OUR INVISIBLE PARTNER

THE IMPACT OF AI, TODAY AND TOMORROW

AI IS RAPIDLY MOVING FROM BEING AN INTERESTING AVENUE OF TECHNOLOGICAL DEVELOPMENT TO BECOMING THE VERY FABRIC OF LIFE.

WELCOME TO YOUR AI FUTURE

The oft-quoted William Gibson perspective that "the future is already here, just not very evenly distributed yet", could easily be modified to apply directly to the evolution of Artificial Intelligence (AI).

AI is already very well established, indeed some forms of it have been around for decades. What we've seen to date, however, is just the merest fraction of how profoundly AI and its offshoots – machine learning and deep learning – will transform society. Before long it will be easier to list the areas of life that are not being unalterably disrupted by AI, machine learning and deep learning.

I think a lot of people don't understand how deep AI already is in so many things. Marc Benioff, CEO Salesforce.com

And such is the scale of investment in extending the reach of AI that we are likely to see it improving our lives in a myriad of ways, some that we can predict today and others that will surprise, delight and possibly even unsettle us.

We can build a much brighter future where humans are relieved of menial work using AI capabilities. Andrew Ng, computer scientist, focusing on machine learning and AI.

For marketers this fundamental change in the way interaction is built into the fabric of our lives will open up new opportunities and challenges as consumers become at once both easier and harder to reach.

I definitely fall into the camp of thinking of AI as augmenting human capability and capacity. Satya Nadella, CEO Microsoft

We aren't naïve enough to suggest that the pathway to the future will be smooth: arguably no other technological development in recent history has been as divisive, with the great and the good lining up either to argue or refute the idea that AI development will constitute a Terminator-style Skynet threat to our very existence.

We need to keep our expectations grounded and realistic. While properly used AI can undertake all kinds of tasks more quickly, cheaply and reliably than we humans can, we are far from suggesting it will replace some human abilities - or human themselves!

Despite all the hype and excitement about AI, it's still extremely limited today relative to what human intelligence is. Andrew Ng, computer scientist, focusing on machine learning and AI.

Here we share some thoughts on how AI is changing our lives today - both business and personal - and how it will do so tomorrow. We hope it inspires a new way of looking at the future, and leads you to consider how your marketing and communications could captialise on changes it will bring.

AI: THE CURRENT STATE OF PLAY

AI capability has reached an inflection point. While basic AI has existed since the 1950s, the technology has now come of age, driven by the development of machine and deep learning and easier access to high power computing systems. Moreover, projections for the technology are incredibly bullish, with most expecting rapid growth, expansion of headcount and diversification of usage applications.

AI is everywhere. It's not that big, scary thing in the future. AI is here with us.

Fei-Fei Li, Co-Director of Stanford University's Human-Centered AI Institute

RISING ADOPTION [1]

AI adoption has tripled in the last 12 months. One in seven large companies has already adopted AI. In 2 years, two-thirds of large companies will have live AI initiatives. Industry commentators expect AI to 'cross the chasm' from early adopters to the early majority during 2019.

STARTUP FOCUS [1]

This momentum is also reflected in AI-related startup activity. With AI entrepreneurship becoming mainstream. Europe is already home to 1,600 AI startups and one in 12 new startups put AI at the heart of their value proposition. The UK is the powerhouse of European AI, with a third of the Continent's startups, but Germany and France are flourishing hubs and may extend their influence in the decade ahead.

TALENT SHORTFALL [1]

Demand for AI talent has doubled in 2 years. As AI is woven into the fabric of everyday life, and corporate adoption of AI extends, demand for AI developers has surged. 2017 figures suggested that, in the UK, job listings for AI roles had increased 485% since 2014[2]. In the last 2 years, AI-related job postings as a proportion of total postings has nearly doubled.

Moreover, growth in demand is accelerating and, at present, there is still a gulf between demand and supply, with two roles available for every AI professional. A quarter of companies say that lack of available AI talent is a primary inhibitor in their efforts to adopt AI[3].

JOBS LOST TO AUTOMATION [4]

The flip side of the jobs created by AI is the widespread concern that jobs will be lost, if not directly as a result of AI then by the wider trend of automation - about 1.5 million workers in Britain are at high risk of losing their jobs to automation according to government estimates, with women and those in part-time work most affected.

However, the government also recognises both the wide disagreements among academics about the future impact automation and computerisation will have on the workplace and the dynamic nature of forecasts – industries previously highlighted as at high risk (such as leisure and theme park attendants) have actually turned out to need human staff more than had been expected. In some cases (such as retail checkout staff), there has indeed been a decline in demand because of the move to automated systems, and innovations such as the Amazon Go checkout free store, now being brought to the UK, and being trialled separately by Sainsbury's, and others, will likely accelerate the decline.

The most likely situation is that automation and AI expansion will change the nature of employment – while many jobs will indeed no longer be required, other new ones will be created.

A BRIGHT FUTURE [5]

All expectations are that AI, machine learning and deep learning will continue to grow. And at an accelerated rate, contributing significantly to the global economy. Research suggests that global GDP could be up to 14% higher in 2030 as a result of AI – the equivalent of an additional $15.7 trillion – making it the biggest commercial opportunity in today's fast changing economy.

