Bisnode

9 AI trends that will take off in 2019

Report

Artificial intelligence is already able to drive cars, fetch information from Wikipedia and make an appointment with your hairdresser. And that is only the beginning. In this report, Bisnode **highlights a number of innovations that will take AI to the next level in 2019** — and change the shape of business beyond that.

Our society is becoming more and more automated and efficient. But in addition to unburdening us by taking over monotonous tasks, AI and autonomous machines are supercharging our creativity and decision making. As algorithms and robots get better at analysing our data, keeping track of our health and driving us to work, the tidal wave of new technology will make us smarter, more informed and less stressed.

In this report, we present nine AI trends that will shake up the business of tomorrow, according to Danica Kragic, a robotics professor at Sweden's Royal Institute of Technology; Max Tegmark, a physicist at MIT — and Bill Gates.

Trend #1:

Autonomous things

The industrial revolution saw us starting to rely on mechanical rather than biological muscles. Today, we're on the verge of a new paradigm shift. "The big differenence is that we will not be replacing our muscles — but our brains," says Fredrik Löfgren, a robot developer and AI expert, at the Bisnode Unleashed conference.

Driverless cars are a glimpse of things to come within the field of so-called autonomous things. European automakers including Audi, Daimler and BMW are investing heavily in autonomous features such as "hands-free" driving (with BMW aiming to produce an Autobahn-ready autonomous car by 2021). One major reason is to improve safety. For example, the reaction time of the human brain is 100 million times slower than the processor in a modern vehicle with self-driving capabilities.

In other words, "The vehicle has 100 million times longer to react, way more information to base its decisions on, and it never loses focus. Even today, cars are better drivers than people," Fredrik Löfgren says.

The robots that Fredrik himself is developing are already able to play soccer, dance and cook food, based on their own thought processes and analyses. In the inaugural Robot Soccer World Cup of 1997, "players" crawled their way across the pitch. Today, they run upright. By 2050, Fredrik is convinced that they will be able to beat the winners of the FIFA World Cup — yes, the one for humans.

Right now these are just proofs of concept, intended to demonstrate the potential of robotics. According to the Swedish Foundation for Strategic Research, there is a high probability that within twenty years, robots and computers will be supplementing the workforce as train drivers, carpenters, postmen, butchers, waiters — and fashion models.

Trend #2:

Robotic process automation (RPA)

Industrial robots have been a part of our everyday life for decades. However, according to Danica Kragic, a robotics professor at Sweden's Royal Institute of Technology, we've already entered a new phase, which extends beyond manual labour.

"What's happening today is that a lot of cognitive work is also being automated," Danica says at the Bisnode Unleashed conference.

This will primarily affect monotonous processes which can be handled by software — while our brains are freed up to focus on strategic and creative decisions.

"Consider: 'What can AI do for me? What am I doing on a daily basis by rote, without thinking?' Are there any aspects like this in your work? In that case, you might form the basis of an AI system that automates that particular part," says Danica Kragic.

As for concerns that entire professions will be driven to extinction by automation, Danica remains optimistic.

