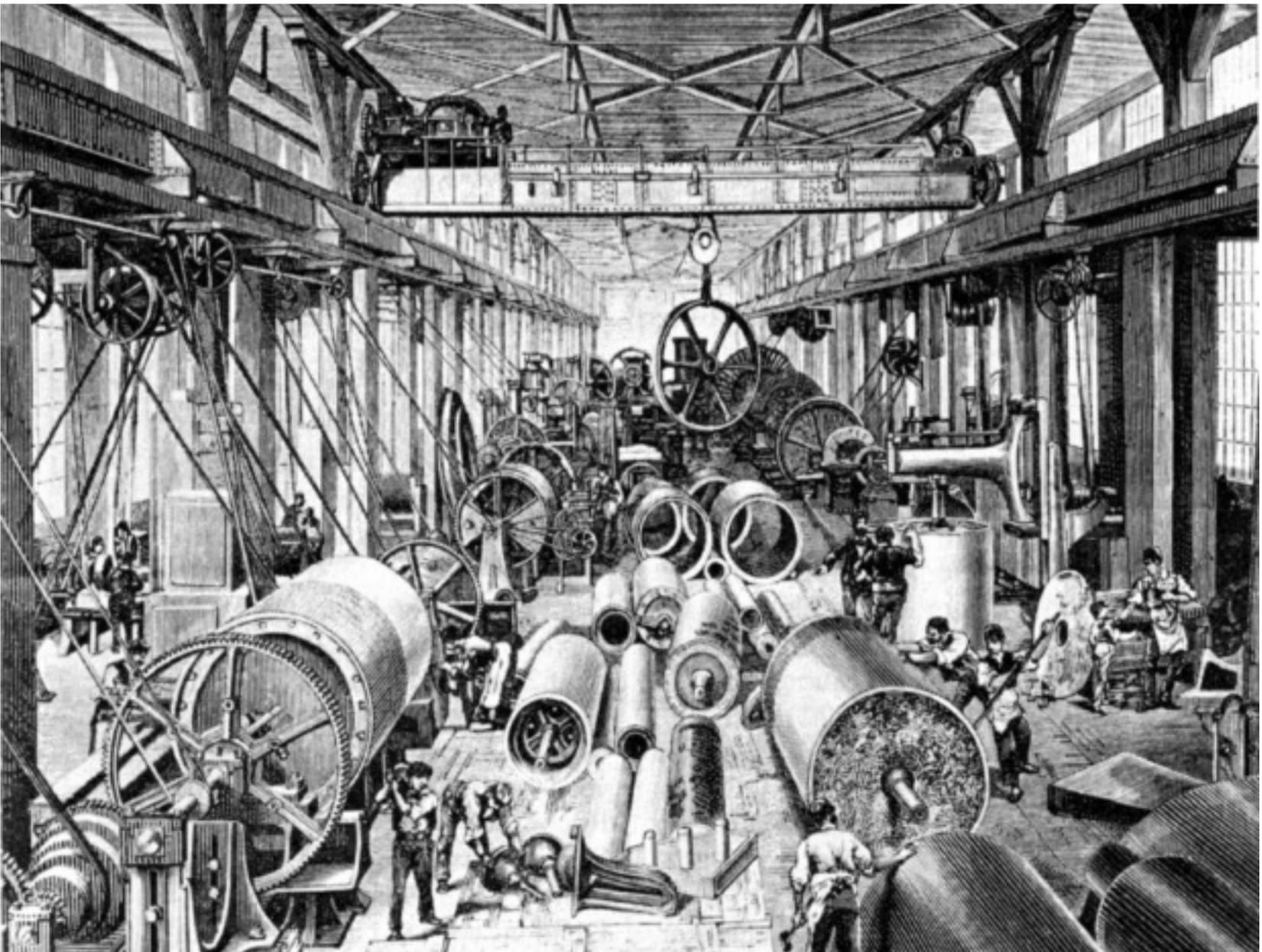
These power stations were a big deal for manufacturing, promising game-changing benefits.

Soon early adopters began to replace their factories' steam engines with electric motors. They assumed, quite reasonably, that a massive surge in productivity would follow. But it didn't pan out that way.

Twenty years went by and 95% of factories were still using steam. Many factory owners had considered going electric, but the savings and productivity gains were surprisingly disappointing.

These steam-powered factories were huge, inflexible beasts.

Even if only one piece of equipment was needed, the factory's coal fires had to be lit and the single massive steam engine powered up.



The steam engine turned a central drive shaft that ran the whole length of the factory, setting a complex bunch of cogs and belts in motion. The layout of these workplaces was designed around this unwieldy, often dangerous, piece of kit.

In the end it took 30 years for productivity to increase - arguably long enough for a generation of managers to retire.

The problem was this: managers replaced the steam engines with electric motors, but **they failed to redesign the factories to take full advantage of electricity** and its flexibility.

Instead of working around a big steam engine and drive shaft, electricity could deliver power wherever it was needed. Small, efficient electric motors could power each individual tool and workstation. People could work more

autonomously, at their own pace and spread out in a cleaner, safer environment.

The scale of this change was daunting. It took a radical leap to realize the extent of electricity's promise. Workplaces had to be redesigned. Processes had to be scrapped and re-thought. The way companies recruited, trained, paid and interacted with their employees had to shift gears.

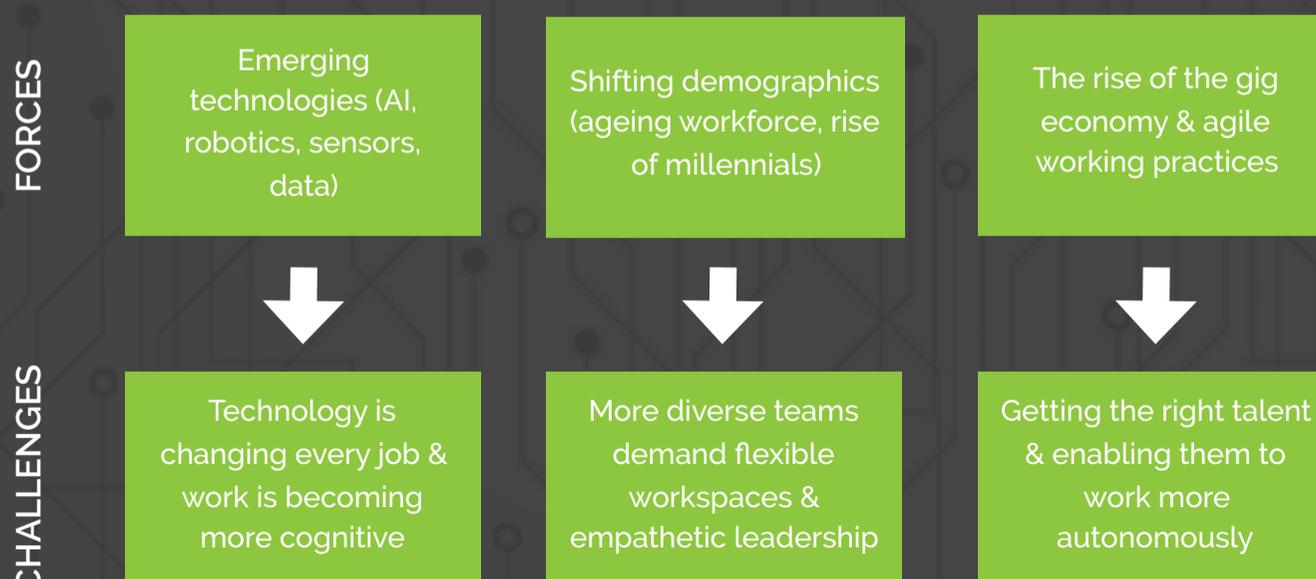
Ultimately, it fell to the next generation to invent new ways of working.

We, however, can't leave it to the next generation. It's unlikely that any of us can live out the rest of our careers without taking radical leaps of this magnitude. In fact radical leaps and continuous change are the new business as usual. Just as those guys had to redesign their factories, **we need to rethink the way we work.**

The top 3 forces shaping the future of work

Preparing for the future of work - a future that is already upon us - is ultimately a people challenge. Technology is changing not just the nature of the tasks we perform, but when, how, where and with whom we perform them.

The top three forces at play present major challenges, all of which are inter-related:



The impact of

emerging technologies



How stuff will get done

The rise of automation

As technology becomes more intelligent and capable, it inevitably takes time-consuming tasks off our hands.

Although advances in technology create more jobs than they destroy, we can be sure that in time, every job will undergo significant change.

Broadly speaking, there are two levels of automation at play:

- **Assisted intelligence** - machines help us perform a task, e.g. GPS helps us navigate to our destination when we're driving our car.
- **Autonomous intelligence** - machines take a task entirely off our hands, e.g. driverless cars

In every organization today, some of the stuff that needs to be done gets done by humans; and some gets done by machines.

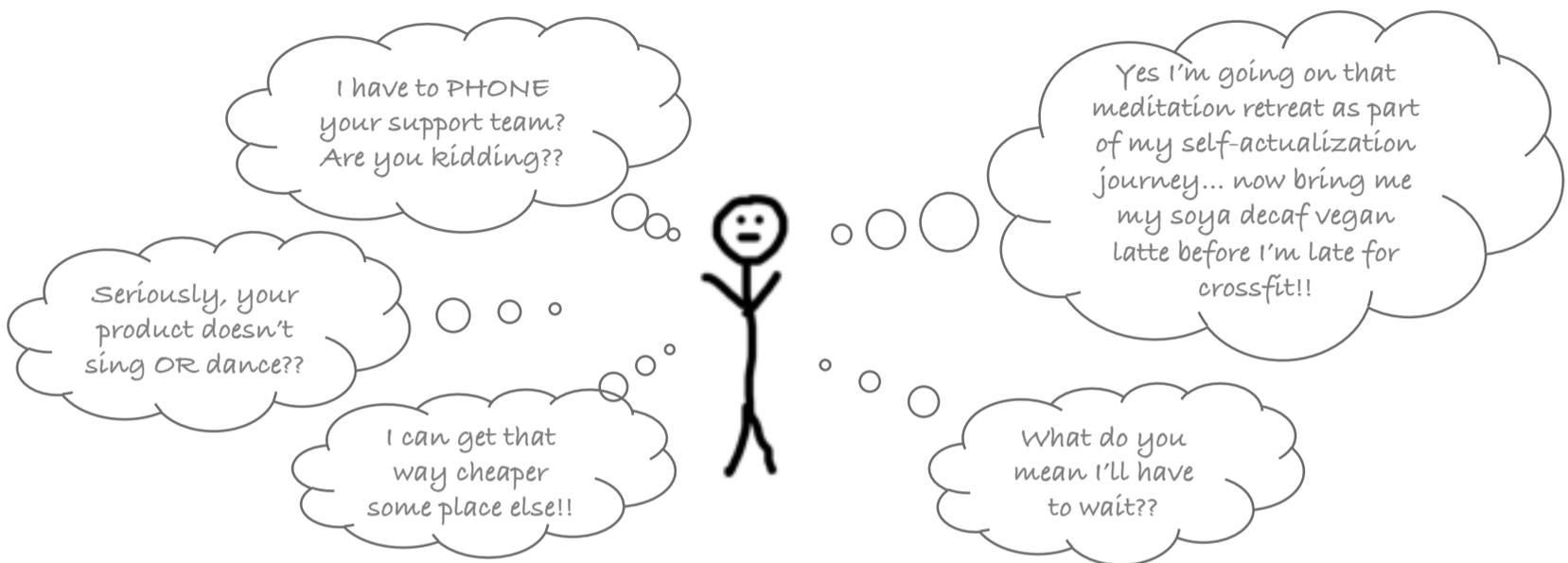


There are two major reasons why we're freaking out about the future of work:

- The amount of stuff that needs to be done is always increasing
- The stuff that needs to be done is always changing and getting trickier



We have to keep getting more tricky stuff done because our expectations - as consumers, citizens and workers - keep rising.

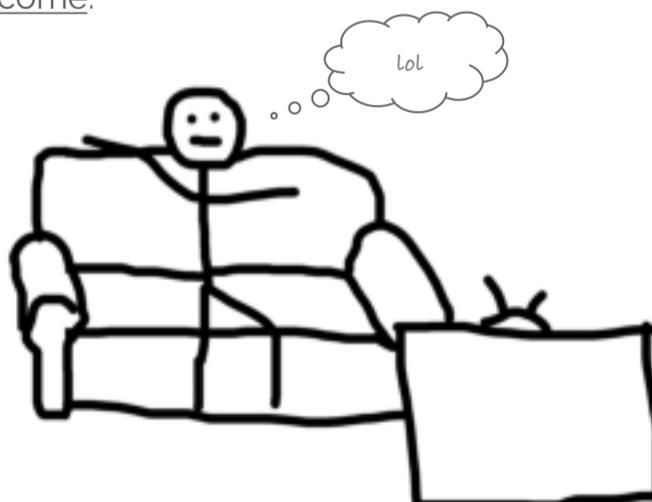


New knowledge and technology keep on giving us new capabilities. And we want it all. Like, yesterday.

Luckily, as machines get smarter, they can do more stuff to help us out.

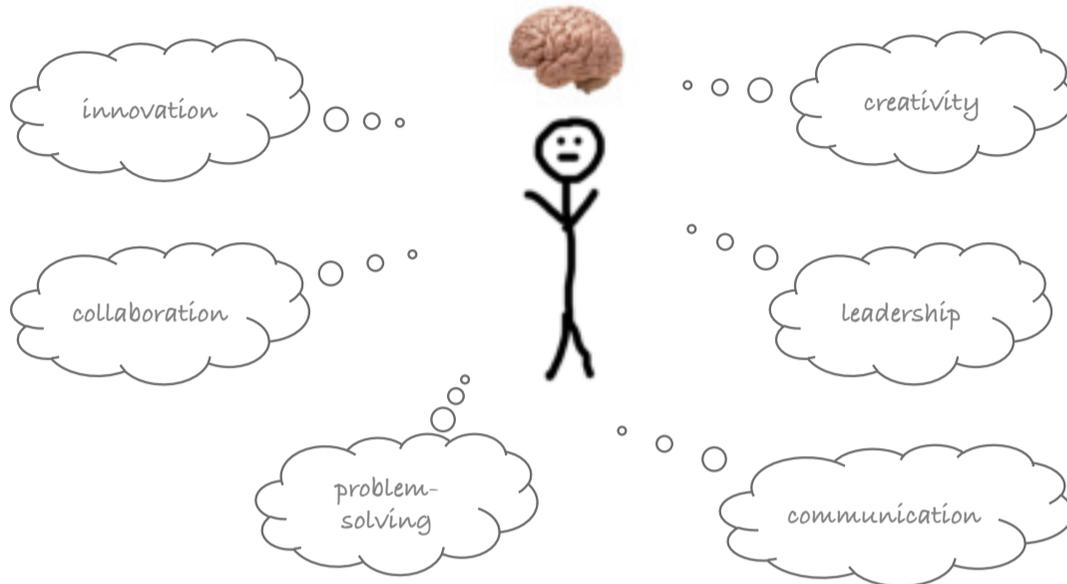


So at some point we may be able to put our feet up and watch cat videos all day on YouTube, supported by Universal Basic Income.

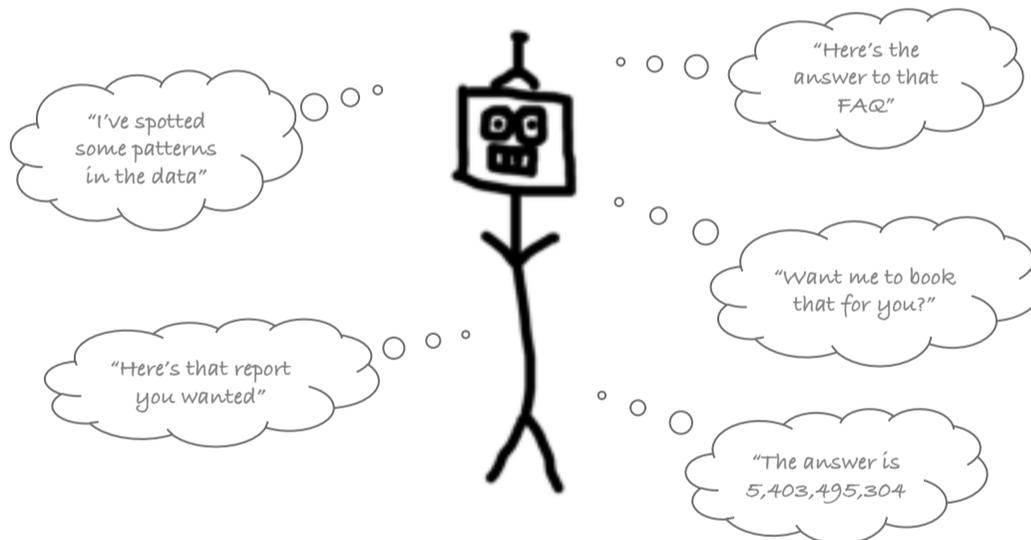


Or maybe not.

As technology takes repetitive tasks off our hands, we're freed up to do more of the stuff that humans are way better at than machines. Including work that we didn't even know needed to be done.



As machines keep getting smarter, they'll keep taking on more of the tasks that they excel at.

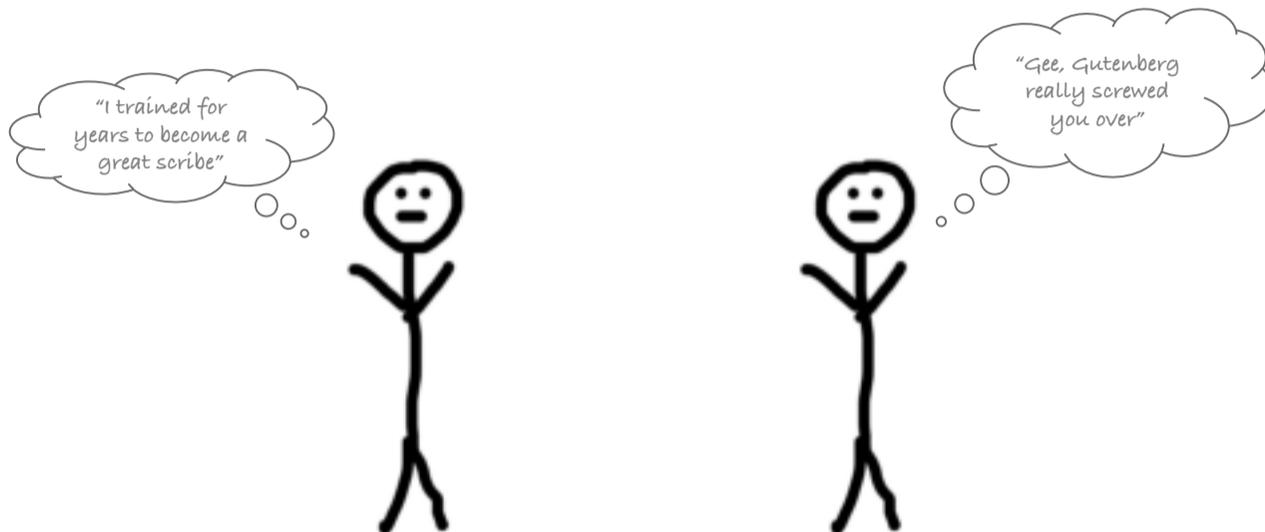


So we humans have to keep getting smarter too, seeing as we're left with all that tricky, cognitive, creative stuff.



That's why it's essential that we create *learning organizations*. Every individual, team and company needs to focus not only on bringing in technical talent to make these changes happen; but also on on nurturing our uniquely human skillsets.

Whether you're technical or not, in order to prepare for jobs that don't exist yet, that'll solve problems that haven't even happened yet, we must commit to **lifelong learning**.



In a world where it's impossible to protect jobs, continuous up-skilling can protect *people*.

Over time, our bundle of skills and capabilities will become more important than a defined role or profession; and the perceived value of human skills - like emotional intelligence, storytelling aptitude, creativity, critical thinking and empathy - will rise.

"The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn and relearn" - Alvin Toffler

So perhaps by now you're thinking...

"That's all very well, but will the robots take *my* job?"

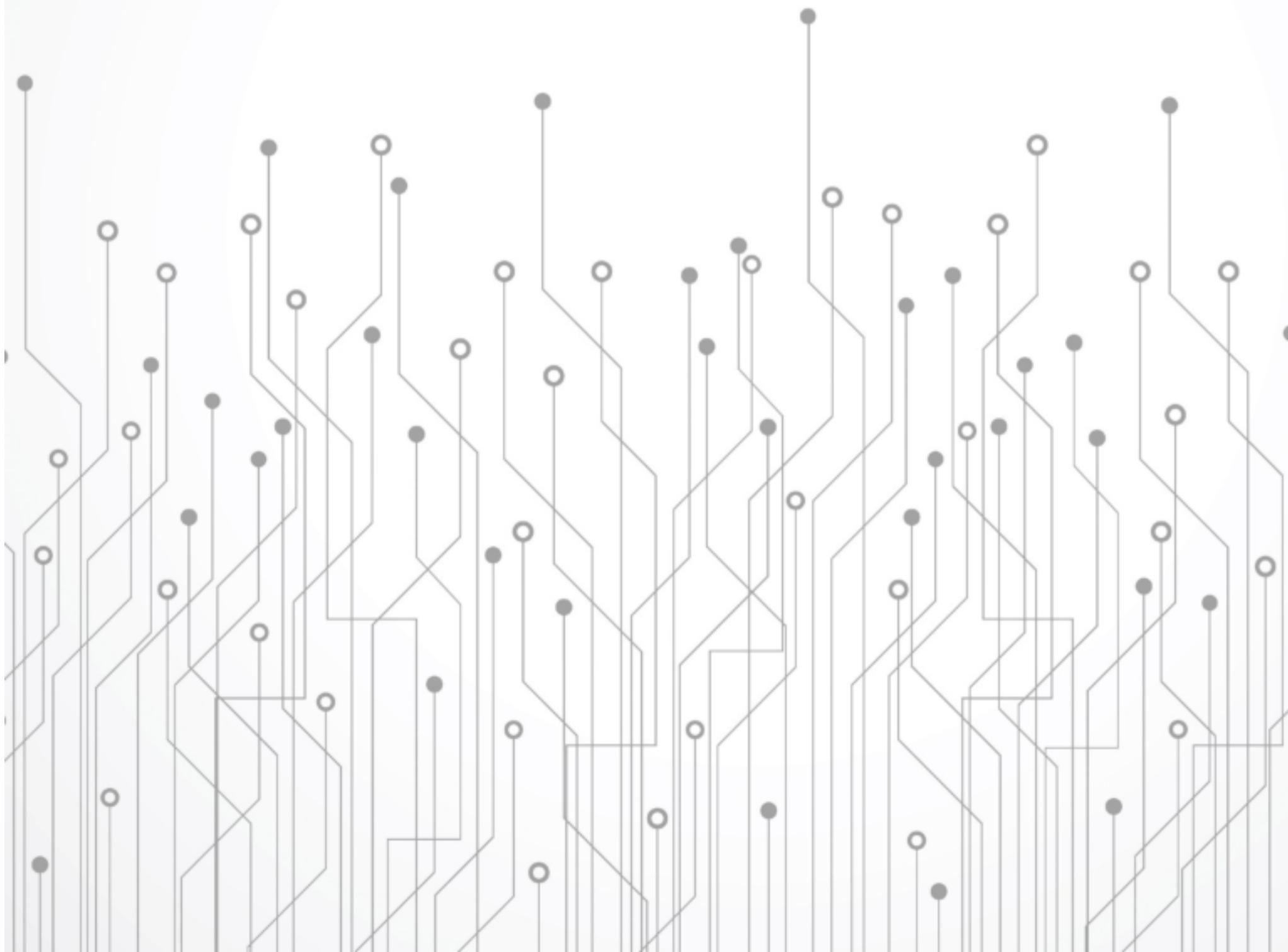
Or, if you're more dramatically inclined...

"Will the machines be our minions in the future of work, or will we be theirs?"

Okay, so that isn't really *beyond* the hype, but these are important questions to explore. First, let's get some clarity about what all this machine 'intelligence' really means...

Artificial Intelligence &

The Future of Work



What does AI really mean?

Rather a lot, it turns out

If there's one inescapable trend sweeping through the world of work today, it's Artificial Intelligence (AI).

But with everything and its dog claiming to be 'AI-powered' these days, what does it really mean?

The term 'AI' is so all-encompassing and its applications so broad that it's really not very helpful. Then there's the sci-fi connotations and fear of human destruction - but we'll come back to that (spoiler alert: such fears, while a pesky distraction from current reality, may not be entirely unfounded).

AI, at its core, is all about making computers imitate intelligent behaviour. When you think about it that way, nearly every piece of software could stake a claim to AI, but we recognize intelligent behaviour when it imitates human capabilities like reasoning, perception, problem-solving and learning.

