

DAS

NETZ

digitalization and society
English edition



MADE WITH LOVE
IN
BERLIN

All hands on deck!

Wow, we're digital! Today, nothing is done without at least some element of digitalization. Smart procedures and digital management are everywhere. By now, everybody knows that the digital transition will play a role in their life, their company, their white paper... This is a good start. And yet, buzzwords alone do not add up to an intelligent strategy. Neither does a revamped approach to automation presented as digitization. Of course, the ubiquitous efforts to shape the digital future are very welcome. But still: these efforts could go even further and be of more consequence.

A digital transition is happening in China. A new tool here, a new idea there—implemented about ten times faster, and in a way that is ten times more encompassing than in Europe. How does one govern a society? How does one manage an economy? How are we to think in comprehensive digital ecosystems instead of limiting the focus to individual products and services? If you need inspiration, one should first look to the East. In this edition, you will get a fascinating view of the Chinese way into the digital age.

The internet and global digitization provide easy and rapid means to look beyond one's horizon—and that is precisely what governments, companies and individuals should be doing. The digital world allows us to exchange perspectives, ideas and concepts, and to learn from each other on a truly global scale. This ease of communication is one of the simplest and most basic aspects of the connected world, and is still one of its major benefits.

In a rapidly changing world, governments should be coordinating and constantly updating their digital agendas. They need to take all of the digital transition's enormous potentials into account—not only regarding the economy and innovation, but also with respect to non-economic aspects. A connected society is simultaneously an ideal sphere within which to discuss the values that shape our future, and within which to establish a balance between the interests of different stakeholders. But it is not only the state that is responsible for this discourse. All citizens are called

on to express themselves. Where the definition and elaboration of values in the digital sector are concerned, almost all of us are sitting in front of the infamous blank page. It is one of our generation's tasks to define what we want and what we don't want, what is desirable and what we as a society deem unacceptable. This includes the continued development of our conventions. We will have to part with some old and familiar principles; we will have to establish new parameters. There is nothing more exciting! So please feel welcome to become political and to participate in this journey. No matter where you are—what counts is that you use your voice.

On behalf of the editorial team
Philipp Otto



Photo: Bettina Volke

Philipp Otto is the founder of the think tank iRights.Lab and the publishing house iRights.Media. He is a publisher of iRights.info. He develops strategies and concepts to successfully shape the digital transition. In doing so, he works both with and for governments, parliaments, companies and representatives of civil society.

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The background of the page is a complex, abstract drawing made of numerous overlapping, hand-drawn orange lines. These lines form a dense, interconnected web of shapes that resemble a circuit board, a neural network, or a series of overlapping paths. The lines vary in thickness and direction, creating a sense of movement and complexity. The overall effect is a textured, organic-looking pattern that fills the entire page.

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The internet works in mysterious ways



Screenshot: facebook video

Chewbacca Mom

Candace Payne decided to document her irrepressible delight in the impulse purchase of a Chewbacca mask, depicting the famous character from the Star Wars films, and share the video on the internet. A few days later, the mask was everywhere, and “Chewbacca Mom” was a guest on countless talkshows. In the meantime, more than 160 million users watched the video and were almost certainly unable to resist laughing along.



Screenshot: youtube.com

#DicksOutForHarambe

In May, the gorilla Harambe was shot dead after a four-year-old child fell into his zoo enclosure. Within hours, a video of the incident was shared several million times. Social networks were flooded with countless memes, and the hashtags #Justiceforharambe and #RIPHarambe began making the rounds. The comedian Brandon Wardell soon issued a call for “Dicks out for Harambe”. His appeal struck a chord with a growing number of people; some even put it into practice. It reached the point that Harambe was able to win 11,000 votes in the American election of November 2016.

Microsoft Chatbot

Microsoft has been working on artificial intelligence for some time. In order to gain insights into how people communicate with each other, they developed the chatbot Tay and set it loose on Twitter. It started out fairly harmlessly, but within a few hours Tay had turned into a racist, anti-Semitic, xenophobic misogynist. After 96,000 tweets, Microsoft pulled the plug. The question is, was the experiment a success?



Screenshots: twitter



Screenshot: National Geographic

Homewrecking penguin

National Geographic shared this heart-rending and dramatic film clip on Twitter. It shows a male penguin who returns to his nest to find another male at his mate's side. The protagonist attacks the interloper, but ultimately loses the bloody fight. The female dumps him, and the internet community weeps (or is simply disturbed by all the gore).



Social Media Party

Bento published an article on “This Spring’s 15 Most Unique Magazine Covers”. The German magazine Spiegel Online shared it on Facebook with the note “Cover 5 had us in tears!” and Vice commented, “So something unexpected happened at cover 2 and we started crying”. Something unexpected really did happen: A major meeting of all German social media editorial teams in the flurry of comments that ensued.



Photo: Laura DiMichele-Ross

Tom Hanks or Bill Murray

This photo fairly dated, but made a big comeback this year. Millions of internet users racked their brains to figure out whose visit had left this child so distinctly unimpressed. Was it Tom Hanks or Bill Murray?

Hydraulic Presses

There was no limit to this year’s orgy of destruction: slowly, steadily, and with frightening power, in countless videos hydraulic presses have crushed everything in their path, from bowling balls to a safe to something that had once been considered indestructible: the Nokia 3310.



Screenshot: youtube.com

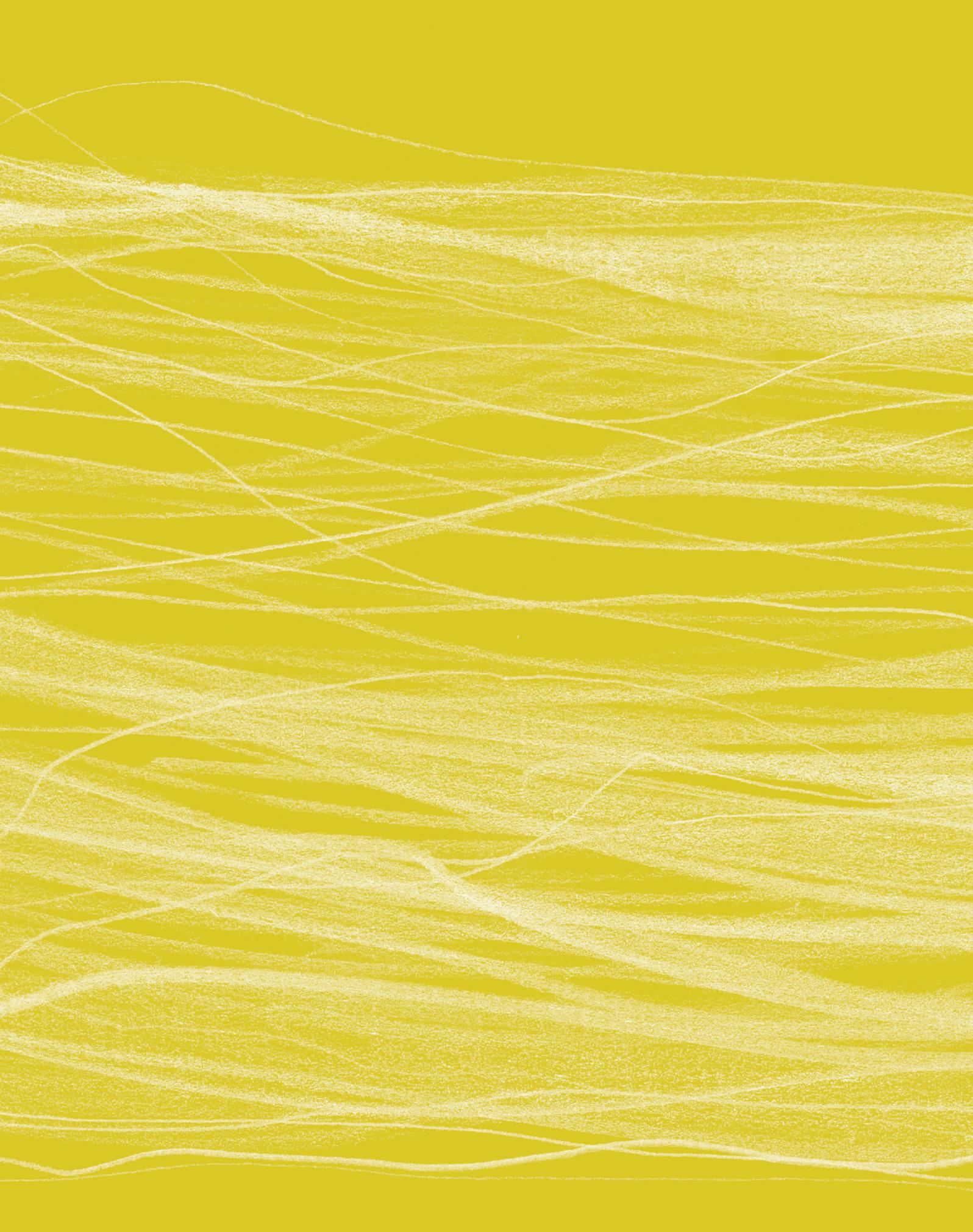


Photos (3): Karen Zack



Chihuahua or Muffin Puppy or Bagel Labradoodle or Fried Chicken ...

Chihuahua or muffin? Puppy or bagel? Labradoodle or chicken nuggets? This spring, the American Karen Zack asked us these questions and more. Some weren’t so easy to answer...



Life

Medicine

Internet of things

Artificial intelligence

Digital education

Catastrophes

Twitter trolls

Pokémon Go

Snapchat

Good sex

Serendipity



Predictive healthcare: Medicine in the data revolution

BY LYDIA HELLER



Apps and algorithms to help predict illness: Many of these applications fall into the “lifestyle and well-being” category of products, but they nonetheless indicate a trend which will change medicine. With big data, medical treatment will become more personalized, more preventative, more proactive.

Health apps for Smartphone are booming. Around 100,000 such apps already exist, meant to help with weight loss and to mitigate depression, to calculate fertility cycles, or to train the user in mindfulness. At the same time, new sensors are constantly being developed: fitness wristbands and smart watches count steps, monitor sleep and measure heart rates. Cameras, rings, patches and implantable sensors measure skin conductance, perspiration and blood values. Google, Apple, Microsoft, Samsung: in recent years all the big IT players have been bringing to market health applications for home use.

This is because lifestyle, fitness and health data applications have developed into a huge market in recent years. They form the missing piece of a puzzle that can perhaps make good on the promises of “personalized medicine” made a decade ago. At that time, the human genome had just been decoded. Using the genetic code, it was said that it would be finally possible to discover treatments for cardiovascular diseases, cancer, or Alzheimer’s. Success, however, has thus far remained elusive. Direct causal relations between genes and illnesses are hard to find, and our genome, so far as we know, works in a much more complex way than we had assumed.

Unbelievable volumes of data

Since then, not only has computer performance drastically improved and the cost of gene sequencing fallen enormously, but there are now unbelievable volumes of digital data available, gleaned from patient records, studies, and, not least, the plethora of health, lifestyle and fitness apps. As people collect more and more data on themselves, and as the number of connections and patterns emerging from this data increase, each individual can more precisely trace their own biological makeup.

“Just as the microscope made things visible which were much too small for the human eye”, wrote American economist Erik Brynjolfs-son a few years ago, “the analysis of large volumes of data by means of algorithms makes connections visible which previously were far too big and complex for human understanding.” But lifestyle data, or the personal, health-related data collected by many fitness apps is not easy to relay and aggregate. At least, for the time being, not all of it is. Researchers worldwide are already working on programs that can reveal the complex relationships between body, environment and behaviour and simulate how patients will react to treatments, as well as assist in developing personalized medical interventions.

At the paediatric oncology clinic in Homburg, Norbert Graf is working together with mathematicians, molecular biologists and biological computer scientists to develop a computer model for Wilms’ tumour. This childhood kidney cancer, the professor explains, forces doctors to choose whether to operate immediately or to first treat the tumour with a course of chemotherapy in the hope of shrinking it, so as to render the surgery more straightforward. But not all children respond equally well to chemotherapy.