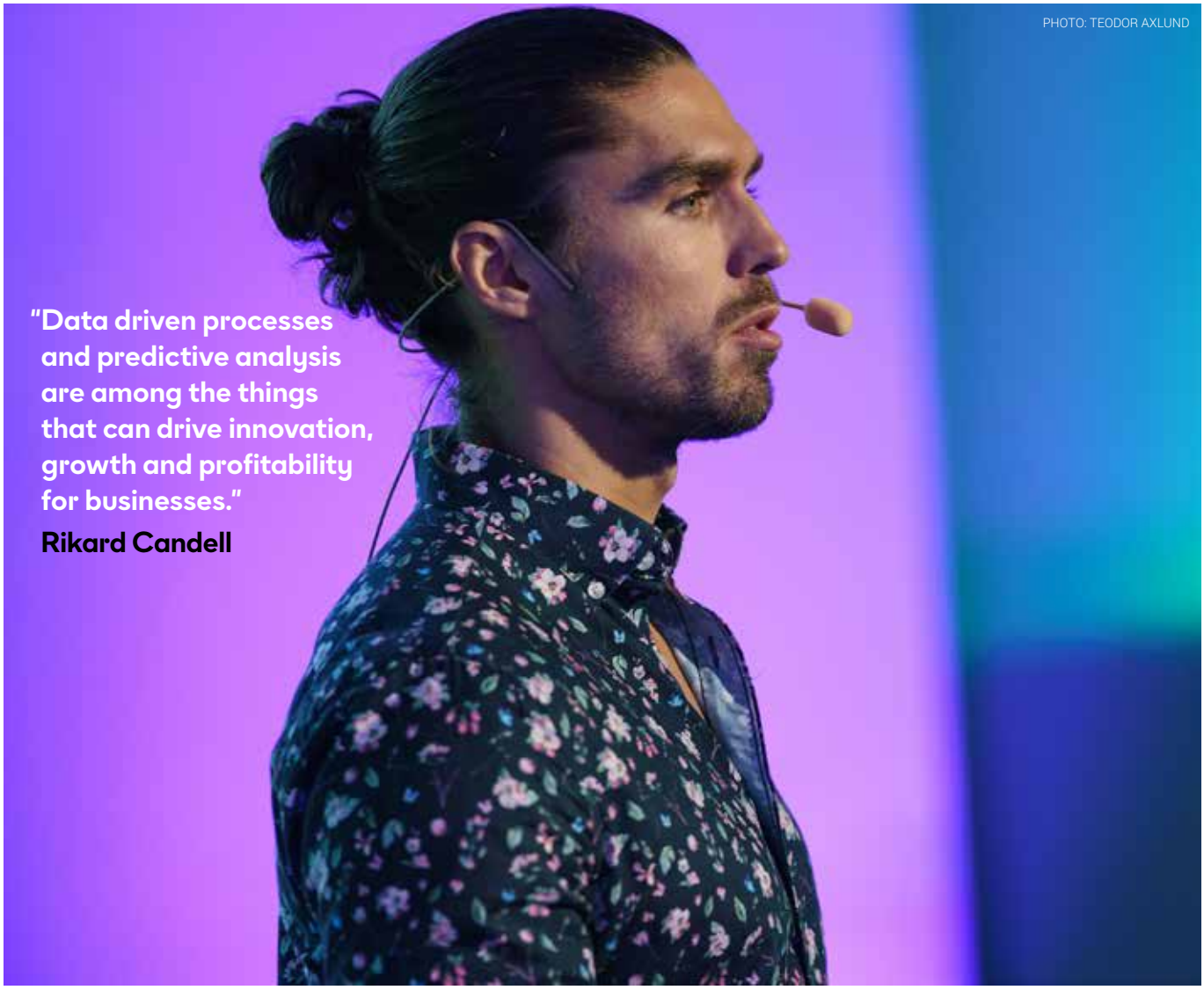
"We're no longer talking about jobs disappearing. We're talking about skills — in other words, parts of jobs, which will gradually be automated in the coming 30 years."

Fredrik Löfgren, a robot developer and AI expert, points to trading robots and IBM's Watson as prime examples of how AI is already taking over human tasks — and performing them far better.

"Watson's 'day job' is as a cancer doctor. He possesses more knowledge than any human ever will. Consequently, it's hardly surprising that Watson is already better than human doctors at diagnosing patients. And what's the point of going to a health clinic when we can receive an equal or better assessment digitally?"

Danica Kragic during her presentation at Bisnode Unleashed.

PHOTO: TEODOR AXLUND



Trend #3:

Predictive analysis

AI enables us to look into the future — by studying our past. Predicting behavior based on historical data is not a new concept. However, predictive analysis, as it's known, is taken to a whole new level when AI, which is able to sift through much larger amounts of data, enters the picture.

Rikard Candell, Bisnode's Group Director Analytics, shares a telling anecdote at the Bisnode Unleashed conference. He and his team were tasked by a vehicle manufacturer with finding the best leads in the B2B sector. The challenge wasn't to increase demand — but predicting it. Rikard and his colleagues used an AI algorithm to analyse more than 700,000 businesses, ranking them by the likelihood of them buying a vehicle during the coming year, based on 1,000 different data points.