As early as 1960, IBM's Shoebbox could recognise 16 words when spoken through a microphone and do simple mathematical calculations in response. But we've only recently reached the point where we have enough computing power and data to do more useful things.

AI is already an invisible force in all our lives. If you use Google Maps, or Google Translate, you're already using AI. In fact we've all been reading news stories on Yahoo! Finance and buying books based on Amazon recommendations and Googling our symptoms for years... not really thinking about all that artificial intelligence under the hood.

When all technology has 'intelligence' embedded within it - and we're getting there - we'll no longer think about whether this or that is 'AI powered' - it'll just be the way things work.

"As soon as it works, no one calls it AI any more" - John McCarthy, 1956

... and machine learning?

The difference between AI, machine learning & deep learning

Terms like 'machine learning' and 'deep learning' are often used interchangeably with AI, but machine learning is actually a sub-set of AI. It refers to algorithms we use to mimic human intelligence and make predictions.

Think of it like this: machine learning is the current cutting-edge approach to AI. Likewise, deep learning is a sub-set of machine learning, i.e. the current cutting-edge approach to machine learning. A more recent innovation is GANs - generative adversarial networks - a subset of deep learning.

But let's not tie ourselves in knots with nomenclature. For most of us, the technicalities are far less relevant than what the technology enables.

One important point to understand is this: lots of clever humans and zillions of dollars are committed to advancing us through various levels of AI; and these levels have profound implications for our careers, our companies and life on planet earth.

So far we've barely scratched the surface of Level One and new capabilities are already transforming the way we work.

Make no mistake: AI *will* impact your organization and your role within it, if it hasn't already.

\$15.2 billion of venture capital went to AI startups in 2017 [source: CB Insights]

More on deep learning...

Our fanciest current AI capabilities are around deep learning, where machines mimic the human brain, using complex algorithms to create artificial neural networks that can recognize patterns - specifically in digital representations of sound and images.

Deep learning has been around since the '60s, but as per the law of accelerating returns (see page 18), it took a while for the exponential growth in computing power and data to kick in. Finally we've reached the inflection point where deep learning is evolving rapidly. If you've used Siri, you've experienced it.

Saying that, experts like Geoff Hinton, who helped invent neural networks, believe it's limited and isn't going to help us reach the holy grail of strong AI (see page 23).

However deep learning is still exciting, particularly for one reason: it does more than it was programmed to do. For example it can group images or words like 'New York' and 'USA' around ideas, without having been explicitly told there was a connection between these images or words (e.g. 'New York is located in the USA'). Even AI researchers don't always know exactly why deep learning does what it does.

To grasp the basic concept, imagine you're teaching a young child what a dog is. Chances are you'll show them pictures of dogs, wave their toy dog around, make barking noises and repeat the word 'dog' over and over. Soon they begin to recognize that a dog is a dog, whether it's large, small, black, white, or a different breed. In other words, they've developed a *schema* for a dog.

When the child comes across a horse for the first time, she might mistake it for a dog, because it has hair, four legs and a tail. It fits her schema for the characteristics of a dog. Yet once you correct her and tell her it's a horse, she'll modify her existing schema for a dog and create a new one for a horse.

Our schemas are constantly formed and updated as we experience the world. Object schemas are just one aspect of this learning process. We develop schemas for how to behave in social situations, about our current and idealized future self, about how we should act when certain events occur and about people, which leads us to stereotype others ("Hipster!", "Goth!").

Deep learning helps machines to learn in much the same way. The goal is to enable machines to solve problems automatically, without human intervention.

For instance researchers at Berkley Artificial Intelligence Research Lab used machine-learning algorithms for a particularly useful application. They programmed a machine to teach itself how to play Super Mario Bros. Through trial and error, the machine learned how to predict the consequences of its actions. In other words, learning by doing.

Let's briefly touch upon the crazier levels of AI, to put our current capabilities in context..

The three levels of AI

From the fairly mundane to the totally insane

Level One: **Artificial Narrow Intelligence, known as 'weak AI'**

Weak AI already exists everywhere and is normally quite mundane, specializing in one area. For example your car uses weak AI to judge when to apply anti-lock breaks; retailers and music apps use it to show you recommendations; your email client uses it to filter out spam; Facebook uses it to recommend which friends you should add or to choose what appears in your news feed; google search uses it to determine page rankings... then there's fancier stuff like the AI that powers Siri on your phone, Nest thermostats, IBM Watson and driverless cars.

Level Two: **Artificial General Intelligence, known as 'strong AI'**

Strong AI doesn't actually exist yet. It refers to a machine that's as smart as a human across all areas, including problem-solving, learning and planning.

The human brain is the most complex thing we've ever encountered, so it could take a while for our scientists, engineers and tinkerers to crack this nut.

Some skeptics aren't convinced it'll ever happen, but most experts believe it's inevitable that we'll get there at some point.

Level Three: **Artificial Super - Intelligence**

This refers to a machine that's trillions of times smarter than a human in every way.

Of course this doesn't exist yet either.

Yet the very idea fuels scary notions that robots will wipe us out or keep us as pets.

Experts who believe in strong AI are largely convinced that artificial super intelligence will follow.

Then again, there are plenty of skeptics (but fewer than you might think).

How far have we come?

What AI can and can't do today

Right now, AI can beat a chess grandmaster, but it can't do all your housework.

AI has by now succeeded in doing essentially everything that requires 'thinking' but has failed to do most of what people and animals do 'without thinking'. - Donal Knuth, professor emeritus at Stanford University CB Insights

In 2015 neurorobotics scientist Marc-Oliver Gewaltig and his team at the Human Brain Project created a simulated mouse brain in a virtual mouse body, taking the first steps towards building a 'virtual mouse'. This was part of a drive to map and model the human brain - a considerably more complex task, given we have 100 billion interconnected brain cells. New super-fast, super-accurate, energy efficient computers are being built to provide the juice we need to model the brain's neural networks.

Despite all the progress made to date, strong AI still eludes us. If and when we get there, it's likely to explode onto the scene more fiercely than we could ever imagine, because technology's exponential growth lures us into a false sense of security, then engulfs us in a tsunami of change.

To clarify why, let's take a brief diversion down the rabbit hole of exponentiality...



S curves & toasters

The sneaky nature of change

Take a few seconds to work out how many years there are likely to be between now and your retirement.

Since our brains are wired to think linearly, we naturally assume that the amount of change that'll happen in these years will be roughly the same as that which we've experienced so far. Regardless of how often we hear the mantra that 'the pace of change is accelerating', are we underestimating just how much newness we need to prepare for?

Ray Kurzweil's **law of accelerating returns** describes how society keeps growing more advanced, causing change to accelerate... precisely because we're more advanced. In other words, we create new tools and innovations that enable us to create new tools

and innovations that enable us to create new tools and innovations...

And with each cycle of newness, we move higher up the chain of innovation.

Put another way, *no single person knows how to make a toaster.*

The person who assembled it in the factory didn't know how to drill the oil well to make the plastic. Chances are neither you nor I know how to mine iron, build a furnace or any of the other processes involved in making a toaster from scratch.

If we were to attempt making a toaster from scratch, it might end up looking something like this...



Thomas Thwaites made this toaster in 2009, to demonstrate just how far we've come from self-sufficiency towards *interdependence*.

This very morning, you probably consumed goods and services from dozens of countries, created by a seething global network of people and organizations, all collaborating and inventing - creating the building blocks and tools that enable more people to make more stuff that saves more time so we can make more stuff and live better lives.

The more complex and interconnected this network grows - the more it learns and interacts and connects - the more our creativity is unleashed (e.g. you no longer need to be able to code to make a website, let alone grind wheat into flour to make bread). We keep on rising up and specializing, so as individuals we can focus on where we can add the most cognitive value.

This uprising happens in fits and starts, as paradigm shifts burst onto the scene and change the game. AI is one such game-changing technology.

The trouble is, the pattern of change (see '*The shape of change*' below) causes us to overestimate how much things will change in the short term, when we're at the foot of the curve; and underestimate how much things will change in the long term (the steep up-and-to-the-right part of the curve).

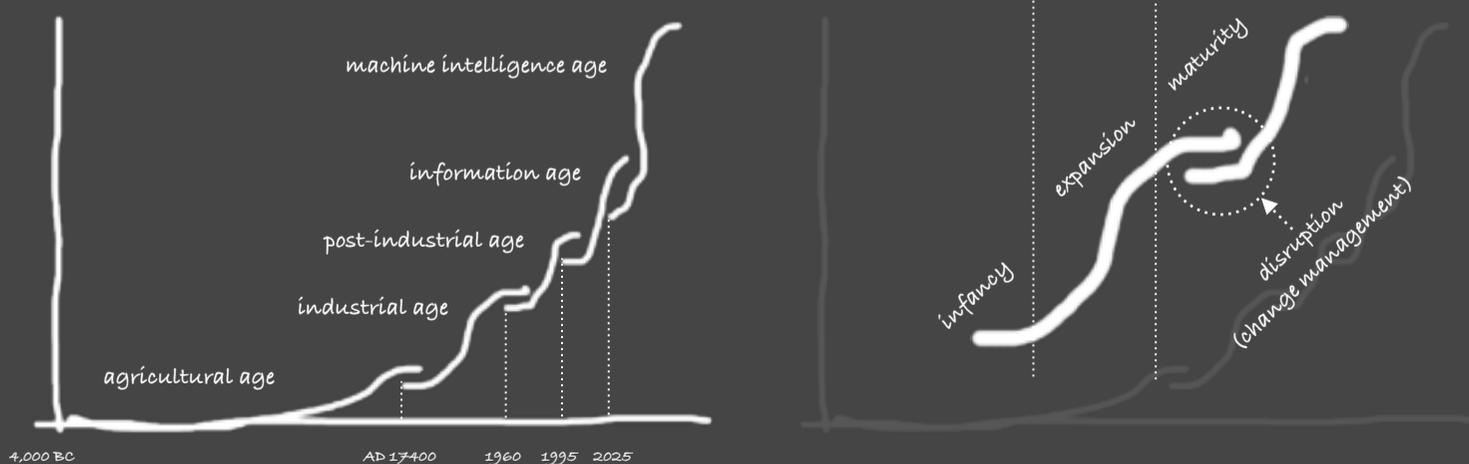
To illustrate the severity of this underestimation...

Imagine you're Marty in *Back to the Future*. Your kid self goes back in time to when your parents were kids. You'd be a little shocked by what you saw, but not too shocked. Now imagine if your kid went back in time to when you were a kid -

The shape of change

Change happens in a series of S curves that start slowly, rapidly speed up, then level off. The same pattern holds true whether it's applied to paradigm shifts in economics, new technologies, or company transformation.

You start off in the realms of status quo, quite sure of the old way. Then there's an inflection point where the old and new collide, catalyzing change. A period of disruption follows, where you should closely manage the change - then you settle into the new way (which becomes the new status quo, ready to be disrupted).



before mobile phones and the internet - the shock would be somewhat more severe.

If in future your grandkid could go back to when your kid was a kid, the shock would be mind-blowing. And so it goes on, as the cycles of change compress and quicken with each year that goes by.

That's why all progress throughout the entire 20th century would have been achieved in just 20 years at the rate of advancement in year 2000. Another 20th century's worth of progress happened between 2000 and 2014. And another will happen between 2014 and 2021. In another 20 years, according to Ray, a 20th century worth of progress will happen several times a year; then later in less than a month.

Likewise if you zoom back 30 or 50 thousand years, something drastic was happening to we homosapiens. Our brains had increased in size and our way of thinking changed. Culture started to develop rapidly and we began to

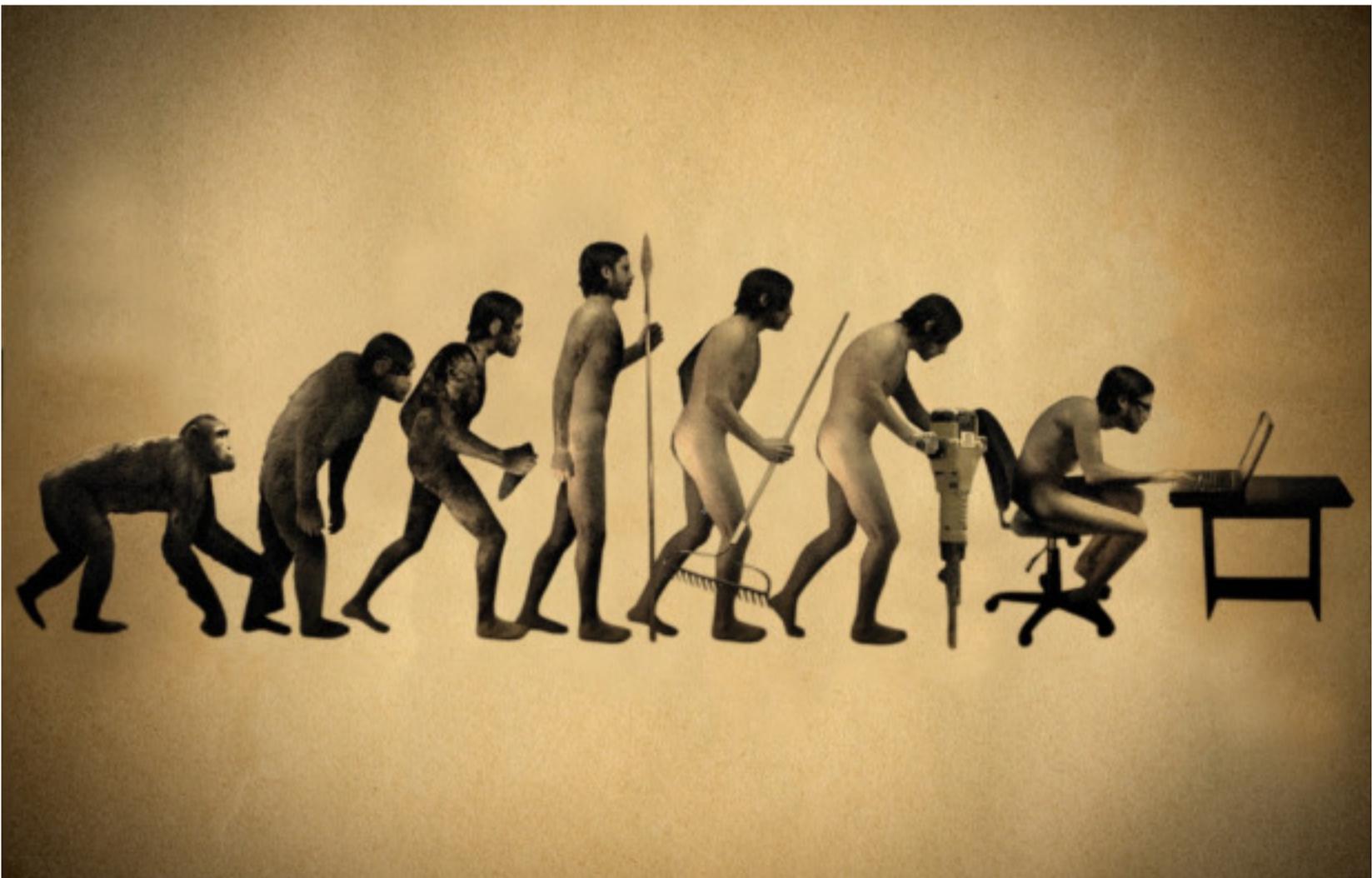
revolutionize our toolkit: slim, sharp blades, spears, needles. We got a bit arty too, making ornaments out of shell, ivory and stone.

The pace of change and innovation was lightening fast. It kept on coming: fish hooks, domesticated wolves, wheat crops, money.

There was more innovation between twenty and eighty thousand years ago than there had been in the previous *million* years.

And so the futurist's mantras go: 'never before have culture, communications and technology moved faster than they are today' - statements the like of which will always be true when they are spoken.

If Ray Kurzweil, lots of scientists and logical reasoning based on historical patterns are all correct, we could all be in for a major shock by 2030. The same level of shock someone from the 16th century might experience if we transported them into this room right now.



If you don't believe it, just remember that you're probably judging the next 20 years of progress based on the previous 20 years you've just lived through. This is a natural mistake. It's natural for us to think linearly, while change is exponential. It's natural for us to imagine the future based on past experience - your personal notion of 'how things work' - despite past experience being a very poor way to judge the future.

It isn't just linear thinking that's leading us into a false sense of slow - it's the basic math.

We underestimate how drastically work will change over the course of our careers because exponential progress is a sneaky beast. At first, when advances in a particular area like Artificial Intelligence start doubling, the change remains very small for a long time. For example if you double every year from 0.00001 to 0.00002, it's no big deal. If you double 0.00002, you get 0.00004... and so on. As small amounts increase exponentially, change isn't too noticeable.

But as tech capabilities grow, progress reaches a tipping point and suddenly we find the curve shooting upwards really steeply: 1, 2, 4, 8, 16, 32, 64, 128...

In fact if you take 30 steps linearly (1, 2, 3, 4, 5...), you reach 30.

If you take 30 steps exponentially (2, 4, 8, 16), you reach **1 billion**.

The guy who supposedly invented chess understood the implications of exponentiality.

The story goes that the emperor was so impressed by the game of chess, he said, "I'll give you any reward you can name".

The young man replied, "Could you put one grain of rice on the first square of the chessboard. Then put double this amount - so two grains - on the next square. Double this again and put four grains on the square after that; and so on, until all 64 squares are filled."

He asked for all the grains of rice on the chessboard, with each amount doubled on every square, to be added up; and that would be his reward.

"Easy done," thought the emperor, and granted his request.

The Emperor's servants marched off to start adding up the grains of rice, but they returned, distraught, a couple of days later.

They'd discovered that the amount of rice the young man had asked for exceeded all the

grains of rice in the world - over 1,000 times the amount of rice we produce today.

Exponential functions like this happen around us every day, in economics with compound interest, loans and inflation; in population growth of rabbits; even in the spread of mould on a slice of old bread.

So if Ray Kurzweil's *Law of Accelerating Returns* is right enough - if technological advances keep on doubling - imagine how our toolkit is likely to change during the remainder of our careers...?

Every time we use a new tool to get a job done, it changes the way we do that job. New materials change the way we build houses. New

appliances change the way we cook and clean. Sometimes tools make the job easier, or take it off our plate entirely so it's no longer a thing for us.

Ultimately, we must all make a choice, consciously or otherwise:

- Go with the flow and hope that our companies, teams and careers will survive accelerating change
- Study the future of work and proactively set a vision for our companies, teams and individual careers that will ensure we benefit from accelerating change



Back to AI...

So what happens if we crack Strong AI?

One thing is for sure: computers outperform humans in lots of ways. For instance our brains are limited in speed, storage capacity and durability, whereas computers don't have these problems of the flesh.

Computers will also be better than humans at advancing *collective* intelligence. Our collective intelligence underwent major advances when we created language, writing, the printing press and the internet. These paradigm shifts enabled humans to sync up our thoughts and actions in pursuit of shared goals... like making a toaster, or running a country. Computers will be way better than us at this kind of syncing.

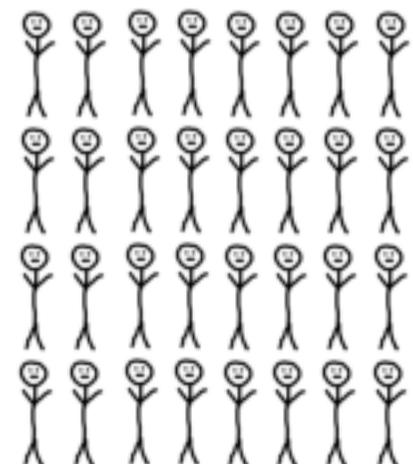
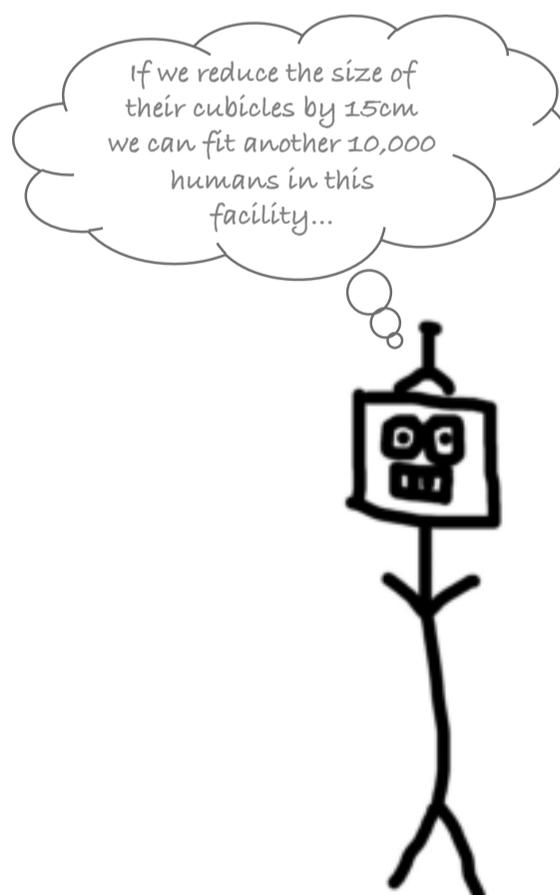
For those reasons and many more, things are going to get pretty wild if and when we reach the dizzying heights of Strong AI, because computers will be so good at self-improvement. So good that we could find ourselves in the realms of superintelligence before we know it.

We humans are used to assuming change takes months and years, but computers don't have such constraints. Computers' intelligence and capabilities could drastically change in minutes and seconds, bringing about an explosion in intelligence.

This is when things get tricky for us to imagine. After all, we have very limited brains. A machine that's a billion or trillion times

smarter than a human could potentially do things we consider godlike and magical, like controlling the position of every atom. And we have no idea whether this AI God is going to be nice.

Superintelligence isn't just about machines thinking faster than humans. Yes, machines will be able to think faster, so they can solve a problem in seconds that would take humans years. But that's not really the point. You could speed up your cat's thinking and it still wouldn't be able to understand the concept of marriage, or play Guitar Hero. Those things are beyond the comprehension of a cat. In the same way, we as humans aren't able to comprehend the sort of thinking that strong AI is capable of, nor the outcomes of this quality of thought.



So despite our tendency to anthropomorphize machines, superintelligence will not mean a super version of human intelligence. A superintelligent cat won't think like a human. Rather we program machines to have a particular motivation, so that's what their motivation will be.

Not to mention the fact that the gap between your thinking abilities and that of your cat - or any known lifeform - is minuscule, in comparison to your thinking abilities vs that of a superintelligent machine.

Yet it's interesting to imagine how things might pan out on planet earth and beyond if your cat was granted superintelligence, vs how things might pan out if your washing machine was granted superintelligence.

The takeaway is this: it's humanly impossible for us to understand the consequences of superintelligent machines, should we ever give birth to them.

Many scientists believe the human race will either become extinct, or immortal, if we reach these levels of advancement.

Experts who believe that superintelligence will happen disagree on when it'll happen. Some say we'll crack strong AI around 2040, then super intelligence by 2060... but who knows.

Now let's get back to today and the less mind-blowing reality we're facing right now...

Electricity, fire and AI

How is AI being used today?

"AI will have a more profound impact than electricity or fire" - Sundar Pichai, CEO, Google

Sundar's bold claim speaks to the epic future possibilities promised by AI. Yet despite the hype, current reality is somewhat more mundane.

Gautum Shroff from Tata Consultancy Services in India says, "Some may have been misled by glowing media reports, believing AI to be a magic wand that can be installed as easily as a piece of Microsoft software."

Cue disappointment.

Those involved in implementing AI solutions have come to realize that substantial investment is required in data preparation, intensive monitoring of algorithms and a bucketload of customization, in order to build anything useful.

So what kind of AI solutions are in use today?

