Leadership

Wise Leadership and AI

Chapter 2 | Can we Trust AI to Tame Complexity?

By
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With the
AMROP EDITORIAL BOARD

Amrop
Leaders For What's Next

Can we Trust AI to Tame Complexity?

This latest article in our series exploring Wise Leadership and AI takes a deeper dive into the workings of AI — and its ethical implications. Here are the topline messages.

1 **Business and social dilemmas cannot be solved by algorithms alone**
A host of ethical issues awaits us.

2 **AI is vulnerable to human flaws.**
Machine learning, designed to emulate the human brain, is also subject to bias.

3 **AI is a black box — trust needs building.**
In the 2017 PwC CEO Pulse survey, 76% cited a lack of transparecy as impeding AI adoption in their enterprise.

4 **AI is far smarter than us - in specialized intelligence**
It performs tasks faster and better - when limited to a specific domain, such as IBM's current Watson applications.

5 **AI is solving problems not previously seen as prediction problems**
Autonomous driving is just one example, solving a host of 'if/then' questions.

6 **Consider yourself a conditioning event**
AI uses conditional probability, 'if/then' logic, based on past data, to predict what you'll do - or want - next.

7 **Boards are still paying lip service to digital technology**
Digital leaders tell Amrop that boards still lack digital literacy or an awareness of how it can transform business models.

8 **If the app is free, you're the product**
More data means less privacy, more speed, more autonomy, less control. These are the current trade-offs.

9 **A few quasi-monopolies will likely dominate the scene**
The ethical implications - as well as possible systemic failure, cannot be ignored.

10 **As 'Hackable animals', we face a philosophical crisis**
Leading observers and digital entrepreneurs see an existential threat. Society has been built on ideas that *pre-dated* technology.

11 **Amplified bias is creating echo chambers**
AI determines what information to show us, on the basis of choices we already made.

12 **Historical data doesn't make for a fair future**
Algorithms base their predictions on past actions, reinforcing old habits, prejudices, and stigmatizing social groups.

13 **Privacy policies need more work**
Despite data protection, research shows that when (for example) a Netflix customer rates 6 obscure movies out of the top 500, s/she can be identified 84% of the time.

14 **We have every chance of getting it right**
Research suggests that humans are essentially collaborative and fair. By doing good, we stay in the game.

15 **Leaders need to do 4 key things.**
Sharpen the mission, remembering AI is best serving specific areas. *Manage the learning loop,* ensuring that information flows into decisions, outcomes, and back into the system. *Address the ethics,* especially regarding the concentration of data and possible systemic failure. Finally and above all - *take responsibility*, keeping the social purpose in mind.

The commercial thinking interwoven into the current fabric of AI is not sustainable. AI requires diligent governance - the values and norms that aspire towards a better future. Wise leadership will be needed bring ethical and responsible thinking into the equation.

Wise Leadership and AI | 2

Can we trust AI to tame complexity?

A runaway streetcar is moving towards five people lying on the track. You can choose to re-direct it to a side-track, killing one person who is lying on the side-track, and saving the five, or do nothing. Business ethicist Edward Freeman has raised a modern version of this ethical thought experiment (known as the 'trolley problem'). What happens, he asks, when a self-driving car, meeting an unavoidable collision, has to algorithmically choose whether to sacrifice its occupants or risk fatally harming other passengers or pedestrians?

How should 'robo-ethics' deal with such situations? How to guide developers to write the code? Facts are distinct from values. Bringing ethics into machine learning raises a host of trolley problems. At what number of people in line for injury or death should the computer decide to shift a car from one person to another? Judgments about moral and ethical choices are as important as they ever were.

Increasingly, big data is influencing, even driving, our world. 20 years ago, about 25% of data were digitized. Today, 97% are. Data really are becoming the new oil. We're seeing a move from financial capitalism, to a form of data capitalism. Several factors underlie this - the growth in internet traffic, or network effect, the accumulation of massive data sets, and the data capacity and analytical power of computers.

In the first article of this Amrop series exploring Wise Leadership and AI, we argued that if human and artificial intelligence will compete for jobs in a world driven by industry 4.0 (and beyond), they will increasingly collaborate, complementing each other. Cognitive systems can perform specific tasks, becoming more intelligent by the minute via feedback loops. But entire jobs — and envisioning a future - remain beyond their scope.

We also argued that wise, not just smart, leadership will be needed to bring out the best in AI — the most transformational technology of our age. Without a change in leadership, AI may even pose some risks. The problems and dilemmas of business cannot be solved by algorithms alone. And as the trolley problem demonstrates, a host of ethical issues awaits us.

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As Principal of Verhezen & Associates and Senior Consultant in Governance at the IFC (World Bank) in Asia Pacific, Peter advises boards and top executives on governance, risk management and responsible leadership. He is the author of several articles and books in the domain.