While the greatest gains from AI are likely to be in China (boost of up to 26% GDP in 2030) and North America (potential 14% boost), the effects will be global. The biggest sector gains will be in retail, financial services and healthcare as AI increases productivity, product quality and consumption.

TRANSFORMING THE BUSINESS LANDSCAPE [1]

Current AI activity is concentrated in specific sectors. For example, over one-fifth (21%) of AI startup activity, is focused on health & wellbeing, more than any other sector. Here it is supporting rapid diagnosis, early identification of pandemics and imaging diagnostics.

However, it is rapidly expanding into all business sectors, as evidenced by the proportion of startup activity each is generating:
- Transport & Travel, including Automotive (18%)
- Finance & Investment (21%)
- Media & Entertainment (12%)
- Retail (12%)
- Infrastructure & Utilities (12%)
- Education (6%)
- Agriculture (5%)

TRANSFORMING BUSINESS OPERATIONS [1]

Some 23% of AI startup activity is currently focused on supporting marketing, more than any other area of business practice. In particular, activity is focused where the huge numbers of customer touchpoints generate vast amounts of data that AI is ideally placed to understand and action. Additionally, AI's growing ability to process language is helping mine newer sources of consumer insight such as social media streams.

AI's ability to help with repetitive processes – workflow automation and document processing for example – mean that it can help across many areas of business operations. Again, we can look to where startup activity is focused to see just how broad its focus is becoming:
- Customer Service (18%)
- IT (16%)
- Operations (9%)
- BI & Analytics (8%)
- HR (8%)
- Sales (7%)
- Compliance (4%)

HOW WILL AI CHANGE LIVES?

Much of the existing commentary and analysis of AI innovation has focused on the business opportunities it will create, and the sectors that will be impacted. To complement these points of view, we've chosen to focus on six ways in which AI is changing the lives of ordinary individuals and the operations of both B2C and B2B businesses.

First and foremost, AI will improve the processes of life. It will make tasks quicker to accomplish, and easier to systematise and automate. It will also play a profound role in providing safe and secure environments and communities and in validating transactions and identities. And, it will become able to complement and extend human capabilities. Collectively, these functional benefits of AI will form a foundation for our future lives. It is in this area where we find the bulk of existing AI applications and much of the startup activity.

However, an increasing amount of effort and thought is being put into exploring how AI can enrich our lives, for example, by making experiences more immersive and more personalised. There is also a passionate debate about the role of AI as a creative tool.

In presenting these six themes of AI development as a hierarchy, we don't necessarily mean to suggest a step-wise or sequential pathway for their development. We are not saying, for example, that for any given AI application to be creative that it must first offer streamlining, security, new capabilities, and so on.

Instead, we've found this a useful framework within which to explore the current state of play within AI, while recognising that any given AI application may address more than one type of benefit simultaneously.

HIERARCHY OF AI IMPACT

AI-BASED CREATIVITY

PERSONALISED PRODUCTS AND SERVICES

Enriching our business and personal lives by addressing key emotional needs

MORE IMMERSIVE EXPERIENCES

NEW (OR REGAINED) CAPABILITIES

Making our business and personal lives easy, efficient and secure by addressing key functional needs

SECURE LIVES

STREAMLINED LIVES

#1 STREAMLINED LIVES

The adoption of human-free service options such as automated check-outs (at supermarkets and airports, for example) and check-ins (at airports and hotels) or the biometric airport transit and aircraft boarding systems (such as those being trialled by WEF, SITA, WTTC, easyJet, and others) are just some examples of how AI-driven technologies are being employed to ease some of the pain points of modern life. In many ways these kinds of innovation may be regarded as entry-level AI benefits but the business impact of innovations such as hyper efficient logistics either in warehouses or via drone delivery systems should not be under appreciated.

#2 SECURE LIVES

Trust is an increasingly rare commodity as politicians argue over "fake news" and "alternative facts" and brand communications are either ignored or downweighted by cynical consumers who have started to look to each other or to influencers for credible opinions. AI will enable brands to start fighting back by giving them tools to spot counterfeit goods, identify deepfake videos, interrogate blockchains of product provenance or distribution networks and establish dialogues based on verifiable digital identities.

#3 NEW (OR REGAINED) CAPABILITIES

AI is already helping humans with capabilities that are limited or have been lost through age, disease or accident. This will increase over the coming decade, particularly when linked with the likely development of biohacking implants.

#4 MORE IMMERSIVE EXPERIENCES

Brands are starting to leverage the power of AI to build more engaging experiences using more sophisticated and humanlike chatbots, voice interfaces, real-time language translation and augmented reality overlays.

#5 PERSONALISED PRODUCTS AND SERVICES

Efforts to date aimed at the personalisation of product and service offerings or marketing communications campaigns represent only the very first steps in what is possible. AI will drive the optimisation of personalisation by adding various levels of contextual overlay: e.g. "Why were previous purchases made?", "Where are you now?" or "How are you feeling?".

#6 LIVES ENRICHED THROUGH CREATIVITY

Intelligent, automated systems have been developed to do everything from write copy to compose music, suggesting (to some) a future where the number of careers safe from automation is ever shrinking.