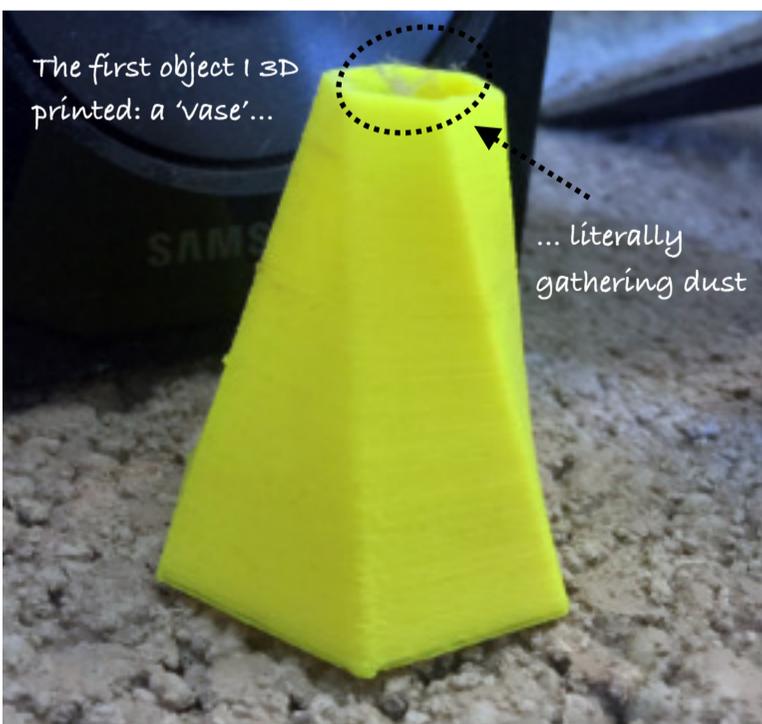
- Bloomberg uses AI to automatically generate news articles by scanning companies' earnings releases
- Vodafone uses AI to predict problems with its network and users' devices before they arise
- Leroy Merlin uses algorithms to stock shelves more effectively, using past sales data and other info like weather forecasts
- Amazon uses AI to guide robots in warehouses and optimize packing and delivery; detecting counterfeit goods
- Alibaba and Ant Financial are experimenting with facial recognition for approving transactions
- Johnson & Johnson and Accenture use AI to sort through job applications and pick the best candidates
- E-commerce companies like Amazon use AI to generate product recommendations
- Advertising platforms like Google AdWords, Facebook and LinkedIn use AI for targeting ads and forecasting demand.
- Self-driving cars use AI to recognize objects.
- Voice assistants like Alexa and Siri use AI to recognize speech and take action.
- Chinese insurance company Ping An uses AI to flag up when loan applications through their app require further checks. Potential customers answer questions via video and they monitor 50 facial expressions to gauge whether they're lying or telling the truth.

- Casino and hotel group Caesars uses AI to guess how much customers are likely to spend, then offers personalized promotions to draw them in
- Cogito listens to customer service calls using AI, assigning an 'empathy score' and giving guidance to agents for building rapport

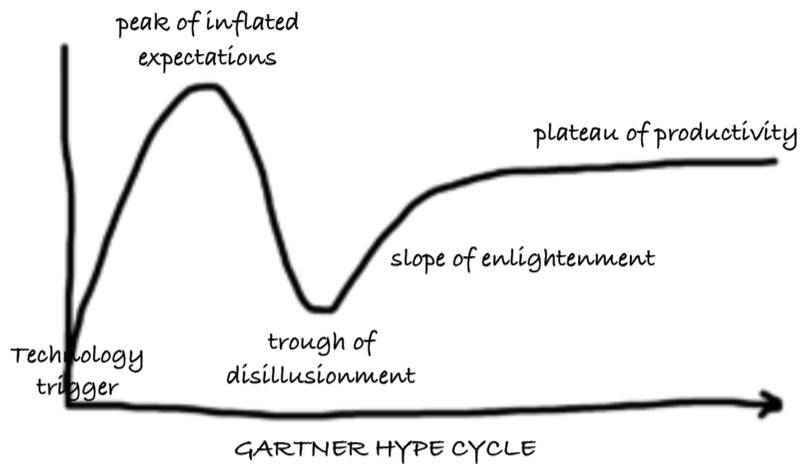
It's clear AI is already impacting every sector. **Rather than treating it as something special and space-age, we can begin to think of it as another practical tool at our disposal.**

However, like many cool new tools, the idea of it is really exciting, but when you come to play with it in real life, it's easy to get a bit stuck.

If you're of a certain age, you may recall sitting down at the first Apple computer, ready to change the world, only to find yourself at a loss a few minutes later. What should you actually do with it? Likewise when Google first appeared and you were faced with that blank input field. What the heck should you search for? Then there are the nerds (me included) who bought a 3D printer early on, only to find themselves surrounded by small plastic cubes, cross-bows and perhaps a miniature day-glo vase shortly after. None of which put a proverbial ding in the universe.



We're facing a similar trough of disillusionment where AI is concerned.



So when we sit down at the drawing board, what can we actually do with AI?

Gurdeep Singh from Microsoft describes AI systems as 'idiot savants'. They can easily do jobs that humans find mind-boggling, like detecting tiny flaws in manufactured goods or quickly categorizing millions of photos of faces, but have trouble with things that people find easy, like basic reasoning.

So it turns out the use cases aren't exactly 'wow' on the scale of sci-fi cool, but potentially 'wow' on the scale of time-saving practicality. For instance your email client is probably using AI to show you which emails are most important, filtering out the spam. Not exactly mind-blowing, but let's face it, many of today's time-sucking tasks are dull.

But if AI can relieve us of all the mundane, repetitive activities in our lives and jobs, we're freed up to enter a new era of productivity. Our time can be better spent on honing our uniquely human skillsets, like EQ, creative problem-solving, curiosity and flexibility. Not so dull after all.

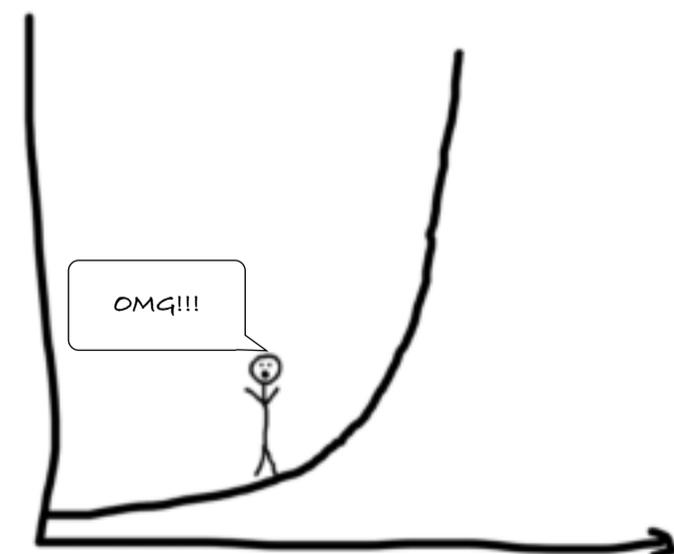
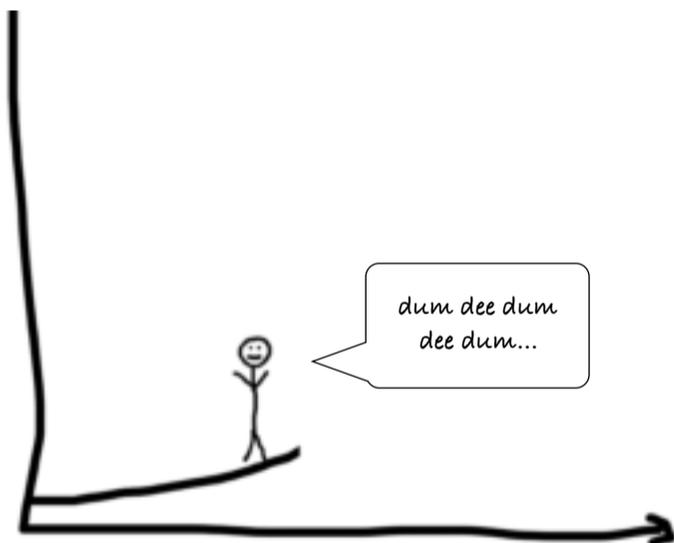
Let's look at the possibilities in more detail...

Powers of prediction

AI & augmented analytics

Years ago we started using analytics and reporting to look backwards in time, to understand what happened and why. Then we started tracking and monitoring to see what's happening now. Today we can use predictive analytics to look at what's going to happen in the future, using statistics to predict outcomes.

The more uncertainty we're up against, the more important prediction becomes. Again, the law of accelerating returns promises we're in for a tsunami of uncertainty (regardless of whether we avoid thinking it through and remain blissfully unaware of what lies to our right).



Fear not, AI is here to rescue us from the pits of overwhelm, indecision and despair (i.e. Futureshock), by making predictions affordable and dependable.

Computers are far better than humans at analyzing data and simulating scenarios, accomplishing in seconds what would take us days, or even years. '

Therein lies the promise of 'augmented analytics': by using machine learning to prepare and pull insights from data, then sharing these insights with the right people, we'll act way smarter.

Data can reveal stories about where our customers and employees are, what they've done and what they're likely to do next. Now we've reached the point where computing power is sufficiently great that we can gather and crunch through vast volumes of the stuff, suddenly we're equipped to predict the future more accurately than ever before.

Once insights in our data are uncovered by machines, human ingenuity kicks in. We can use these insights to make better decisions on how to optimize customer or employee experience.

As a result we can encourage more of the behaviours in our customers and employees that create win-win situations for the individual and the organization.

Predictive analytics tools are already helping us solve problems such as:

- *Optimizing marketing campaigns* - predicting what people are likely to buy or how they're likely to respond to our messaging; enabling us to get, keep and grow profitable relationships.
- *Improving operational efficiency* - retailers can forecast inventory, airlines can predict the number of flyers in order to set prices and hotels can predict the number of guests on a given night to increase occupancy.
- *Reducing risk* - insurance providers can predict the likelihood of a claim in order to set prices. Lenders can assess the likelihood of defaulting on a loan. Companies can predict the likelihood of injuries in order to improve health and safety procedures.
- *Improving security* - AI can spot patterns in data that could indicate criminal behaviour and expose vulnerabilities.
- *Transforming the workplace* - AI can suggest ways to reduce costs and energy consumption, maximize real estate use and improve the employee experience.

It's just as well that AI is good at predicting the future, because humans are pretty bad at it, as fans of Nassim Taleb and his theory of black swan events will be only too aware.

Psychologist Philip Tetlock conducted a famous 20-year study that confirmed just how bad. He had a group of experts make about 28,000 predictions about politics, war, economics and other topics over a timeline of one to ten years.

After scoring their predictions against what actually happened, it turns out the experts were about as effective at predicting the future as chance, or chimps.

Those of you who recall 1st January 2000 have witnessed one of the world's greatest predictive failures ever, costing the global economy over \$500 billion.

It's clear that improving our powers of prediction can add tremendous value, in terms of helping us focus on the right things and steering us away from stupid things.

Yet, as with most technological innovation, these powers can be used for evil, as well as good.

To quote the First Prime Minister of Independent India (and Spiderman): with freedom and power comes great responsibility.

Performance vs privacy

AI, data & your vision of an ideal future

Each of us involved in workplace transformation and the implementation of AI solutions has a responsibility to work with an awareness of the sort of world you want to create.

To protect privacy and humanity in the workplace, we must approach AI with open eyes. Because the machines are watching us...

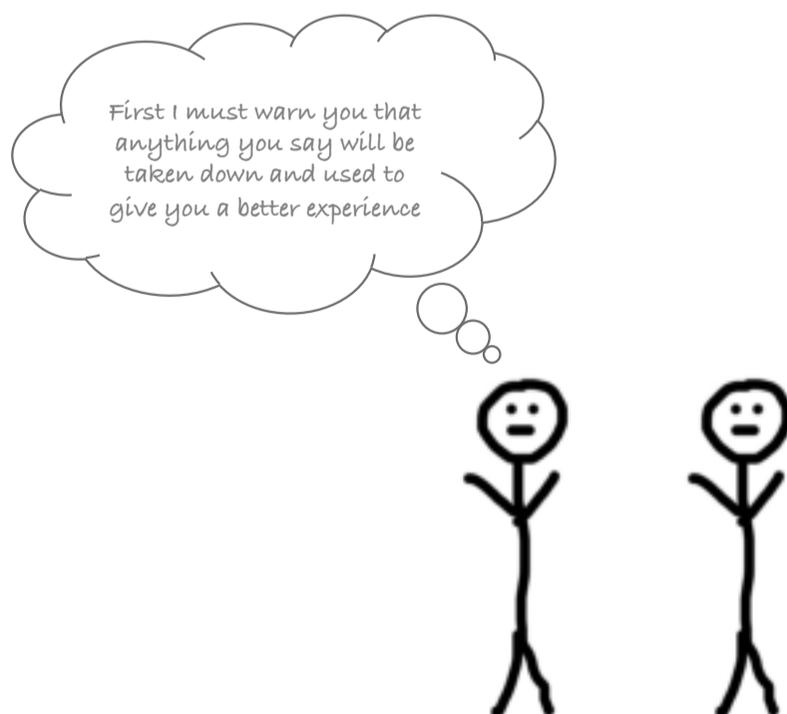
- Amazon has patented a wristband that tracks the hand movements of warehouse workers and uses vibrations to nudge them into being more efficient.
- Workday predicts which employees will quit, using about 60 factors
- Humanyze sells smart ID badges that track employees around the office and reveal how well they interact with their colleagues
- Slack enables managers to see how quickly employees complete tasks; and note the

clue in the name: Searchable Log of All Conversations and Knowledge (SLACK)

- Veriato tracks employees' keystrokes on their computers to gauge how committed they are to their company

Which of the above examples is a sign of progress and which smacks of control freakery? What level of surveillance seems reasonable to you and at what point have we stepped over the line of Orwellian creepiness?

While most of us would agree that using AI-powered computer vision to check if employees are wearing safety gear is a good thing, how do you feel about AI algorithms scanning for anomalies in expense claims, e.g. flagging receipts from odd hours of the night? Also a good thing, seeing as you shouldn't have anything to hide? What about mood tracking devices reporting to HR on your interaction style? Too Big Brother?



Back in 1999 the CEO of Sun Microsystems, Scott McNealy, famously told a group of reporters that consumer privacy issues are a 'red herring.' "You have zero privacy anyway," he said, "Get over it."

Yet regulations - like the recent General Data Protection Regulation (GDPR) that protects European citizens from receiving unwanted calls, emails and other comms - are a welcome response to rising privacy concerns (though less welcome to some marketers).

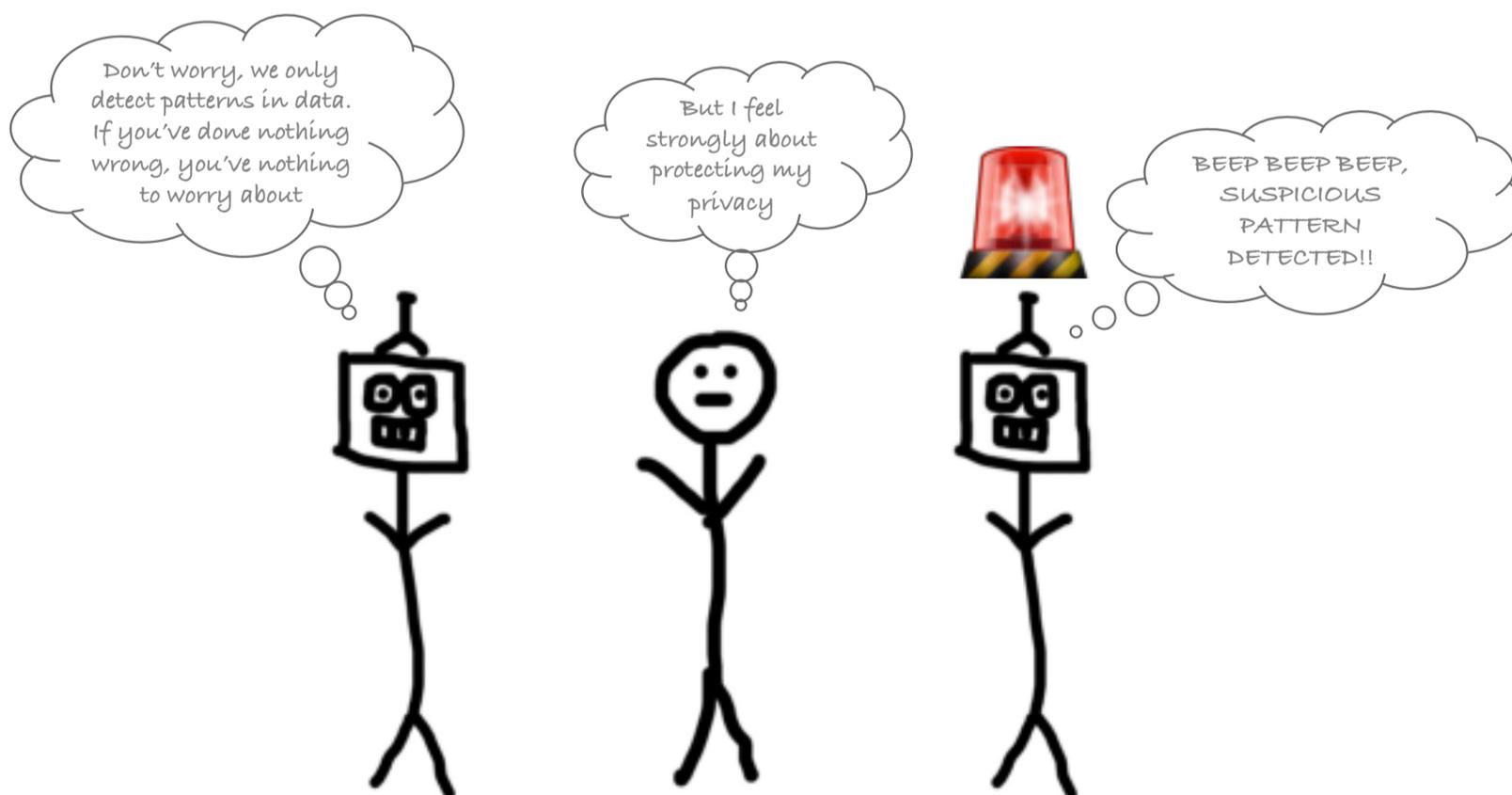
The question of how far to take optimization and how to use employee or customer data ethically is one that must be addressed by every organization today. To avoid dehumanizing the workplace, it's essential to set a clear vision of the future you want to create, then take steps to protect people, e.g.

- Consider what data should be anonymized. For example it may be best if you can see your personal productivity stats, while your manager only sees aggregated stats.

- Provide simple policies that make it clear to employees how AI and their data is being used.
- Test AI algorithms for bias and unintended consequences. For instance a programmer's bias could lead to an older person losing their job because they work more slowly than a younger person, if their algorithm is only interested in productivity
- Enable everyone (including ex-employees) to request their data

Ultimately, creating a digital workplace demands that we make trade-offs between performance and privacy. These are not decisions we'll have to make some time in the future - they are decisions we should be making today, that will shape the future of work.

Now let's look at some other common applications of AI...



Look who's talking

AI & the rise of chatbots

Chatbots are the most common application of AI in the workplace right now, enabling employees and customers to have text-based conversations.

Chatbots are becoming the norm for providing customer support, answering prospects' pre-sales questions and performing market research. More recently they're being applied internally within organizations, to search data, answer HR questions and otherwise free up humans to focus on higher value activities.

Overstock, for example, uses an HR chatbot called Mila. When employees are sick, they tell Mila. She'll say, 'I'm sorry to hear that,' exchange some details and send a message to the appropriate manager.

Any task that involves repeatedly answering the same questions or performing repetitive actions like sending a message or making a booking, lends itself to using a chatbot instead of a human. Research by BI Intelligence shows they're expected to save over \$79 million dollars in salary expenditures each year.

People can get a bit freaked out by this kind of stat, worrying that the machines will take our jobs. In reality, more jobs will be created than destroyed, in the same way that personal computers gave birth to a whole host of new career paths.

The most advanced chatbots use deep learning to improve their dialogue and usefulness over

time. In the meantime these 'infant' bots are often error-prone and likely to chuck out catch-all responses like 'Sorry, I don't know how to respond to that yet,' if you go the tiniest bit off-piste.

Others use scripted conversations, presenting the user with a narrower range of options. As deep learning improves, it'll become increasingly difficult to know you're chatting to a bot as opposed to a human.

The rise of chatbots is part of a wider shift towards technology becoming more human. Whereas apps and websites have us clicking and tapping away to find the information we need, chatbots mimic a human interaction - they're our virtual assistants. The popularity of instant messaging through the likes of Facebook Messenger means chatbots offer a very natural, well-understood means of communicating with customers and employees.

Chatbots are part of the wider shift towards automation. As we find ourselves under ever-increasing pressure to do more with less, automating tasks that machines can perform more effectively than humans promises job-smacking value.

Now let's explore another type of virtual assistant...

Look who's listening

AI & the rise of voice assistants

Back in 1952, IBM (then Bell Laboratories) designed 'Audrey'. Audrey recognized digits spoken by a single voice.

Amusing as this was - and undeniably a great achievement - voice recognition never really took off. Instead communications technology went down the graphical, visual route - interacting with documents and images that we see and read. But now it may well be time for voice to make a dramatic comeback.

Voice-based assistants like Siri, Cortana, Google Home and Alexa are commonplace in households these days. In fact over half of us interact with voice-based assistants every day

So the machines are listening.

And so we come back to questions of privacy...

For example Amazon's Alexa recorded a private conversation between a husband and wife in Oregon, after being woken up by a word that sounded like 'Alexa'. Alexa then misheard a 'send message' request and asked out loud, 'to whom?'. Then once again, Alexa misinterpreted the background conversation, hearing a friend's name, then asked, '[contact name], right?'. Unbeknownst to the couple, Alexa thought someone said 'right' - and the message was sent.

When voice assistants are listening to all our conversations, the risk to privacy is significant - not just in terms of the assistant making a

mistake, but because these devices stream conversations to the cloud.

These conversations can be searched by government agencies when necessary. For example a man was arrested in 2016 as a first degree murder suspect in the US, based on conversations left on his Amazon Echo.

Meanwhile, Google has filed a patent around the use of audio signatures that listen out for emotions when you're arguing, laughing or crying. The patent includes alerting parents if their child displays any unusual behaviours. Likewise Amazon filed a patent for listening to your phone conversations in order to feed you relevant ads.

As well as governments and corporations calling dibs on our data, there's the risk of hackers accessing these devices. People are already buying lightbulbs, security cameras and door locks that work with Amazon Echo. If hackers decide to switch your lights on and off that's not so bad (bar the poltergeist vibe), but things get serious if they can unlock your front door.

Voice assistants, like all internet-of-things devices, demand a tight approach to security and a well-informed awareness of potential threats.

All that being said, AI-powered voice recognition can potentially bring us a raft of benefits.

As capabilities improve, the implications for customer and employee experience are huge. Imagine being able to complete and create forms verbally, without having to type? Or asking your voice assistant to summarize a long document you've just been sent? The impact on every touchpoint - before, during and after onboarding - could be profound.

The rise of voice recognition means UX designers - and anyone designing the customer or employee experience - needs to start thinking beyond visual experiences. We need to consider auditory interactions.

If voice continues to proliferate, we may need to get used to a new way of thinking and working. If we can say 'delete pages 13 to 15, merge these two documents, highlight paragraph 3 and send a summary to David', there's potential for huge time-savings versus completing such tasks manually. But to get there, we need to think in auditory, instructional terms so we can clearly guide our virtual assistants; as opposed to the 'screen craft' approach we're used to: hammering and clicking away on a keyboard and mouse.

Anyone who has attempted to use a real life human virtual assistant may already be well-aware of how challenging it is to describe what you want someone to do in crystal clear terms.

Yet voice-activated assistants can help us work more productively in simple ways, like setting reminders for tasks and appointments; and helping us find and edit documents.

Imagine that just before setting off for work, you ask your voice assistant to scan traffic newsfeeds to check for disruptions along your route, then recommend an alternative route. Using automated messaging, your assistant can let your colleagues know you're running half an hour late and reschedule the meeting, change the room booking and let Hospitality know you'll need lunch in the room instead of coffee and biscuits.

Machine learning algorithms enable assistants to remember information and apply it to later searches, to provide you with a better answer.

For example you could be in your car and ask your assistant to book you a flight to London next Tuesday. Your assistant has learned your preferences, your travel history and your location, so can suggest booking an evening flight from the nearest airport, then ask whether you'd also like a hotel or hire car.

As with chatbots, the more human-like these interactions, the better uptake we'll see. That's why today's voice assistants are imbued with personalities. They can apologize, be sarcastic and use humour.

Workplace voice assistants could even have a specific personality tailored to your brand. They could provide us with content suggestions to inspire our writing, or pull up images we can use in our designs.

In fact there are numerous applications of AI when it comes to creativity...

A more beautiful world

Can AI bring about an explosion in creativity?

There was a period in the history of planet Earth when evolution suddenly accelerated. Scientists called it the 'Cambrian explosion', the 'big bang of biology'. For billions of years nothing much existed on Earth except simple, microscopic algae and bacteria. Then suddenly, about half a billion years ago, all the major types of animal burst into existence.

Some theorize that vision (i.e. sight) played a critical role in this explosion of life. The idea is that once creatures can see, new lifeforms and behaviours emerge.

In much the same way, AI is causing evolution to accelerate. But we're not talking about growing four legs or learning to fly. Rather this period of evolution is one of creativity. Just as humans and animals use visual and auditory data to learn about the world, AI uses visual and auditory perception to make us more productive.