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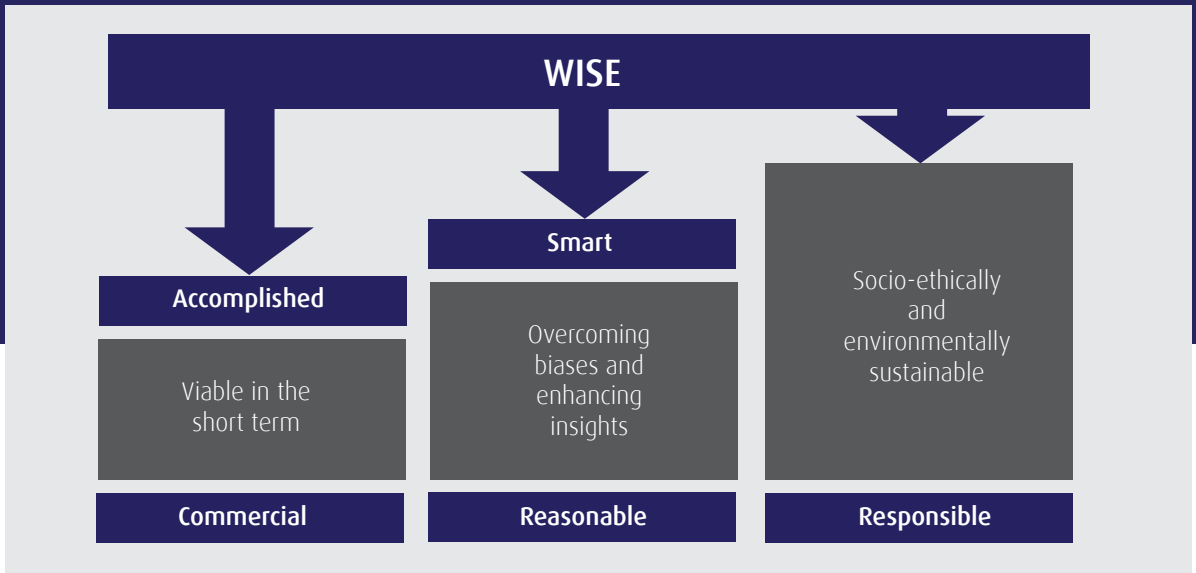


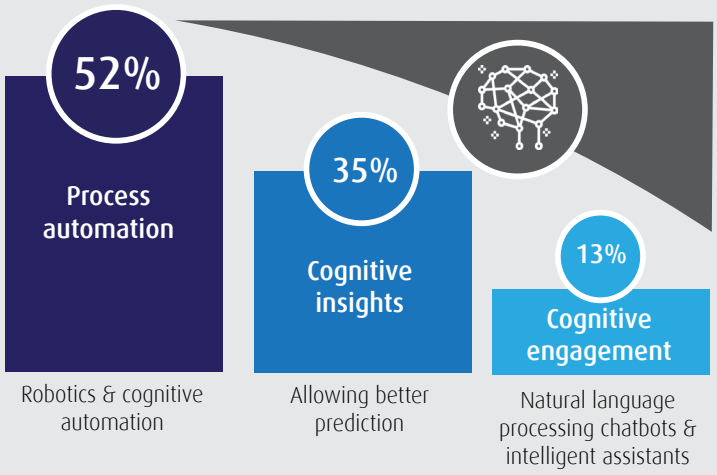
How can we define a wise leader?

Wise leaders don't only create and capture vital economic value, they build *more sustainable, legitimate* organizations. More than *reasonable*, wise leaders are *responsible*, honoring their fiduciary duty of loyalty and care to the organization, assuring ESG criteria and sustainable/ long-term value. Value that AI can enhance, erode, or destroy, depending on how it is led. Wise leaders take a *holistic* view. They have the emotional maturity and generosity to inspire and mobilize others. Business is about envisioning the unimaginable, innovating solutions. Shaping a future, rather than only predicting specific outcomes. AI can help leaders to materialize that vision, but without wisdom, may endanger a more humane future. Wise leadership acknowledges the power of computer learning, enlightened by neuroscience, whilst emphasizing human qualities. Not attempting to compete with computers, but developing human creativity, discernment, fairness of judgment, social collaboration, and a holistic vision of the future.

There is a long road ahead

As we saw in our last article, and worth a re-cap, AI is vulnerable to some very human flaws. Machine learning, designed to emulate the human brain, is also subject to bias. It tends to discount the possibility of significant change, operating within the world defined by the data used to calibrate it. AI is also a black box. As machines learn from processing data, deep neural network layers progressively recognize more complex features, which are captured in algorithms. Yet this complexity obscures the decision process. In the 2017 PwC 'CEO Pulse' survey 76% of respondents cited a lack of transparency (and potential for biases) as impeding AI adoption in their enterprises. 73% raised the need for governance and rules to control it.

This article offers a deeper dive into the workings of AI - and its ethical implications. We'll look at its darker side, showing how AI will need a moral framework if it is to be a force for good. We'll prepare the ground for Article 3 in our series — The Road To Singularity, examining where AI could potentially take us next.



Some IT researchers, such as Davenport and Ronanki, see 3 facets of AI.

How AI Works

AI is the branch of computer science concerned with automating intelligent behavior, information technology, without human components. AI (and machine learning) involve computers crunching vast quantities of data to find patterns and make predictions. Deep learning allows predictive modeling via an artificial 'neural network' — loosely modeling the way neurons connect in the brain. AI works by brute force, using millions of samples, deploying reinforcement learning based on little pieces of information to approximate a desired function. Consider the GPS systems behind autonomous cars, or virtual assistants such as Apple's Siri and Amazon's Echo.

Faster (within limits)

When it comes to specialized intelligence, artificially intelligent machines are far smarter than we are. They perform tasks faster and better — when these are limited to a specific domain. IBM's Watson can answer questions posed in natural language, and is perhaps best-known for beating chess champion Gary Kasparov and later, human opponents, on Jeopardy, a US quiz show. Today, its technology services a range of applications, using and interpreting fast-evolving data sets: from advertising and customer engagement, to education, financial services, healthcare, the IoT, multimedia and talent management. However, these remain specific. Another example is a Tesla car. It may (sort of) drive autonomously. But it can't decide to pick up a bunch of flowers at the nearest grocery store.