"So how good are we at predicting vehicle purchases? We segmented the companies into three categories: high, medium, and low potential. The high potential companies comprised 1% of the total. One year later, they accounted for 66% of purchases. Knowing which companies these are gives you an enormous edge in this business."

According to Rikard Candell, using this model is not simply an advantage. It's a necessity for those who wish to remain competitive in today's dynamic industry.

"Our earlier methods are not applicable anymore. Data driven processes and predictive analysis are among the things that can drive innovation, growth and profitability."

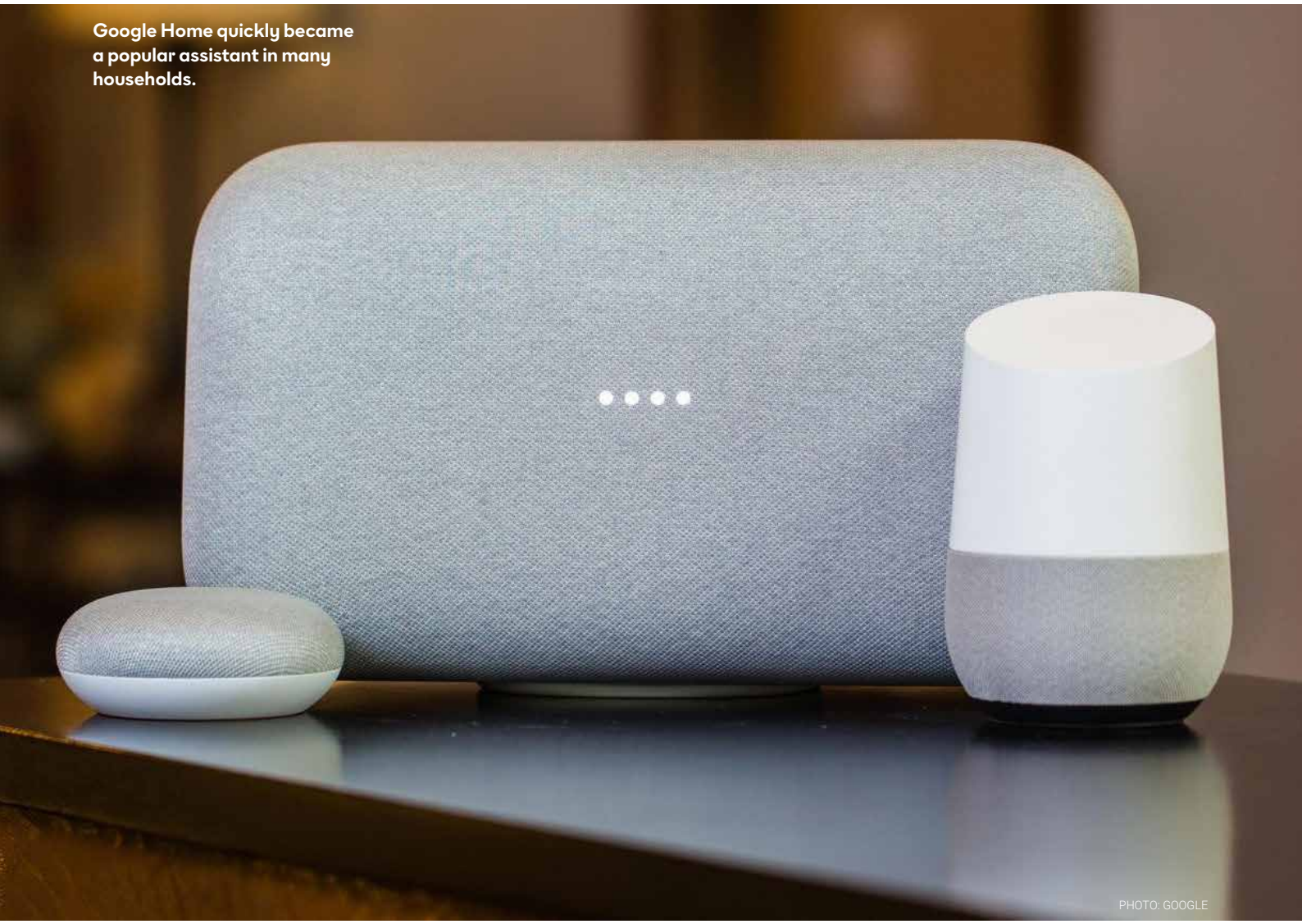
Trend #4:

Natural language processing/ AI assistants

Most of us already have a small staff of virtual assistants — in our phones, cars, smart speakers and messaging apps. But these "smart" AI secretaries will be no match for the virtual workforce that's about to replace them. Natural language processing (NLP) is progressing by leaps and bounds: Google's Duplex is already able to call a hair salon and make an appointment for you, without the person on the other end realising they're talking to a robot.