In practical terms, this means that a creative using AI-powered tools will no longer spend tedious hours searching for the right image to use in their design. AI can 'see' images and add captions to make them more searchable.

The same designer no longer needs to waste hours and days removing or adding elements to pictures and videos, because AI can enable smart editing, by detecting objects in images

and doing things like changing the background or applying an artistic style to an entire video.

In a world where artistic styles can be applied to content automatically, you can see how creatives will need to think like Picasso - constantly reinventing their style.

Creatives will increasingly use voice instead of a keyboard to edit images or videos, working in a more natural, human way.

Taking this a step further, AI-powered machines could use facial recognition to sense when a creative worker is in flow, taking steps to ensure they're not interrupted until their attention drifts.

As the creative bar is raised, new standards of quality and originality kick in.

When new AI-powered tools make it easy for anyone to get creative, it doesn't mean the world gets more talented... but we will get more prolific. And we're already uploading 400 hours of video to YouTube every minute, so imagine what's to come?

The good news is that the demand for creativity is without limits.

So it seems AI *can* help us create a more beautiful and entertaining world.

The future workforce &

your role within it



Will the robots take *my* job?

Who's in for the chop from the bots...

McKinsey predicts that 70 million jobs in the US will be impacted by automation by 2030; and about 30% of tasks in 60% of occupations could be automated. Meanwhile the Bank of England's chief economist said that 80 million jobs in the US and 15 million jobs in the UK might be taken over by machines.

So the question on everyone's lips is this: how will it affect *my* company and *my* livelihood? And for some, how many shades of bad is the career advice I'm giving to my children?

On the plus side, Gartner reckons AI will have created more jobs than it has eliminated by 2020. However they also predict that coding will be largely automated by 2027, by which time AI products may re-design themselves, so it seems even technical talent isn't safe.

So who's in for the chop from the bots?

Researchers at Oxford University published a study in 2013 on the likelihood of computerization for different occupations. Out of 700, a dozen occupations were found to have a 99% of being automated in the future:

- Data entry keyers
- Library technicians
- New accounts clerks
- Photographic process workers and processing machine operators
- Tax preparers
- Cargo and freight agents
- Watch repairers
- Insurance underwriters
- Mathematical technicians

- Sewers, hand
- Title examiners, abstractors and searchers
- Telemarketers

Ultimately, there's endless contradictory information out there about which jobs will expand and which will go. Some believe lawyers and accountants won't last long, while others think cooks and servers, cleaners, warehouse workers, nurses and truck drivers are on borrowed time.

It's highly likely that people whose skills are less in-demand, such as paid-by-the-hour, lower wage workers, are more vulnerable to automation than harder-to-replace employees. For this reason, it's possible we'll see a resurgence in labour unions, as disparity between low-paid, low-skilled jobs and harder-to-replace skillsets is exacerbated by AI.

Every at-risk occupation shares something in common: a predictable pattern of repetitive activities. Machines love repetitive activities, because machine learning algorithms can replicate them.

Whether your job is particularly vulnerable or not, one thing is for certain: individuals and organizations who dedicate themselves to continuous upskilling, un-learning and re-learning will have significant competitive advantage.

We'd also do well to remember that automation and the use of virtual assistants can enhance the quality of our jobs.

For example consider mortgage loan officers: some of their activities are being automated, allowing advisors to spend more time helping clients and providing higher levels of service. So automation can potentially enable us to have more valuable, meaningful, personal human interactions. The same holds true for HR roles like Recruiter and Trainer.

Often the best solutions blend AI-powered tech and the human touch. Some call this *AI augmentation*. For example, say you're a frustrated customer and you've tried getting self-service help on a website. You still haven't found your answer, so resort to picking up the phone. But the service agent struggles to understand your complex issue, leading to more

frustration and a poor experience. This is where AI augmentation comes in. An AI-powered bot could feed the human service agent lots of helpful content and suggestions on how to deal with the problem, as you're on the call.

Likewise retailers will continue to replace cashiers with technology, but sales advisors with specialist knowledge are unlikely to be replaced over the coming years, as shoppers' satisfaction is influenced heavily by knowledgeable people.

By eliminating repetitive, transactional jobs, budget will be freed up to invest in up-skilling the people who play an important role in delivering a great customer experience.

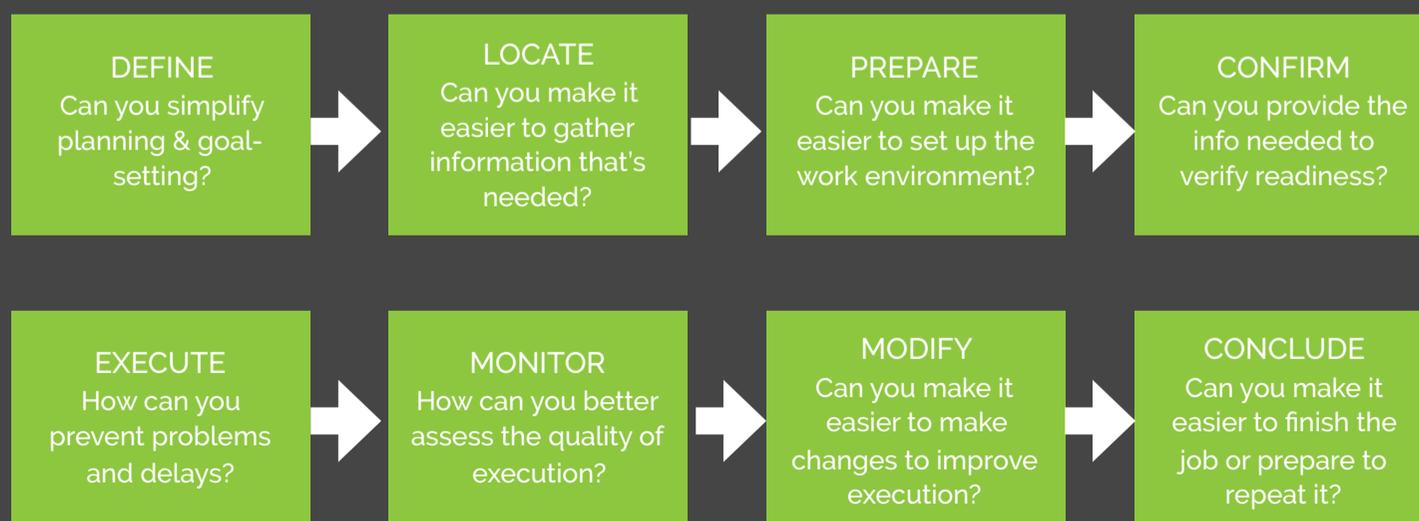
Developing your AI / automation strategy

Which roles, processes and workflows in your organization can be reimagined with AI? Which activities are you performing that could be automated? How could you make use of data and predictive analytics to make better decisions about what to do and how to do it? Which processes and workflows can be redesigned by machine learning?

Our working lives are a series of decision points and execution points. If you contemplate which tasks on your to-do list are the most humdrum, those tasks are likely candidates for automation.

Making the most of AI-powered opportunities also requires releasing your organization's data from silos and managing who can access what, so everyone has the ability to act on the insights that are relevant to their role.

Try using the well-known jobs-to-be-done (JTBD) framework to help break down the detail and begin innovating. JTBD enables you to consider the 8 steps that every job involves, finding opportunities to improve the outcome at each point.



Future in-demand skills

The rising importance of EQ, collaboration & creativity

As machines take repetitive tasks off our plates and expectations around peak performance rise, emotional intelligence (EQ) is becoming a highly sought after skill - perhaps more sought-after than IQ.

With all the world's knowledge at our fingertips, the value of IQ is arguably diminishing, while we're struggling to find leaders who can inspire and motivate teams to do their best work.

EQ refers to your ability to understand others' emotions and motivations - to gauge situations and approach them compassionately and thoughtfully. This includes awareness of how people are feeling, their reactions, their stress levels and their emotional strengths and weaknesses.

EQ is becoming more essential due to the challenges brought by a more diverse workforce. Management styles that a baby boomer is used to may clash with Millennials' expectations, for instance. Then there's the question of how to lead and increase productivity when faced with the burgeoning mental health crisis that's causing an epidemic of absenteeism and presenteeism in today's workforce.

Psychologist Daniel Goleman says EQ has five core components:

1. **Self-awareness** - the ability to recognize and understand your moods and emotions, and how they effect others. This includes understanding your strengths and

*90% of top performers have high emotional intelligence, while just 20% of bottom performers do.
[source: Emotional Intelligence 2.0]*

weaknesses and showing kindness and humility.

2. **Self-regulation** - the ability to control impulses and moods, and to think before acting. Without this, people can be prone to compromising their values through behaviours like verbal attacks, rushed decisions or gossiping
3. **Internal (intrinsic) motivation** - showing strong commitment, a passion to work, keep standards high and pursue goals with energy and persistence; not for an external reward
4. **Empathy** - the ability to put yourself in others' shoes and understand others' motivations, which is essential for building and leading teams, showing cross-cultural sensitivity, serving others (clients or colleagues) and giving constructive feedback
5. **Social skills** - the ability to manage relationships and build networks, by finding common ground and building rapport, which is an important leadership skill for leading change and setting an example

Yet EQ isn't the only skill in hot demand. Workers who excel at **collaboration** and **creative problem-solving** are vital to any forward-thinking workplace.

Professions that require these skills are least likely to be blind-sided by automation. Our ability to redefine problems, reframe opportunities, come up with creative new approaches and take action is essential.

Curious, flexible people who constantly learn new skills and step outside their comfort zone are the most desired. By maintaining a growth

mindset (see page 48) we increase our value and future-proof our careers.

With a chunk of the workforce feeling intimidated by their lack of technical smarts in this new era of accelerating returns, it's worth remembering that it's likely to be our uniquely human traits - empathy, creativity, emotional intelligence and intellectual curiosity - that will serve us best of all, now and in the future.



The workforce is a'changin'

Where Gen X, Millennials & boomers converge

According to [Pew Research](#), one in three workers is a Millennial, making them the largest generation in the labour force.

Meanwhile, [a third of people born today are expected to live to 100](#); and according to a 2015 report by the UN, the old-age dependency ratio – the ratio of workers to retired people – is expected to rise from 27.6% in 2015 to 35% in 2030, globally.

Not only does the ageing population put pressure on governments, healthcare and pensions, it presents challenges and opportunities for organizations.

Today's leaders are tasked with motivating a diverse workforce, composed of four generations, all bringing unique levels of experience, skills and expectations.

Millennials often expect to use the latest technology at work. They also expect more freedom from traditional policies and performance management standards.

By the time these Millennials near retirement age, the number of over 65s is expected to have tripled, from 531 million in 2010 to 1.5 billion in 2050.

This means organizations need to consider how to create a culture and environment that suits a

workforce that's more diverse than ever before. For instance flexibility and support around childcare might be a great perk for one age group, while support in caring for an ageing parent could be more attractive to another.

Then there's the question of whether frustrations will arise if baby boomers stay in leadership positions for an extended period of time, leaving fewer opportunities for millennials to progress.

And what about skills gaps, when more experienced employees retire, taking decades of knowledge with them?

Are workers with large age gaps likely to be motivated by the same sort of performance measures and rewards?

Organizations who can provide ways to make the most of older employees' experience and problem-solving abilities - and younger employees' creative energy and technical skills - will have a distinct advantage.

It's worth bearing in mind that age is by no means the only differentiator in today's workforce. As diversity increases, avoiding a one-size-fits-all approach, while maintaining a sense of fairness, is more important than ever.

Different is good

Diversity & innovation

Diversity extends far beyond age, spanning race, gender, ethnicity, physical ability, thinking style, sexual orientation and personality type.

The most innovative companies are the most diverse, so it's no surprise the time has come to focus on increasing diversity.

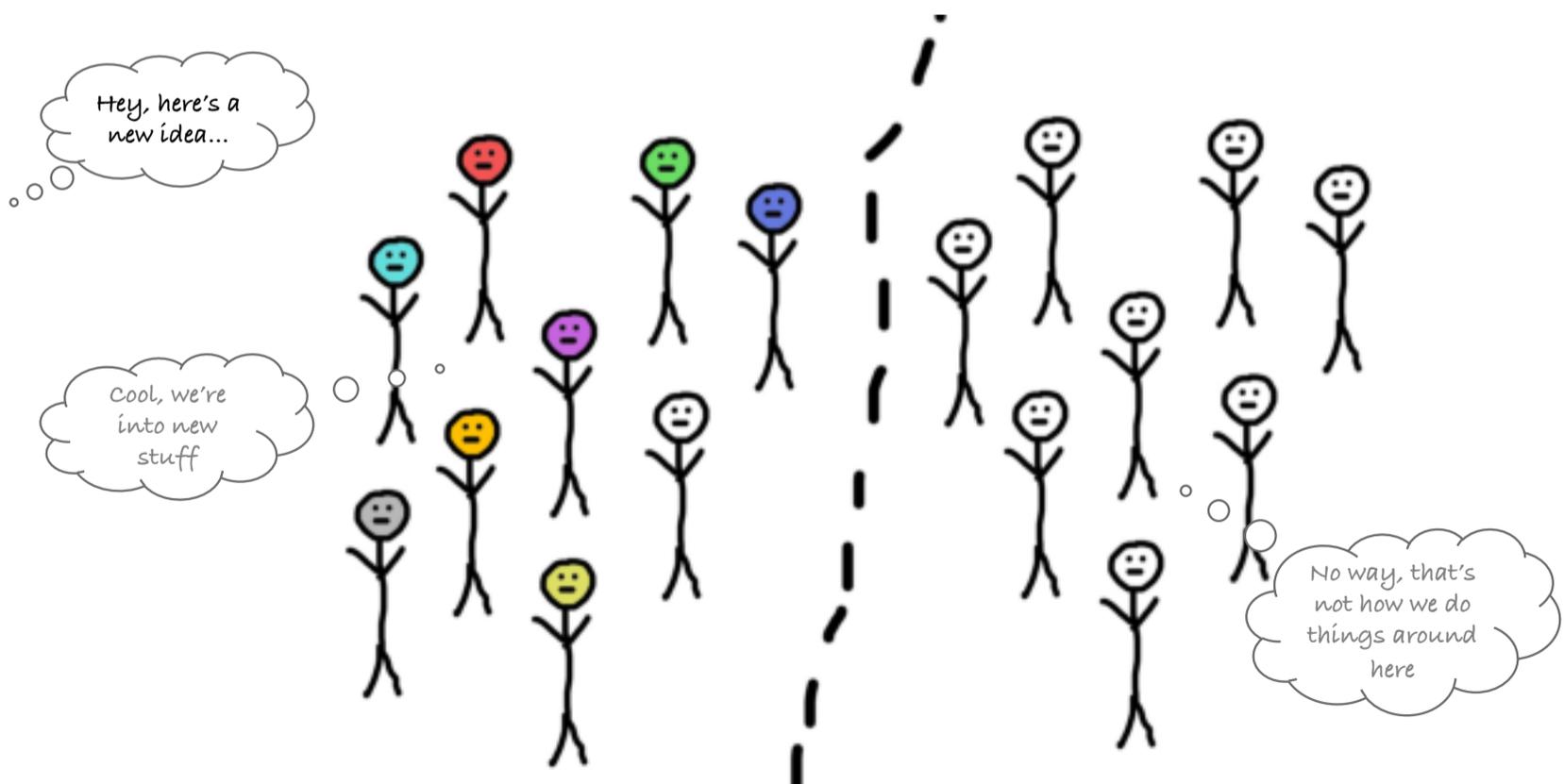
According to McKinsey, diverse businesses deliver 35% better results than non-diverse ones.

That's why organizations are investing heavily in initiatives like these:

- SAP spent \$1 million increasing salaries to close the gender pay gap they discovered in an analysis of employees' experience, location and performance.

- Johnson & Johnson have implemented resource groups, mentoring programmes and a 'Diversity University' website. Their Chief Diversity Officer reports directly to the CEO.
- Mastercard believe 'diversity is what drives better insights, better decisions, and better products. It is the backbone of innovation'. They run initiatives like a resource group that offers 'social media reverse mentoring' to older employees who want to get comfortable with the latest tech.

What's more, AI can help us improve diversity by removing bias and prejudice from the recruitment process (assuming our algorithms are less biased than their humans creators).



Learning, up-skilling

& leadership



Creating a learning culture

Is your company a learning organization?

It's fairly obvious that our organizations will deliver more and faster if we invest in learning, but that's like saying we'd be thinner if we exercised more and ate less. No \$&*%

In truth, many people find learning scary, boring, or a time-consuming luxury.

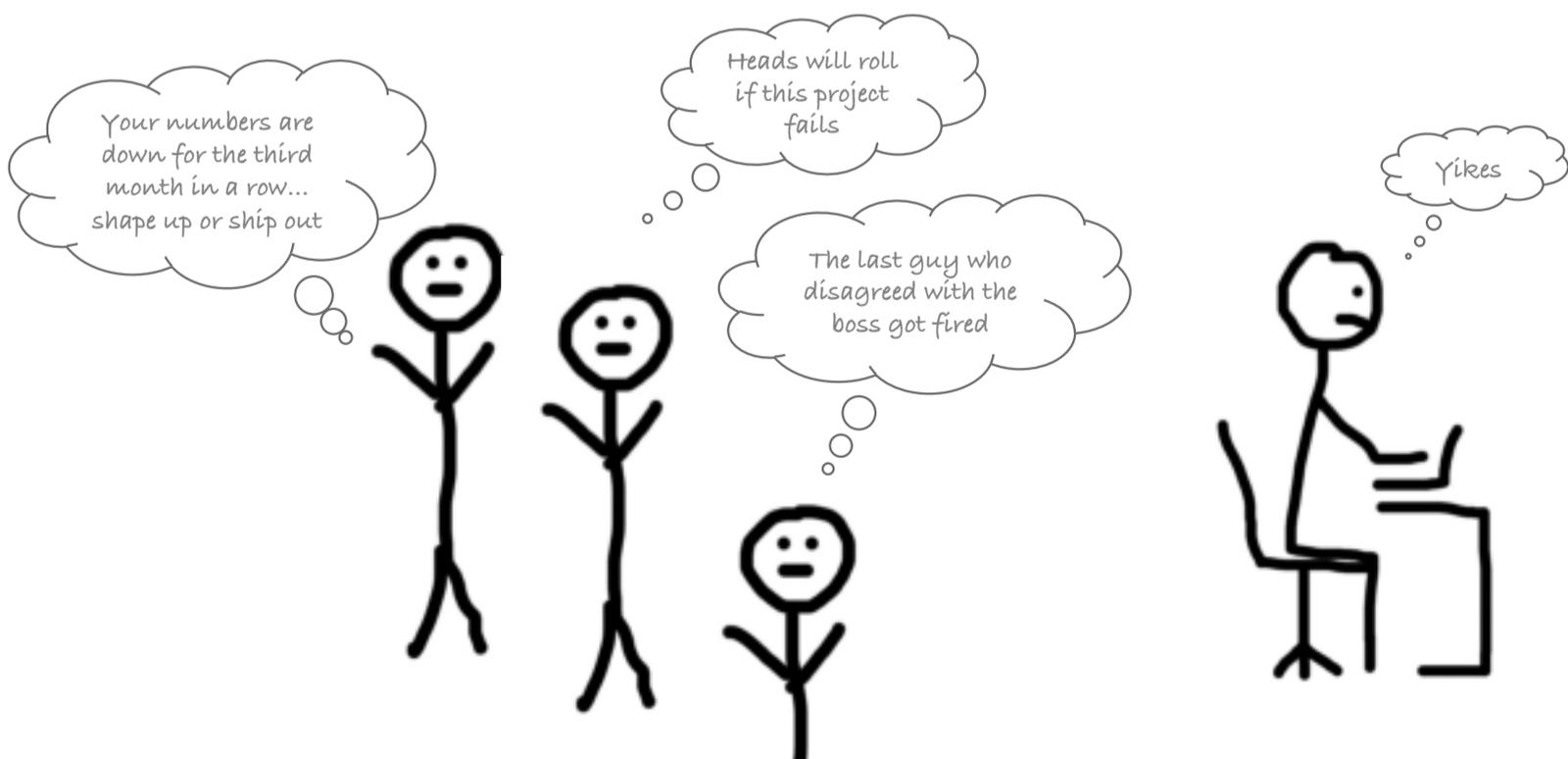
Why scary? Because learning requires that we analyze the results of our actions, exposing our failures and shortfalls.

Why boring? Because learning requires that we don't expect immediate results and recognition - it takes time, patience and practice.

Why a luxury? Because we don't feel we have the time and space in our day-jobs for such things, when we're under pressure to deliver results every week, month and quarter.

Creating a learning organization demands that we create a psychologically safe environment. In that sense, learning and innovation are one in the same. The most innovative companies, where continuously up-skilling happens 'naturally', are full of people who feel safe and feel like they belong. They are workplaces where nobody is afraid to say they messed up, or to try something new.

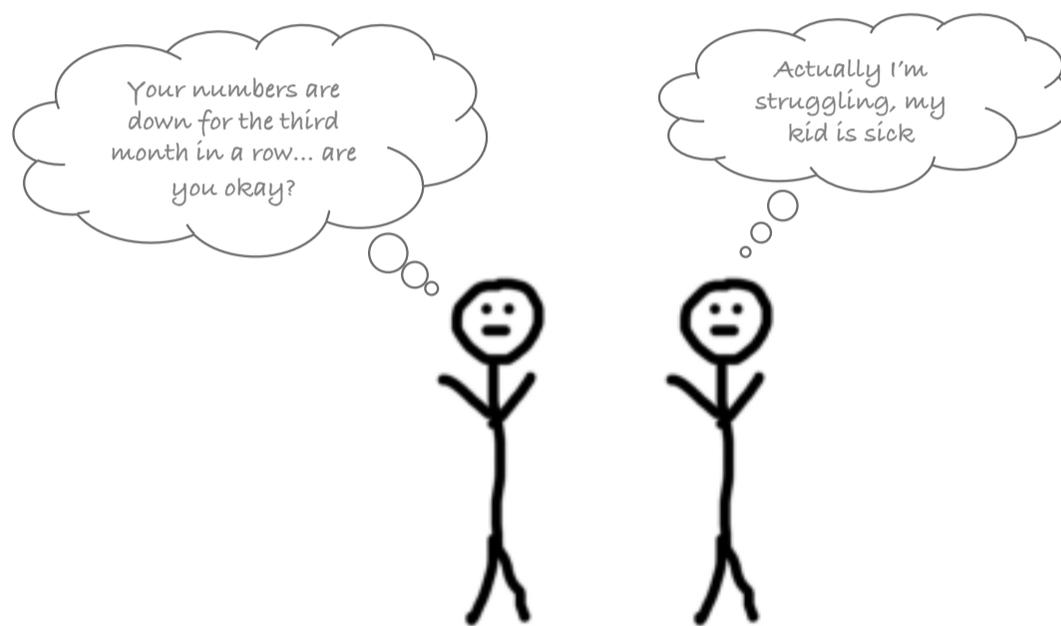
Unfortunately, the vast majority of organizations today talk the talk about 'failing fast' and 'experimenting'... but they aren't walking the walk.



To prepare for the future, leaders must lead empathetically and develop their emotional intelligence, in order to remove barriers to innovation, creativity and learning.

Often our long term and short term objectives clash and it's up to us to resolve these conflicts. The way we do this is by nurturing relationships and building trust.

Future leaders must 'exercise' their trust-building muscles just like gym-goers exercise their bodies. You might not notice the difference day-to-day when you look in the mirror... but if you keep on going, doing the little things each day that count, eventually you'll look back and think 'wow'.



Really, there is no other way. There is no short cut. Culture is the sum of all ideas, customs and social behaviours in your organization.

So let's look at some ideas, customs and behaviours that might help...

How to create a learning org

Tips for developing a sustainable high performance culture

Adapt the physical workspace for high performance

AT&T, for example, made the bold move of telling 100,000 of their employees that their job roles would no longer be relevant in ten years time. In response they launched their '[Workplace 2020 Initiative](#)' to focus on up-skilling, while improving collaboration and creativity. Part of the initiative is focusing on redesigning workspaces, introducing technology like electronic smartboards and increasing flexibility to provide a 'mobile lifestyle'.

'We're evolving our real estate assets to be more agile and on-demand. Our goals are to eliminate unnecessary space and to develop high performing, better located workplaces... the traditional workplace platform will get leaner, greener and better for supporting work and collaboration.' - Chris Mach, global workspace expert

Try holding events like bootcamps and hackathons

Bringing technical and non-technical talent together to focus on solving complex problems in a concentrated period of time can yield extraordinary results. Back in 2011 Atlassian caused a stir with their internal 'FedEx Day', a 24-hour innovation immersion event. Events that bring employees together to brainstorm, prototype and pitch their ideas are even more relevant today. Not only do they empower and

energize employees; they also create the time and space away from day-jobs to think differently, learn new skills and come up with creative solutions.