> If a typical person can do a mental task with less than one second of thought, we can probably automate it using AI either now or in the near future.
>
> Andrew Ng, computer scientist, focusing on machine learning and AI

#1 STREAMLINED LIVES

At present AI's dominant usage case, is automating repetitive processes, largely with the goal of efficiency. Its ability to synthesise, analyse, interpret and then apply vast quantities of real-time data make it the perfect tool to assist in streamlining our personal and our business lives.

NOW

Systems with AI at their heart are making processes easier, quicker, more cost-effective and choices better. Existing use cases include everything from AI-driven online searches, algorithm-enabled recommendations for products or media content and automated traffic and congestion management, to healthcare diagnostics and energy supply management.

Case Study: DigitalGenius Customer Service automation
DigitalGenius is an AI platform that claims to put customer support efforts "on autopilot by understanding conversations, automating repetitive processes and delighting your customers". The platform integrates with existing business CRM systems, and allows for fast, effective end-to-end resolution of customer inquiries through deep learning and open APIs, with the aim of reducing costs and boosting customer satisfaction scores in contact centres.

NEAR FUTURE

AI is likely to quickly transition into the automation of processes involving judgement calls where the synthesis of observed behaviours needs to overlap with the application of rules, possibly involving historical precedents. Examples may include automated insurance claims processing, legal judgements in small claims, back office automation, the rollout of checkout-free retail and so on. It will also begin to draw in new datasets (such as biometrics and facial recognition, subject of course to acceptance by the population and by regulators) that will allow processes that are dependent on proof of identity to be optimised.

**Case Study: Aruba Happy Flow**
Aruba Happy Flow describes itself as the first 100% self-service passenger experience. It is based on public/private cooperation between Aruba, the Netherlands, Aruba airport, KLM, Vision-box™ and Schiphol Group to create traveller-centric biometric technology, with the aim of getting passengers through the airport process as quickly and easily as possible.

FARTHER FUTURE

Covering everything from AI-driven online searches, providing algorithm-enabled recommendations for products or media content and automated traffic and congestion management to healthcare diagnostics and energy supply management, systems with AI at their heart are making processes easier, quicker and more cost-effective and choices better.

Case Study: Neuralink
Elon Musk's new Neuralink startup promises to bring us brain-computer interfaces enabling AI-driven software to react directly to our thoughts, and taking streamlining to a whole new level. Their early stage proposition is for robot-inserted brain-reading threads to be able transmit impulses (and therefore instructions e.g. to send emails, download files, etc) wirelessly from the brain to a module that sits outside the head.
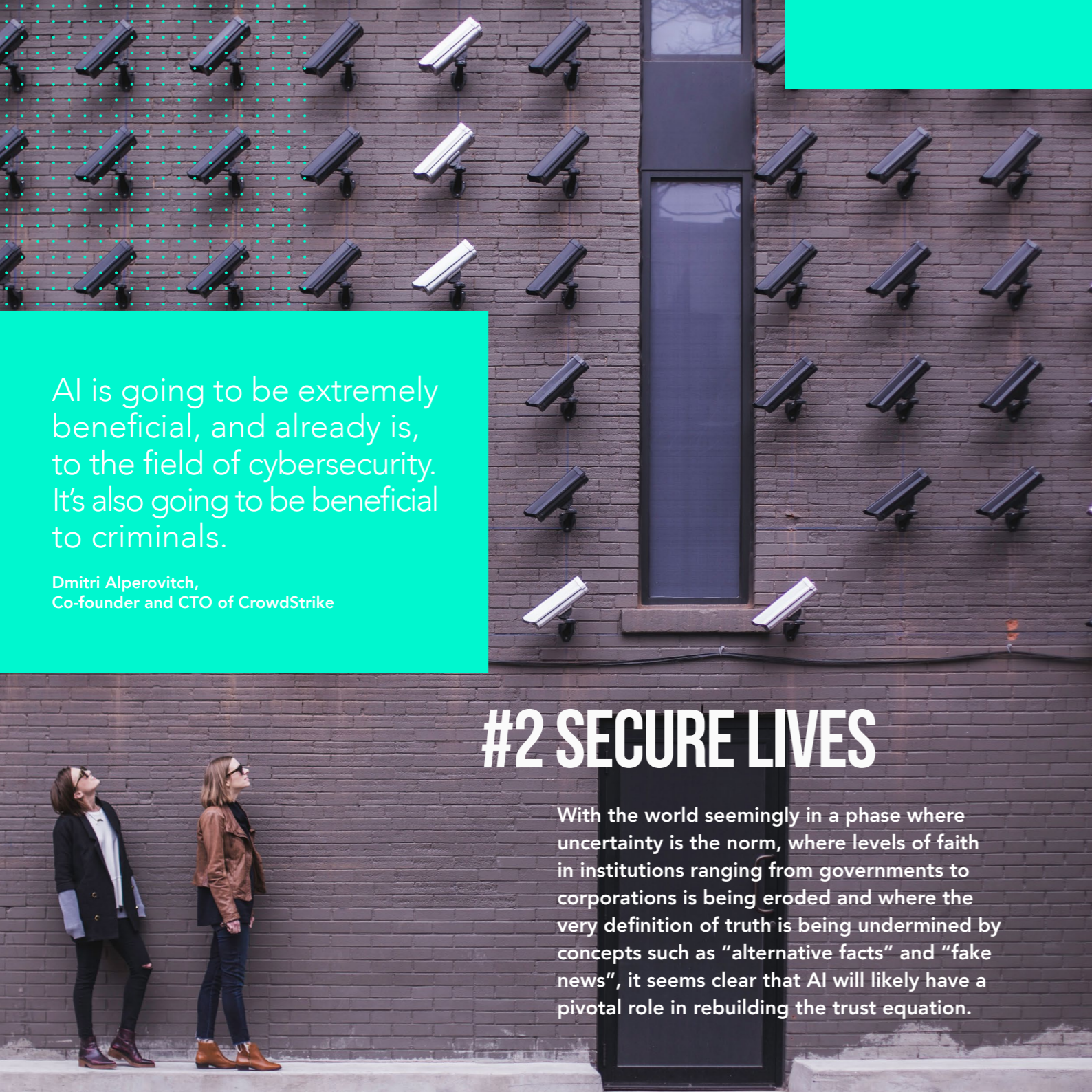
AI is going to be extremely beneficial, and already is, to the field of cybersecurity. It's also going to be beneficial to criminals.