New developments in the field of NLP and AI assistants will result in improvements facing both outwards — for example, smarter interfaces that simplify the consumer's buying process — and inwards, in the form of virtual assistants which help marketing directors and others to keep track of their KPIs and automate workflows. These assistants will be able to give you a shout — literally — if a key metric changes, without you having to access a dashboard and look up the figure in question yourself. This will speed up data analysis and make it more intuitive, with immediate access to sales and churn statistics, et cetera.

And this time, the assistants are actually earning that overused "smart" moniker. Certain firms have already begun testing AI-driven legal assistants — ideal for those who'd like to slash legal costs rather than their data analysis budget.



Google Home quickly became a popular assistant in many households.

PHOTO: GOOGLE

Trend #5:

Augmented reality (AR)

Facebook CEO Mark Zuckerberg once said: "Instead of a $500 TV sitting in front of us, what's to keep us from one day having it be a $1 app?" Facebook, along with companies like Apple and Google, is one of the biggest believers in AR — the technology that some predict will eventually replace all the screens around us, including our smartphones.

In what it calls "immersive visualisation", IBM describes a future where you walk into the office, put on a pair of AR glasses, and suddenly find yourself surrounded by colourful spheres. These represent all the different KPIs you need to keep track of. To study one of the metrics in closer detail, you simply point your finger at the sphere in question.

What this example illustrates is how AR can be more than a cute gimmick used in apps like Pokémon Go. It can also make it easier to visualise vast amounts of data. In Finland, Telia Company and Stora Enso have already put this into practice, testing AR to display real-time information and virtual machine models in order to improve mill maintenance.

Combined with the huge potential of AR for medical, marketing and entertainment purposes, it's hardly surprising that DigiCapital predicts that augmented reality "could top two and a half billion installed base and $70 billion to $75 billion revenue by 2023" — eclipsing the 30 million installed base and $10–15 billion revenue of virtual reality (VR).