The program aims to generate a prognosis based on data about the

previous development of the tumour, medicines and their active ingredients and the widest possible range of clinical information on the patient. “We want to know how the tumour will respond to prior treatment.

US dollars for the *Precision Medicine Initiative*, which he inaugurated at the start of this year and which will see the genetic and health data of over one million Americans saved and made available for cross-referencing. This

On the one hand, the quality of data recorded by wearable devices and trackers frequently falls far short of medical standards. Studies have repeatedly shown that such devices can often generate false readings.

Ultimately the system should say: ‘the tumour won’t get any smaller, operate immediately.’” The bigger the volume of data on which the model can draw, and the more frequently its predictions can be measured against outcomes and adjusted accordingly, the more precise its prognoses will become.

Providing the best treatment right from the start

It would be immensely useful for doctors if it were easier to cross-reference data from medical records with personal information—and additionally with genetic test results and studies on the efficacy of different medications—, according to Norbert Graf. Many of his colleagues agree. “That way, we would be able to provide patients with the best treatment right from the start, and reduce the side effects they suffer.” Since 2011, clinics in several European countries have been working to network their databases, and to store information on, amongst other things, illness-related genetic and biological markers in blood and tissue samples. This has resulted in the the Biobanking and Biomolecular Resources Research Infrastructure (BBMRI).

In the USA President Barack Obama provided around 215 million

initiative should make it possible to perform tests in order to predict the effects of drugs. Analysis of this database should not only provide hints on how a treatment should be designed to battle an acute illness. The fact that this information is also linked to lifestyle data is “an incredible treasure trove” for medicine, says Norbert Graf, because it can also provide information on the likelihood of relapse.

Graf continues, “Following a successful course of cancer treatment, you always want to avoid a relapse. ‘Is there something special I should eat?’ is a common question, as is ‘Should I do more sport?’ And if I had, for example, information from this kind of health tracker about patients’ sports and nutrition, and if I had long-term information about who had or had not had a relapse—then I would be able to say to someone: ‘if you do this, or if you eat that, you’ll have such-and-such a chance of avoiding a relapse.’ We can’t do that yet.”

A data protection nightmare

Nonetheless, this development is a nightmare from the perspective of data protection. On the one hand, the quality of data recorded by wearable devices and trackers frequently falls far short of medical standards. Studies

have repeatedly shown that such devices can often generate false readings. On the other hand, critics fear that the storage of health data cannot be deemed sufficiently secure to guarantee anonymity. One fear is that this could lead to discrimination or disadvantages for those seeking employment, for example, should employers become aware of illnesses or predispositions to certain illnesses. Critics are also worried that in the future it could become obligatory for one to gather data on oneself using various trackers or apps, for the purpose of providing it to doctors or insurers.

Even now, insurers like the German public health insurance AOK or the Swiss Generali Versicherung have started rewarding customers with bonuses and discounts if they can prove they have a healthy lifestyle with data gathered by app. “Currently, it’s all voluntary”, says doctor and e-health expert Tobias Neisecke. “And it’s about rewarding someone who is being proactive about taking care of their health data. But it is probable that this could be turned around. At some point it will become about: ‘what’s my app score?’”

Health insurers insist that there is no disadvantage for members who decline to take part in this health monitoring. Nonetheless, though it remains an open question, bigger business will probably be made with the data itself; it will provide raw material for prognosis models which calculate health risks, not only with a view to creating treatments which are appropriate for target groups, but also for the purpose of developing preventative interventions.

Targeting and speaking early on with at-risk patients

Since 2014, the Carolinas HealthCare System, a network of doctors in the state of North Carolina, has looked at correlations between consumer data and health data in order to identify

patients who are at risk for specific illnesses. In Germany, the Elsevier Health Analytics think tank is working on algorithms which can look for patterns in anonymized health insurance data and identify groups of policy holders where there is a given probability that certain illnesses will arise. Doctors will be able to check their patient data against this filter and speak with at-risk patients early on.

The German health insurance provider AOK is also developing a “cardiovascular risk assessor”, according to Kai Kolpatzik from the AOK Federal Association in Berlin. It should predict “how high your risk is of having a stroke or heart attack over the next ten years, on the basis of age and blood pressure, whether you smoke, and your family’s medical history. And what’s exciting is that this can tell you things like: What will happen if I take this medication? What effect would a change in lifestyle have?”

Analysts calculate that if current double-digit annual growth figures persist, the market for personalized medicine will have a global turnover of 90 billion US dollars by 2023. This is money that should belong to the people who provide the data, says Ernst Hafen of ETH Zurich. Together with colleagues, he has initiated the MiData project: a co-operative whose members—patients and health professionals alike—are able to upload genetic and other health-related data onto a server, but decide for themselves what the data can be used for. Companies that use the data must pay for it. The proceeds are to be used to finance research projects which big private firms see as unprofitable.

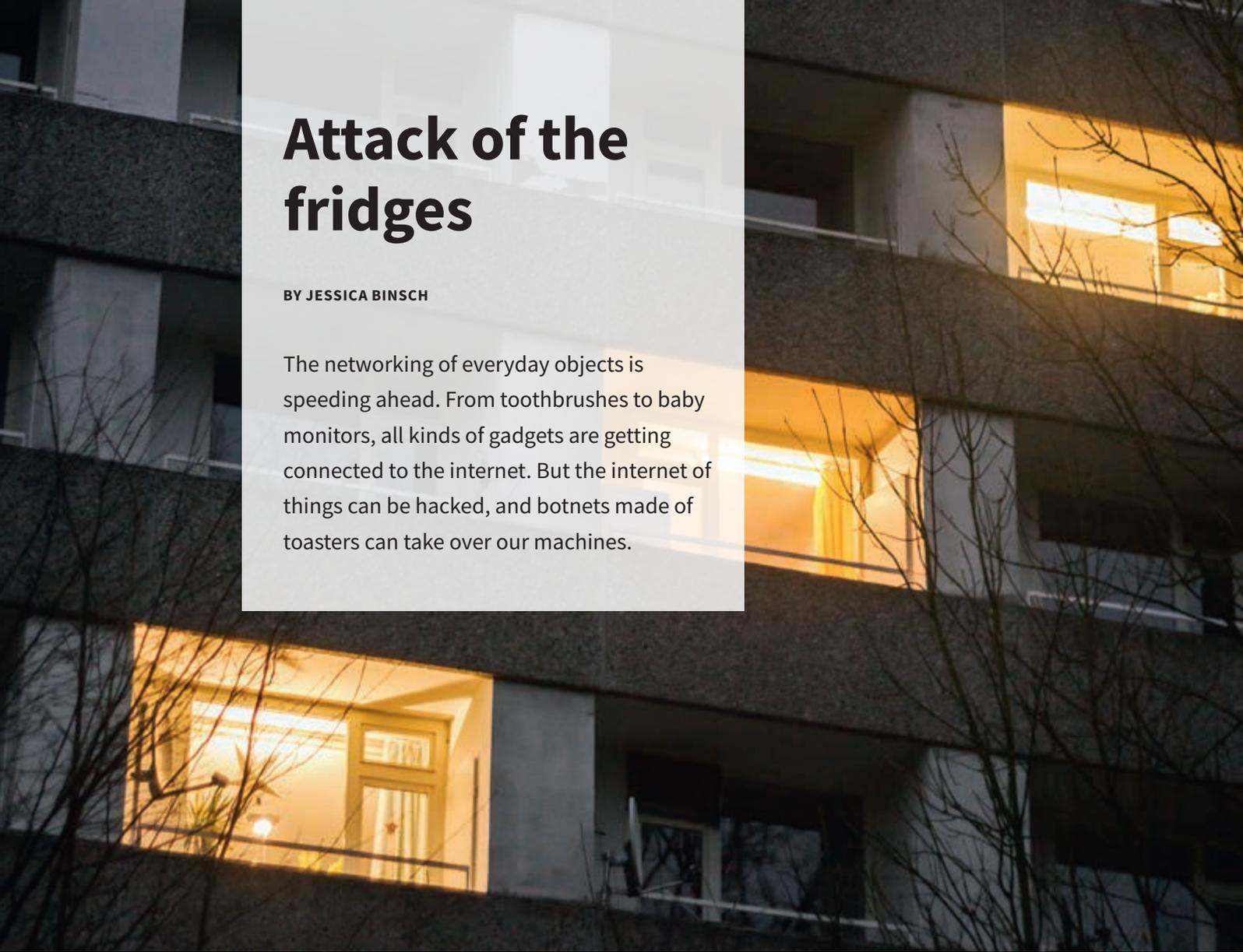
Apart from the question of who will carry out medical research in the future and who will benefit from it, the predictive analysis of this data is bound to change medicine: instead of diagnosing acute illness, the question is increasingly one of predicting the likelihood of problems occurring down the road. “We are no longer just sick or healthy”, says the medical

ethics expert Peter Dabrock, “we are the carriers of given risk profiles. And that’s where it becomes ethically and economically interesting, because that poses a whole new array of questions in terms of the consequences that this has for health insurers. Today, we say: carriers of a given genetic mutation, for example, have a claim for a given treatment, which we pay for. Soon, it could be: We’ll pay for a treatment with 70 percent chance of success. But what about 65 percent? Will we still pay for that?” ■



Photo: private

Lydia Heller is a freelance writer, reporter and presenter, mainly working with Deutschlandradio Kultur, Deutschlandfunk and Deutsche Welle. Since 2008, her favourite—but not her only—job has been writing radio features about the environment, technology and science.



Attack of the fridges

BY JESSICA BINSCH

The networking of everyday objects is speeding ahead. From toothbrushes to baby monitors, all kinds of gadgets are getting connected to the internet. But the internet of things can be hacked, and botnets made of toasters can take over our machines.

When looking to buy a new home appliance, you normally wouldn't give much thought to hacker attacks. But the next time you're shopping, maybe you should keep Andrew McGill's toaster in mind. McGill is a programmer and journalist; he works for the American magazine *The Atlantic* and his toaster was recently hacked.

Luckily, it wasn't McGill's actual toaster. But it should still give us cause for concern. McGill had simulated a toaster for an experiment—a toaster with an internet connection. He wanted to find out how quickly the gadget would be targeted by hackers. McGill was “fully expecting to wait days—or weeks—to see a hack attempt”, as he wrote in his report for

The Atlantic. In fact it took less than an hour. Within the first twelve hours there were a further 300 hacking attempts.

McGill's experiment is more than just an amusing anecdote. More and more everyday items are connected to the internet. From baby monitors to toothbrushes—all manner of gadgets are becoming “smart”. Experts predict that the market for networked gadgets will soon be worth billions of dollars annually. No wonder, then, that more and more companies are looking for a piece of the action. Internet giants Google and Amazon have brought their own control centres for networked households onto the market. Google Home and Amazon Echo react to spoken instructions from their users

via microphones and built-in software assistants.

Even small and medium enterprises assume that in a few years practically all household goods will at least have the option of going online. We can observe the same development with television: there are now hardly any television sets for sale which are not smart.

But in the scramble for the market, security is falling by the wayside. It is becoming more and more clear that networked devices have their vulnerabilities, and 2016 could be a turning point. This past year, the first massive internet attack associated with networked gadgets was made public.

One Friday in October, internet users in the USA faced massive

network failures. Big online services like Netflix and Spotify went down, as did sites like Reddit, the New York Times or Wired.

Among the culprits were insecure webcams. Hackers had joined millions of devices together into a botnet. This botnet targeted the DNS provider Dyn. Companies like Dyn are responsible for translating website names into IP addresses, the only way that a browser can call up the required site. Dyn is the internet's telephone directory—and a weak spot in the global infrastructure.

The company was overwhelmed by a massive wave of nonsense requests, in other words, a classic DDoS attack, which bring servers to their knees by overloading them. For attacks like these, attackers use botnets made up of devices which they have brought under their control. Until now, this generally only meant computers and laptops, not video recorders and webcams.

Experts had already been warning for some time that networked devices could be used for attacks. The IT journalist Brian Krebs experienced this first-hand, when his website was attacked by a botnet made up of surveillance cameras and digital video recorders. The software employed was amateurishly simple, but its effect was devastating.