Predictive power

AI can improve our innovative insights, reducing bias in our supposed 'rational thinking', enhancing the cost-efficiency of our predictions. If it doesn't actually bring us intelligence, it's a critical component. One important facet is prediction — *'if-then'* logic - filling in missing information. Predictive AI takes digital information you have (data) and uses it to generate information you don't have (prediction). In the hands of a competent statistician, tests such as regression analysis certainly minimize prediction mistakes. And this is powerful, even with relatively small data sets. But given the vast amount of personal data available today, digital devices can learn more about specific aspects of ourselves than even we know, reducing uncertainty. Not surprisingly, Google's CEO, Sundar Pichai, sees a shift from searching and organizing the world's information, to AI and machine learning.

As prediction gets cheaper, faster, better, we'll use more of it to solve traditional problems such as inventory management, problems that, historically, have not been thought of as prediction problems. Autonomous vehicles, for example, were originally programmed to move around in a controlled environment, a factory or a warehouse, and told what to do in certain situations: *if* a human walks in front of the vehicle, *then* stop. *If* a shelf is empty, *then* move to the next one. Imagine such a vehicle on a city street. *If* it's dark, *if* it's raining, *if* a child runs into the street, *if* an oncoming vehicle signals. No matter how many lines of code we write, we can't cover all the potential *if's* (or the permutations of *if's*).

Prediction in Action - Autonomous driving

In this instance an AI has to predict the answer to one over-riding question: what would a good human driver do? When we're driving, the set of actions we can take is limited (then's). Turn right or left, brake, slow down, accelerate, reverse. In an AI driving lesson, the AI 'sits' beside the human driver, watching. Since it lacks eyes and ears, we give it cameras, radar, light detection and ranging (LIDAR). The machine then induces theories from data — a set of constraints on what the world could be – not necessarily a complete description. It takes the data as input from its 'eyes', 'looks' at the human and 'tries' to predict: what will the human do next? At first, it makes a lot of mistakes. But it learns from them, updating its model every time it incorrectly predicts the human's action. Its predictions start getting better until it becomes so good at predicting what the human would do that the human becomes superfluous. The AI can perform alone, as long as it has the infrastructure (continuous, high-speed connectivity via a 5G network). Experts believe we are close to a tipping point (no pun intended) in materializing automated cars and ships.

The what, not the why

It's well known that digital data and algorithms are the lifeblood of Facebook, Instagram, Snapchat, Twitter and LinkedIn. Amazon, too, seeks unique patterns in its customer data, revealing their preferences and enabling it to deduce their desires without having to ask them directly.

The sophisticated algorithm used by these organizations to personalize offers to consumers uses continuous conditional probability calculations. This is the chance that one thing will happen, given some other thing already did. It is how AI systems express judgements in a way that reflects their partial knowledge. Conditional probabilities must be estimated from data sets in which you, the individual, are the conditioning 'event'. Real problems are framed in terms of conditional probability, applying 'if/then' logic to solve them.

Computers don't understand why we are watching Guardians of the Galaxy or Stranger Things, but they're great at tabulating vast databases of our viewing history from a ratings matrix to estimate the conditional probabilities of our personal preferences — what we'd like to watch next. Again, algorithms don't know about our deeper motivations, they just 'see' our choices via the revelations of the data. It's enough for them to identify the products we're most likely to want and buy.

In AI, recognizing a pattern means applying an equation to data. The big breakthrough was the introduction of neural networks - actually an equation with a lot of parameters and capable of describing very complicated patterns in data, from sources such as language, images, and video. Neural networks work incredibly well across a range of prediction tasks.

MIT Professor Sandy Pentland and his team research how human behavior and technological ecosystems interact. This 'social physics' uses mathematical tools, inspired by physics, to understand how we make decisions. As organizations strive to influence conscious processes, explit knowledge, Pentland's research indicates that sociometric data can show that unconscious processes and tacit knowledge are potentially even more important in determining the behavior of organizations.

Still, AI is still in its early stages. Digital leaders tell Amrop that their boards pay lip service to digital technology, without really knowing how it can transform business models. So many opportunities await. And hopefully, we can sort out the ethical challenges regarding digitized intelligence – as we shall see.

Exponential development

Over the past twelve months, progress in a wide range of applications (e.g., video, natural language, motion control) was faster than in the twelve months prior, according to McKinsey and the Boston Consulting Group. And whilst investment is soaring, the quality-adjusted costs of sensors — a key component enabling, for example, Amazon Go – is falling. And the data mass is growing by the day.

AI is serving multiple industries in multiple ways.

Finance: Vanguard uses cognitive technology to provide customers with low cost investment advice. Its Personal Advisor automates traditional tasks, freeing up human advisors for higher-value activities. Aviva can now predict insurance claims in new ways: whereas blood and urine analyses once cost the company USD 125 per person, credit reports and consumer marketing data now deliver a verdict at an average cost of only USD 5 per person. Data on an individual's lifestyle now function as a proxy to predict their health. Banks can detect credit card fraud by examining anomalies, crunching big data, skimming past transactions to predict whether a recent transaction is abnormal and possibly fraudulent, stopping illegal activity in its tracks.