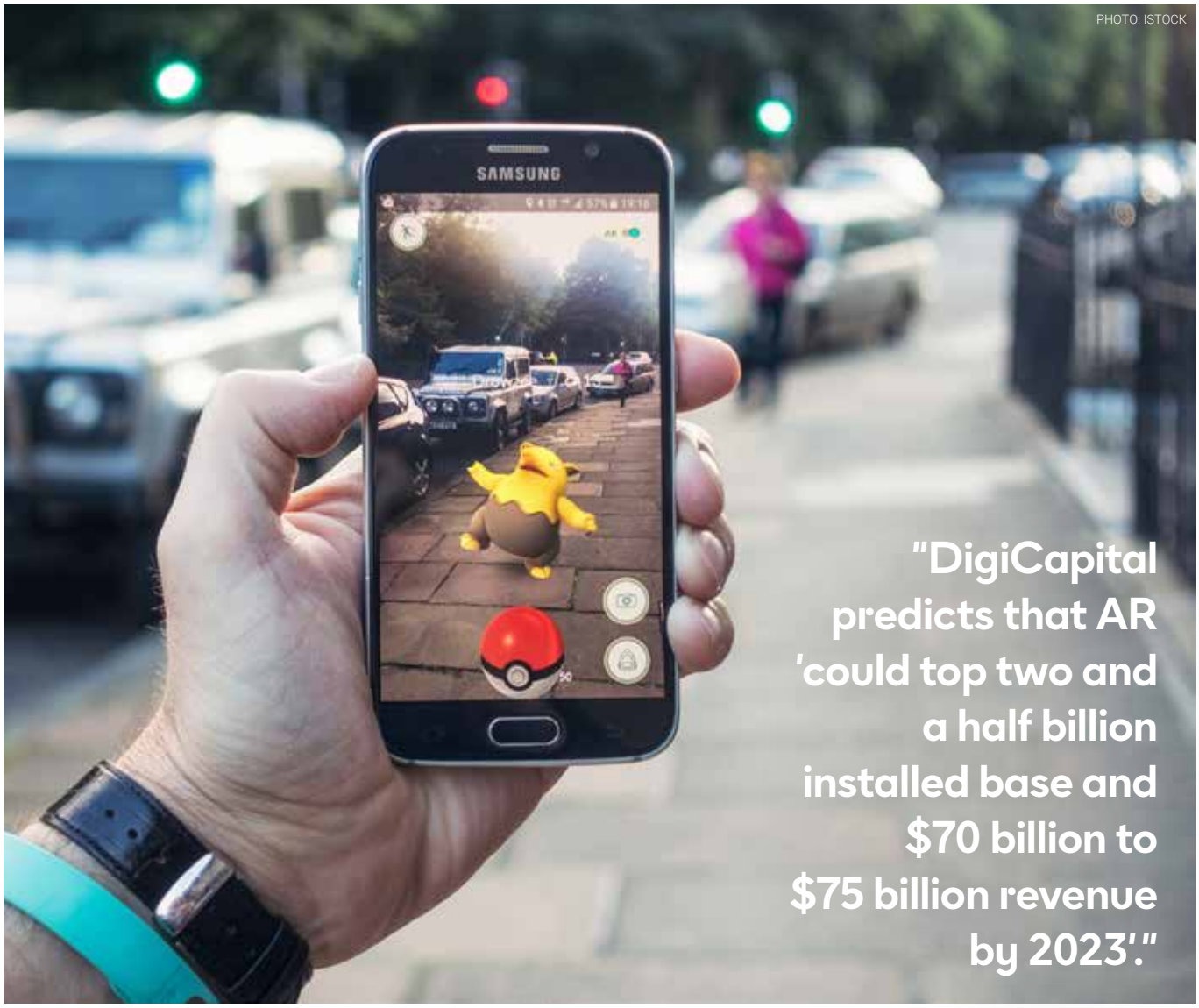


PHOTO: ISTOCK

Trend #6:

Augmented analytics

Businesses sometimes view data analysis as a necessary evil. Of course, data itself isn't of much use if you don't actually analyse it — but performing this task can be costly and time-consuming. Once the data has been collected, it needs to be cleansed and examined before any kind of insights can be gleaned from it — insights which then have to be relayed to decision-makers, who may not always be inclined to actually act on them.