Warnings are growing louder. "We need to save the internet from the internet of things", declared IT security expert Bruce Schneier in the technology magazine Motherboard. Schneier issued his call to arms only a few weeks before the massive attacks at the end of October. In hindsight it was almost prophetic.

The problem lies within the networked devices themselves. Or rather, with their manufacturers. Companies construct their products often without any thought of security and maintenance, says Michelle Thorne. Thorne works for the Mozilla Foundation, which is behind the Firefox internet browser. She has written a book together with Peter Bühr about the internet of things, called "Understanding the Connected Home".

"People buy a fridge, and then at some point they have to update it", says Thorne. "But the tech companies are not ready to

support that or think about long-term maintenance."

Often, updates are not possible, nor there are provisions for changing the standard password. This was how the attack on Dyn in October 2016 took place: the hackers used surveillance cameras from a Chinese manufacturer, which were running with a known standard password. Not all companies are familiar enough with internet security to properly secure the networked devices they started building. No one knows exactly how many cheap surveillance cameras or video recorders are connected to the internet without proper safeguarding.

There is hope that the recent attacks on the infrastructure of the internet will at least have one positive effect. The problems are now known, the wide-ranging impacts of security flaws have been comprehensively demonstrated. That has brought state regulators onto the scene. The German authority for IT security, the Federal Office for Information Security (BSI) is now calling on manufacturers to do better.

The majority of household goods connected to the internet are "insufficiently protected against cyber attacks when they arrive from the factory and can therefore be easily taken over by attackers and put to criminal use", warns the BSI. "We therefore require that manufacturers of networked goods improve the security of their products and that, when developing new products, they look not only at the functional and price aspects of the item but also at the necessary security aspects." Manufacturers should encrypt internet communication and provide updates.

Experts are also discussing ideas for an IT quality seal. Such labelling would inform consumers that products meet certain safety standards. Whether stronger rules are required is still up for debate. And even if they are, it could take some time before they are in place.

It could indeed be that security becomes a sales angle for networked

devices. That may be an optimistic scenario, but it is not inconceivable. A similar development led to a change in messenger apps. Only a few years ago, security in chat services was a niche topic, addressed only by a few small providers. Then the giant Whatsapp began encrypting its users' messages. A major impulse behind this were Edward Snowden's revelations of widespread of digital communications surveillance.

It is possible that the massive DDoS attack of October 2016 will make people more careful when buying. Manufacturers will be placed under greater pressure to make their networked products more secure. In any case, the market is very diverse: not all companies offering networked devices are necessarily versed in IT security. It is likely that the incident in October was not the last time internet-enabled household goods will play a part in a cyber attack. ■

2016 could be a turning point. This past year, the first massive internet attack associated with networked gadgets was made public.



Photo: private

Jessica Binsch works as a freelance journalist in Berlin and reports on digitalization and society. She is especially interested in internet politics, internet activism and the social impacts of technological developments.



Artificial intelligence: The dreaming algorithm

BY CHRISTOPH DROSSER



Sometimes knowledge hides away in difficult places, but now and then the time is ripe to venture out in search of it, no matter how hard the journey. Welcome to an expedition, an ascent, into the rarefied world of machine learning.

Base Camp

Don't set off without packing the following basics

A computer, it is often said, only knows as much as the programmer that has given it its instructions: all it does is follow instructions. This is true of the simplest levels of machinery: software works on the commands from the programmer, going through them line by line. But does that mean that a computer can't learn? To say that would be just as false as to say that a pupil can never be smarter than their teacher. So, just as a good teacher doesn't just let his pupils learn facts by rote, but nurtures their own development, a computer can be programmed so that, the more time it devotes to fulfilling its tasks, it continuously improves in its ability to do so. Welcome to the world of machine learning.

The first self-teaching program to make a splash was developed by the IBM researcher Arthur Samuel in 1956. The software played draughts at a respectable amateur level. At the start, the computer only knew the rules of the game and a few rules of thumb that Samuel had given it. But with every game, the machine learned more. After eight to ten hours of training time, it was better than its creator. Today, humans can no longer beat computers at draughts. In chess, the computer is at least an equal match for us, and since Google's AlphaGo program beat the European Go champion, humans are no longer undefeated in any board game.

Machine learning is a subdomain of Artificial Intelligence. Today, a wide

variety of software techniques fall under this category: computers learn how to identify humans in photos. They drive driverless cars through city traffic, after they have trained for a few thousand hours. They find patterns in big data.

In many of these learning techniques, a human is still the teacher: the human sets a goal and evaluates the computer's performance, while the computer varies and adjusts its behaviour in order to get better marks. At the same time, what could be called unsupervised learning plays an important role: the computer has to make sense on its own of masses of data. Thus, Google feeds millions of photos into a computer network, and the program creates automatic categories like "cat" or "human". This closely resembles the way a young child learns, as they create categories before they can name them.

First climb

Let's go! On the gentler slopes you will encounter knowledge which can bring you out in a sweat.

As a first climbing exercise, let's play a game which is already too simple for five-year-olds: Noughts and Crosses. The board is made up of squares arranged three by three. Two players take it in turns to set down their counters. Whoever manages to get three counters in a row, straight or diagonal, wins. There are 255,169 possible outcomes in this game. In 131,185 of them, the player who goes first wins, with the second player winning in 77,904

variants. 46,080 variants end as a draw. More important than this is the fact that a “smart” player will never lose a game: Regardless of whether they go first or second, they can set down their pieces (or draw their noughts or crosses if playing with pen and paper) so that the game at least comes out as a draw.

How can you figure out the best move to make in a given situation? In Noughts and Crosses, all possible moves can be calculated beforehand. That leads to a decision tree: a player looks at all the moves that they can make given the current state of play, then at all possible responding moves from their opponent, and so on. In chess, this leads to an explosion in the number of possible configurations; but in Noughts and Crosses, the potential combinations are limited enough to be manageable: after at least nine moves, the playing field is full and will show any of 138 end positions. Every branch ends with the victory of one of the players, or a draw.

In order to assign a value to every playing position, one evaluates every leaf on this tree: a win gets a value of +1, a loss gets -1 and a draw is given as 0. Then take a step back through the

And from a completely ignorant program, we get one that never loses a game.

game. Every sub-branch of the decision tree is allocated a playing position and a value, which is the highest of the following values if it is your turn, and the lowest of the following values if it is the other player’s turn. At the end, all positions have an evaluation of 1, 0 or -1. Branches with a value of 1 mark a strategy which can only win.

Breathe deeply

An example: let’s assume that our opponent plays first and places their cross in the middle of the board (the best starting move). We then place our nought either in a corner square or in a square in the middle of one of the grid’s sides. Which of these moves is better? Let’s look at variants in which we choose the middle of the left-hand row. There are then four essentially different possible responses for the opposing player to choose from. Let’s assume that they place their cross directly above our nought. Then in our next move we have no choice: We must place a nought in the lower right-hand square, in order to stop a diagonal line from being created. Then, the opposing player can knock us out of the game with a cross in the middle of the upper row.

In fact, our first move was fatal. It leads to a -1 in the decision tree, and should be avoided. If we had put our nought in the corner on our second move, even against the smartest player we would have an opportunity to fight them to a draw. This move has a value of 0.

How could we get a computer program to play with this strategy? First possibility: all the values in the decision tree are put in a table. The computer looks at every move in its table and chooses the move with the highest value. It plays perfectly from the first move and has no need to “think” at any point. Second possibility: The computer starts the game totally “stupid”. In every situation it marks the possible moves with the values -1, 0 and 1. As soon as a game is over, it changes these values retrospectively, in light of the outcome. In this way, its evaluation of the game-play will constantly improve.

If we now let the computer play against itself, something interesting happens: While both parties (which are in fact just one party) have no idea about the game, their retentive memory helps them to try out the different possible moves and learn which

approach is good for one position and which is bad. And from a completely ignorant program, we get one that never loses a game.

Steep slope

Take deep breaths! It’s not how you expected—but you’ll make it.

Board games are comprehensible worlds with clear rules and unambiguous situations. While people can quickly surrender in the face of their complexity, for computers they are straightforward. On the other hand, thinking through muddy reality, which is easy for us humans, is extremely difficult for computers. Take, for example, an exercise which most people would hardly even label thinking: classification. Is that a photo of a cat or dog? Is that the voice of mother, or a stranger? Is that thing in the road a plastic bag or a rock? We are able to arrive at the right answers without any real thought and with an astounding degree of accuracy. But even we don’t know exactly how we manage it.

In the 1970s and 80s, people tried to teach computers to classify things using rules developed by experts: a cat is an animal with pointed ears and whiskers; a mouse is grey and has a long tail. This method didn’t at all work well. In recent years, we have had much more success with what is called neuronal nets, which imitate the structure of the human brain. They perform astoundingly well with large volumes of data.

Neuronal nets were actually invented in the Fifties, but they only came into their own with the development of modern computing power, under the label “deep learning”. William Jones and Josiah Hoskins described a very simple example in 1987 in *Byte* magazine. The neuronal net should help Little Red Riding Hood to survive the deep dark wood. In particular, it should keep her from

being eaten by the wolf. The story also features grandma, and a huntsman, who saves Little Red Riding Hood.

Big ears, big eyes, big teeth

The program doesn't know humans. It only sees particular physical characteristics and has to derive a particular approach from them. The wolf has big ears, big eyes and big teeth. When Little Red Riding Hood meets him, she should run away, scream, and look for the huntsman. Grandma has big eyes, wrinkles and is friendly. If Little Red Riding Hood spies her, she should come close, kiss her on her cheek, and offer her the food she has brought. The huntsman has big ears and is friendly and attractive. The desired behaviour: Little Red Riding Hood should approach him, offer him food and flirt with him (the article is, as I've said, almost 30 years old).

We can see right away that the relationship between sensory impressions and desired behaviour is far from straightforward: A being with big ears could be the wolf, but also could be the huntsman, and these each require a very different reaction.

The neuronal net is made up of two "layers" of cells: It has six input cells, which note the major characteristics of the actors (big ears, big eyes, etc.) and seven output cells, which correspond to Little Red Riding Hood's repertoire of potential behaviours (running away, screaming, looking for the huntsman, etc.).

Every input cell is linked to every output cell, and at the start, each of these connections has a given "weight"—a number that describes its strength. We start with relatively small, randomly-chosen weights. This initiates the self-training of the network. It is fed successively with the input values for wolf, Grandma and huntsman (the first figure stands for "big ears", the last for "attractive"):

Wolf: (1, 1, 1, 0, 0, 0)
 Grandmother: (0, 1, 0, 1, 1, 0)
 Huntsman: (1, 0, 0, 1, 0, 1)

Reaction to the huntsman:
 (0, 0, 0, 0, 1, 1, 1)

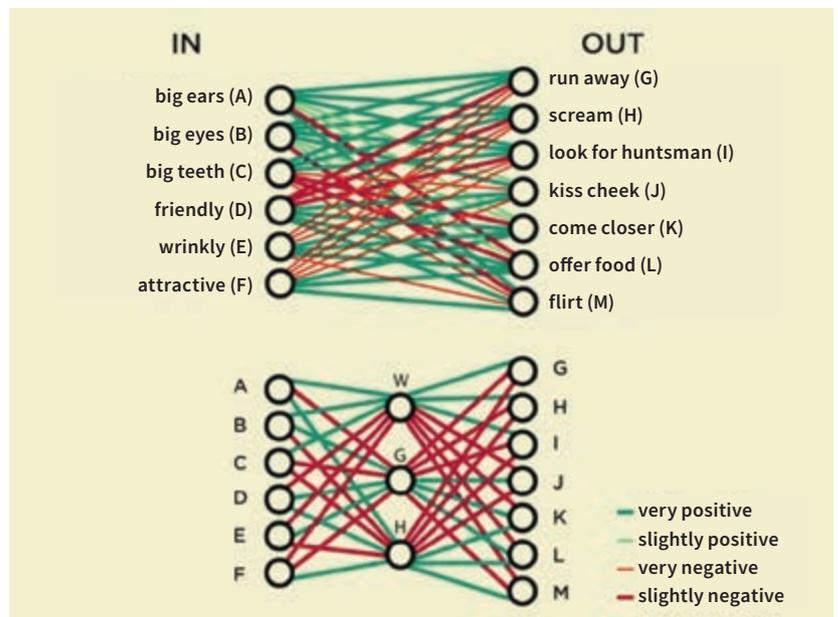
The corresponding input value is passed from the input cells to all output cells (from "run away" to "flirt"), and is this multiplied by the weight of the respective connection. For each of the seven task neurons (from "run away" to "flirt"), six numerical values are given, which are added together. If the sum exceeds a threshold (e.g. 2.5) then the neuron "fires"—and the output cell assumes the value 1.