[jet.com](#), for example, used a hackathon to improve candidate experience, bringing graphic designers, software designers & HR people together. As a result they created a machine learning tool called Casy, that matched job descriptions with key words in resumes, to reduce the time it takes them to identify new candidates.

Shift focus from developing competencies to developing 'vertically'

As our environment and business challenges become more complex, 'horizontal' development (competencies) is giving way to a focus on 'vertical' development (developmental stages).

According to a paper on 'Future Trends in Leadership Development', by the Centre for Creative Leadership, horizontal development (competencies) are under fire for failing to add value. Often they're either too overwhelming in number or too generic.

So what does 'vertical development' really mean? What are these developmental stages that we should be focusing on?

As we grow older, we all pass through various stages of development as we make sense of the

world around us. These stages are obvious in young children, but often less-so in adults.

Robert Kegan, psychologist and author, defines these adult levels of development as follows:

- **Socialized mind:** At this level we're shaped by expectations of those around us. What we think and say is strongly influenced by what we think others want to hear.
- **Self-authoring mind:** We've developed our own ideology or internal compass to guide us. Our sense of self is aligned with our own belief system, personal code, and values. We can take stands and set limits on behalf of our own internal 'voice'.
- **Self-transforming mind:** We have our own ideology, but can now step back from that and see it as limited or partial. We can hold more contradiction and opposites in our thinking and no longer feel the need to gravitate towards polarized thinking.

Our advancement through these stages is correlated with our ability to lead through times of change.

A study by leadership expert Keith Eigel looked at 21 CEOs and 21 middle managers from companies with revenues over \$5 billion. Analysis showed a clear link between higher levels of vertical development and higher levels of effectiveness.

To develop people vertically, some organizations are using a process created by Harvard professors and researchers Robert Kegan and Lisa Lahey, called 'Immunity to Change'. Leaders choose behaviours they want to change, then use a mapping process to identify the anxieties and assumptions they have about what would happen if they made such a change. They then design a series of experiments to test the validity of their assumptions, normally realizing they're false, or at least partial. This diminishes their resistance to change and it happens naturally.

Creating a culture that encourages big thinking and adopting a coaching approach will equip people with the skills they need to thrive in a modern workplace.

Prioritize learning & give people time

Since we no longer lack access to knowledge, the real challenge lies in creating the time and space people need to learn; and opportunities to practice. This time must be protected, away from the mountain of To-Dos in our day jobs.

As well as one-off events like hackathons, consider allocating a day a week, or some other chunk of time to learning and experimenting.

Google, for example, made the idea of '20% time' famous, by giving people 20% of their time to focus on tinkering with new projects of their

choosing. In truth the idea was implemented many years earlier by 3M. As early as 1974, scientist Art Fry came up with Post-It notes during his '15% time' at 3M.

Too often organizations create a conflict between developing a learning culture and developing a high performance culture. Short term thinking creates pressure on people to be constantly productive, with no let-up. In other words, they aren't giving people the time and space they need to gain new skills and update their knowledge; let alone the time and space they need to practice and, let's face it, fail a few times.

Allocating a certain number of hours or otherwise scheduling in time for self-directed learning demands that we recognize the long-term benefits.

When self-development doesn't clash with modern employees' desire for work-life balance, you'll know you're on the right track.

Enable your technical talent to help others

Your engineers can provide valuable insights to other business areas. By encouraging them to help others understand emerging technologies like machine intelligence, the possibilities it enables and how they can work with it to get things done - new knowledge can spread.

Learn from experience via honest de-briefs

Too often we get caught up in the 'now' and move onto the next item on our list, without taking time out to fully examine the results of our actions.

A vital part of learning by doing is having conversations not only about the future, but about the past.

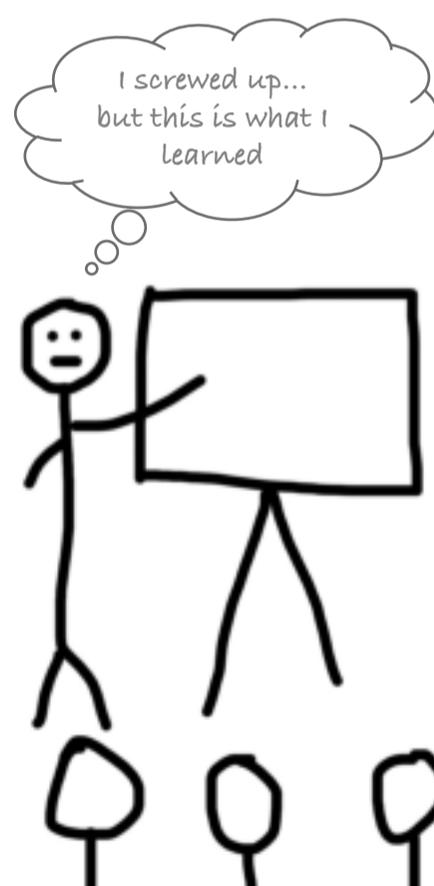
The army, for example, use after-action reviews, bringing people at all levels together after operational actions and training events to review what worked, what didn't work, what they learned and what they could do better next time.

Leaders often kick off the discussion with a self-critique, in order to create an atmosphere of trust and openness - important hallmarks of a learning culture.

Fail in public

Although it's trendy to talk about 'fail fast' cultures, repeating these mantras rarely eradicates the real shame of failing in public. Facebook's original 'move fast and break things' motto was, after all, replaced by the decidedly middle-aged, 'move fast with stable infrastructure'.

Yet a learning culture must make room for failure. This means approaching targets and KPIs in a non-traditional manner, leaving room for experiments that don't pan out.



Growth vs fixed thinking

The mindset of future leaders and learning orgs

If we're to become a workforce of continuous, lifelong learners, it's essential to recognize the difference between **fixed** thinking and **growth** thinking.

During the course of our existence, many of us have developed a fixed mindset about our skills: we're 'good' at this, 'bad' at that. This kind of thinking assumes results come down to your innate ability, or lack thereof.

Parents, teachers and bosses often exacerbate this kind of thinking throughout our lives, despite the fact that it prevents us from attempting things we're perfectly capable of. You may even be de-motivating your own kids, with the best of intentions ("Don't worry about not being good at languages, you're more of a maths person").

Anyone who feels freaked out by the prospect of up-skilling throughout their career is likely suffering from this kind of fixed thinking. "But I'm not a technical type," "I'm not very creative", or "I'm not a natural leader."

Growth thinking, on the other hand, assumes you can do anything as long as you put in the effort. In other words, results are dependent not on your innate abilities, but on how much work you put in.

An organization full of fixed mindsets is one in which there's a culture of hiding your flaws. A culture that is afraid of failure. Meanwhile, we're

all determined to create more innovative, creative, agile companies...

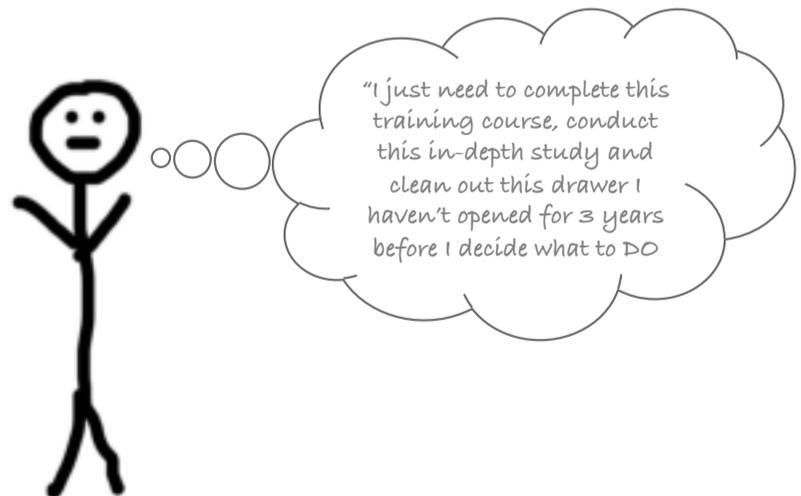
You see the problem.

If we're to create adaptable learning organizations, the list of things we're 'not good at' can be turned into a list of learning To-Dos.

If we're to create a diverse, innovative organization, we need to derive confidence from learning new things, as opposed to sticking with what we know.

If we're to build a culture of creativity and big ideas, we need to stop the bad habit of searching for passion or purpose and start getting work done regardless of our mood.

Leaders who cultivate a growth mindset in their teams will have a distinct advantage in today's fast-moving environment. But learning on its own isn't enough. We also need to act on the knowledge we have right now...



Looking beyond

employment



The open talent economy

Preparing for a transient workforce

The open talent economy continues to thrive, as many organizations find that access to talent trumps ownership of talent.

This presents challenges in terms of how we recruit talent and how we design workspaces - whether physical, virtual, or a combination of both.

Startups like Uber and Airbnb have disrupted entire industries, changing the way we think about earning money from our resources, whether that be our time, skills, vehicles, or homes.

These disruptive forces are shaping a thriving gig economy. An economy that looks beyond the 9-5 job-for-life, to a more flexible, on-demand, work-from-anywhere approach to life.

The numbers reveal the sheer extent of this shift. Research shows that over a third of today's

US workforce is made up of freelancers. Some experts believe the gig economy will double by 2021. Already, half of millennials are currently freelancing, adopting a lifestyle that promises greater freedom at the expense of security. There's also a fair chance you're employing some of them.

The gig economy presents an enormous opportunity for organizations to access a global pool of talent, without the overhead of employees. Freelancers can jump in and out of projects, giving new levels of flexibility to organizations who might struggle to find the right people or have limited budget.

Yet this brave new world of temporary workers brings its own challenges. Freelancers are struggling with the psychological impact of remote working isolation and the stress of making rent without knowing where their next gig is coming from. It's little wonder that co-



working spaces are booming, as people seek a sense of structure and community.

Organizations often aren't geared up for giving freelancers everything they need to do their best work - whether it be secure access to project files on-the-move, or desk space and equipment if they pop into the office.

New working practices are needed to help employees find the best freelance talent; and give them guidance throughout a project to ensure success. Recruiting and managing freelancers is unlikely to fall to HR, but to the people responsible for and working on specific projects. Again, the pressure is on to continuously up-skill in order to cope with the changing world of work.

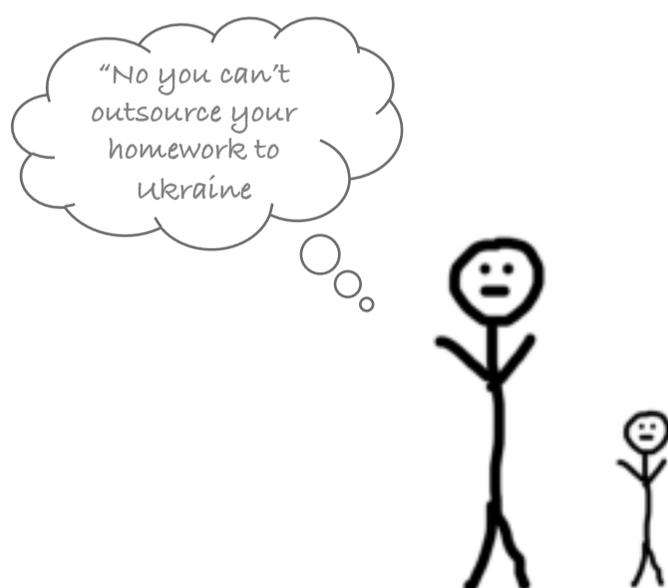
Then there's the question of how engagement is impacted by looser networks of people getting things done. Will collaboration improve, or suffer? What about relationships?

Billings from freelancing sites like Upwork, Freelancer and Guru grew 200% between 2016 and 2017. An interesting development is the increasing technical complexity of the tasks that these freelancers are taking on, from blockchain architecture and robotics, to ethical hacking and deep learning.

Meanwhile virtual assistants have become commonplace, with companies like Time Etc, Worldwide101 and MyTasker helping individuals and companies increase their productivity. Tim Ferriss famously championed the use of VAs in his 2007 book *The Four Hour Workweek*, promising to help individuals 'escape the 9-5, live anywhere and join the new rich' by outsourcing tasks to free up their time.

In reality, outsourcing your life, or your job, is no mean feat. There's no shortage of freelancers, just a shortage of great freelancers - the same challenge faced by all recruiters. Then there's the question of your company policy and whether it encourages or precludes the use of on-demand freelancers. You might remember the story of Bob, a software developer who made the news in 2013 by successfully outsourcing his entire job, freeing him up to watch cat videos on YouTube. Needless to say, Bob got fired. Should he have been promoted? Or put in charge of up-skilling his colleagues to help them utilize freelance talent (assuming they'd put their free time to better use than cat videos)?

The most innovative companies will find ways to leverage all the world's talent at their disposal, by striking a balance between employed and freelance workers. The utopia is that contract terms become irrelevant, as the focus falls



clearly on finding the right people at the right time, regardless of how they choose to work. This is an essential dimension of the shift towards agile working practices.

Encouraging employees to outsource aspects of their job can free them up to focus on more cognitive, higher value tasks. Using virtual assistants to complete repetitive, time-consuming admin tasks, for instance, could bridge the gap as we try to implement AI solutions to automate more of our workloads.

What's more, there's an opportunity to taking a freelance-style approach internally within your organization. What if employees could search one-another's profiles and post projects, like an internal Upwork? Could this kind of platform bring greater agility to a full-time-employee workforce?

Facilities and HR leaders are racking their brains to come up with ways to improve agility and collaboration. The open talent economy presents both challenges and solutions. Just as open source software is less about a company owning a product and more about sharing the load of co-creating a product; open talent approaches are less about companies owning talent and more about sharing the load of co-creating on company projects.

A network of flexible, on-demand talent could herald in a new era where people are rewarded for delivering results, rather than clocking up time. A strict working hours policy can increase

presenteeism. Yet on the flipside, freelancers are often stripped of the luxury of paid 'slack' time to chat with colleagues and spark new ideas; and time to learn new skills. All this relationship-building and self-education comes at a freelancer's own expense, in their 'spare' time.

It seems we're heading towards a high-autonomy Results Only Work Environment (ROWE). It's up to Facilities and HR to make sure that autonomous, results-based employees are given the space, time and resources they need to not only deliver results, but also improve themselves and their relationships.

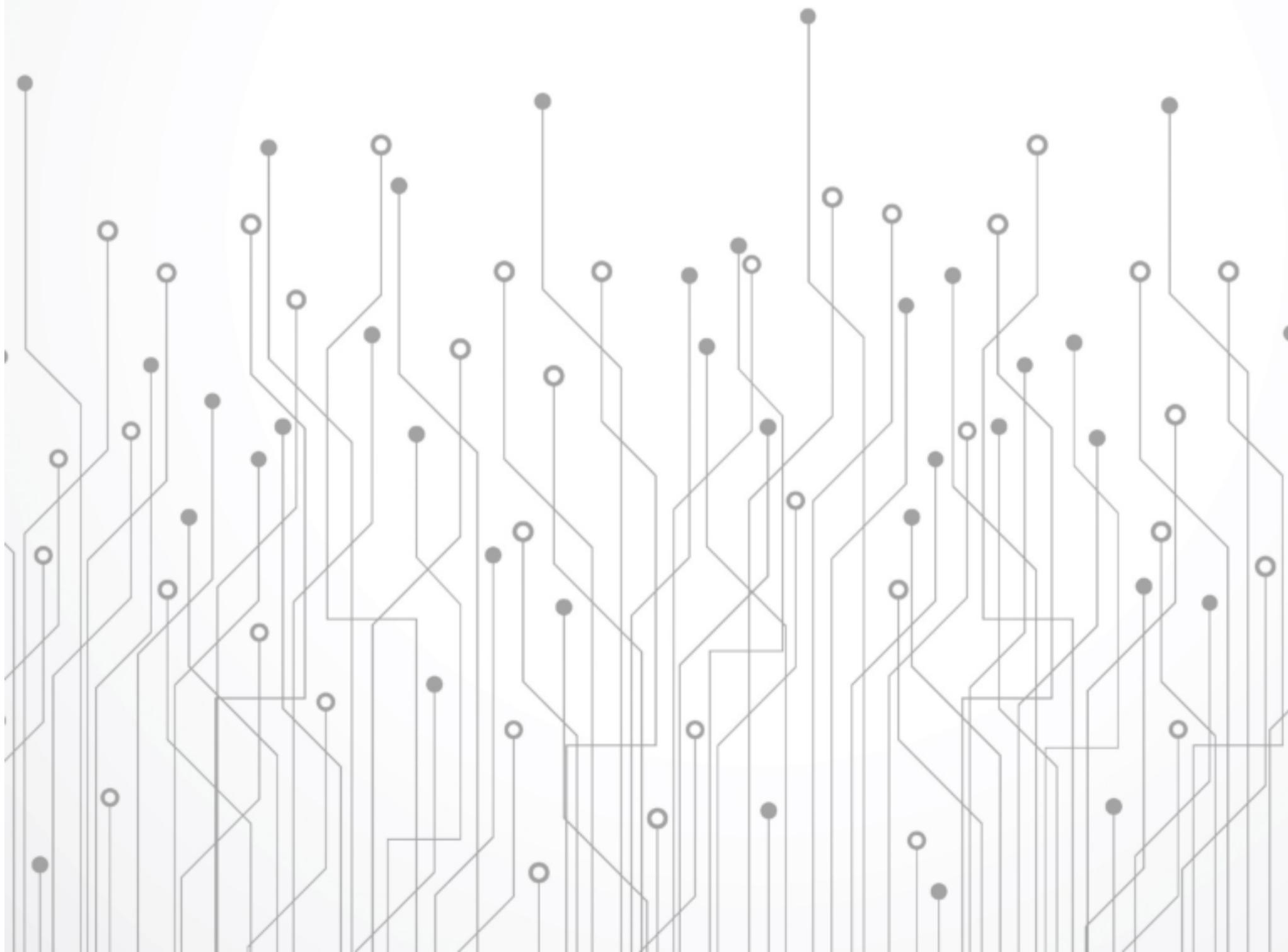
In the old days when jobs were simpler, results-based working was often relatively straightforward. If you pack boxes in a factory, the more boxes you pack, the better you're doing.

As the complexity of our collective global 'brain' grows and the law of accelerating returns brings us new capabilities, our jobs become anything but simple. The cognitive demands on humans, in general terms, is increasing. In turn we need to be mindful that 'results' are less straightforward than ever.

Having clarity on our desired outcomes is essential, but blindly whip-cracking in order to hit short-term targets can lead to undesirable behaviours that damage our organizations' longevity.

The rise of agile

working practices



Hierarchies vs networks

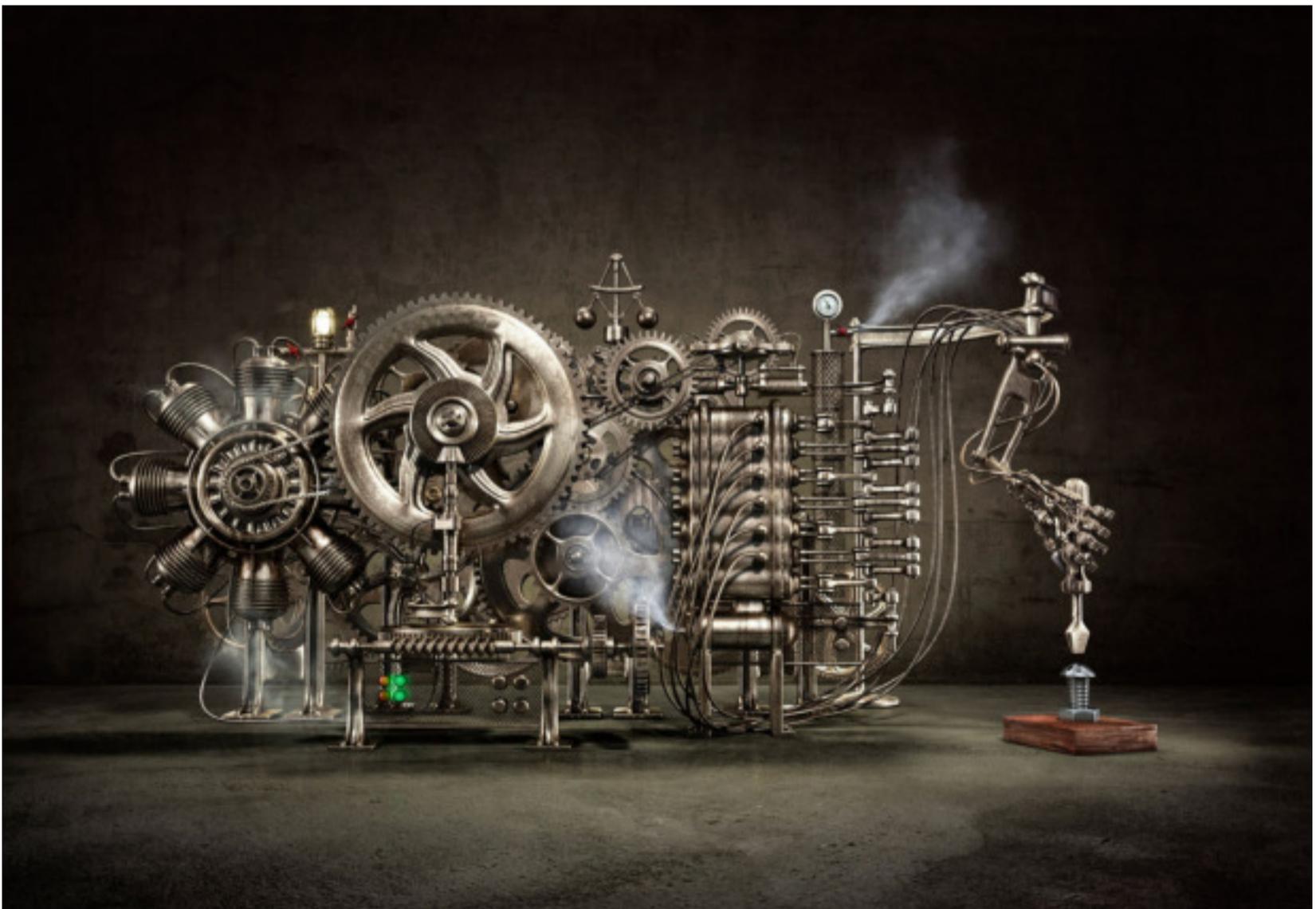
How information flows

Organizations today continue to suffer from various hangovers from the industrial age.

Back then, business was viewed as a machine, made up of separate component parts, with a driver at the top. It was a rigid structure, built for one purpose. If you wanted to change the purpose, you'd typically have to build a new machine. As for industrial age workers, they were just interchangeable cogs in the machine. And the way you controlled these cogs was through hierarchies.

This 'top down' hierarchy model doesn't work so well when we need more information, more interaction, quick decision-making and rapid action. Consider the difference between Encyclopaedia Britannica and Wikipedia.

Make no mistake, the hierarchical organization was a brilliant invention. If you'd have said back in 1900 that there would be a way to organize thousands of people to create thousands of products over thousands of miles, in an efficient, organized way, your friends wouldn't have believed you.



And there's no need to don extremist futurist pants and claim hierarchies are dead, because they're blatantly in use in every organization or human system on the planet, including most of our families.

There's no getting away from the fact that decisions need to be made and the buck must stop somewhere. Plus there's a lot to be said about hierarchy based on knowledge and skill.

Yet there is some truth to the claim that hierarchies are dying - at least when it comes to draconian, command-and-control attitudes and behaviours.

In reality, 21st century business has two systems operating in parallel. The first is formal hierarchy, with formal relationships based on authority. But this isn't enough. On its own a hierarchy isn't fast or flexible, because information flows too slowly from the top, down; and often gets stuck or lost along the way. When we talk about silos, we're talking about blocked information.

Because our environment is changing so quickly, we can't have a rigid structure full of blocked information. Not least because it's a waste of money. Imagine the hit on your salary bill if knowledge workers are spending, say, half of their time looking for information.

What we're really after today is an organization that's adaptable and responsive. An organization that doesn't die when the world moves on. An organization that is decentralized and agile.

Imagine you were a big PC manufacturer when tablets suddenly burst onto the scene. For an adaptable business it's an incredible opportunity. For a rigid machine-like business it's a hideous distraction.

In order to become a more agile organization, we need to remove barriers to collaboration, create time and space for innovation; and re-consider the way teams are formed and led.

The future shape of teams

Where, when, why and with whom we work is fundamentally changing.

Traditionally, teams exist in specific departments, reporting to a manager. These managers take care of their part of the machine.

As we need to accomplish more complex things in shorter timeframes, it'll become more common to form small, high performing, *cross-functional* teams to tackle specific problems and projects.