Dmitri Alperovitch,
Co-founder and CTO of CrowdStrike

#2 SECURE LIVES

With the world seemingly in a phase where uncertainty is the norm, where levels of faith in institutions ranging from governments to corporations is being eroded and where the very definition of truth is being undermined by concepts such as "alternative facts" and "fake news", it seems clear that AI will likely have a pivotal role in rebuilding the trust equation.

NOW

AI is enabling the high-tech surveillance state, and potentially providing governments with greater powers for control of their populations. Already today, China is combining real-time recognition with social scoring[6] to discourage undesirable activity. AI offers trade-offs between privacy and security. As AI powered facial recognition advances, to what extent will citizens be willing to sacrifice privacy to detect crime?

This is not a clear cut issue: AI will likely operate on both sides of the battle. AI techniques, such as the Deepfake app[7] are enabling the creation of artificial media where words can literally be put in another's mouth. A video of Jordan Peele using AI to make Barack Obama deliver a PSA about fake news is perhaps the best known example[8].

NEAR FUTURE

AI will be valuable in the battle against fraud in several ways. For example, by creating a verifiable digital passport and identity credentials AI will help to counteract fraud and as an anti-counterfeiting tool. Fakes are getting harder to spot, and online shopping makes it easier than ever to buy fake goods. To fight back, brands are beginning to experiment with AI.

Blockchain will combine with AI to build verifiable trust[9.] This will increase trust in AI itself but also leverage AI to document and provide trusted bona fides for products and services. Blockchain technologies also hold the promise of adding structure and accountability to AI algorithms and may help in much-needed areas like security, quality, and integrity of the intelligence AI produces[10].

Case Study: Senseon
Senseon is AI for threat detection that goes beyond rules-based systems and blends multiple senses. It is able to differentiate between unusual behavior and malicious activity across an organisation's entire digital activity, in order to create a more secure working environment for its clients and their customers.

AI is going to be extremely beneficial, and already is, to the field of cybersecurity. It's also going to be beneficial to criminals.   Dmitri Alperovitch, Co-founder and CTO of CrowdStrike

Case Study: Alibaba Food Trust Framework
Alibaba's Food Trust Framework offers Blockchain-based food provenance. A Blockchain ledger tracks produce from farm to table. QR codes are attached to packages and consumers scan the code to see the journey that their purchase has been on, offering them a greater level of trust and reassurance about the produce they buy.

Case Study: Visual Trust Initiative
SGS (a leading Testing, Inspection and Certification body) partnered with Carrefour to launch the Visual Trust initiative, allowing Chinese shoppers to check the quality and origins of their food purchases by scanning products with their smartphones. The app then gives them immediate access to origins, test results, quality certificates, pictures of farms and nutritional advice.

FARTHER FUTURE

Today's facial recognition systems have been shown to misattribute certain types of faces (darker, female faces for example[11]). Such biased AI systems may increase societal inequality and efforts are already underway to defeat or confuse facial recognition systems[12] but such biases are likely to be minimised or, hopefully, eliminated, as efforts to optimise the technology continue.

However, while AI will clearly be capable of misuse and, thereby, potentially destabilise society, it will also provide solutions to the problems it has itself helped to create. We've spoken of the threat of deepfake videos, but there are already AI-driven approaches for spotting deepfakes, and, over the coming decade and beyond, we can surely expect more of this tit for tat innovation and counter-innovation from those interested in either duping the public or in protecting them.

We also need to acknowledge the passionate and profound nature of the debate around AI ethics. Discussions tend to focus on the importance of instilling human values in AI, creating AI systems with transparency and the urgency for different agencies to collaborate for the responsible advancement of AI.