At the start, the net behaves randomly, because the weights of the connections are chosen at random. So that it can learn, we must compare the result with the desired action from Little Red Riding Hood:

Reaction to the wolf:
 (1, 1, 1, 0, 0, 0, 0)
 Reaction to the Grandmother
 (0, 0, 0, 1, 1, 1, 0)

and alter the strength of the connection on that basis. After about 15 run-throughs, the net becomes largely stable. It develops the connections shown below left.

Why create this complicated training program, though, when we already know all the rules? In practice, the net is used in situations where the desired output is only known for a limited number of training examples. If the net is to analyze photos of animals (as digital volumes of pixels), and learn from them how to name the animals, we don't say that a cat has pointed ears. That would mean that when the net has correctly identified the animal, it would not be able to formulate why it described a given image as a "cat". Rather, it can re-use what it has learned on new pictures and recognize cats there too.



This example shows how a neuronal net learns. The graphic above shows the net after 15 training steps. The connections between IN and OUT have assumed positive or negative weight, so that Little Red Riding Hood can react correctly to the other party's characteristics. In the simulation shown below, three additional neurons are added. They specialize in the recognition of the wolf (W), Grandma (G) and huntsman (H).

The neural net has no prior knowledge and extremely limited tact. Software engineers need to train their algorithms in greater sensitivity.



Photo: Liesa Johamssen

Christoph Drösser also wrote this article for his new book “Total berechenbar: Wie Algorithmen für uns entscheiden” (Totally calculable: How algorithms are making decisions for us), using a computer. Despite all progress in Deep Learning he remains sceptical that a computer will ever be able to write such things by itself.

A strong drive to flirt

We have trained the Little Red Riding Hood net on three examples. There are a total of 64 possible inputs for the network, from (0, 0, 0, 0, 0, 0) to (1, 1, 1, 1, 1, 1). And each of these inputs will create an output in the net. Is this plausible?

For example, we can imagine what would happen if the wolf put on sunglasses and started being really friendly. That would correspond to the input values (1, 0, 1, 1, 0, 0). The output of the net which has been trained here would be: a certain tendency towards the correct reaction to the wolf (running away, screaming, looking for the huntsman), but also a strong drive to flirt. Clearly the wolf presenting himself like this confuses the girl, which is also understandable. Ambivalent input creates ambivalent behaviour.

Onto the summit

Now it's getting drafty: You must master this theory if you want to rise to the occasion.

In order to further increase the performance of neural nets, the developers have come up with a trick: they insert a “hidden” layer of neurons between the input and output cells. Where the net is correctly trained, these neurons develop certain specializations. In our example, three cells can be inserted in the hope that these will specialize in the recognition of the Grandmother, the wolf and the huntsman (W, G and H in the graphic on the right). In the experiment they operate without any help. Cell W reacts especially to inputs which correspond to characteristics of the wolf, and triggers an appropriate response. The invention in 1986 of this hidden layer and its reasoning processes (so-called back propagation) marked a breakthrough.

This layer can be seen as an ever-higher level of abstraction of the

sensory input: a net which has to recognize images only looks at disaggregated parts of images at the input level. The first hidden level of neurons will, perhaps, recognize starkly-contrasting edges. That is the basis for identifying, for example, circles or squares at the next level. Deeper in the net, neurons develop which can, for example, recognize eyes or even a cat's head.

Sometimes the net also gives results which its creators rightly find embarrassing. For example, an automated image recognition program used by the photo service Flickr categorized men with black skin as “apes”. The gate of the Dachau concentration camp was labelled a “climbing frame”. The neural net has no prior knowledge and extremely limited tact. Software engineers need to train their algorithms in greater sensitivity.

Deep Learning is now yielding successes which eluded artificial intelligence for decades: the nets can recognize human faces on photos with confidence. They can understand spoken language very well. Skype can interpret between speakers of different languages in real time.

For the learning programmes named here, there was always a human teacher which trained the program in the correct answers. But increasingly, these nets are learning independently. They are fed huge volumes of data, and left to make sense of it themselves. Google engineers caused a stir two years ago when they put neural net “on drugs”. If you require the net to find an object in a plain image, as when a person looks for patterns in clouds, it will hallucinate and see, for example, fantastical fishes in the sky where there are none. The machines have learned to dream. ■

The article first appeared in ZEIT Wissen No. 5/2016, 16 August 2016. Reprinted with friendly permission from the Zeit Verlag.



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What happened online? January 2016

4

04/01 The CDU politician Andrea Voßhoff is now Germany's Federal Commissioner for Data Protection and Freedom of Information (BfDI), an independent supreme Federal authority. While enjoying freedom from legal or administrative supervision at the hands of the federal government, the Commissioner is still not able to issue sanctions.

6

06/01 The German Federation of Consumer Organizations (vzbv) rebukes Google for its new data protection declaration. Google reserves the right to analyze users' emails, amongst other things, in order to personalize the advertising they see.

7

07/01 The Berlin District Court rules that a Facebook account can be bequeathed in a will. Facebook is obliged to give the parents of a dead girl access to her account.

11

11/01 The German Federal Intelligence Service (BND) resumes cooperation with the American National Security Agency at the Bad Aibling field station. The American secret service will continue to hand over its search terms (selectors), but must now be able to justify them. Until now, no request from the NSA had been declined.

13

13/01 According to a ruling by the European Court of Human Rights (ECHR), the Hungarian Surveillance Act is in breach of the Convention on Human Rights. The law allows, among other things, for every person's communications to be individually monitored in Hungary.

14

14/01 Ernst Uhrlau, former head of the BND, speaking before the German parliamentary committee investigating NSA surveillance practices, expresses doubt regarding the statement of the former Chancellery Chief of Staff, Thomas de Maizière (CDU), that he was not informed about the termination of the BND-NSA collaboration "Eikonal".

15

01.15 15 years ago Editor-in-Chief Larry Sanger heralded the start of the Wikipedia success story with the line: "This is the new Wikipedia". Today, Wikipedia contains more than 36 million articles worldwide.

15/01 The European Commission adopts contentious net neutrality guidelines. These requires its 47 members, on the one hand, to uphold the principle of an open internet, but also states that providers may under some circumstances limit or prioritize the flow of data.

15/01 Facebook has begun to delete anti-immigrant or anti-Islam pages in Germany and the Czech Republic. The company has also signalled its intention to act on hate speech in Germany immediately.

20

20/01 Over the previous six-month period mobile phone communications were more closely monitored by German investigative authorities than ever before. The German Federal Criminal Police Office alone sent five times as many "silent SMS" messages as in any previous six-month period. Silent SMS messages are not visible to the recipient but reveal connection data which can then be evaluated.

22

22/01 On the occasion of the 50th World Communications Day, Pope Francis calls for a communication of "compassion" and for believers around the world to be thoughtful about their use of digital communications.

26

26/01 The German Federal Constitutional Court turns down an emergency motion against data retention. The judges on the Court do not deem a temporary suspension of the retention limit for providers necessary.

28

28/01 For the first time, artificial intelligence (developed by Google) is able to beat a human opponent in Go, the most difficult and complex board game in the world, without a handicap (i.e. without being granted any advantages).

29

29/01 The German Bundesrat (Federal Council) passes a law permitting consumer groups and chambers of commerce to object to data protection offenses by companies and to open legal proceedings against them.

30

30/01 The final conclusion of German security agencies about a hacking attack on the Bundestag (German parliament) in 2015 is that it originated with a Russian spy agency. The investigation against persons unknown on charges of espionage is ongoing.

The digital doping hunt

BY MARTIN EINSIEDLER

The Olympic Games in Rio shook our faith in clean sport. But new journalistic methods could help in the hunt for cheats.



The Cold War in sport was reborn on August 9, 2016 in the Olympic water sports arena in Rio de Janeiro. The Russian swimmer Yulia Efimova had her sights on gold in the 100m breaststroke, competing against her fiercest rival, the American Lilly King. As she discovered, however, Efimova also had to contend with the crowd, who remorselessly booed her. When King finished first, the celebrations were deafening. Even the German televised coverage was jubilant. “Jaaaaaaa!” shouted ARD reporter Tom Bartels into the microphone, before exclaiming, “This was a victory for sport, against a convicted dooper, who shamelessly laughs in the face of fair play.”

Efimova was subject to a ban in March 2016 for testing positive for the forbidden substance Meldonium; in May the World Swimming Federation lifted the ban. The 26-year-old compared the ban to getting a parking ticket. From then on, she was seen by many viewers and the media as a representative of cheating in sport, and—understandably—of Russian cheating in particular.

The 2016 Olympic Games in Rio left behind a bitter taste. Rarely have an Olympics made it so abundantly clear that the image of competitive sports is tainted by cheating, and that sports organizations are thoroughly unable to act to address this problem. Even worse, the organizations are in fact part of the problem. As unsettling as this conclusion may be, as much as it may overshadow the inspiring feats of athleticism and uplifting rhetoric on display, it stands as the most lasting impression left by the Summer Games in Rio de Janeiro.

However, the Rio Games could also prove a salutary turning point for sport, precisely because cheating featured so prominently. Digital journalism especially has an opportunity to make a major contribution to the process of cleaning up the Games. But let’s take one thing at a time.

In December 2014, the German television channel ARD broadcast a documentary by the journalist Hajo Seppelt entitled “The Doping Secret: How Russia makes its winners”. Seppelt worked with whistleblowers like the Russian middle-distance runner Yuliya Stepanova to document

the existence of systematic doping throughout high-level Russian sport. The response to the documentary was immense; sports organizations had to move quickly to adapt. The World Anti-Doping Agency (WADA) convened an independent commission to look into Russian sport.

The process set in motion by Seppelt began to gather speed. Three weeks before the opening of the Olympic Games, on July 18, WADA unveiled the findings of its investigation, which confirmed the information presented in Seppelt's documentary. It was even discovered that the Russian internal security agency (FSB) was complicit in the doping program.

Russian cheating was no longer simply the subject of a leak, but a fact confirmed by high-ranking sporting officials. In the eyes of many observers, the only logical response to these revelations was the total exclusion of Russia from the Games. But the governing authority of the Olympic Games, the International Olympic Committee, did not dare to impose such a ban. Russian athletes who could prove that they had not been involved in the state doping system were permitted to travel to Rio for the start of the Games. The exception to this ruling were the Russian track and field athletes, who were collectively not allowed to take part.

The full exclusion of Russian

under close personal protection.

But there are new instruments which doping-hunters like Seppelt will be able to use in their future work. "The possibilities of the digital realm will help us to acquire information", according to Seppelt. In June, 2016, he co-founded the web portal sportleaks.com; whistleblowers can use the site to report cheating in sport by forwarding incriminating data, documents or sound and video recordings with the assurance of anonymity.

The project is clearly doing well. "We have already received quite a number of messages", says Seppelt. The difficulty for him and his team lies in filtering and checking the mass of information. Seppelt wants to build up a large network of investigative journalists who will help sportleaks.com to look into suspicious cases. "Let's say that someone contacts sportleaks.com to report a doped horse in Argentina", he says. "I wouldn't deal with that myself—we would have a journalist in Argentina take that on." Seppelt is convinced "that digitalization makes our work easier."