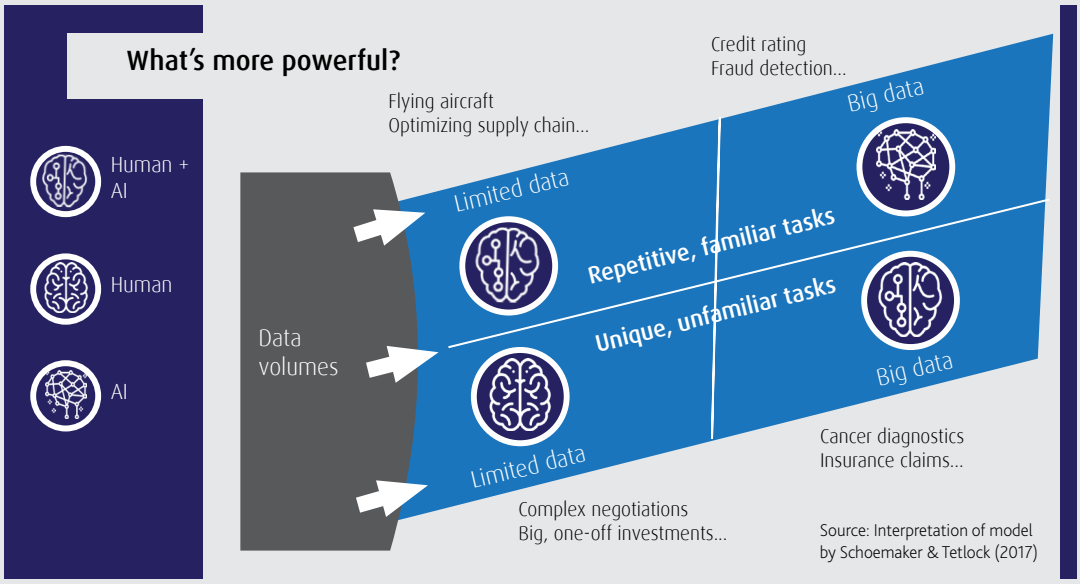
Healthcare: Computers have become significantly better at image and voice recognition and speech synthesis, detecting tumors from radiographs better than most humans. Medical diagnosis and personalized medicine are improving in leaps and bounds. Transportation by self-driving cars, transformed into a prediction system, will, on average, reduce the number of accidents requiring clinical intervention.

Environment and infrastructure: Ecosystems can now be monitored. Weather and traffic prediction models are being extended to predict global climate change, plan urban growth and renewal, smart cities and improve disaster recovery.

Engineering: Data is getting physical. Fixing sensors to bridges and buildings to provide the data signaling wear and tear prevents disasters. Even if these predictive analytics may not explain the cause of the problem (the why), only that it exists (the what). General Electric and Rolls Royce have both implemented big data analytics into their commercial jet engine systems to predict more accurately when to replace expensive parts, or start maintenance. This allows new business models – leasing or renting power to the aircraft, beyond selling jet engines.

Retailing: When a shopping mall operator uses advanced analytics to select tenants, optimize its layout and determine rents, its revenues can rise by 20 per cent, according to McKinsey. In general, the ability of AI to enable personalization and customization at scale makes it a powerful differentiator for consumer-facing businesses. It improves precision and speed to market, enhances interactions, engagement and purchases. Few use AI for personalization better than Stitch Fix, the listed online fashion player.

Entertainment: Companies such as Spotify (playlists) and Facebook (newsfeed) or the TV and movie streaming giant Netflix combine human and computer expertise to create new services and enable people to discover and engage with content and brands in new ways.



Potentially, more data means less privacy, more speed, more autonomy, less control. More accuracy, less explainability. These are the trade-offs, recalling a simple rule of thumb: if the data or app is free, then you are the product.

The Dark Side Of AI

Making individuals and groups smarter, a more 'humanized AI', will only work if feedback is truthful. And here's a problem: manipulative advertising, propaganda and fake news undermine the usefulness of social sampling — and data in general. We need data we can trust, and proper governance. Only then can the overall fitness of individuals, and societies as a whole, improve — and be trusted in turn.

Data-driven markets offer compelling advantages. Innovation and progress should not be stifled by irrational fears or over-regulation. But the shortcomings and ethical challenges should not be ignored – especially regarding the sheer concentration of data and possible systemic failure. If real 'artificial general intelligence', a machine that can perform any intellectual task that a human can, becomes a reality, we should ask ourselves about the potentially malicious consequences of this super-powerful, machine intelligence. Of primary importance is the transparency of information, and that means developing algorithms that reduce potential information asymmetry.

The question of data ownership

Who owns the (often personal) data that is feeding AI, and how could it be used or misused by organizations? Potentially, more data means less privacy, more speed, more autonomy, less control. More accuracy, less explainability. These are the trade-offs, recalling a simple rule of thumb: if the data or app is free, then you are the product. The real customers are willing to pay for access to knowledge about us (derived from our data) to nudge us to a purchase - or a vote. Moreover, as we'll see, 'datafication' is not value-neutral, and using data still means building the theories on which data depends.

This 'datafication' reality, whether in biotech, nanotechnology, robotics, cyber-technology or AI, is already impacting our everyday lives, our movements, interactions and financial transactions stored in the cloud. Industry 4.0 and the Internet of Things will no doubt enhance that existence. Improved efficiencies will likely mean more sustainable solutions.