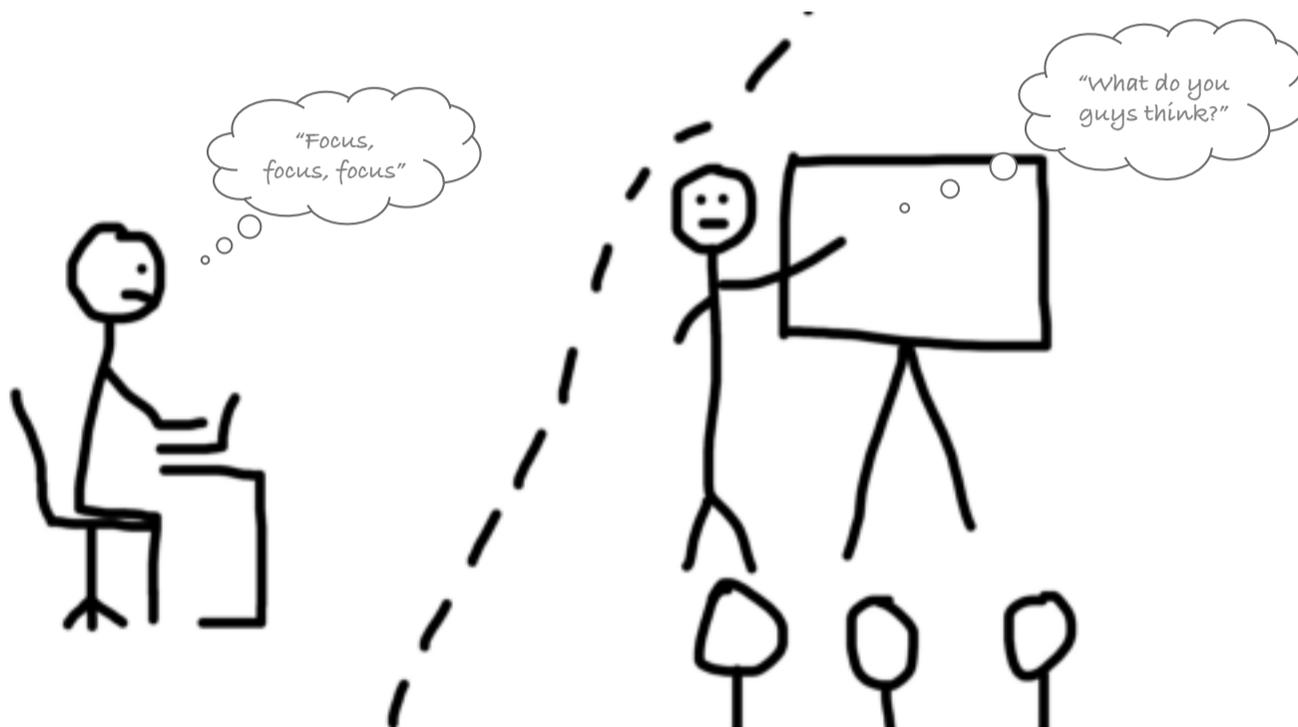
Teams and individuals will be also able to work more autonomously. Middle managers whose job is to collect data and supervise actions will become less necessary as technology provides us with the data, insights and task/performance management we need to get things done. Rather than managers forming teams and monitoring progress, AI-powered tools will suggest the best possible collaborators and will track performance.

This frees up the human leaders to focus on leadership by inspiration, as opposed to management.

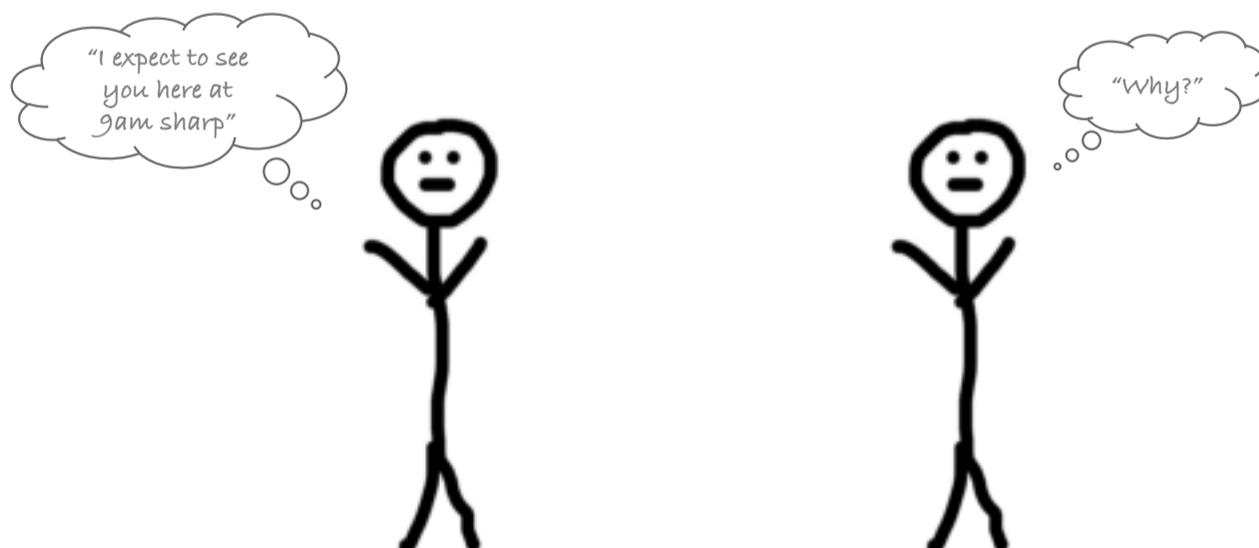
The rise of agile working

A new age of autonomy

As the stuff we're doing changes, our workplaces need to become more flexible.



And the smart people doing all this new stuff expect more autonomy than ever before.



The challenge is on for leaders to create lightweight, sustainable workplaces that adapt to fast-changing needs. Traditionally we've grown used to big office buildings set up for a fixed use, perhaps with cubicles, individual offices or an open plan layout. The workplace of the future can't be so unwieldy. The penny has well and truly dropped that we need to cater for a wider range of preferences and encourage collaboration between diverse groups of people. That means flexible spaces that mix up different layouts. In other words, Activity Based Working (AWB): workplace design that optimizes our spaces for various tasks that employees are working on.

Providing a variety of spaces and services to employees on-demand, from anywhere, is becoming the new normal. Our **people expect to be able to book meeting rooms, desks, equipment, catering and more, wherever they are, 24/7.**

Agile working extends beyond the space itself, into the realms of workplace culture. It's about giving people freedom to choose where and when they work. It's a philosophy that focuses on results and giving individuals the flexibility they need to achieve them however they see fit.

In an agile working environment you'll typically find ABW. For instance you might have a video

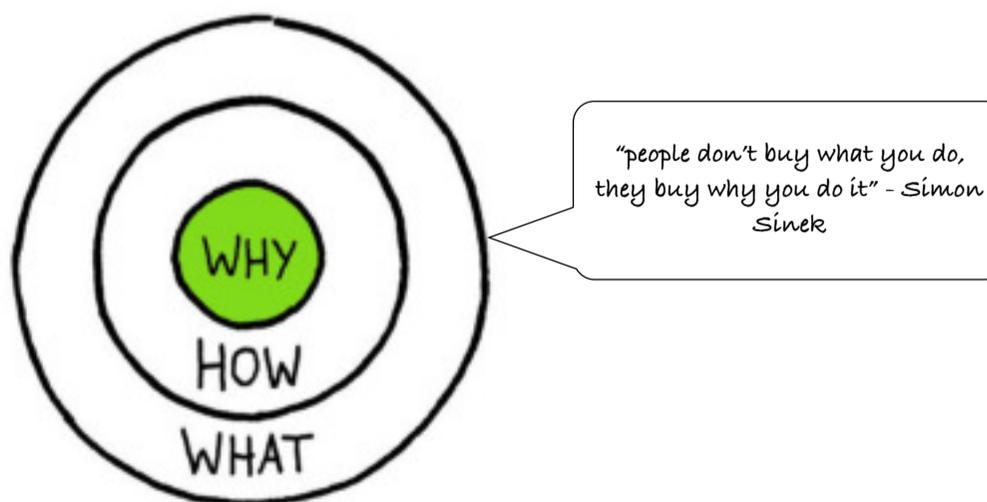
conferencing room equipped with all the latest kit, a brainstorming area with beanbags and whiteboards, a cafe for informal meetings, a boardroom for formal meetings and some private offices or booths where people can make calls in peace. You can also cater for personal preferences, like standing desks.

The agile working philosophy hinges on allowing people greater autonomy than ever before. Dan Pink famously showed us that **autonomy** is one of three things that motivates humans, more so than money. The other two are **mastery** and **purpose**. Flexible working, where employees can choose to come in late and work late, or otherwise mix up their hours, is one way to increase autonomy. Working remotely is another, whether in public cafes, members' clubs, shared office spaces, or at home.

It's no coincidence that organizations are focusing heavily on **mastery** too: up-skilling, learning-by-doing and, as we've been saying, creating learning cultures...

...and **purpose**: clarity of vision, values, beliefs, the power of 'why' that Simon Sinek describes so eloquently...

The search is on for the optimum means of motivating our people to do the best work of



their lives. All this while faced with a sharp rise in mental health problems that's costing the global economy \$1 trillion.

Autonomous, agile cultures rely on trust, so recruiting the right people and supporting them with the tools and training they need to thrive is essential.

"Great companies don't hire skilled people and motivate them, they hire already motivated people and inspire them." - Simon Sinek

Agile working is a big pull for top talent and improves retention, as smart people expect more freedom than ever before. Get it right and you can create a highly engaged workforce, while reducing real estate costs and operating more sustainably. Studies show that organizations can bring down the need for office space by up to 30% by adopting agile working practices.

To make agile working succeed, organizations need to make sure the employee experience is seamless. Wherever and whenever people choose to work, they need secure access to files and the ability to book the spaces and things they need via the cloud.

In the main, it's not a technology challenge that work is facing today. It's a human, psychology challenge. The technology exists and is relatively straightforward to implement. Humans, on the other hand, are far trickier and slower to change. This kind of culture shift isn't such a big deal for startups and SMBs, but it's a

tall order for larger organizations transitioning from a traditional set-up. Facilities and HR play an important part in steering the oil tanker.

Agile working is often confused with Activity Based Working (ABW). Agile working is the practice of increasing autonomy by enabling employees to work how, where and when they choose; whereas activity based working refers to the provision of different spaces in the workplace to enable this.

In an ABW environment, people don't have a fixed desk. Rather they hot-desk, choosing a desk each morning when they arrive at work, depending on what suits them that particular day. Some prefer office hoteling, where desks, rooms and other facilities can be booked in advance.

By applying design thinking (see page 60), you can work out which activity based areas employees need, then come up with creative solutions to test out, such as some spaces that encourage deep, uninterrupted focus and others that encourage planned serendipity, where ideas are sparked and relationships formed through chance meetings.

An important consideration when designing a more agile workplace is understanding which platforms people should be able to book resources from, e.g. Outlook, touch screens, desk panels, meeting room displays and mobile apps (hint: it's an omni-channel world, so the answer is 'all of them'). Then there's the question of how you'll track data like utilization and no-shows (hint: ask us!).

But agile isn't for everyone...

The importance of face-to-face

Some organizations are bucking the agile and remote working trend, opting to increase face-to-face contact.

In March 2017 IBM stopped their remote working policy and decided to bring their people back into the office, after internal research found that some of their teams are more effective and have better job satisfaction working in a co-located, agile environment.

Psychologist Susan Pinker wrote a whole book about the benefits of face-to-face contact, *The Village Effect*. One of the studies she cites showed that just 15 minutes chatting and socializing with coworkers improved performance by 20%.

Surprisingly enough, another study found that Gen Z and Millennials prefer face-to-face conversations over using technology; and 41% of Gen Zs said corporate offices are their preferred workplace.

Then there are productivity gains to be considered. According to some researchers, a face-to-face request is 34 times more successful than email.

Another point to consider when weighing up face-to-face vs remote working is whether people have the opportunity to make friends at

work without actually seeing one-another in the flesh. A survey by employee recognition company O.C. Tanner showed the importance of having friends at work. They found that 75% of employees who have a best friend at work are satisfied with their jobs, compared to 54% who don't.

Yet IBM's bold move still goes against most external research. Global Workplace Analytics looked at findings from over 4,000 studies, concluding that when it comes to remote working, the number of upsides is double that of downsides. Employees who can work remotely are happier, more productive and are less likely to leave.

This demonstrates just how important is it to avoid a one-size-fits-all approach when it comes to crafting your ideal workplace.

As people's expectations about what work should deliver for them rise, a flexible approach makes sense. Some workers will want to work at a head office, others will want to work remotely. The challenge lies in identifying who we need and how we can enable those people to do their best work.

So if you're in HR or Facilities, time to get your design thinking caps on and explore what's right for your organization.

Design thinking

Applying design thinking to the employee experience

Design thinking is a creative process used by designers to solve problems. It's particularly useful for 'wicked problems': those that are ill-defined or tricky, where the problem itself is often as unclear as the solution.

Design thinkers question assumptions, collaborate and build prototypes as early as possible to test ideas and get feedback. It's a practical, hands-on, action-orientated approach.

The old adage that organizations need to put people first can be turned into reality when design thinking is applied to the workplace.

The most successful leaders constantly question how they can enable their teams to do their best work, which often comes down to removing barriers that stand in their way.

Design thinking processes enable leaders to uncover ways to create the ideal conditions for

their people, serving as a catalyst for culture change.

It's little wonder that one of the most in-demand leadership traits today is emotional intelligence. EQ enables leaders to deeply explore and understand the needs and desires of individuals: both customers and team members. This understanding is a vital part of the design thinking process.

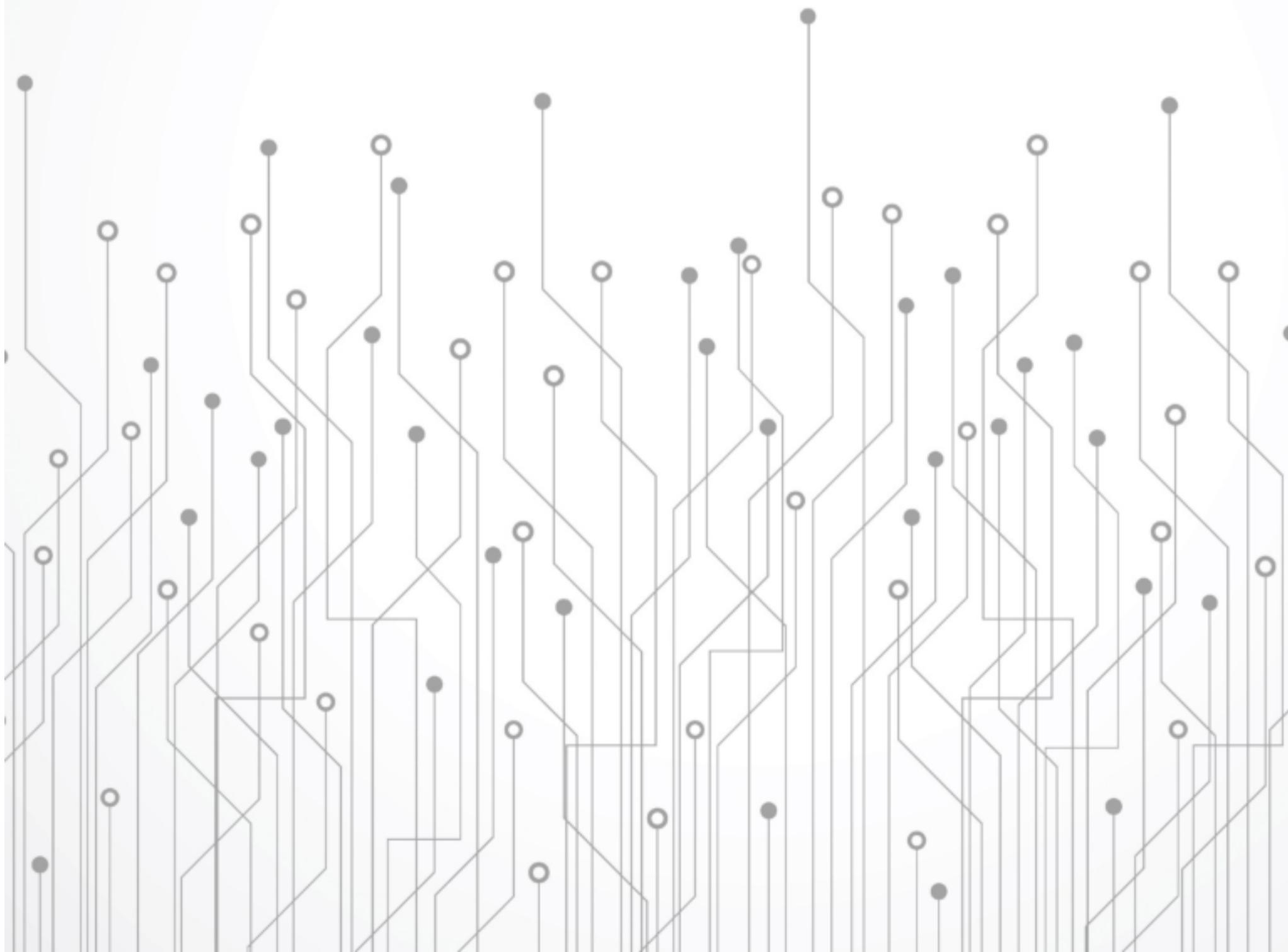
Leaders who work closely with their people to explore problems, refine concepts and play with prototypes, can add tremendous value to their organizations.

Facilities and HR will benefit significantly from adopting a design thinking approach, as they're faced with evermore complex challenges in engaging and supporting a more agile, flexible workforce.



The future workplace:

optimizing spaces



IoT & smart buildings

Creating a sustainable, intelligent workplace

There's no denying that our environment impacts overall performance. A well-designed workplace can improve wellness, productivity and results; even as we face higher densities and 24/7 use.

The trend towards enhanced working environments is continuous. Many buildings used to be poorly ventilated, causing illness. Today we're designing spaces that not only promote health and wellbeing, but also creativity and inspiration.

Smart offices are also about sustainability: reducing waste and minimizing environmental impact - all upsides that come with the added benefit of cutting real estate and energy costs.

That's why organizations are using Internet of Things (IoT) technologies to create smarter workplaces.

31% of organizations have already launched IoT solutions [source: Gartner - Leading the IoT report]

A smart office uses technology to make the physical work environment intelligent, so it adapts to individual employees' needs.

Smart offices use sensors and automation to control things like lighting and heating, to save

energy bills and improve sustainability. These 'things', in an internet-of-things world, only come on when they're needed and are switched off when they're not. For instance moisture sensors could detect whether the irrigation system outside needs to automatically turn on to water the grass on a hot, dry day.

Smart devices can detect whether a room is being used and whether a video conference is underway - turning on equipment, opening and closing blinds, or ordering coffee as necessary.

IoT devices can enable predictive maintenance of buildings too, telling us we need to add a new meeting space on the third floor, or reduce heat loss through the main exit.

As more organizations opt for flexible office layouts, smart buildings help us reconfigure and improve our spaces.

Data collected by sensors can enable building owners to negotiate contracts with office cleaners, based on how much dirt accumulates in different areas, or charge more for parts of a retail space that have the greatest footfall.

In a smart workplace, as you approach the office car park, a smart parking system will suggest a parking space close to the room where you'll hold your first meeting of the day. When you

enter the building, facial and voice recognition will check your identity and allow you in. Digital signage in the lobby knows who you are and where you're going, so offers you directions to your meeting room.

When you get to your meeting, the room knows you've entered. Perhaps it automatically dims the lights, closes the blinds and brings up remote attendees on a screen, with last week's minutes containing your notes on a smartboard.

Creating a smart building enables you to upgrade the employee experience, not only because a strong employer brand will attract and retain the best people, but because a great experience enables us to do our best work.

IoT, AI, machine learning and virtual beacons can provide us with analytics for making better workplace / workflow design decisions.

As diversity increases - both in terms of the workforce and the spaces we require - we need to create smarter workplaces that provide insights and choice.

Rather than global standards, firms need adaptable ways of using space: touch-down tech hubs, reconfigurable offices, open-bench workstation neighbourhoods, open team areas.. all powered by the latest tech.

More flexible spaces enable a test and learn approach to space design rather than static, expensive, once-in-a-blue-moon overhauls.

The workplace (organization culture, systems or processes) has 4x the impact on business performance than the individual talent does [source: Silicon Republic]

HR, Facilities & UX design

Coming together to design the workplace of the future

As organizations create smart offices and adopt agile working practices, the role of Facilities is undergoing a major shift.

In the past, 'Facilities' conjured up images of health and safety procedures, office maintenance, cleaning and security. These elements of running an efficient, compliant workplace are still important, but a whole new host of responsibilities are falling on FMs as we welcome in a new era of Facilities Management. You might say Facilities Management is fast becoming Facilities Leadership.

"Management is doing things right; leadership is doing the right things." - Peter Drucker

Today's Facilities leader is more strategic than ever before, wielding enormous power to influence the productivity of our workforce and improve the employee experience.

As we learn more about the way our working environment influences employee engagement and sows the seeds of collaboration, we discover it's vital to set a vision for Facilities that closely aligns with your organization's wider people strategy.

Facilities, for this reason, will be working more closely than ever with HR. A whopping 80% of global HR leaders foresee a greater HR ownership of the physical workspace, according to research by Unispace. This shift is driven by a



greater need for cross-functional collaboration amongst teams and the need to accommodate headcount growth. The same study found that 68% of global HR leaders expect to be involved from the start of a workspace change project.

Facilities Managers are no longer just doing the doing, but doing the thinking, behind workplace transformation.

That's why HR and facilities managers are becoming user (employee) experience designers.

This heralds a new era of Facilities Management, where facilities managers play an important role in support the wider company goals. They'll be required to go beyond physical infrastructure, focusing on innovating and differentiating the workplace environment.

A well-designed, human-centric workplace will take the full spectrum of employee emotions into account, as greater emphasis is placed on EQ. Facilities and HR will be responsible for

reducing frustration, improving collaboration, inspiring creativity and enabling innovation.

For years, UX designers have researched their users to understand their goals and desires. They use these insights to identify personas and explore scenarios. Then they create a structure that'll make it easy for these people to navigate to the right place and achieve their goals. They sketch and prototype a solution, then test what happens when people use it.

When it comes to designing the workplace of the future, Facilities and HR spring to mind. Note that both these functions were traditionally perceived as back office admin. Yet today, they're taking a seat in the boardroom.

Luckily, we don't need to reinvent any wheels. Marketing, customer service and other externally-facing business areas have invested zillions in understanding how to pull people through the funnel and create a top notch experience. Now we need to apply those customer lessons internally.

Just as big brands have flagship stores that offer a theatrical experience, companies are creating flagship offices that do the same.

Our workspaces communicate company values, consistent with the brand.

The idea that there's just one way for workers to interact and get things done is swiftly being replaced by a future in which people work how, when, where and with whom they like. As work becomes less about a fixed location or schedule and more about getting things done however you see fit, flexibility is in high demand.

Traditional office environments, like cubicles, are being replaced by collaborative spaces that enable interaction, openness and sharing. Yet we still need spaces for quiet time and private calls.