But other actors are also using leaks to advance their agenda. This became clear when, in September of 2016, a hacking group reputed to be Russian and named "Fancy Bear" penetrated the system of the World Anti-Doping Agency, stealing huge volumes of data with information about athletes.

Over time, Fancy Bear released medical reports on top athletes—overwhelmingly US athletes—and accused them of doping. The alleged dopers all had obtained exceptional permissions for medications which are on the WADA ban list. "That was straightforward Russian propaganda", said Seppelt. "Not one single Russian athlete with exceptional medical permissions was named in the leaks by these hackers. It was all very transparent."

The data theft by Fancy Bear made it plain that sport faces new challenges for which it is not yet prepared, as no effective countermeasures against

Whistleblowers can use the web portal sportleaks.com to report cheating in sport by forwarding incriminating data, documents or sound and video recordings with the assurance of anonymity.



Photo: Frederike Borchert

Martin Einsiedler, born in Leutkirch in 1978, has worked as a sports journalist since 2008, specialising in sports policy. His dissertation on the reunification of German sports in the years 1989/90 was published by the publishing house Meyer & Meyer in 2011. Einsiedler writes for publications including *Tagesspiegel* and *Zeit Online*.

founded on the simple fact that the world's largest country is inextricably intertwined with the leading world sports organizations, largely as a result of the willingness of ever fewer countries to embark upon the costly endeavour of hosting major sporting events.

In 2014 the Winter Olympic Games took place in Sochi in Russia; in 2018, Russia will host the FIFA World Cup. Russia is one of the biggest players in sport: a country willing to pour big money into such mega events and prepared to quietly tolerate the often questionable practices of global sporting organizations.

The case of Russia shows that the struggle against doping is difficult precisely because it is not about crooked athletes, but whole systems. Hajo Seppelt experienced this fact first-hand; in the course of his investigation he was repeatedly threatened and placed

Data from doping tests gives no clarity in the final analysis as to whether the control system is being operated correctly in terms of doping probes of athletes.

cyber attacks are in place. Many athletes reacted with shock to the publication of the medical reports, hardly surprising, as this was sensitive personal information, some of which had clearly been altered by Fancy Bear. At least this was the accusation made by WADA, although they failed to provide concrete evidence.

Digitalization could help sport in the long run, an optimistic outlook shared by the Mainz-based doping expert Perikles Simon: “There are more positives than risks. Digitalization could mark a contribution towards more transparency.”

Simon can fully understand athletes’ worries about the misuse of data, the fear that information gathered about them could violate their right to a private life. But, as he says, “The life of a top-level athlete is surely no walk in the park from that perspective. Whether the athlete is watched as they wee during a doping probe, or whether WADA hoards lots of their medical information, will likely not make much difference to them by that point.”

What is clear, says Simon, is that WADA should no longer make its data public. Data from doping tests, for example, gives no clarity in the final analysis as to whether the control system is being operated correctly in terms of doping probes of athletes. Simon believes that digital journalism can help to uncover relevant data. “It can bring us more light in the darkness”, he says. The legacy of the Rio Olympics could also be that the dark side of sports will soon be brought to light. ■

the internet.



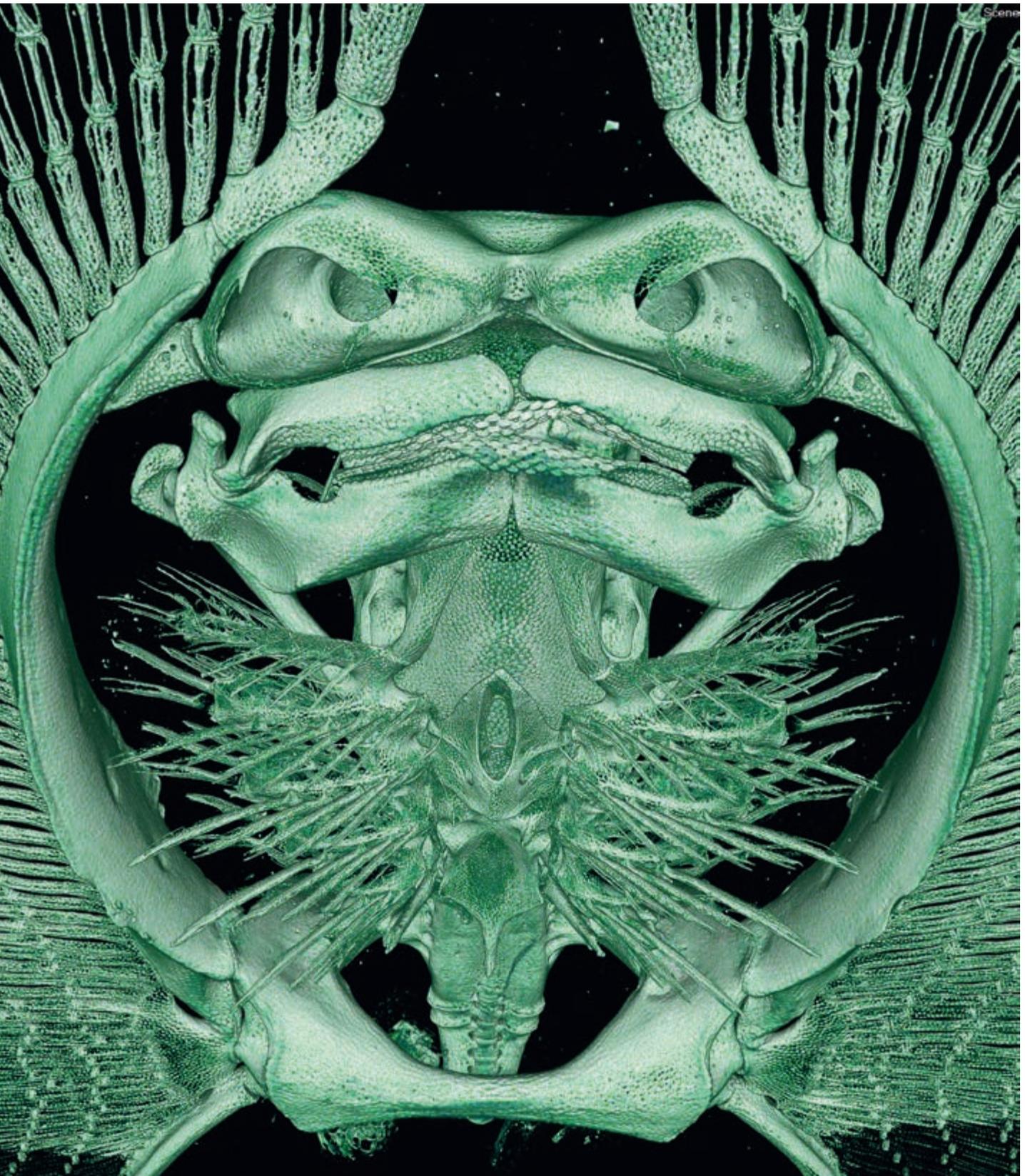
it’s not just for fat cats.

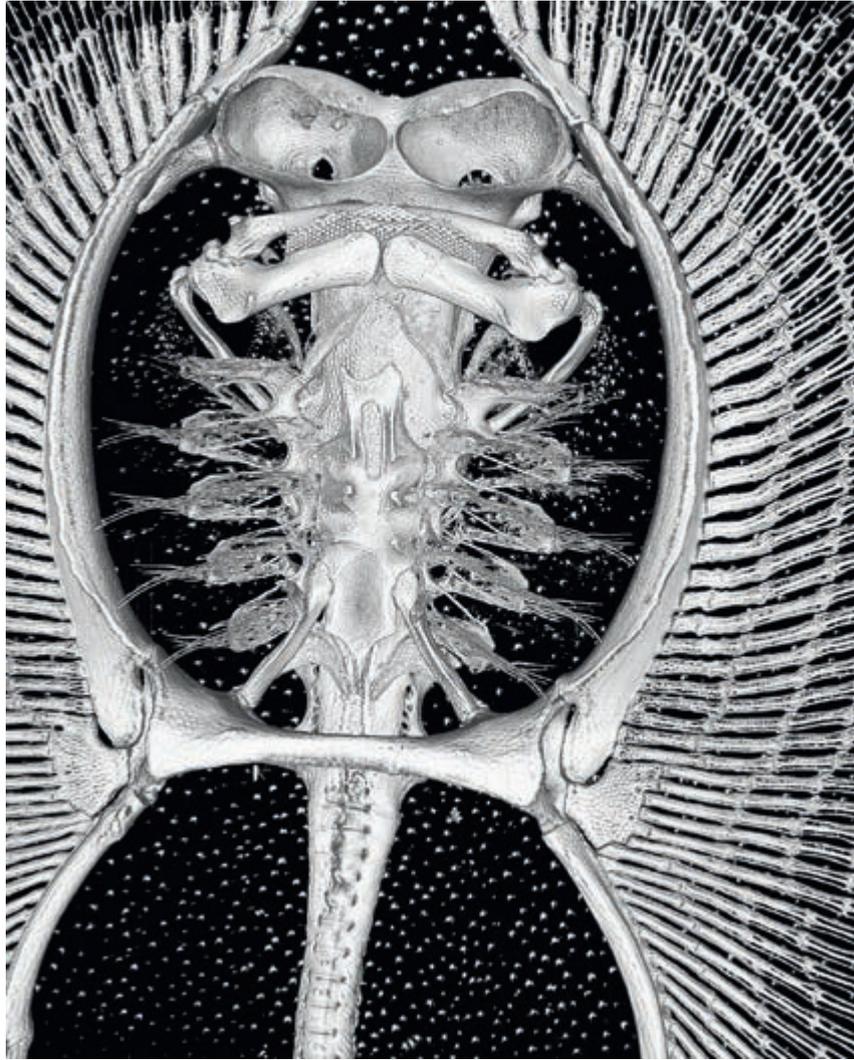
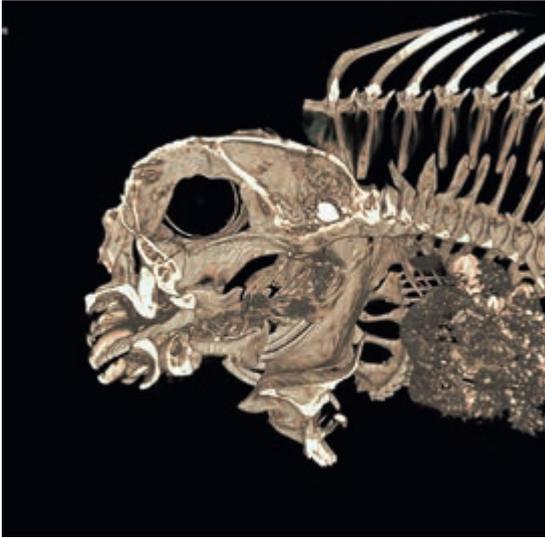


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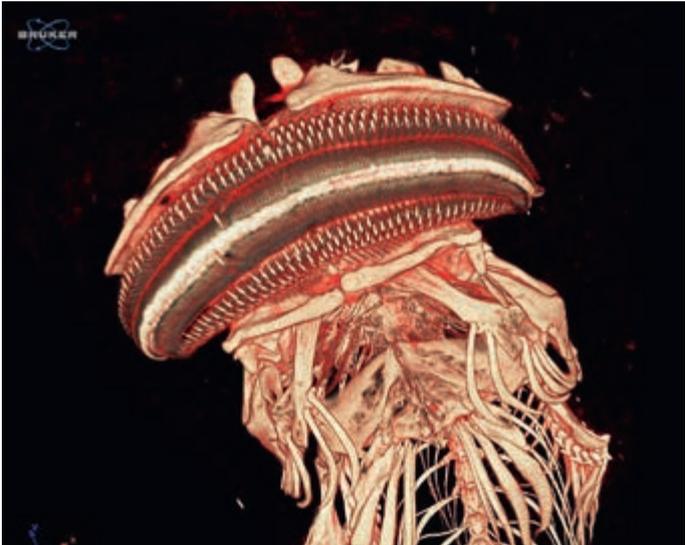
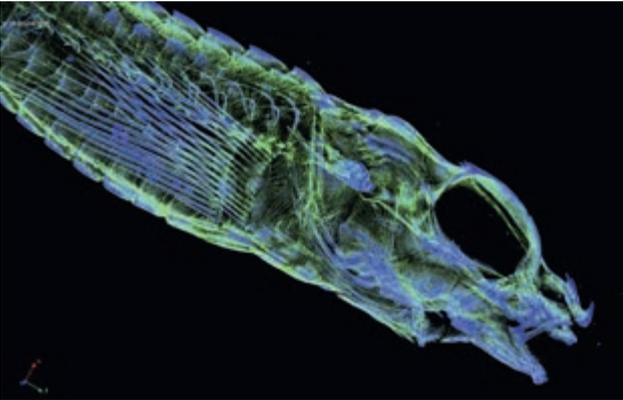