On the downside, the new reality will be managed (and possibly manipulated) by a few multinational quasi-monopolies. Amazon, no longer restricted to the online world, is going physical. Amazon Go, a bricks and mortar grocery store concept, has no check-out lanes or cashiers. Armed with the app and smartphone, you walk in, fill up your bag, and walk out. Perhaps more seriously still, in the worst case scenario, global inter-connectivity may result in systemic failure. Managers and leaders are becoming increasingly aware of the potential negative implications of AI, including the social effects of job suppression in certain domains. And the ethical implications could be devastating, if they're not handled properly.

The need for data governance

In most cases, the data and algorithms underlying AI can be beneficial, their new, insightful patterns helping us in ways to better understand and protect our world in unprecedented ways. However, algorithms are only as good as the big data that feed them. They are programmed to categorize a vast number of data points to identify patterns in our behavior, allowing more recommendations, more predictions. With every interaction, every click or 'ignore' on an ad, every 'like', every online payment, every nibble on clickbait, the algorithmic identity gets more complex. The more people share their personal information and preferences on social media, the more business can take advantage, initiating new algorithms that embrace the enormous amount of data in cyberspace, commercializing them in one form or another.

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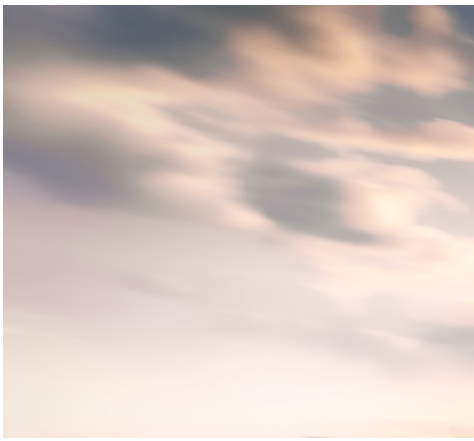
Hackable animals

Elon Musk, Stephen Hawking, and Google CEO Sundai Pichai have all warned of the existential threat posed by AI. Historian and author Yuval Harari recently told wired.com that we are facing not only a technological crisis, but a philosophical crisis: "Because we have built our society, certainly liberal democracy with elections and the free market and so forth, on philosophical ideas from the 18th century which are simply incompatible not just with the scientific findings of the 21st century but above all with the technology we now have at our disposal. Our society is built on the ideas that the voter knows best, that the customer is always right, that ultimate authority is…with the feelings of human beings and this assumes that human feelings and human choices are these sacred arena which cannot be hacked, which cannot be manipulated." And this, he says, is no longer true: "we are now hackable animals." Let's explore further.



Creeping bias and sweeping judgments

Facebook's algorithm decides what information to show us on the basis of choices we have already made. This may create a filter bubble or echo chambers, even for people who were initially unbiased. The filter model picks up small initial differences and exaggerates them until the other side of the argument is lost. The problem is compounded by the spreading of baseless rumors, the fake news that has become a source of constant entertainment in our post truth world.

The Tinder dating app that uses algorithms to hook people up is a prime example of 'amplified biasdness' by machine learning. It is now one of the fastest-growing social networks on a global scale, with users in 190 countries swiping 1.6 billion pictures and generating around 20 billion matches every day. This location-based app is playing a game-changing role in the dating world. And yet, the biases in Tinder's algorithms reflect our society — how we analyze and perceive humans. And they appear to be reinforcing racial prejudices. Tinder's 'black box' does not reveal how it functions, however it's fair to assume that users' online behavior, and the data set given to the algorithm to process matches, means that some cultural aspects and biases will be highlighted, visualized and prioritized, with others factored out. Such algorithms are not value-free. They reflect our own dark shadow.

Developers and data scientists tend to keep a lid on their coding, in the name of technological neutrality and objectivity, and to keep competitors at bay. However we can derive some basic features of the Tinder app.

As a Tinder user expresses individual preferences, the system serves up personalized recommendations obtained through collaborative filtering and algorithmic calculations. As it attempts to mimic human learning (seeing, remembering and creating a pattern in one's mind), Tinder's AI-paired algorithm starts to develop its own viewpoint on people as they swipe left and right. Like other examples, it doesn't know why it recommends a particular match, it has found correlations resembling human intuition. It identifies languages and words that share a common context, indicating similarities, potentially resulting in swipes that are clustered together, reflecting perceived preferences through these embedded vectors of likes. If for instance Caucasian matches are initially 'successful', the algorithm will continue on that trajectory. A 'statistical commonality' according to gender, class or race will be learned, analyzed and conceptualized by the algorithm. Studies are revealing that black women and Asian men are potentially being marginalized by such online dating environments — with all the negative consequences.

Hardly non-interventionist or neutral, this is an example of smart, but not necessarily wise, business thinking. It's one reason why we should be wary of blindly trusting algorithms contained in an impenetrable black box. It's also worth noting that of Google's 98,000 employees, only 3-4% are black and Latino respectively. And indeed, across all of Silicon Valley's behemoths, from Amazon to Microsoft, white and Asian profiles still dominate the pie charts.

Algorithms contain judgments about who we are, what we should become, how we should live. When choosing a software product, will we be nudged to buy from a particular online vendor and if so, be affected by its (subconscious) norms and values? What if these are less than benevolent?