Case Study: Deepfake spotters
Researchers from UC Berkeley and the University of Southern California believe they've developed the next weapon when it comes to accurately identifying faked videos. Their AI looks for the presence of each person's unique "soft biometric" signature, which is a detail that current deepfake processing techniques don't take into account when creating a fake.
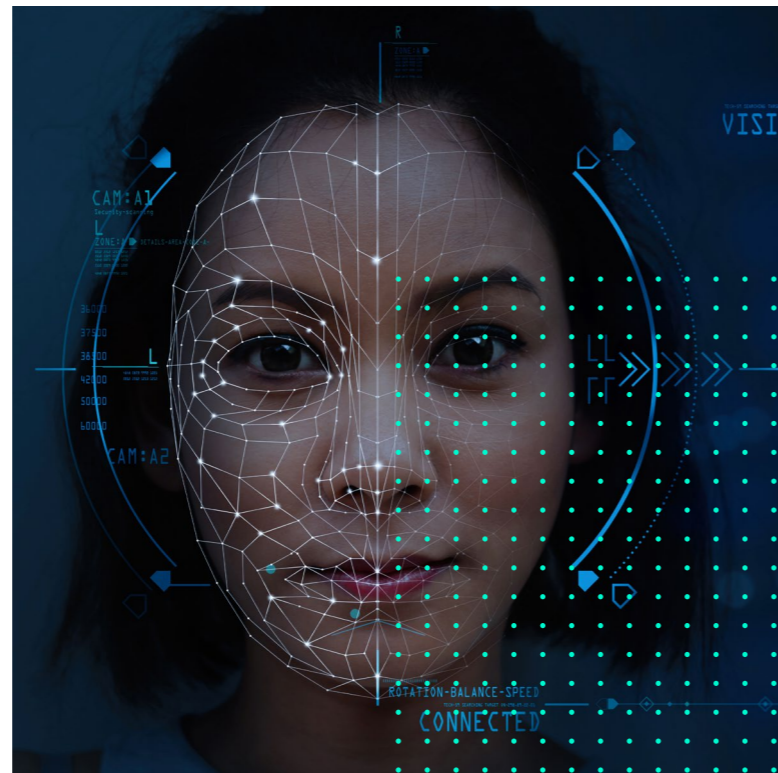
AI can be used for social good. But it can also be used for other types of social impact in which one man's good is another man's evil. We must remain aware of that.

James Hendler, Director of the Institute for Data Exploration and Applications, Rensselaer Polytechnic Institute
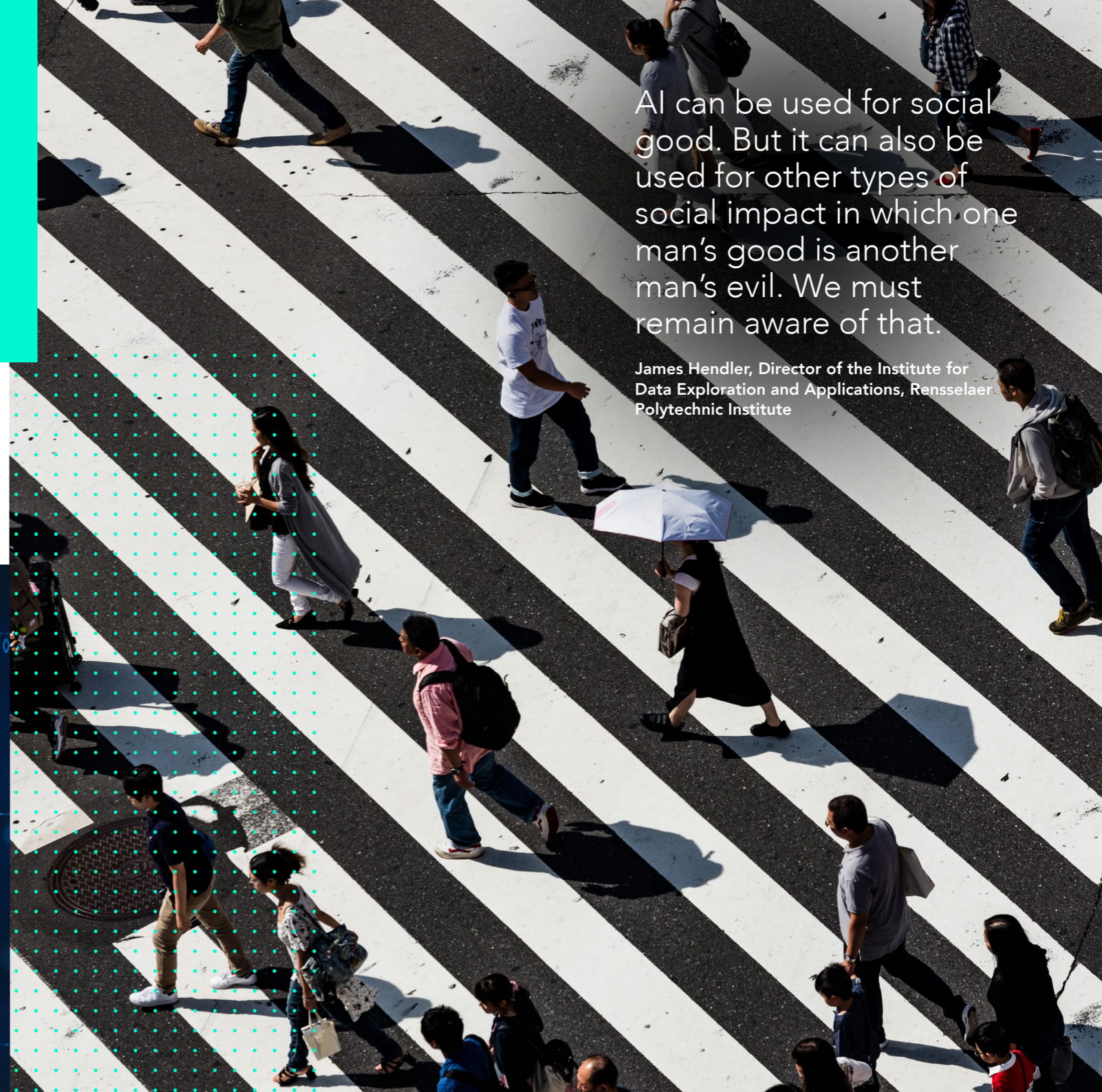
> No clear line separates healing from upgrading. Medicine almost always begins by saving people from falling below the norm, but the same tools and know-how can then be used to surpass the norm.
>
> Yuval Noah Harari, Homo Deus:
> A Brief History of Tomorrow