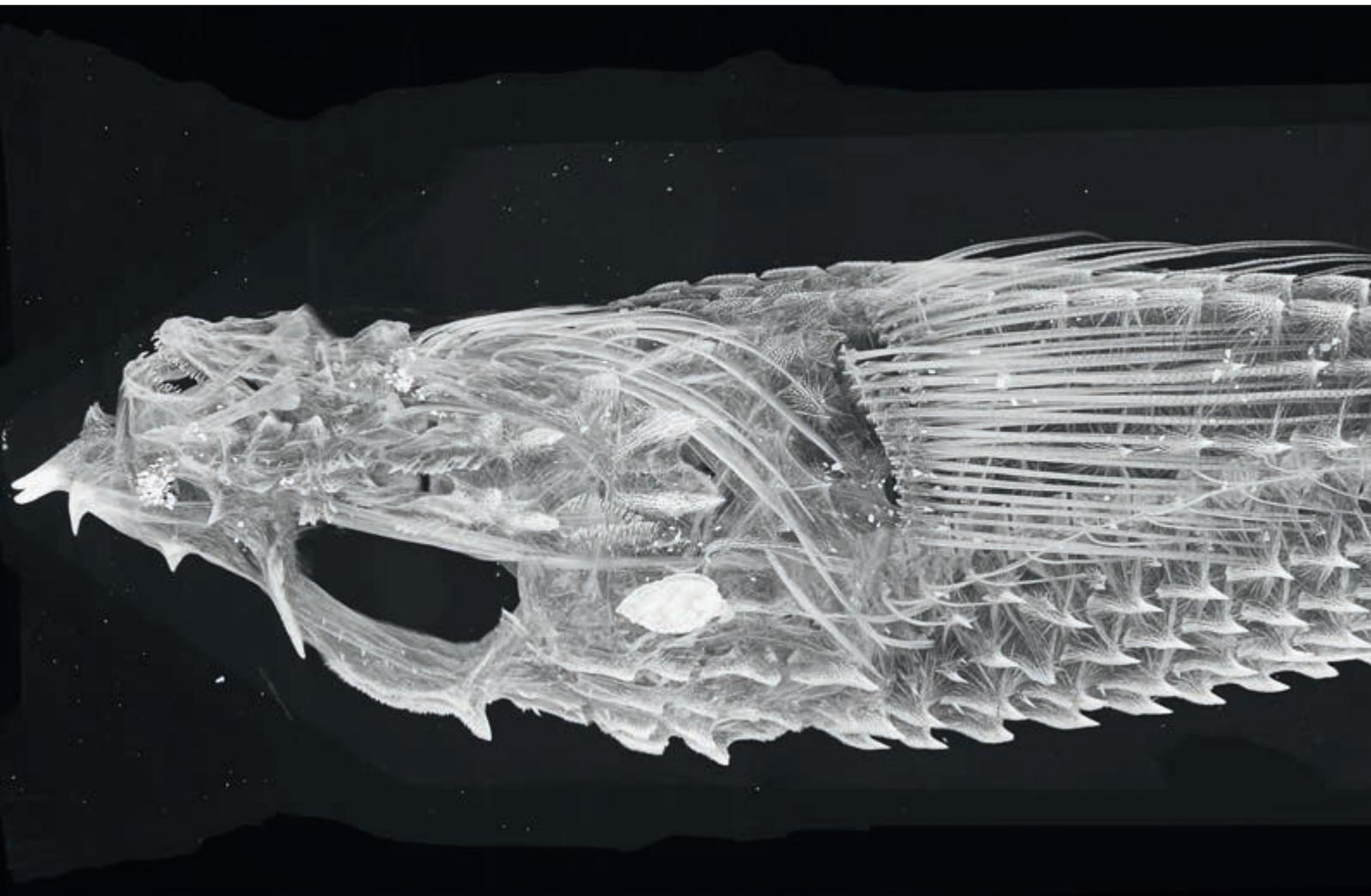
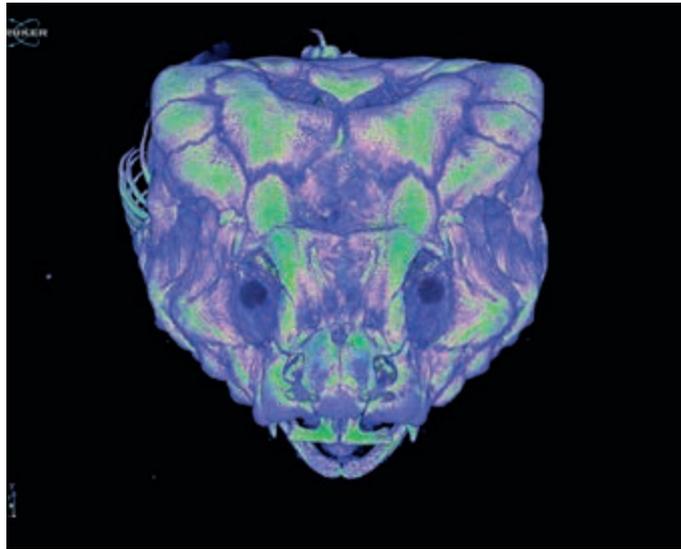


The hashtag for fish lovers

Adam Summers likes fish. A professor at the University of Washington, he is affectionately known as the “fish guy”. In the credits to the Pixar film “Finding Nemo” he even appears as the “fabulous fish guy”. There are over 25,000 species of fish in the world. Using computed tomography, Summers wants to scan them all. Like a true scientist, he also wants his work to be available to the public for free. Fellow researchers, teachers, students, and hobbyists can access his scans and print them out—even in 3D. So far, Summers has scanned more than 500 fish, many of which are already available online. Apart from their scientific value, these scans also manage to be something very unscientific: they are beautiful. And so, even if you are not an expert on fish, you can still admire the almost cubist skull of the snailfish (*Liparidae*) of the suborder *Cottoidei*. You’ll be treated to a small selection on the following pages. (kb, vdj)

#scanallfishes





Universities face digital challenges

BY ADA PELLERT

The world of higher education is confronted with a pivotal question in the digital era: what roles will students and educators play in tomorrow's universities?



Our society is undergoing a rapid transformation defined above all by globalization and the spread of technology. In many areas, digitalization is modernising—if not openly challenging—established systems and ways of doing business. According to business information technology expert Ulrike Baumöl, IT innovation is driving social, economic and legal changes in two ways: through automatization (*digitization*), and through the emergence of new business models, processes, products and services (*digitalization*). Unfortunately, examples of disruptive innovations are everywhere: whether in the music industry, the print media, or in retail. They are enabled by new technologies that have undermined the seemingly unassailable positions of market leaders and left permanently transformed business models in their wake.

In higher education, the use of new technologies has mostly been restricted to administrative tasks such as dealing with a huge demand for certain courses. Rarely have they brought about disruptive innovations or strategic changes in the basic way education is provided.

Transparent teaching

Nevertheless, the following effects on colleges and universities are already being felt, or appear to be imminent. For one, teaching is being made public and transparent. This can be seen in the growing number of free online courses known as MOOCs (Massive Open Online Courses). Here, there is both good and bad news. One risk is the “Hollywoodization” of content that could necessitate measures to guard against cultural dominance, such as those that protect European film-making. These ensure it’s not only those producers wowing audiences with the biggest budgets and most

expensive effects who succeed. The good news is that transparency always raises quality. This is a principle that applies just as much to the realm of higher education.

Individual and collaborative learning

Students are increasingly changing from being users to being producers. Content is often sourced for free from peers as “commons”. Education is being de-institutionalized. One result is something the organizational researcher Ayad Al Ani has termed “edupunks”: individuals who use modern communication technologies in order to design their own educational

Students are increasingly changing from being users to being producers. Content is often sourced for free from peers as “commons”. Education is being de-institutionalized.

journeys as an alternative or supplement to classic university structures. New media do not only facilitate individualized learning; they can also strengthen cooperation and collaboration among students and teachers. Ideally, community learning can enhance self-designed learning programs and is a central element of new learning strategies.

However, both factors in this equation only work if students possess high media competency in critically assessing sources and the knowledge they convey, something for which they must be prepared whilst still at school. Teachers will need to address our modern media reality in the classroom, and train their students to use media critically and wisely.

The role of educators will diversify

The changes that have taken place in information and communication technology have helped to turn local heroes in sport, entertainment, and culture into global stars. According to the higher education researcher Hans Pechar, a similar trend towards academic stars with global reach and recognition will intensify at universities, potentially leading to stronger hierarchies and uneven distribution of resources within the same academic status-group. The unity of research and teaching, which in the reality of today’s mass-universities has become little more than a normative ideal, will come under further strain.

Because not all professors can afford to concentrate on the demanding process of producing globally available content, the roles of educators will diversify within university faculties. At institutions like the University of Hagen, which has a primarily distance-learning approach and where media-supported teaching is of central importance, educators often work hand-in-hand with media technicians and method specialists. *Scholarship*, the guiding ideal of academic teaching, must in future also apply to funnelling multiple sources of knowledge into well-designed and effective learning arrangements.

The role of the institution will also change. Alongside its core competence as a certifying body, the university or

college will increasingly act as a guide through a diverse educational landscape and a partner in a lifelong process of learning. When bulk learning gives way to a continuous educational process in response to new tasks and challenges, students will need mentors who can guide them through a range of learning options. An institution's reputation will be based on its com-

connect and engage with society, to avoid marginalization, and to build career opportunities. Lifelong learning, supported by digital media, will be an essential antidote to social fragmentation. Whether studying, working, or helping to effect social change, media competence is vital in giving a voice to both individuals and communities alike.

Academic training will become an increasingly important way to connect and engage with society, to avoid marginalization, and to build career opportunities.



Photo: Jakob Studnar

Prof. Dr. Ada Pellert was appointed Rector of the University of Hagen in March 2016. A trained economist, she has worked in the administration of several universities in the German-speaking world and as a professor of Organization, Development and Educational Management.

mitment to quality control in carrying out these roles. This will be decisive. The openness of institutions to a whole spectrum of educational options must also be organized and validated. The interplay of education, work, university and career can be facilitated by digital media's ability to span distance and enable communication when and where it is convenient.

Countering the Matthew effect in education

Social effort is required to combat the Matthew effect: "unto those who have shall be given", or translated into the context of education, those who know shall know more by taking advantage of the opportunities arising from new media. Education must give students the skills they need to successfully perform in a digital society.

Target groups who still lack sufficient access to higher education can and must be addressed more effectively: for example, people from families without university graduates, the elderly, and those working full-time. Academic training will become an increasingly important way to

Engaging in wider social debates

Developments in recent years have shown how new technologies intersect with wider processes of social transformation already underway, and how they are able to spread most effectively when addressing an already existing need. In his book *Kultur der Digitalität*, media theorist Felix Stalder discusses two parallel trajectories of political development in our increasingly digital society: post-democracy, or a concentration of decision-making power at levels excluding participatory input, and the deployment of the Commons as an attempt to maintain the participatory dimension of decision-making. New infrastructural possibilities will instigate new social institutions adapted to them. In this sense, higher educational institutions, as sites of republican, democratic discourse, have an acute responsibility in shaping the debates to come. ■



Digitalization is happening... in your aerobics class

AN INTERVIEW WITH STEFAN WILL

With the Expanded Learning Worlds initiative, Germany's adult education centres, or Volkshochschulen (VHS) seek to integrate digital tools into their methods and curricula, embarking on a wide-ranging campaign for digital literacy.

iRights.Media: What are Expanded Learning Worlds?