Big data, big manipulation

Cambridge Analytica was a British political consulting firm combining data mining, brokerage, and analysis with strategic communication during electoral processes. In 2018, it was revealed that it had harvested the personal data of millions of Facebook profiles — and those of owners' friends - without consent. The data was used for promotional purposes during the US presidential election of 2016, and possibly influenced the Brexit vote. The same year, Google demoted the statement 'don't be evil' from the preface of its Code of Conduct, opening the gates for Dragonfly, a prototype search engine with the potential to purge sites that could contain politically sensitive topics, allowing Google's re-entry into China's huge consumer market.

Artificial Intelligence could better be expressed in many cases as Advertising Intelligence, given the proficiency of large corporations at collecting consumer data, filtering, packaging, and feeding it back as 'recommendations'.

Algorithms contain judgments about who we are, what we should become, how we should live. When choosing a software product, will we be nudged to buy from a particular online vendor and if so, be affected by its (subconscious) norms and values? What if these are less than benevolent?

Algorithms base themselves on past actions to make predictions. But just because data may accurately reflect historical facts, doesn't make them ethical or fair, especially if history itself was not.

Bringing ethics into AI will need a human-in-the-loop approach – an open algorithm, not a black box.

Of trolleys and ethics

Such questions are the thin end of the wedge. Let's return to the Trolley Problem — the ethical thought experiment mentioned in our introduction. This asked participants to imagine a runaway trolley moving towards five people, incapacitated and lying on a track. The participants could choose to re-direct the trolley to a side-track, killing one person who was lying on it, and saving the five, or do nothing. Business ethicist Edward Freeman has raised a modern 'trolley problem'. What happens, he asks, when a self-driving car, meeting an unavoidable collision, has to algorithmically choose whether to sacrifice its occupants or risk fatally harming other passengers or pedestrians?

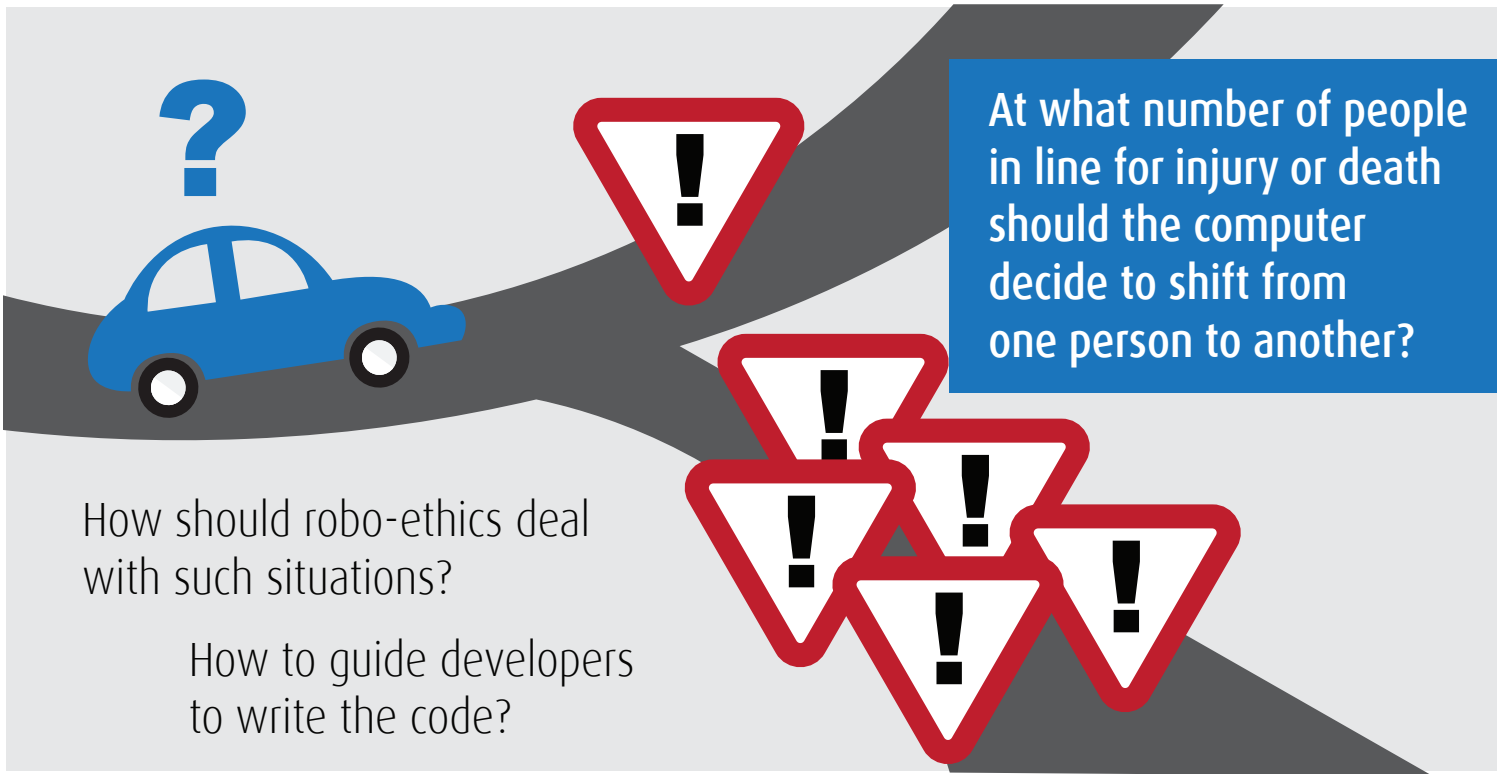
How should 'robo-ethics' deal with such situations? How to guide developers to write the code? Facts are distinct from values, but from an evolutionary perspective, our genes attempt to survive. Bringing ethics into machine learning raises a host of trolley problems. At what number of people in line for injury or death should the computer decide to shift a car from one person to another? Judgments about moral and ethical choices are as important as they ever were.