#3 NEW (OR REGAINED) CAPABILITIES

The combination of high-tech devices and powerful, AI-driven interfaces have started to offer functionality to those denied it by an accident of birth, disease or injury. Longer-term, they may even begin to offer humans new functionalities.

NOW

The ability of AI to make processes slicker is already being leveraged to improve service provision across all areas of life. This is starting to bring services closer to communities that may be excluded from the app economy. Even in basic terms, its ability to automate and optimise current service provision will likely make such services more accessible, cheaper and easier for suppliers to provide. In the context of "capabilities" we are talking about things like basic mobility.

Case Study: Voyage Auto
US startup Voyage Auto aims to use self-driving cars to reconnect retirement communities with the outside world. Its AI technology brings self-driving cars to those who need it most, addressing mobility issues that can leave older citizens isolated and depressed.

NEAR FUTURE

AI-driven devices and interfaces will increasingly work with a more diverse and inclusive set of inputs such as voice and images, rather than having to be instructed through touch and clicks. Cameraphones will increasingly act as eyes for those with visual impairments, with AIs becoming able to identify and interpret what they are being pointed at.

Case Study: Lookout
Lookout is an application developed by Google to bring marked improvements in quality of life for those individuals with visual impairment by using smartphones to identify and then audibly describe people and objects.

FARTHER FUTURE

For now, biohacking, in the form of implanting devices into the body that can provide a degree of interaction with tech devices and AI-driven interfaces, remains a niche pursuit. However, implants are already more established than we might assume (there are heart pacemakers, and both cochlear and contraceptive implants) so many believe that such human-machine symbiosis is a case of when rather than if. The case of Neil Harbisson[12] shows how implants can not only replace lost functionality but actually extend human capabilities. Born with achromatopsia, Neil could only see in grey scale. But he has learned to "hear" colours via a camera attached to his brain via a neural link. Not only can Neil sense the colours that most of us can, but he can also sense parts of the electromagnetic spectrum (infra-red and ultra-violet) that human senses usually cannot.

Case Study: Smart Tattoos
Researchers at London's Imperial College are working to develop 'smart' tattoo ink that can monitor what's going on inside the body (for example, levels of oxygen and glucose hormones in the blood) and display then display this information on an AI-driven smartphone app. By automating a process that has traditionally been the preserve of healthcare professionals, such applications can create a much closer link in the minds of individuals between (un)healthy behaviours and the outcomes they cause, hopefully leading to healthier populations.

> Neural implants could accomplish things no external interface could: virtual and augmented reality with all five senses; augmentation of human memory, attention, and learning speed; even multi-sense telepathy - sharing what we see, hear, touch, and even perhaps what we think and feel with others.
>
> Ramez Naam

#4 MORE IMMERSIVE EXPERIENCES

While Augmented Reality and Virtual Reality devices and applications take the headlines, AI is doing the behind the scenes grunt work that will deliver more immersive experiences to customers using these technologies. Ensuring that the right experiences are delivered to the right customers at the right time and place and in the right way.

NOW

For now, visual augmented reality is still experienced through phone screens. Pokémon Go and Snapchat filters offer fun ways to engage with AR. VR headsets are widely available, but consumer uptake is limited due to expense and the quality of the user experience – many are bulky and require extra hardware. AR apps such as IKEA Place are used to visualise home products in situ, while AR makeup allows customers to preview how products will look on their skin.

Case Study: Sephora Virtual Artist
Sephora's virtual makeover app allows consumers to experience a full-face makeup virtual try-on including lipsticks, lip glosses, eyeshadows, foundations and eyeliners. Such technologies are becoming commonplace throughout the fashion, cosmetics and even healthcare (e.g. spectacles) industries offering consumers the chance to pre-experience how products will look, significantly improving the online purchasing experience.