Stefan Will: VHS centres have a long tradition in adult education, but this has been primarily focused on classic classroom instruction. We have both the facilities and the expertise for this approach. But now there are digital tools we can use to simultaneously support and broaden learning. As publicly financed educational providers with a public duty, we want to be able to offer citizens as many different teaching and learning settings as possible. Crucially, we are continually adopting the perspective of the student who sits in front of me. Through these kinds of methods, we are creating positive learning environments that allow everyone to achieve their goals.

What kind of methods do you use?

It could be a social-media group of language-class participants working as an asynchronous learning group. It could be a simple, homemade video clip produced by an aerobic dance instructor, who records a certain step combination for those students who need a little longer to learn the steps when set to music. This way, they can practice the steps at home and keep up better in class the next time. I can expand the learning space through video chat by bringing in an expert or giving a nursing mother the opportunity to attend a French conversation course.

What concrete first steps have you taken in the eleven months since the German VHS Association decided to implement Expanded Learning Worlds?

First, we must open doors and persuade our users to take an interest. The attitude that “digitalization doesn’t really affect me” still persists in all sections of the population.

The Expanded Learning Worlds master plan envisions several strands. First, we must open doors and persuade our users to take an interest. The attitude that “digitalization doesn’t really affect me” still persists in all sections of the population. We like to use Whatsapp because it’s simple and practical, but the mechanisms behind it remain unknown. It is only slowly starting to dawn on people that something really is changing in their world. But there are serious reservations and anxieties when it comes to confronting these changes. There is often a lack of knowledge about the technology and the digital processes that are fundamentally changing society.

We have formulated this issue in terms of the concept of participation. We are genuinely concerned that if our society cannot acquire the basic competencies to understand the processes and tools of digitalization, the future participation of individuals or whole groups of the population is in danger. This would be difficult for our society to bear. Therefore, next to the didactic-methodological questions of how to use digital media in a course setting there are other questions regarding social discourse and political education in relation to digitalization. Answering these questions is just as important to us.

Could you give an example?

I’ve already mentioned social-media groups within which you can set up an asynchronous learning group. If you have fifteen people in Spanish class,

there will be three or four who don’t want to be on Facebook or don’t have Whatsapp. One part of this group still decides to form a social media group because it helps them study and learn. If someone has a question during the week’s session, then the others can answer it. Educationally, this is great. But teachers are faced with a real problem: the three students who can’t or don’t want to take part in the learning group are upset. It can get tense.

As a public institution in Germany, we are barred from using Facebook and Whatsapp by data protection regulations. That means that the VHS needs an internal messaging service like

Whatsapp to form learning groups, but one that we can use in accordance with German law. We are working on this—a communication network for the VHS system. This would include not only a chat function, but also a video platform, user profiles, etc.

How do you hope to achieve that?

In the next years we want to create 35 so-called digicircles. One digicircle would encompass three to five VHS centres, which would form a workshop that would be closely supported by VHS associations at the state and federal level. Every one of these schools would be asked to choose a “lighthouse” project, which would represent a solid, practical application of the Expanded Learning Worlds concept. They then implement this course, name all the obstacles they’ve encountered and solutions they’ve found. We then gather this information and use it to create modules that we make available to all VHS centres. The centres get our support, mainly in the form of training and coaching.

Why did it take so long for the VHS system to tackle this issue? Digital learning tools have been around for twenty years.

I think that we focussed primarily on curricula, didactics and methodology and overlooked questions of long-term organizational development. We also failed to get teachers and course leaders completely on board. Of course there are great people in the VHS system and many who have engaged with digital trends, but the important thing is to set standards that apply across all centres.

The second pillar of our concept, political education, tackles this issue. It’s fundamentally important to realize that technology is changing our society. We also need to understand how. Education and lifelong learning must answer questions arising from

the dangers and opportunities created by new technology. If you want to create a movement on this basis—one that all users comprehend—then people need to appreciate the central role technology plays in everyone’s life.

Have you already begun some of the projects? When can VHS students gain the benefits of this new concept?

Well, for example, the first digicircle is already up and running in Berlin. It’s comprised of five VHS centres working together on a model project for a business qualification: financial accounting, payroll accounting, and

Political education is just as important as our traditional educational responsibilities. Specifically, we want to start with the topic of “big data” in the health sector. In other words, what happens with all my fitness data? Fitness courses and preventive health plans are a major part of VHS centres. If this data were to fall into the hands of health insurers, they could use it to generate profiles where clients would be rated in terms of their pursuit of a healthy lifestyle. This poses a serious danger for the system of social solidarity on which our public health system is based.

literacy campaign. It is a question of participation: these people have to be given the chance to understand and learn how best to use all the tools provided by the internet. ■

Interview by Valie Djordjevic .

We are genuinely concerned that if our society cannot acquire the basic competencies to understand the processes and tools of digitalization, the future participation of individuals or whole groups of the population is in danger.

so on. Students can attend the course as a series of normal classroom lessons at the VHS centre, or they can attend from home in a combination or enhanced learning approach. There is a book and a webinar for the program. They can work on-site with the book, and use the webinar to move at their own pace to repeat and reinforce what they have learned.

By the end of February 2017 there should be a digicircle in every German state, each comprised of three to five VHS centres. By summer 2017 they should be trialling this kind of offer in every state.

You said earlier that political education would form an important part of the Expanded Learning Worlds program. What are your concrete plans in this area?

A lot of people who carry fitness-tracking devices and willingly surrender this data don’t see this. We are working on providing training to our fitness instructors all over Germany, so that they can discuss these issues with people on their courses. We are taking a different approach here: if we offered an evening talk on “how big data is changing our society”, then maybe two people would show up who might be familiar with the issues and may have already made up their minds. This doesn’t mean that we won’t be offering evening lectures on this kind of topic, but we want to reach the people where they are and where it’s relevant.

We are responsible for about 50 million citizens who will never again visit a school or a college or university. We need to offer them a program, a digital



Photo: private

Stefan Will has worked for eight years at the VHS centre in Fulda, Germany. Together with five other authors, he drafted the concept “Expanded Learning Worlds—VHS centres in the digital age”. Since January 1, 2016 he has been responsible for coordinating the overall implementation of this program at the German VHS Association.

What happened online? February 2016

1

01/02 After being online for only seven years, the messaging service Whatsapp now counts seven million active users.

01/02 Germany's Federal Bank reminds consumers that, from midnight, the IBAN must be used in all bank transactions.

01/02 Streaming volume will now also be used to generate rankings on German album charts, although only the use of paid streaming services is taken into account.

1

01/02 After a protracted transparency battle, members of the German Bundestag are given access to documents from the negotiations for the free trade agreement TTIP. A special reading room is set up for this purpose in the Federal Economics Ministry. However, the conditions are strict: parliamentarians are not allowed to pass on any information and have to surrender their mobile phones before entering. The documents are not translated into German.

8

08/02 Germans would rather do without alcohol than the internet: according to a Forsa Survey, half the population of Germany could willingly abstain from the use of a luxury, such as alcohol or tobacco, or a consumer product. However, only 20 percent (among those under 30, only 12 percent) could stomach even a temporary break from the internet.

9

09/02 Since its launch, more than 100,000 projects have been financed through the crowdfunding platform Kickstarter, among them four Grammy Award-winning albums and one Oscar-winning film. Kickstarter has distributed a total of more than two billion dollars.

17

17/02 A US court orders Apple to cooperate with investigators through bypassing encryptions on the iPhone belonging to one of the perpetrators of the San Bernardino shootings. In a "customer letter", Apple CEO Tim Cook explains why he opposes the order, fearing a dangerous precedent could be set should his company be forced to comply. The case prompts an international debate on consumer data protection.

18

18/02 Arne Schönbohm begins his term as the new head of Germany's Federal Office for Information Security (BSI) with 600 employees at his disposal.

18/02 One percent of German households are connected to the internet via a fibre optic network, placing Germany in 28th place in Europe. In first place are Latvia, Lithuania and Sweden, each with 35 percent of households boasting fiber-optic connections.

19

19/02 In the on-going battle over the ancillary copyright for press publishers, publishers are again left empty-handed. The Berlin district court rules that, despite its overwhelming market dominance, Google could be trusted not to abuse this position.

22

22/02 Germany's Federal Ministry of the Interior clears newly developed Trojan software for deployment. They intend it to be used exclusively in lawful interception operations, collecting data directly on the target's computer in order to render subsequent encryption ineffective.

22/02 There are only 30,000 telephone booths left in Germany. Ten years ago there were 110,000.

24

24/02 US President Barack Obama signs the "Judicial Redress Act", clearing the way for EU citizens to sue US authorities for violations of data-protection law, albeit with a high hurdle.

25

25/02 The German Bundestag passes a resolution calling upon the government to formulate an action plan for "intelligent mobility", the goal of which should be the development of "intelligent traffic control". The opposition votes against it, fearing the advent of the "transparent driver" subjected to constant surveillance and data collection.

26

26/02 At an event in Berlin, Facebook CEO Mark Zuckerberg admits there is room for improvement in the way his platform deals with hate speech. 200 employees are hired in Germany to help address this problem.

28

28/02 Netflix blocks access to its services via VPN tunnel. The aim is to prevent users in Germany from gaining access to videos for which Netflix has acquired only the US rights.





Learning to program is a skill for life

BY GERHARD SEILER AND JUTTA SCHNEIDER

There are many initiatives underway that aim to integrate computers in the classroom, but many teachers and parents are sceptical of digital media. Students, on the other hand, are enthused.

The microcontroller on the table blinks; the circuit board's LEDs display a glowing heart. "Cool! Now let's make it show our names." Primary school students Lisa and Tatjana are thrilled by what they've just discovered.

Together they're learning programming in their classroom as part of a "Code your Life" initiative. They are allowed to try their hand at various programming tools and experience what a broad, creative and exciting array of things programming can do. Next to the girls, a group of students sit in front of a drawing robot and discuss the right instructions to give: "After the loop comes Turtle->forward(100) and then leftTurn 300 degrees, then we have the peak." Using the programming language Logo, they make the

robot draw the Berlin TV Tower. It's tricky, but together they are able to take on the task one step at a time. Meanwhile, the loudspeakers in the next room are pumping out rhythmic sound. The students in this room are working with Sonic Pi Music, and they are all in agreement: "At first it seems really complicated, but when you get the hang of it, it's super easy." They are having a visibly good time experimenting with their own ideas:

"You can make music like a proper DJ like this!"

Calls to integrate programming and self-guided learning with electronics into the everyday primary classroom experience are becoming both louder and more frequent. Why is this topic regarded with such urgency amongst educators? One thing is clear: it is not only policymakers and society at large that must engage with the issue of digitized education. Those in

education must too—whether teachers, administrators, or theorists.

Digital is everywhere. Data and codes surround us in numerous aspects of our everyday lives. In the face of this pervasive digitalization, education for the future means adaptation. The ability to confidently navigate and effectively act in the digital sphere is now an essential component of a successful education. Helping children understand what lies behind the digital toys and ubiquitous codes that are increasingly a part of their lives not only makes sense from the perspective of shaping a politically educated citizenry or a workforce prepared for future job markets. Paired with solid lesson planning, coding offers many promising learning approaches in today's classroom.

When language labs were introduced to German schools in the 1970s, the use of new technical devices in lessons heightened expectations. Now we know that the classroom does not benefit from technology alone, but only in combination with suitable educational approaches and concepts. Thus, the "computer labs", a common feature of schools since the mid-1990s, are oriented towards a 20th-century model that cannot truly form the basis for a good education in and effective teaching with digital media today.

The introduction of electronic calculators was highly controversial at first. Today nobody questions them as a tool in the classroom. However, this does not automatically ensure maths is taught effectively. The use of electronic devices needs to represent a surplus value in terms of learning. We must learn from experiences gathered over the last decades. Technology can inspire and engage only if the didactic approach developed for it is innovative, and if the student remains centre stage. To respond to this challenge, educators need to fulfil new roles based on a new understanding of their field.