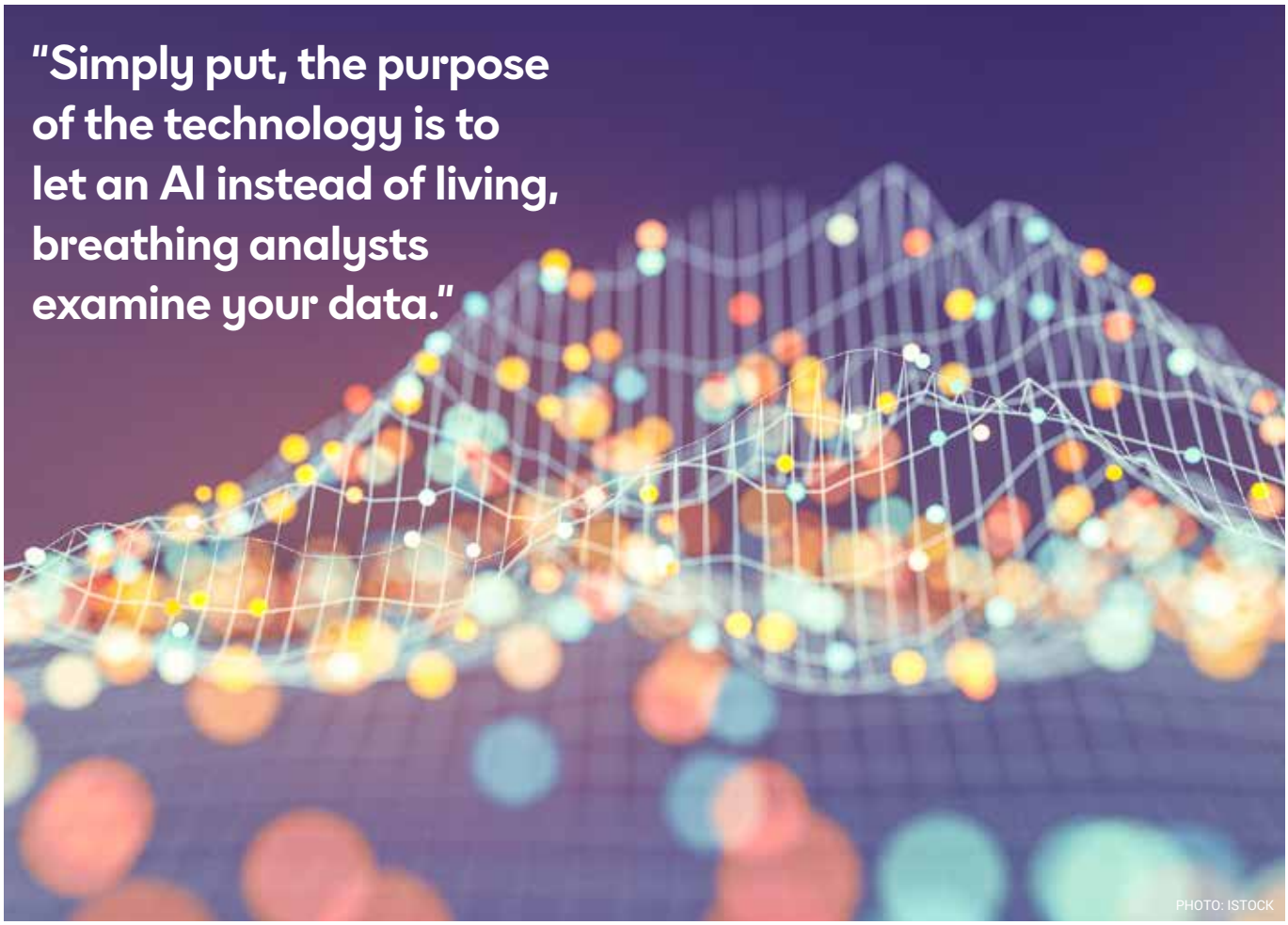
Bill Su, chief data scientist and CEO of Humanlytics, highlights these issues by comparing data analysis to the development of the automobile.

"Both are extremely complex systems that have thousands, if not millions, of parts in them to make them function properly. However, almost everyone in the country right now can drive an automobile, despite how complex the technology is. This is because most of the complexity is abstracted away by the technology. Users only need to know the 'data' that are relevant to them (e.g. how to use the steering wheel) to make decisions while driving," Su writes in an article.

Augmented analytics strives to achieve the same degree of abstraction and simplification. Simply put, the purpose of the technology is to let an AI instead of living, breathing analysts examine your data. The advantages are obvious: an AI never gets tired or distracted — and never asks for a pay cheque.

As Bill Su puts it: "Augmented analytics is designed to conduct analyses and generate business insights automatically with little to no supervision, and can be used directly by marketers and business owners without needing the assistance of a business analyst or data scientist."

This is how data analysis can evolve from being a luxury to something that even smaller businesses will benefit from. On top of that, it reduces the potential for errors along the path from analysis to action.



"Blockchain has the capacity to change every aspect of our society."
Arash Gilan

PHOTO: ABRAHAM ENGELMARK

Trend #7:

Blockchain

Most people probably associate the term blockchain with the "cryptocurrency" bubble of 2017. But the opportunities provided by blockchain technology stretch far beyond bitcoin and ethereum.

"Blockchain has the capacity to change every aspect of our society," Arash Gilan, CEO of the digital agency Viva Media, writes in an article on his website.

On a technical level, blockchain is as simple (or complicated) as it sounds. The technology revolves around a data structure where information travels via a series of encrypted "blocks". These blocks can be likened to digital breadcrumbs, which ensure that a transaction has gone through properly. Thanks to the built-in encryption, and the fact that the platform is open source, secure transactions are possible without middlemen (e.g. banks).

In addition to digital, decentralised currency, Arash Gilan considers electronic identification, medical documentation, and digital marketing as ripe for being revolutionised by blockchain technology.