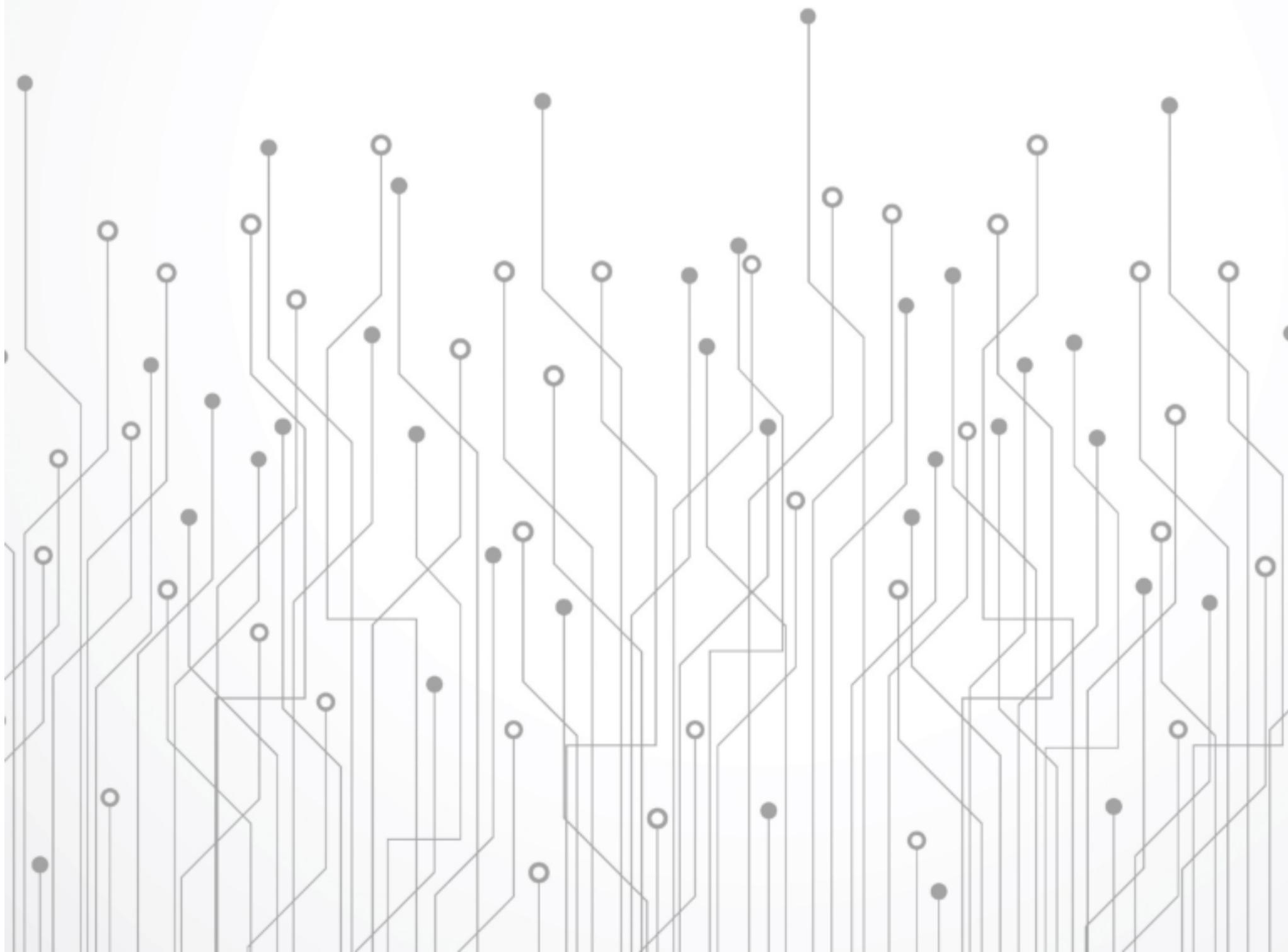
We need to identify and optimize every single employee touchpoint, online and offline, to create an engaging, energizing experience

We need to create lightweight, sustainable workplaces that adapt to changing needs. Traditionally we've had big office buildings set up for a fixed use. The workplace of the future is less unwieldy, catering for a wider range of preferences and encouraging teamwork between diverse groups of people.

The workplace of the future provides services to employees on-demand, from anywhere.

How to design your

workplace strategy



Your workplace strategy

The 'why', 'what' & 'how'

In his 1943 paper, "A Theory of Human Motivation", Abraham Maslow famously described a 'hierarchy of needs'.

At any one time, each of us tends to be focused on one particular level of need. These needs dominate our behaviour.



Once our most basic needs are satisfied - food, sleep, sex, clothing, shelter, water, breathing - we can focus on the next rung of the pyramid: safety. When our safety needs are met - health and wellbeing, personal security, financial security, emotional security - we can focus on the next: love/belonging. Once our love/belonging needs are met - friends, family, intimacy - we can concern ourselves with esteem. Finally, when our esteem needs are met - recognition, respect from others, self-respect - we can concentrate on the top. At last

our minds are free to pursue self-improvement and fulfil our potential.

When we're thinking about workplace strategy, it's useful to adapt Maslow's hierarchy of needs to organizational design.

If we neglect to tick off the basics, our people will never reach the top; and the top is the level we're aiming for. Anything less strips our competitive advantage, dampens performance, erodes employee engagement and creates a whole host of maladaptive behaviours.

At the top of the pyramid lies the holy grail of the future workplace: **self-actualization**. A workplace that enables people to self-actualize is a workplace where peak performance is the norm. It's a workplace where people reach their full potential, creativity flourishes and complex problems are tackled head on.

In today's fast-changing landscape, your workplace strategy plays a fundamental role in equipping your people with the resources, environment and tools they need to adapt, self-actualize and deliver results.

So here goes...

What is 'workplace strategy'?

Workplace strategy is all about understanding the needs of your people, then providing a workspace that'll help them do their best work.

All this, while minimizing costs and environmental impact.

Wikipedia puts it this way: *“Workplace strategy is the dynamic alignment of an organization’s work patterns with the work environment to enable peak performance and reduce costs.”*

Normally workplace strategy involves pulling together information from various business areas - IT, HR, Finance, Corporate Real Estate and Facilities - and aligning the overall strategy with your organization’s vision, mission, goals and resources.

Workplace strategists understand the impact that the physical environment can have on behaviour and performance. Cubicles, open plan or private offices, team rooms, ambiance and workforce mobility all cause specific behaviours to emerge.

The average cost of unused space in the U.S. is \$25 per square foot or more [source: BOMA’s 2015 Office Experience Exchange Report 2015]

The benefits of having a workplace strategy

In reality, we seldom embark on a major workplace change without being sure that there will be some financial benefit. Yet the benefits of an effective workplace strategy go far beyond cost savings. Get it right and you’ll will...

- Improve output and performance
- Improve collaboration and teamwork
- Increase employee engagement
- Reduce absenteeism and presenteeism
- Increase creativity and innovation
- Attract and retain the best talent

- Increase the value of your consumer-facing and employer brand
- Reduce costs
- Reduce environmental impact and improve sustainability

Many studies show that commercial buildings account for 40% of the world’s electricity consumption

The need to reduce office costs is a major driver for considering your workplace strategy, but it’s not the only trigger.

Perhaps you’re embarking on a culture change initiative and you’ve been tasked with implementing agile working practices?

Or maybe your organization is focusing on improving innovation, creativity and collaboration?

It could be that you’re facing a merger, acquisition or a change in headcount?

Or your lease might be coming to an end, prompting a review of real estate needs?

Perhaps you’re re-branding or you’ve had a change in leadership?

Major changes like these often provide the spark we need to consider whether our workspaces are really working for us.

What’s driving the demand for workplace strategy?

Business leaders haven’t had to worry too much about workplace strategy until recent years. There are several forces bringing workplace design to the forefront:

- We need to achieve more with less. Budgets are tight and organizations can no longer afford to waste money on excessive energy bills or real estate costs.
- Technology enables people to work from anywhere. Nowadays we need to cater for a mobile workforce, making sure they have secure access to everything they need on-the-move; and a productive space to touch down in when they arrive at the office.
- Work is becoming more complex. As innovation and communication speeds up, spurred on by technology, we need to achieve new levels of creativity and flex our cognitive muscles. As we've been exploring, machines are helping take some mundane, repetitive tasks off our hands, leaving we humans to focus on knowledge work. As the demand for creative problem solving increases, so does our need for collaboration, as well as time for learning and focusing.
- We're in a state of constant flux. As the pace of change continues to accelerate, it no longer makes sense to have a static workplace. Instead we need to create an agile environment that allows us to adapt spaces to our changing needs.
- Cultural expectations are shifting. These days people value meaningful work and autonomy more than ever. To attract and retain the best people - and enable them to perform at the top of their game - we need to provide spaces that are not just functional, but inspiring and remarkable. Workspaces that cater for a more diverse workforce, including

the needs of Gen Z and Millennials through to over 65s.

How do you develop an effective workplace strategy?

Discovery: exploring the current reality in your workplace

1. Understand how space is currently being used. Look at occupancy data to see how, when and where people are using desks, meeting rooms and other spaces. Collect data from sensors that track when people enter and exit buildings and rooms. Ask IT for insights on when and from where people are accessing organizational data. Build a clear picture of how many people are using what; so you can gauge the current reality. Are some spaces unused or under-used? Are some over-used and backed-up?
2. Talk to people. Ask for feedback and ideas from leaders and team members in every business area. If you run employee engagement surveys, check whether there are comments relating to the physical environment that can provide further insights on whether people feel the workplace is helping them perform at their best.
3. Examine the work modes and behaviours currently at play. For instance, some work will be collaborative, while other work will be autonomous. Some activities demand thinking and focusing, while others are more rowdy and social. What about planning and

learning activities? What about filing, reading, writing and computing? Then there are meetings: some are formal, others are informal. Some work happens locally, other work happens remotely. By understanding the balance of activities, then combining this with employee and space usage insights, you'll start to build a comprehensive picture of the 'now'.

4. Look at your organization's overall strategy: the vision, values, mission, goals and objectives; as well as the way work gets done: processes, projects and tasks. Unearth any change initiatives that are already underway that could impact how space is used. Get total clarity on your strategic priorities. Is it about lowering costs, improving collaboration, or both?

Planning your workplace strategy

Armed with the information you've gathered in the discovery phase, you can form a picture of the desired outcome.

How much space do we actually need?

Do we currently have too much space, or not enough?

Are our facilities located in the right places?

What sort of spaces do we need to support our employees to do their best work?

Do we have the right mix of spaces?

How will we measure success?

Depending on whether your focus is on cost savings, collaboration, or both, you'll need to consider a range of strategies, for example:

- Adding more informal spaces, like bean bag areas or cafes
- Introducing zones for specific activities, like brainstorming areas with whiteboards, or areas for focused concentration
- Lowering or putting up partitions
- Making the workplace more visually stimulating
- Clustering workstations or spreading out
- Introduce spaces for physical activity and booster breaks
- Reducing or increasing overall footprint
- Implementing hot-desking or office hoteling
- Adding more cubicles, individual offices, or shifting to open plan
- Creating multipurpose space, with flexible furniture
- Using internet-of-things devices to automate heating, lighting and more
- Equipping people with infrastructure and tools to work from anywhere
- Using satellite offices
- Introducing more flexible work schedules or agile working practices

Consider the consequences of your workplace strategy

It's important to consider the knock-on effects and unintended consequences when you make changes in the workplace.

For instance, you might want to improve collaboration by reducing the number of private offices and opting for more open plan areas. Yet research shows that open plan layouts can increase stress and lower productivity, due to distractions and interruptions.

Meanwhile there's a correlation between distance and face-to-face contact: if you sit closer to someone, you'll interact with them more frequently.

Then there's remote working. Most research shows that enabling people to work from anywhere improves engagement and performance, yet we've seen companies like IBM opting to bring people back to the office because their research showed that face-to-face is more effective for them.

Rather than follow 'best practice' and adopt a one-size-fits all approach, carefully consider the nuances of your organization. Your workplace strategy will be most effective when you balance diverse needs, build in as much flexibility as possible and take measures to counteract any unintended consequences.

How do you get buy-in for your workplace strategy?

Build a business case

When you have a carefully considered plan in place, it's time to present that plan and get buy-in at board level and beyond.

Develop a business case that takes into account the cost savings, from real estate costs, energy bills and reducing the amount of time employees waste due to the current workplace design.

Help people visualize the impact of your workplace strategy

Develop concepts that help people visualize the outcome of the changes you propose. Graphics, CAD drawings, models and simulations can paint a thousand words.

Include some quick wins

Your workplace strategy should lay the building blocks for long-term, continuous change. But that doesn't mean you can't get a few quick wins under your belt. Consider whether you can run pilots with a limited group of people, e.g. one specific team. That way you can prove the value and learn lessons for a wider rollout.

Also remember that low cost solutions do exist. Cloud based SaaS tools, for instance, can be flexible, scalable and quick to deploy. Consider the tool kit your people need to work more flexibly, then find technology partners you can trust.

Show how you'll implement and manage the changes proposed in your workplace strategy

Put together an implementation project plan, that includes milestones, tasks and governance. Show the 'what, where, who and when'. Provide detail on what will be measured and how you'll report on it.

Will employees need to be temporarily relocated and what is the impact likely to be?

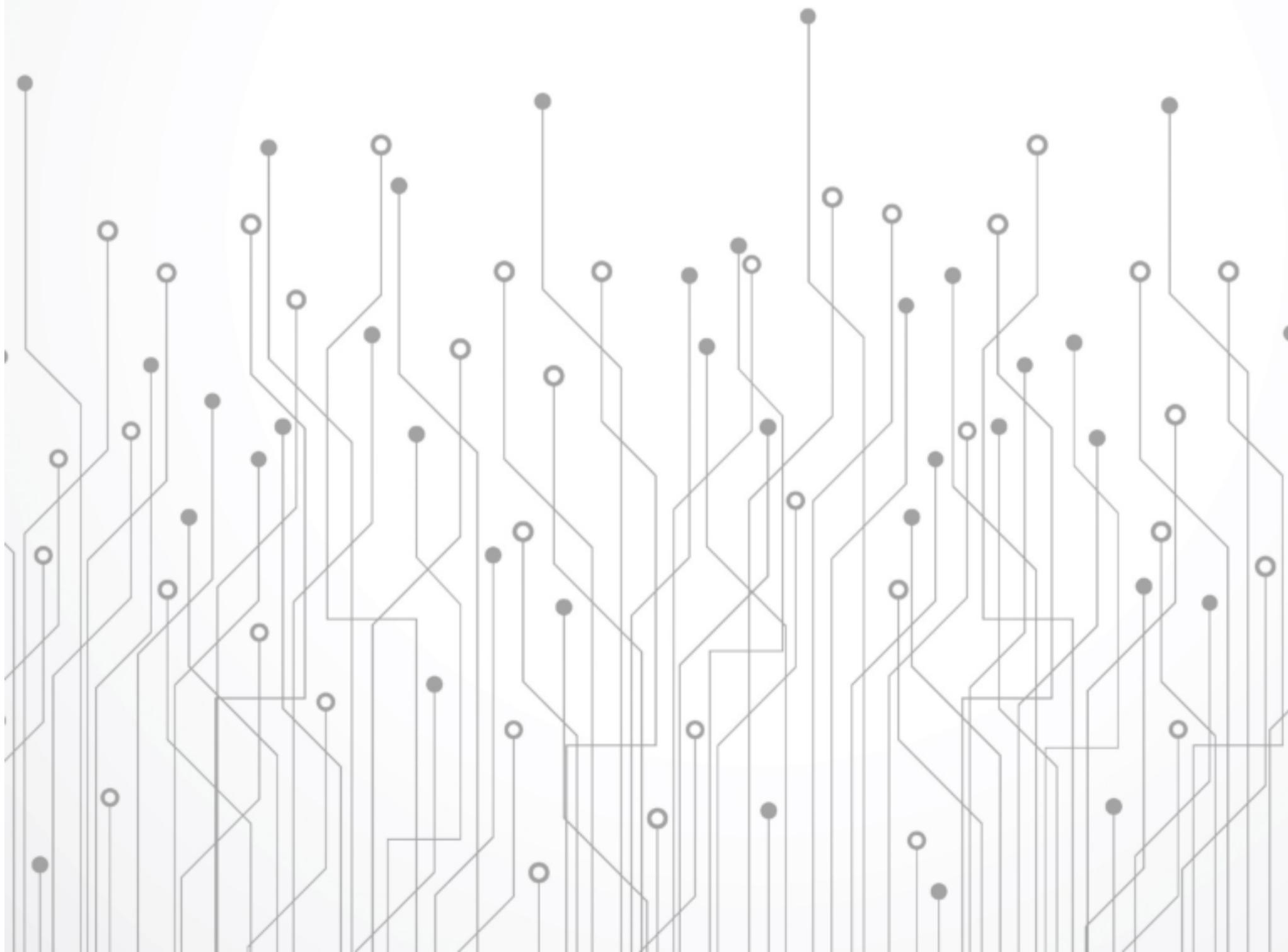
Don't forget to include a plan for managing change. Change management is ultimately about communication. You'll need to engage leaders and team members along the way. By equipping managers with the materials they need to get their people on board, you'll be able to garner support and minimize any disruptions during the transitional period.

To help get buy-in at every level in your organization, it's important to adopt an agile 'test and learn' approach. By eliciting feedback every step of the way, people feel listened to, while you avoid going down the wrong path based on false assumptions.

It's likely you'll require support from every business area, not least IT, Facilities, HR, internal comms and Corporate Real Estate.

Lessons from marketers

& lean startups

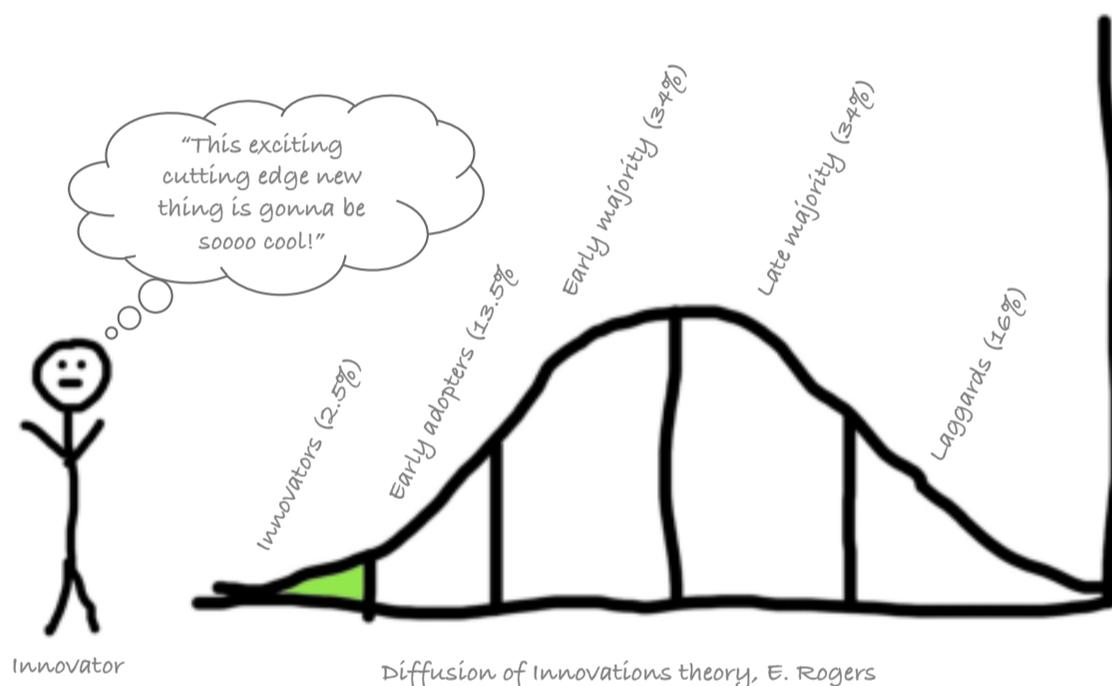


Talent borrows, genius steals

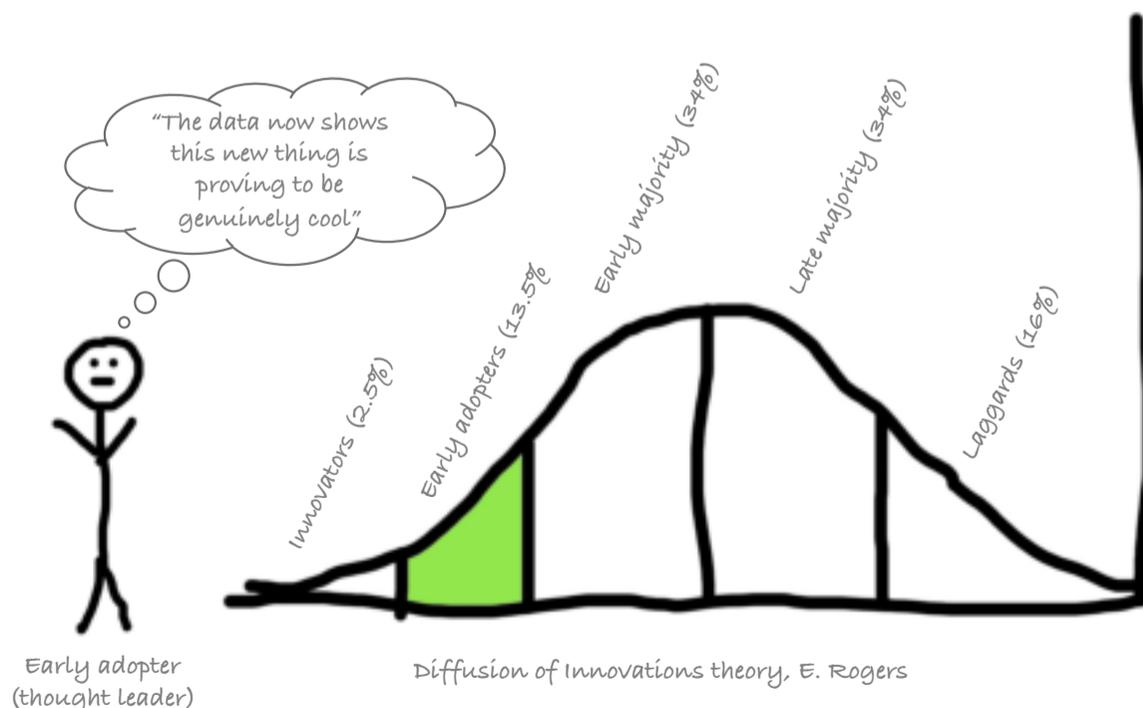
Growth-hacking change

When it comes to preparing for the future or adopting a new way of doing things, we all hold different beliefs and attitudes that guide our actions. In turn, our actions shape our beliefs and attitudes.

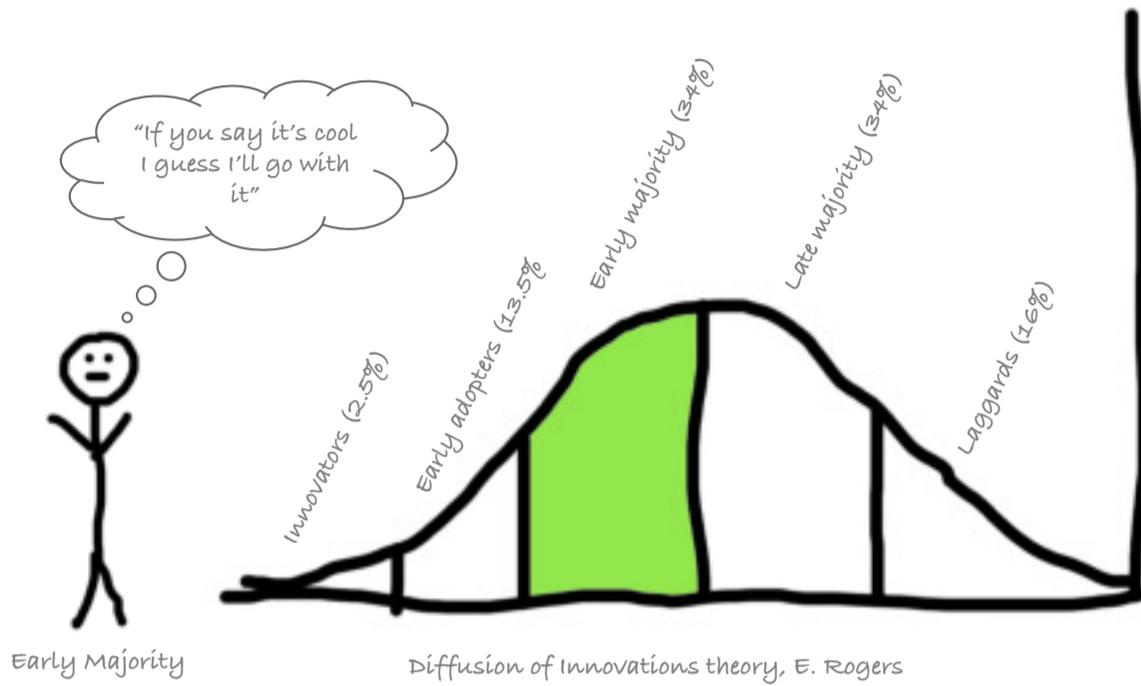
Some of us tend to *create* change...



Some of us tend to *spread* change...