FUTURE

AR glasses will become more aesthetically pleasing and socially acceptable to wear – Google's "relaunch" of their Glasses, for now as an Enterprise solution, suggests this idea's time will indeed come. Indeed, Amazon sees such promise in the concept that it has launched its own 'Echo Frames'. VR functionality will continue to improve and will be used for more than gaming – for example shopping, wellbeing, or "travelling" to an exotic location.

Case Study: Story Stream
Story Stream is a smart content automation platform for automotive. Using patent-pending AI, Story Stream combines emotion analysis, people recognition, language and content analysis to deliver more personalised and relevant content to car owners – at scale. For example, it can detect if you're in a bad mood on your way to work in the rain on a Monday morning and serve you content to brighten your day.

Case Study: Synthesia AI-driven video production
Synthesia uses AI tech to enable 'native' translation that re-animates an actor's face to make it appear they speak a foreign language. By removing the language barrier from video Synthesia is aiming to make it easier and much more cost-effective for brands to engage with consumers irrespective of nationality and language skills.

#5 PERSONALISED PRODUCTS AND SERVICES

> I'm most passionate about personalisation. I firmly believe that personalised experiences with brands will most drive loyalty and relevance for customers in the future.
>
> Katrina Lake, Founder and CEO of Stitch Fix, a fashion-based subscription service

Efforts aimed at the personalisation of product and service offerings or marketing communications campaigns to date represent only the very first steps in what is possible. So far, personalisation algorithms tend to start from a base of an individual's purchasing history – along the lines of the Amazon "you bought X, so you'll probably like Y". These need to be optimised with the addition of various levels of contextual overlay (why the previous purchases were made), but they must also reflect the "in-the-moment" dimension such as location and/or mood, emotions or body state (e.g. tiredness, excitement, dehydration, etc). Clearly, all efforts to personalise are dependent on getting the requisite data from the customer and GDPR has, rightly, tightened up on the way such data are gathered, managed and utilised. The more levels of contextual information that are required, the harder it will likely be for brands to make a compelling case for securing the appropriate permissions.

NOW

Products are altered or made-to-order according to individual tastes. Emerging options include bespoke skincare formulations and clothes tailored to an exact fit. At present, many are still unwilling to give up their personal data in order to access more enjoyable content or personalised pricing, although much data sharing is happening at an unconscious or unwitting level e.g. when people fail to read T&Cs before using an app, or via social media channels.

Case Study: DigiMe
With a mission of creating "a world where data is controlled by people for their own benefit", Digi.me is a free service that lets users store their digital information – from bank, social and music accounts to health and fitness records – in a secure online library. Services like this one herald a future where consumers have significantly more visibility of the data they share and a greater appreciation – and expectation of – a mutually beneficial value exchange with third parties.

NEAR FUTURE

Recognising the individual will extend beyond the screen to marry personalisation within physical and online worlds. The maturity of custom services or offerings mean providing it within the customer's context, taking into account, for example, location.

Case Study: NoahFace Cafée
NoahFace provides facial recognition technology to businesses, with the aim of improving customer service and streamlining business activities. Their NoahFace Cafée solution is designed for cafes and shops with a large number of regular customers. The technology recognises regular customers when they enter and stores their previous orders and loyalty program in order to help staff personalise the customer experience.

FARTHER FUTURE

The sensing of a consumer's mood and internal vital signs, by means of emotion coding of facial features and communication of sensors "worn" in or on the body will allow brands to target different consumers with specific communications during micro-moments. AI will make such personalisation scalable – scanning thousands of options to select the best choice for every individual.

Case Study: oOh! Media and Nutella
oOh! Media partnered PHD with Nutella to create a new OOH campaign that reacts to passers-by in shopping centres. The screens use facial mapping technology to personalise the display depending on whether the AI driving the system perceives the shopper as happy, inspired, or grumpy.

Case Study: Amazon Alexa Mood Sensor
Amazon won a patent in October 2018 for technology that identifies a user's physical and emotional state and serves appropriate adverts, with, for example, Alexa recognising that a woman is coughing and sniffling before offering her a chicken soup recipe.

If Kindle is upgraded with face recognition and biometric sensors, it can know what made you laugh, what made you sad and what made you angry. Soon, books will read you while you are reading them.

Yuval Noah Harari, Homo Deus: A History of Tomorrow

#6 LIVES ENRICHED THROUGH CREATIVITY

> What I'm looking for out of cognitive systems is not just another form of computing but something that actually creates a presence in our life and through that presence is able to inspire us.
>
> Rob High, Vice President and CTO, IBM Watson

One of the oft-cited thresholds of AI development is the singularity - the point when computer systems become, conscious, capable of independent thought and self-improvement. This discussion has elicited extreme reactions, with some even prophesying the very end of humanity itself as the Robo-Apocalypse, foretold in countless sci-fi renditions becomes reality.

Concerns about how individuals and society as a whole will deal with the potential "dark cloud" of large numbers of jobs being lost to automation tend to offer the "silver lining" that those with creative skills will be protected. But what if even that reassurance proves to be false?

There are, indeed, widespread efforts to build AI-systems capable of innovation, creativity, spontaneity and emotion[13].