Let's remember that algorithms are basing themselves on past actions to make predictions. But just because data may accurately reflect historical facts, doesn't make them ethical or fair, especially if history itself was not. Bringing ethics into AI will need a human-in-the-loop approach — an open algorithm, not a black box.

No fairness algorithm

Another example of unfair data use is 'predictive policing or profiling'. Researchers like David Sumpter argue that the commercial software widely used to predict re-offending is no more accurate or fair than the predictions of people with little to zero criminal justice experience. At best, they may match humans, just much faster, making them imperfect, if speedy, tools.

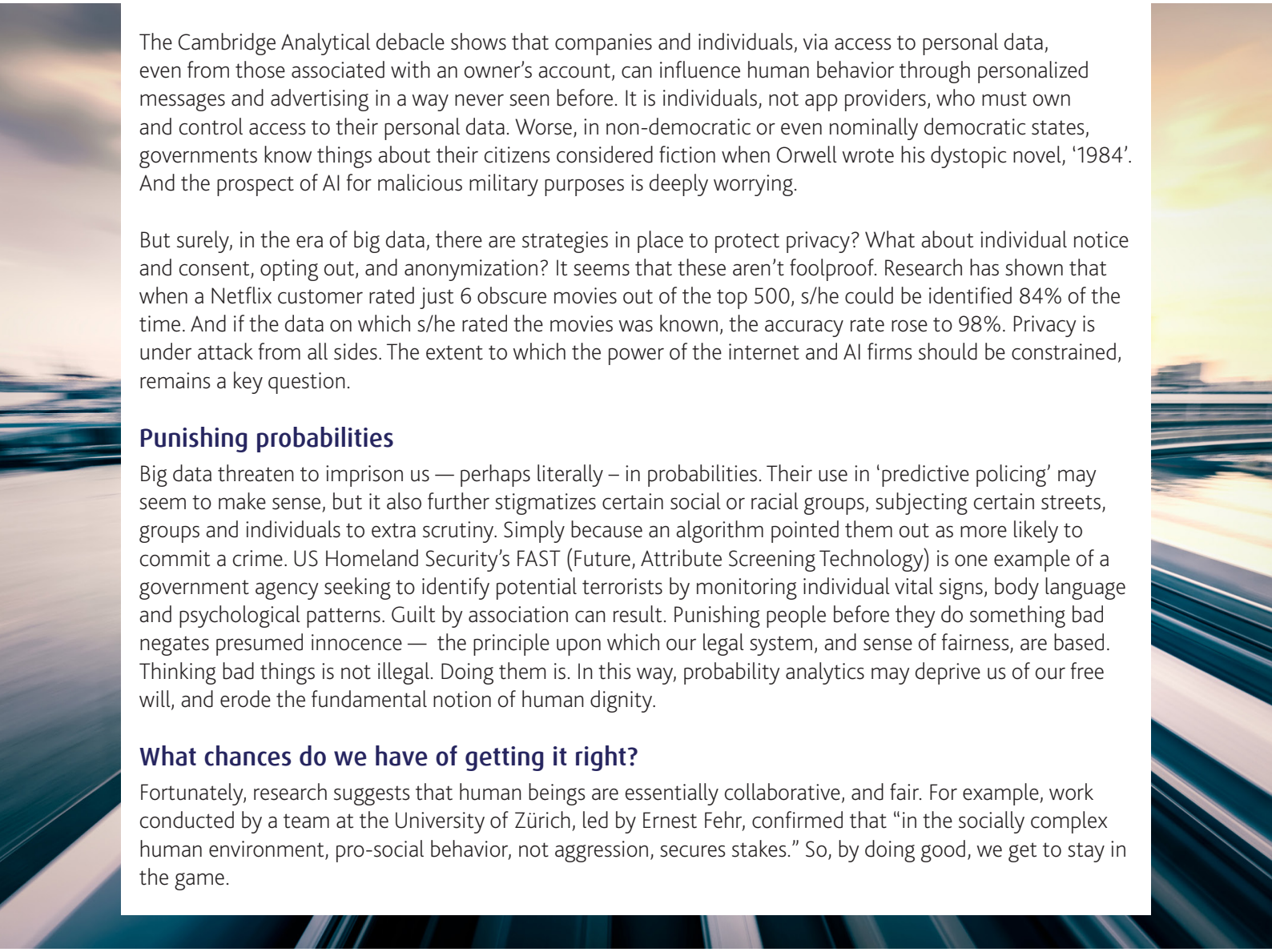
So there is not necessarily a 'fairness equation' or algorithm. This takes us to philosopher David Hume's 'is-ought' problem — the gap between what is (a scientific, objective reality) and what ought to be (an ethical question of how we want to live and what kind of society we want). We can't directly derive what ought to be, from what is, and neither can an algorithm. As we've seen, algorithms may even reinforce what 'is' or 'was' - old habits and norms.



Data dictatorship

It's all too easy to fall into the trap of fetishizing quantification and data. But as we've seen, data can be poor quality or biased. It can be mis-analyzed, or used in a misleading way. It can fail to capture what it purports to quantify. So we may attribute a degree of truth to data that it doesn't deserve. And many thinkers have argued that creative brilliance doesn't depend on it.