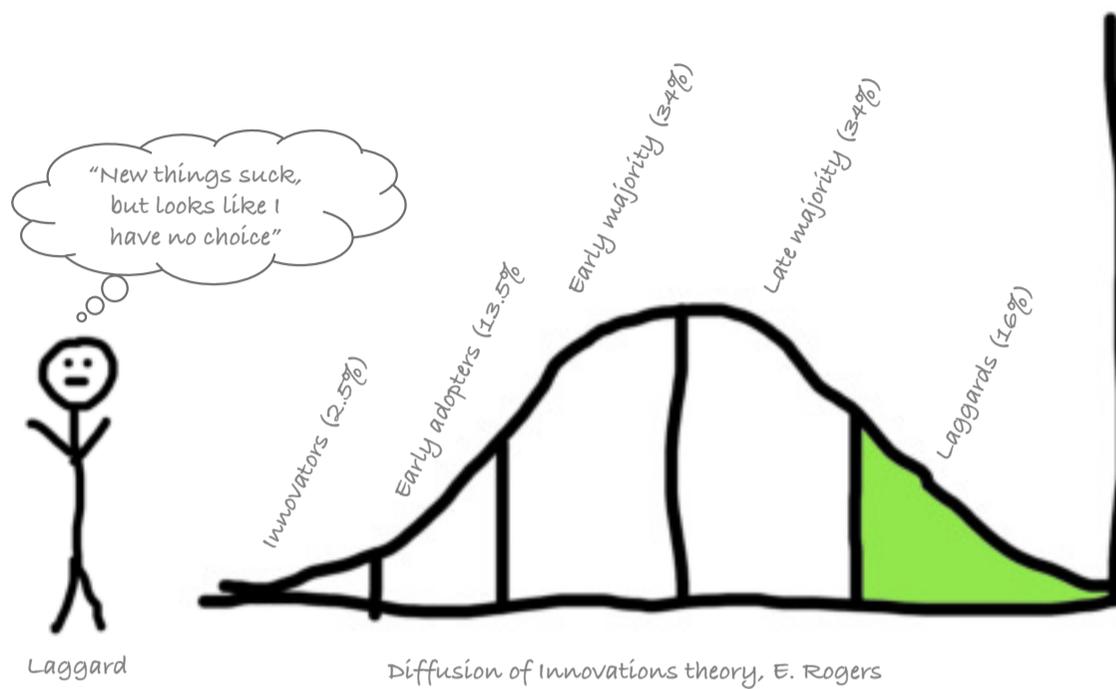
Some of us tend to go along with change...



Some of us tend to resist change...



And some of us really *can't stand* change...

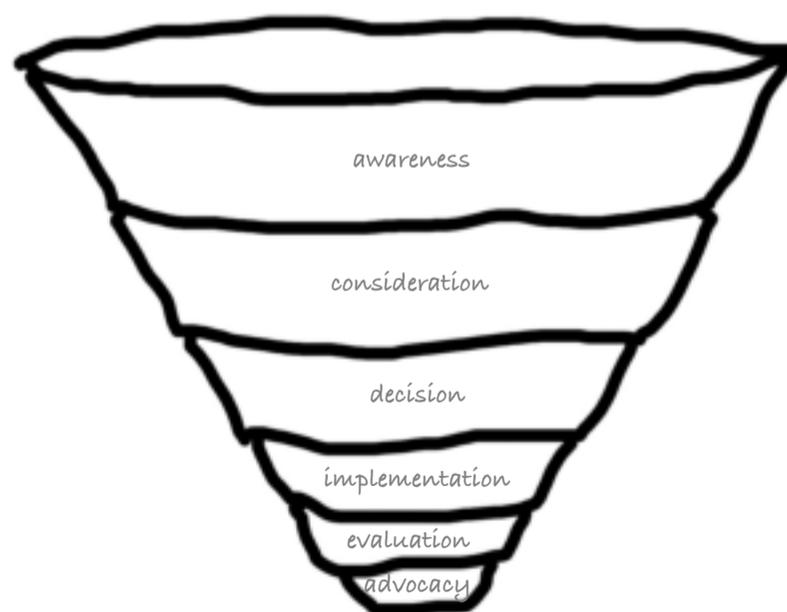


When stuff is changing, we each move through phases of acceptance at different rates.

Bootstrapped startups have given this a lot of thought. They need to get people to accept their product or service as quickly as possible, without wasting time and money they don't have.

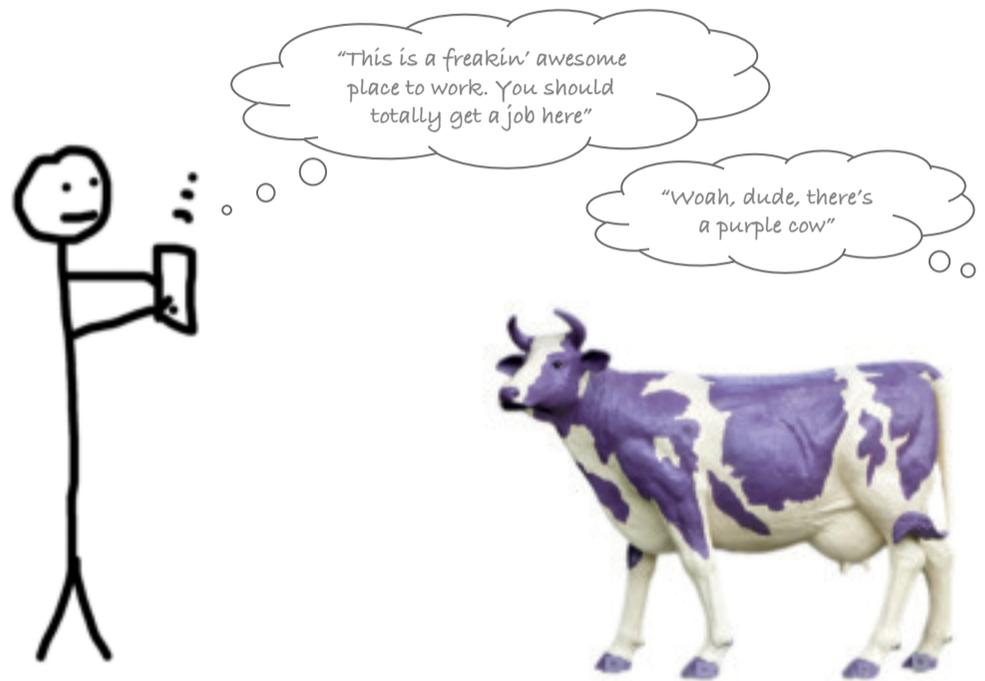
To achieve this, they typically focus on the Innovators first, who in turn spread the word to the Early Adopters, who then convince the Early Majority, and so on.

Marketers get this battle for acceptance too, because their job is to pull people through a funnel that looks something like this...



Just as brands need to provide customers with remarkable experiences to pull them through these stages, we need to provide employees with remarkable workplace experiences.

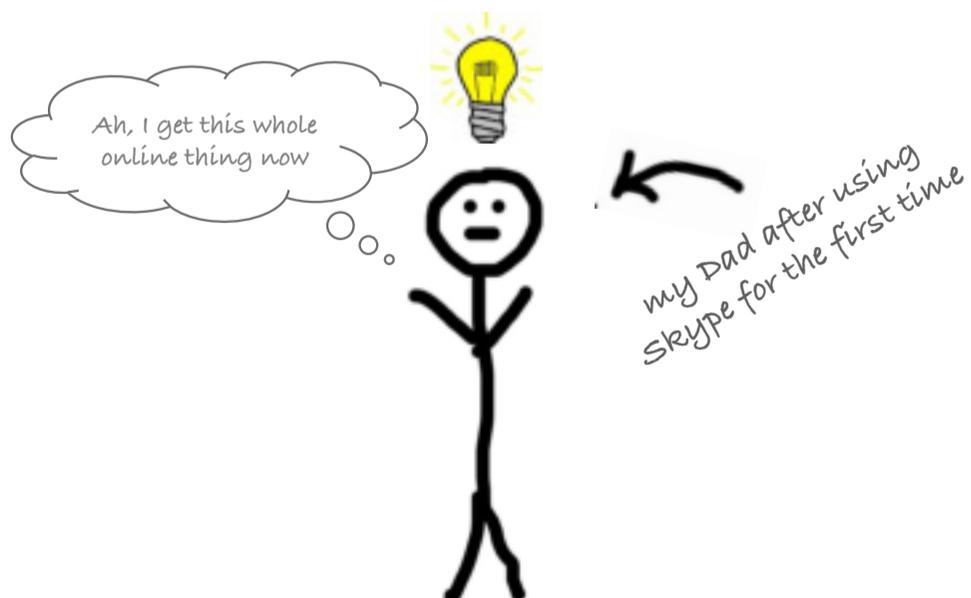
As Seth Godin might say, your workplace needs to be a **purple cow**: differentiated and *worth making a remark about*.



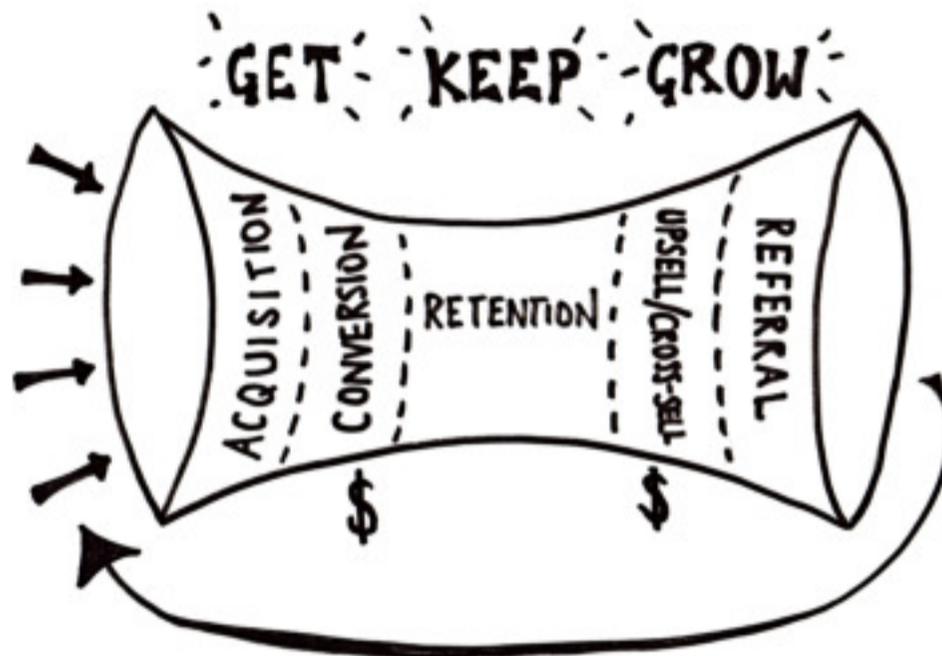
To pull people through the funnel and give them an awesome experience at every touchpoint, marketers need to communicate with their target audience in different ways, because people at each stage respond to different messages. You won't convince an Innovator to adopt something new using the same sales pitch that someone in the Late Majority would respond to, just as you won't convince someone to be an advocate for your new AI-powered virtual robotic voice-activated mega-assistant before they've evaluated it.

That's why we need to approach organizational change with a marketing / startup mindset. This means segmenting employees according to their needs and desires; and communicating with them in a highly personalized way.

When you drill down, change happens on an individual level, so each person needs to have their own lightbulb moment. These lightbulb moments normally happen when someone has a positive experience. If the new thing makes their life better in some way, they'll do the new thing.



Just as marketers and startups focus on **getting**, **keeping** and **growing** relationships with customers... organizations need to focus on getting, keeping and growing relationships with employees. The process is the same (and so are most of the metrics).



Startups use **growth hacking** to determine the most effective way of pulling people through the funnel. Now it's time to use growth hacking internally within our organizations.

Growth hacking is a process of rapid experimentation, often involving cross-functional teams. They come up with experiments ('hacks') that test their assumptions, then learn from the results. That way they can do more of what works and less of what doesn't work, as they strive to build and engage their audience.

Many lean startups use Strategyzer's *Business Model Canvas* (see next page) to visualize and document their thinking as they go through this process of validating their assumptions.

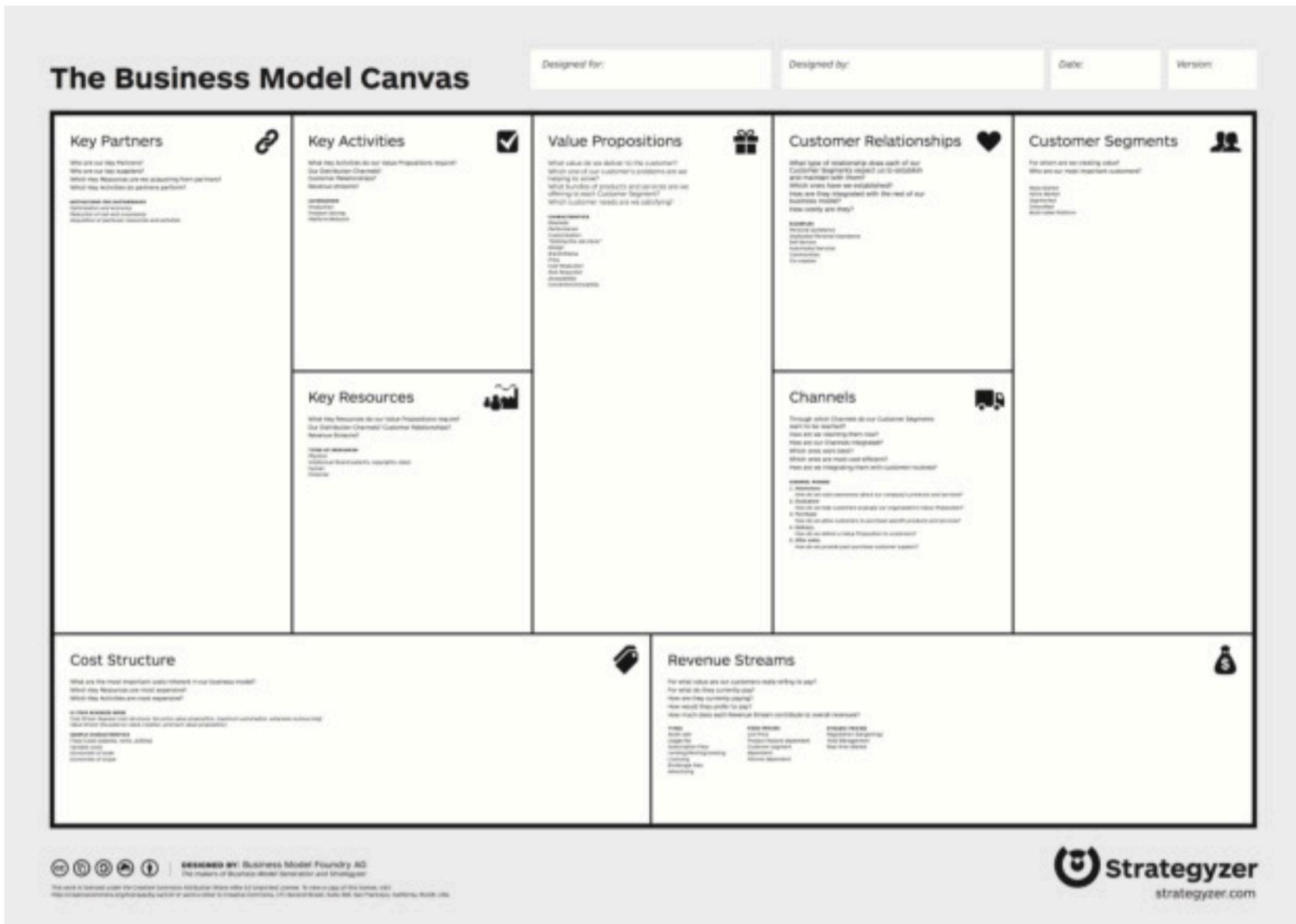
We can steal these lean startup methods to help us transform the employee experience and build a more creative, agile, resilient organization.

What if every change you want to make had a compelling Value Proposition that excites your employees?

What if you could segmented these employees and communicate with them in a personalized way, via optimized channels?

Change is really all about communication: communicating with people in an attention-grabbing, inspiring, useful way. **Mastering the future is an exercise in mastering communication.**

"The single biggest problem in communication is the illusion that it has taken place" - George Bernard Shaw



How to get started with the Biz Model Canvas

1. Start with 'customer segments'. Think about your employees in terms of 'Personas', differentiated by their needs, desires, problems and jobs-to-be-done.
2. Sketch out Value Propositions - articulate why an employee in a particular Segment will go for the change you're proposing. Map each segment to a Value Proposition.
3. Channels and Relationships define how you interact with employees. First list the Channels you'll use to communicate your Value Proposition to each Segment. For example you might use internal social networks, a formal email from the CEO, or a series of face-to-face meetings.
4. In the Relationships section, document the sort of relationships employees with have throughout this change. For example will all communication be virtual, or have you recruited some advocates as dedicated people they can contact with questions? Will there be any peer-to-peer support? Make sure your Value Proposition can be delivered to employees via the Relationships you're articulating.
5. Use Revenue Streams and Cost Structure to map out financial implications and ROI.
6. List Key Activities, Key Resources and Key Partners - internal and external - required to deliver your Value Propositions.
7. Use the canvas as a discussion tool. Ask what works, what doesn't, what could be better?

Happy hacking :)

Keeping the main thing

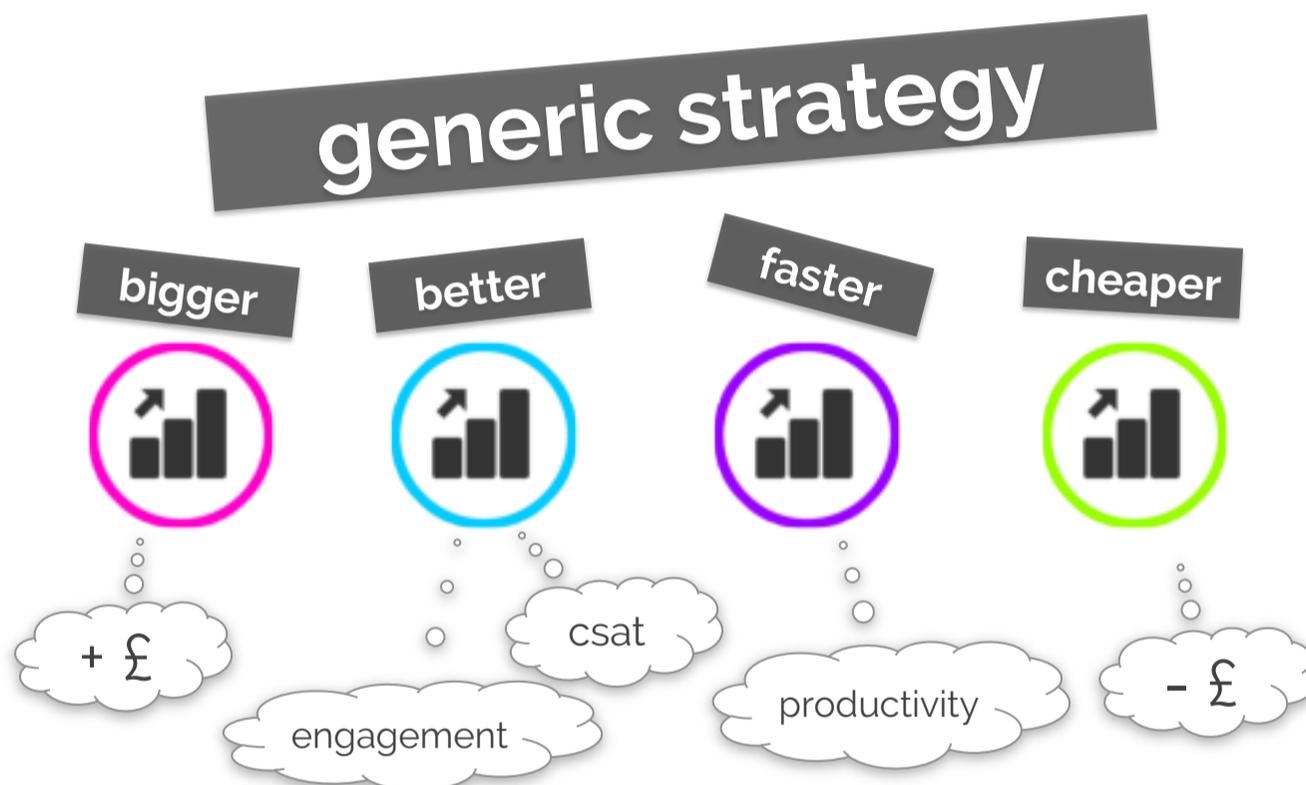
the main thing



So we've covered a lot of ground around the future of work... the past, present and future of AI and automation; the nature of change; the rising importance of creativity, EQ and learning; and ultimately how *people* will be impacted and what we can do to optimize the *human experience* at work.

Although the level of change we predict seems daunting, it's worth remembering what remains the same.

At a high level, strategy is completely generic. We're all trying to do pretty much the same thing. We want to get **bigger** (higher revenues, more people), we want to get **better** (better engagement, better products, better satisfaction), we want to get **faster** (higher throughput, faster time-to-market); and we want to do things **cheaper** (lower costs, greater profits). All this, in a way that's sustainable and responsible.



The way we achieve these things, at a high level, is generic too.

First of all, we set an inspiring, concise, memorable **vision** or **purpose**:

Why do we exist?

What difference do we want to make to people's lives?

What change do we want to see in the world?

This is a permanent, can't-ever-quite-get-there, sort of thing.

Next, we set an inspiring, concise, memorable **mission** or **ambition**:

What are we aiming for right now?

What does success look like?

What will take us closer to our vision/purpose?

This mission/ambition is finite. It has a start and an end. You can complete it, then move onto the next one.

Next we break down our mission/ambition into a set of **goals** and **objectives**.

Finally, there are only two ways that the work itself gets done: via **processes/systems** and by completing **projects**.



And 'how' this happens - the behaviours people display in their pursuit of shared goals - depends upon your organizational **values** or **principles**.

If your organization has complete clarity on its purpose, ambition and principles and this filters all the way through to the people doing all the work on the coalface; and if every person doing the work on the coalface fully understands how every one of their tasks fits with the purpose, ambition and principles, you have **strategic clarity**.

Is this anything new? No.

Have you all heard stuff like this before? No doubt.

But it's amazing how few companies actually get it right. Achieving strategic clarity is the single biggest business challenge of the 21st century.

Lack of clarity is the number 1 reason why projects fail and why strategies get wasted.

It's #1 reason why personally we're stressed out from trying to do too many things; and why businesses are damaged by trying to do too many things.

It's the #1 reason why we have problems with incentives and resort to bribing people with more money to get them to work harder.

If you're working towards a higher purpose that's clear and meaningful, that is an intrinsically motivating thing. If not, you're just completing tasks.

According to UK engagement experts Best Companies, low strategic clarity and managerial engagement are the biggest reasons why employee engagement is low.

In a world where there's only ever going to be more information, more new technologies and more demands on our time, achieving strategic clarity will enable us to focus on the main thing.

And the main thing is to keep the main thing the main thing.

In a world where it's impossible to keep getting *more* things done, **we need to get the right things done.**

Every day companies and individuals are failing not because they're not working hard enough, but because they're doing the wrong work. They're not focused on what's essential.

Without strategic clarity, we have no filter. This is why we feel overwhelmed and unprepared for the future.



Without strategic clarity, you see and hear all the noise and you don't know what to look at nor listen to. With it, you can look at everything new through the lens of your goals. This cuts out the noise; and enables you to always ask the right questions when something new crops up.

The only way we can stay on course in a world that's continuously bombarding us with new stuff, filling us with fear and overloading us with information and distractions... is to move into an era of extreme focus and clarity.

This simple model, that appears in so many guises throughout the world of business, can be applied not only to your organization as a whole, but to your team, your department... and even your life.



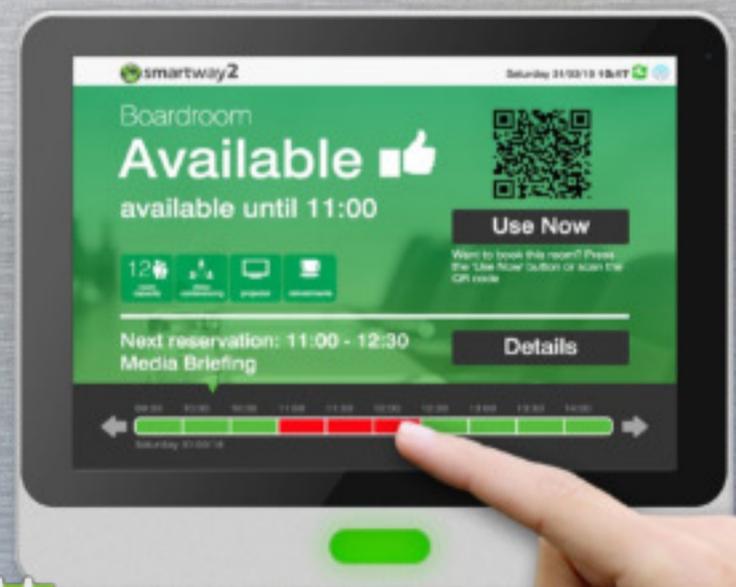
"Never believe that a few caring people can't change the world. For, indeed, that's all who ever have." - Margaret Mead

Smartway2 is a SaaS platform that enables businesses to help their people, places and technology work better together.

The platform provides a powerful rules-based engine, combined with leading room and desk signage, to improve employees' interaction with their company facilities.

Smartway2 enables users to book desks, meeting rooms, catering, equipment and other resources on-the-move; a capability that is vital to any organization that's striving to create a more agile workplace.

e: sales@smartway2.com



SMARTWAY 2