NOW

Already AI has helped write pop ballads, mimicked the styles of great painters and informed creative decisions in filmmaking. There is debate about how truly creative AI currently is or, indeed, can ever be. Most current initiatives "create" new content by "feeding" the AI systems with thousands of existing examples which are analysed. New outputs are created using rules applied to these inputs, but many regard such outputs as little more than tweaked versions of the starter materials. Here are just a few of the current offerings:

Case Study - InspiroBot
InspiroBot describes itself as "an artificial intelligence dedicated to generating unlimited amounts of unique inspirational quotes for endless enrichment of pointless human existence".

Case Study - Ai-da, Robotic Artist
Ai-da is claimed to be the world's first robotic artist. Her makers say she will be able to draw people from sight with a pencil in her bionic hand.

Case Study - Pix2Pix
This image-to-image app offers a shortcut to artistic skill. Starting with a doodle, or a blurry, nondescript image, the AI can pick out distinctive features, and create a much more polished image such as a human face or a cat.

Case Study – Alibaba AI Copywriting
Alimama, the digital marketing arm of ecommerce platform Alibaba, has an artificial-intelligence-enabled Chinese language copywriting tool that it says passed the Turing test and can produce 20,000 lines of copy a second for sites like Taobao and Tmall.

FUTURE

Firstly, AI will serve as inspiration in the creative process and will optimise business processes including marketing[14]. It will also help with more mundane tasks, especially in the digital domain where much of the behind-the-scenes work is far from glamorous.

Longer-term, for AI to be regarded as truly creative will require breaking the next threshold - being able to develop autonomous machines that can create on their own initiative. There is considerable debate about whether this will ever be possible because creating something new requires more than just the quality of "creativity. Amongst other things, it requires the ability to interpret meaning, understand social context and be self-critical.

A relatively new development known as Generative Adversarial Networks (GANs) help machines to assess their own work, and improve it but the other prerequisites of creativity described above will likely require the development of almost human-like general intelligence, something that is still a long way off. For the time being, true creativity will remain squarely the domain of humans, but AIs will become increasingly able to mimic some elements of human creativity.

It's easy for AI to come up with something novel just randomly. But it's very hard to come up with something that is novel and unexpected and useful.

John Smith, Manager of Multimedia and Vision at IBM Research

OUR INVISIBLE PARTNER: TAKEAWAYS

Implementation tactics and longer-term strategic goals set for AI will clearly vary hugely from sector to sector and for specific disciplines and business units within corporations.

What's become clear is that any AI strategy must look outward-in, rather than just inward-out. AI is changing our society and the way we are becoming accustomed to interacting with other people and businesses. The evolving experience delivered with the benefit of AI – as defined within the *Hierarchy of AI Impact* – is an important basis from which companies can evaluate their AI strategies.

We already have thoughts about how your marketing and communications could capitalise on this movement – starting with becoming an expert voice on the subject. We'd love to share those with you in person.

For now, though we'll restrict ourselves to a few general, cross-category takeaways about the personal impact of AI.

There is no precise distinction between artificial intelligence and machine learning —they overlap greatly. At this point, AI is an aspirational term reflecting a goal.

Trevor Darrell, a leading artificial-intelligence researcher at UC Berkeley[15]

People are right to be confused, because the terms artificial intelligence and machine learning are suddenly being used interchangeably in the popular press.

Harvard computer scientist Leslie Valiant [15]

#1 SINGLE VERSION OF THE TRUTH

AI will join together individual personas in a way that gives the marketer much richer, deeper and critically, accurate insight about their preferences and lifestyles. This single profile will reach across every aspect of the individual's life, presenting an opportunity for more personal and relevant brand engagement.

#2 TWO WAY DIALOGUE

Consumers will interact with brands via a two-way dialogue that fits with the brand experience. Unlike the clunky and prescriptive chatbot experience we see today; brands will be expected to offer a human-like voice service via any channel.

#3 CONSUMERS HAVE CONTROL

By opting-in to notifications they want, consumers will control what content they see. Subscription-based services will be the lifeblood of this new permissions-based era, where consumers will trust and associate themselves with positive brands.

#4 LIFELONG RELATIONSHIPS

The decreasing opportunity for speculative engagement with 'unknown' consumers will generate a resurgence in campaigns that are less about sales and more about brand affinity. Awareness and understanding of the proposition must be clearly communicated through trusted influencers and word of mouth. Make customers come to you.

#5 ADOPT AI RESPONSIBLY

It is tempting to view AI and automation as routes to more efficient processes and cost savings through reduced headcount. But everyone taking that view will lead to some profound societal consequences. Visionary employers will, instead, see AI as the means by which they can contribute to society and to the fulfilment and welfare of their employees.

SOURCES

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14. Econsultancy AI in marketing
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Further reading

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2. European Commission – AI European Perspective
3. CB Insights AI Trends 2019
4. NESTA – Educ-AI-tion Rebooted
5. Beauhurst – the AI brief
6. Homo Deus – A brief history of tomorrow (Yuval Noah Harari)
7. Life 3.0 – Being human in the age of Artificial Intelligence (Max Tegmark)

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Get in touch to talk about AI for marketing & communications

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