What may depend on data is us. Our increasing reliance risks a 'tyranny of algorithms', a world run by unelected data scientists. A few digital behemoths currently control much of the data — and much of the AI. Can we trust them to always do the right thing? Not quite.



The Cambridge Analytical debacle shows that companies and individuals, via access to personal data, even from those associated with an owner's account, can influence human behavior through personalized messages and advertising in a way never seen before. It is individuals, not app providers, who must own and control access to their personal data. Worse, in non-democratic or even nominally democratic states, governments know things about their citizens considered fiction when Orwell wrote his dystopic novel, '1984'. And the prospect of AI for malicious military purposes is deeply worrying.

But surely, in the era of big data, there are strategies in place to protect privacy? What about individual notice and consent, opting out, and anonymization? It seems that these aren't foolproof. Research has shown that when a Netflix customer rated just 6 obscure movies out of the top 500, s/he could be identified 84% of the time. And if the data on which s/he rated the movies was known, the accuracy rate rose to 98%. Privacy is under attack from all sides. The extent to which the power of the internet and AI firms should be constrained, remains a key question.

Punishing probabilities

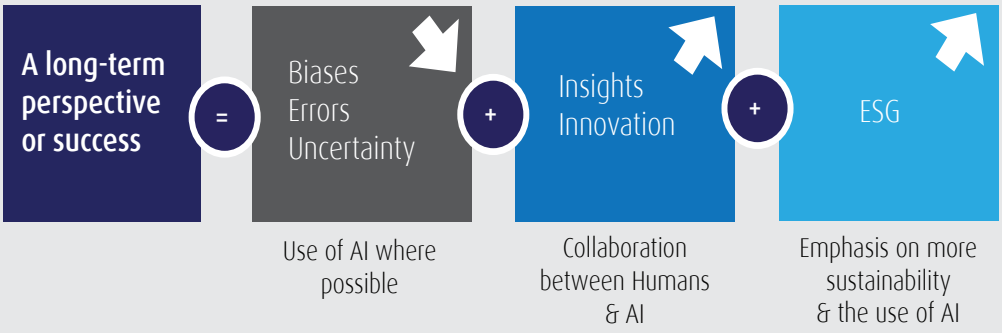
Big data threaten to imprison us — perhaps literally – in probabilities. Their use in 'predictive policing' may seem to make sense, but it also further stigmatizes certain social or racial groups, subjecting certain streets, groups and individuals to extra scrutiny. Simply because an algorithm pointed them out as more likely to commit a crime. US Homeland Security's FAST (Future, Attribute Screening Technology) is one example of a government agency seeking to identify potential terrorists by monitoring individual vital signs, body language and psychological patterns. Guilt by association can result. Punishing people before they do something bad negates presumed innocence — the principle upon which our legal system, and sense of fairness, are based. Thinking bad things is not illegal. Doing them is. In this way, probability analytics may deprive us of our free will, and erode the fundamental notion of human dignity.

What chances do we have of getting it right?

Fortunately, research suggests that human beings are essentially collaborative, and fair. For example, work conducted by a team at the University of Zürich, led by Ernest Fehr, confirmed that "in the socially complex human environment, pro-social behavior, not aggression, secures stakes." So, by doing good, we get to stay in the game.

Big data threaten to imprison us — perhaps literally – in probabilities. Punishing people before they do something bad negates presumed innocence – the principle upon which our legal system, and sense of fairness, are based. Thinking bad things is not illegal. Doing them is. In this way, probability analytics may deprive us of our free will, and erode the fundamental notion of human dignity. Fortunately, research suggests that human beings are essentially collaborative, and fair.

Strategic leadership | smart and wise use of AI



Use of AI where possible

Collaboration between Humans & AI

Emphasis on more sustainability & the use of AI

Handle With Care | 4 Leadership implications

Even if AI's, (when properly designed and deployed), are better predictors than humans, we're still often reluctant to hand them the reins. Understandably so. Where AI outperforms people, companies must carefully consider its operating conditions - including when to empower humans to exercise their discretion and override it.

1 **Sharpen the mission:** Corporations that benefit most from AI will clearly specify their objectives — sharpening fuzzy mission statements. Remembering that AI is at its best when serving specific domains of expertise, assistance or automation. Recalling too the methods used to train AI - best tied to clear goals. What makes AI so powerful is its ability to learn, under the right conditions.

2 **Manage the learning loop:** We tend to think of labor as learning, and capital as fixed. Now, with AI, we have capital that learns. So companies must ensure that information flows into decisions, decisions are pursued to an outcome, and learning flows back into the decision-making system. Managing the learning loop will be more valuable than ever before.

3 **Address the ethics:** Data-driven markets offer compelling advantages. Innovation and progress should not be stifled by irrational fears or over-regulation. But it is critical to address the shortcomings and ethical challenges, especially regarding the concentration of data and possible systemic failure.

4 **Take responsibility:** A meaningful future requires that corporate leadership takes responsibility. This is a socio-economic phenomenon that only a conscious mind can perform and implies a social contract between humans aiming to progress in a commercially effective manner whilst holding a clear, broader, inspiring (social) purpose in mind.

The commercial thinking interwoven into the current fabric of AI is not sustainable, and we can't expect it to change unless we specifically build in serious governance — the values and norms that aspire towards a better future. Science alone will not resolve these questions. Only conscious and mindful humans – wise decision-makers – can propose what kind of society we want, what kind of life to strive for.

AI and Wise Decision-Making Series

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