One country that is betting big on blockchain is Norway. Among its many blockchain-based startups is Empower, which aims to increase plastic recycling around the world, along the same lines as Norway's national recycling programme. However, instead of rewarding people with regular currency for submitting plastic waste, which would have been a challenge in countries where not everyone has a bank account, Empower gives them blockchain tokens — effectively "banking the unbanked", as Wilhelm Myrer, the company's founder, puts it.

"The reason we have a high recycling rate in Norway is that you learn from being a kid that plastic has a value, you can pick it up and buy some candy with it," Myrer tells The Independent. "If we can do something like that in Indonesia, where people just drop plastic, we can give the value back to them."

Trend #8:
Biohacking

If the point of AI is to make the systems around us smarter, biohacking aims to make us smarter. Biohacking is a wide and diverse field, which revolves around modifying biology rather than technology. Examples include biochips and artificial tissue as well as DNA programming and brain–computer interfaces. In the long run, hacking our biology may give us increased intelligence, better sleep, less stress and more durable bodies.

"If we hurt ourselves while exercising in the future, we might not wait until that part of our body heals — we'll substitute it for an artificial part," Danica Kragic says in her lecture at Bisnode Unleashed.

Biohacking can be even more creative and spectacular than that — in some ways, it already is. On an experimental level, it is possible even now to have information channeled directly into your brain, via your auditory nerves, so that you "hear" updates instead of receiving them as push notifications on your smartphone.

Someone who is already sold on the potential of biohacking is Bill Gates. In an interview with Wired, he notes that if he were young today, he would become a biohacker rather than a computer programmer.

"Creating artificial life with DNA synthesis. That's sort of the equivalent of machine-language programming. [...] If you want to change the world in some big way, that's where you should start — biological molecules."

In other words: the data scientists of the future will be smarter, more efficient and more focused than today. Or we might all become so smart that we'll simply be our own data scientists.

Biohacking is a wide field, which revolves around modifying biology.

PHOTO: ISTOCK

Trend #9:

Artificial super intelligence (ASI)

The holy grail of AI development is what's known as artificial general intelligence (AGI). AGI is defined as an AI that can do everything a human can, but better. Deepmind, a subsidiary of Google, is one of the companies trying to bring about what's been called "a new dawn for AI".

"If you think that this sounds like crazy science fiction, there is something else which sounds like even more crazy science fiction — and that's super intelligence," says Max Tegmark, a professor of physics at the Massachusetts Institute of Technology, in a lecture at the Internetdagarna 2018 conference.

The basic principle is that, since an AGI is more efficient than a human being, it can also perform our jobs more efficiently — including the job of AI development.

"This means that further AI development can now happen on a much shorter time scale than the typical human research and development time scale of years," Max Tegmark says.

Artificial super intelligence (ASI) is AI on steroids — a boost that will drastically change the parameters for every single trend in this report.

Experts ranging from the philosopher Nick Boström to Elon Musk stress that we have to consider the ramifications carefully before rushing into a future powered by ASI, where machines are smarter than people. Max Tegmark agrees that we need to proceed with caution, but urges us to remain optimistic.

"We should not be naive optimists and just say 'Yeah, everything is automatically gonna be fine.' What we should do instead is really think hard about what kind of future we are excited about, and then think about how we can get there. I think Sweden can kind of lead the way here — we probably did this once in 1945. People in Sweden did not just sit around and say 'If we just sit here on our butts and do nothing, then we're gonna get free health care and free university education.' People had this really positive vision, and they thought very creatively about how they could combine this idealism with practical planning and technology, and actually go out and build it."

Whether you work in marketing, law, finance, or medicine, innovations like machine learning, AR and autonomous robots will make possible things that seem like science fiction today — even though in many cases, they're already being tested on a smaller scale.

AI-driven analytics and autonomous units will, in a sense, predict the future — giving us priceless insights which will assist the human brain in making the best possible decisions.

In the longer term, artificial intelligence will surpass our own, and maybe even learn to upgrade itself.

In the near future, human drive and creativity will remain integral parts of the puzzle — a puzzle where AI doesn't "overpower us, but empowers us," as Max Tegmark sums it up.

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