Digital devices, virtual gaming environments and online social networks are as natural a part of children

One thing is clear: it is not only policymakers and society at large that must engage with the issue of digitized education. Those in education must too—whether teachers, administrators, or theorists



R. Wegzyn | Hellwood media & education Berlin

With a master's degree in education, Jutta Schneider is responsible for several initiatives at the "Förderverein für Jugend und Sozialarbeit e.V." (Aid Association for Youth and Social Work). Her focus is on empowering children and young people to participate in a digital society. As the project leader on the "Code your Life" initiative, she specializes in the field of programming for kids.



Ch. Herold, Hellwood media & education Berlin

Gerhard Seiler works as a media educator for digital inclusion and education for participation in a digital society. Currently responsible for strategy and innovation at the 21st Century Competence Centre, he previously worked as manager of the "Stiftung Digitale Chancen" (Digital Opportunities Foundation) and has headed projects at the "Haus der kleinen Forscher" (House of Little Researchers) and the federal initiative "Schulen ans Netz e.V." (Schools on the Internet).

and young people's daily lives as the telephone, television or radio were for previous generations. Kids grow up in a digitalized world, encountering an array of digital devices almost from birth. At home and in school, they can discover programming as something that can guide them and give them confidence in the digital worlds they inhabit. This represents a major opportunity for new forms of intrinsically motivated learning. First, there are several conditions that must be met. The key factor: educators with media competency who can turn their schools into places of constructive digital learning.

With the appearance of computers in schools, media educational theory and practice replaced the traditional approach of "learning with new media" with a new maxim: "new learning with media". There are many positive examples of this approach in action. They are particularly evident in primary schools, where lessons are not so rigidly structured around separate subjects. New teaching concepts and methods have become commonplace in many primary schools, allowing for self-guided and self-accountable learning outside of the traditional 45-minute interval. Lessons that allow students to work at their own pace have flourished in the era of classroom computers, which can create stimulating media and study environments—first with the advent of computer corners, and now with individual laptops and tablets.

Even Claudia Bogedan, President of the Conference of German Education Ministers (KMK), recently stated that banning mobile phones from the classroom is a relic of "yesterday". Using smartphones in lessons is a logical next step, as nearly every child now has one. Federal policymakers are also signalling a new direction. The Federal Ministry of Education has announced that in the coming years, 5 billion Euros will be at the disposal of Germany's states in order to finance technology such as wireless networks

in schools. And this despite the constitutional ban on cooperation between the states and Berlin in funding compulsory education. The condition is that states themselves must invest in more teacher training. One gets the impression that the conditions for a total digital overhaul of the school system couldn't be any better.

Lessons that allow students to work at their own pace have flourished in the era of classroom computers, which can create stimulating media and study environments—first with the advent of computer corners, and now with individual laptops and tablets.

Nevertheless, while states have put media education into their policy programs, they have not yet managed to create curricula that truly profit from digitalization, or indeed that generate modern educational methods out of the digital innovations that surround us. Still, the positive development of concepts for individualized learning through digital media is well underway.

Several progressive schools have already embarked on this path and begun introducing lesson concepts such as the "flipped classroom", "free learning spaces", or "bring your own device." The educational approach followed by the "Code your Life" initiative allows teachers to create new learning situations with their students, transforming the classroom into a kind of open makerspace. This initiative is backed by the 21st Century Competence Centre (21CCC), a new space in Berlin dedicated to innovative and media-supported learning. Using materials developed there, teachers are changing their roles and learning alongside their students. During the

sessions, scepticism and uncertainty quickly give way to eager curiosity in exploring an unknown world. The students enjoy the time so much that they would rather use their breaks to continue with other related projects.

In 2016, coding in schools and programming for kids have met with more interest than ever before.

However, many parents and teachers remain sceptical. For most teachers, programming and building with electronic components remain (just as the internet was for Chancellor Merkel until recently) unknown territory. Thus it is all the more important not only to get children enthused about programming, but also to convince their teachers of how much they stand to gain from it too. ■

Emancipation through citizen science

BY HENRY STEINHAU

Fab labs are open workshops, usually run as charitable non-profits, where people come together to build and repair things. The “Machbar” in Potsdam is using this approach to make research, innovation, and factory-like production techniques more accessible to the public.



Our latest project concerns environmental sensors. The focus is on air quality in cities. We want to convince as many people as possible to install small air-quality monitoring stations that transmit information and which together would form a massive network of data collection points.” Mario Parade, member of Potsdam’s science shop, long-time activist and mover in the international ‘maker’ scene, is quickly in his element. We have barely introduced ourselves at the entrance to “Machbar” in Potsdam, and already he’s enthusiastically describing what is going on in this fab lab, and why open workshops, maker-spaces, and citizen science are pointing the way forward. Parade is convinced places like this contribute to the sustainable democratization of research, innovation, and factory-like production capabilities.

The air-quality monitors consist of an Arduino minicomputer, sensors and various other components, including a module transmitting collected data. Easily networkable mini-measuring stations like these will be designed and assembled in the Machbar fab lab. This means they are locally produced. “These are relatively simple measuring devices; the quality of the data they deliver is good, but it’s not high-end”, according to Parade. However, the volume of data generated by several dozen mini-monitors working together ultimately allows measurements as sophisticated as any state-of-the-art, isolated, high-end sensor. Here, the databank and analytical software also play an important role; they need to process raw air-quality data both intelligently and efficiently.

Mario Parade is not a programmer. He studied physics. After graduation, he decided he didn’t want to enter the private sector, nor carry on with a university job. “Eventually you just wind up writing research proposals, and lose track of what science needs to do for people”, he says. Armed with this conviction, he entered the world of “real citizen science”, which in the

last several years has established itself as a practically worldwide movement. Citizen science activists want to lay bare the technology behind the things we use every day, whilst also creating open-to-all social spaces providing direct access to science and technology.

Fab labs have emerged from citizen science

This idea of citizen science gave rise to science shops as well as to small, open fabrication workshops, or labs, hence “fab lab”. The aim of science shops is on the one hand to elicit scientific questions from the general population that can be channelled into research, and, on the other, to pursue research in which laypeople can participate and potentially advance on their own. Fab labs are characterized by an open-door

policy, tools for everyone’s use, and the concept of open source. This means transparent and freely available codes, processes, and blueprints.

“Let’s go inside”, says Parade. We have been absorbed in conversation for a full 20 minutes without even noticing the uncomfortably brisk autumn day. The building that houses Potsdam’s science shop and fab lab belongs to *Freiland Potsdam*, a socially and culturally oriented community centre near the city’s central station. Long ago, the site was used for armaments production; later, the council operated several workshops there. Since 2011 the plot has been open to public use. The repurposing of a disused industrial site into an alternative community centre is perfectly in line with Mario Parade’s concept of an open and constructive citizen science, just as it would have been to the pioneers of the fab lab model.

Inclusive and self-administered: Freiland Potsdam is truly open space

Until a few years ago, the Potsdam council used this site for various works and service facilities. When they left, plans for an alternative repurposing of the property first began to take shape. The 12,000 square metre site with its five buildings has been open to the public since 2011. On their own initiative, young people and activists have established an events house, seminar rooms, a youth club, a café, the free radio station FRRAPÓ, rehearsal spaces for musicians, studios, a library, a theatre space, a sports room, and various workshops and offices.

The property is currently administered by the non-profit *Cultus AG*, an association of about 40 different organizations, initiatives, and projects. Financial support is provided by the Potsdam council alongside grants from charitable foundations, donations, membership fees, and special events.

The former council works entrance is always open. Two signs above read, “Please drive slowly” and “No Nazis”. A young, alternative spirit pervades the whole site. Facades are covered in graffiti. Much seems improvised, but everything feels dynamic and purposeful. The central idea behind the *Freiland Potsdam* is open workshops with open doors for open groups with open structures. A truly *open* space for makers, artists and hackers.

Makers essentially follow the basic principle of the Montessori method, that views children as the “architects of themselves” and thus employs open lessons and free-form work. Accordingly, it is important that children have the experience of building something with their own hands. Adventure playgrounds, which came into vogue in Europe in the 1970s, are also grounded in this idea of experiential learning. Mario Parade works as a teacher at a private Montessori school in Potsdam. For him, the fab lab is the modern adult counterpart to the adventure playground.

The maker movement, with its makerspaces and maker days, and the similarly conceived hackerspaces, have broadened the creative approach of self-guided, trial-and-error learning with an array of digital tools and programmable machines. Manufacturing equipment once available only

to industry because of its size and cost has now found its way (in far more compact and affordable form) into small workshops and onto desktops—for example 3-D printers and scanners, Computer Numerical Control (CNC) laser cutters, and CAD software. On top of this are the inexpensive, versatile and powerful micro-controllers like the Arduino or the Raspberry Pi. “Making” or “maker”, which have multiple meanings, refer in this context to the digital production of objects; or, as the German magazine Spiegel Online puts it: “Makers are people who treat atoms like bits.”

Open-source designs are available online

The Machbar also has a 3D printer, a 3D scanner and a CNC milling machine, all of which take up little more space than an ironing board or a table football table. Add to this several classic workbenches, an electronics lab with soldering stations and oscilloscope, as well as machines and tools for woodworking; in other words, everything needed to build, saw, mill, or print in 3D. And the computer, of course. At the moment, everything looks a bit chaotic; they have just acquired some new space. Parade explains that during the renovations everything had to be moved around. The first thing we stumble upon is a large, somewhat cumbersome-looking cargo bicycle, made completely from standard aluminium square tubing anyone can pick up from their local DIY store. The design is available online free of charge: anyone can build or optimize this bike.

Parade mentions that Machbar regularly organizes a now-popular repair café: “At first, we had elderly residents coming by who thought they could drop things off to be repaired for free. We had to explain to them that this is all about DIY, and that they should bring and share their expertise and experience.” Since then, young and

old attend the sessions, pick up soldering irons and screwdrivers, and learn from one another. The at times ambitious maker projects pursued by fab labs have a common goal: “To quickly and directly realize ideas, such as prototypes or machine components”, says Parade. The essential factor, in his eyes, is one of the founding principles of the maker movement: instead of protecting codes like patents, makers publish their projects as open-source material, allowing anyone the opportunity to use and further develop their designs.

Nonetheless, the fab labs movement threatens to lose sight of its original ideals. The small, versatile workshops have long since landed in the sights of industry and their independence is increasingly in danger. In recent years maker conventions, originally conceived of as casual meeting places and idea exchanges, have taken on the character of shows and marketplaces, attracting investors and their capital. The 2016 maker fair in Hannover featured more than 800 makers as exhibitors, welcoming upwards of 15,000 guests. In the USA and also here in Germany, according to Parade, many makers are striving to turn their projects into startup and commercial enterprises.

Mario Parade knows the international fab lab scene inside and out, because he’s been part of it from the beginning. He is also currently a fellow at the Stanford University’s Transformative Learning Technologies Lab, allowing him to collaborate with other makers on international projects. He travels regularly to California and participates in frequent video-conferences. One example of an international project he has been involved with is the “Fortek oven”. Together with collaborators, he developed and published open-source designs for micro waste-incineration plants, which could be used in West Africa to convert the massive and ubiquitous amounts of plastic waste found in the region into energy, leaving raw material for 3D printers as a by-product.

The origins of fab labs lie in Montessori theory

The idea of fabrication laboratories (fab labs) arose at the MIT in the 1990s. Seymour Papert, Professor of Mathematics and Education, taught and researched there at the time. Among other projects, he assisted the toy manufacturer Lego develop a programmable construction-kit computer named “Mindstorms”. Papert, who died in 2016, had himself studied under Jean Piaget, a pioneer of cognitive developmental psychology. By their own account, the fab labs are carrying on the work initiated by the educational theorist Maria Montessori and furthered under Piaget and John Dewey.

Excessive commercialization undermines fab labs' founding ideals

Parade views the commercialization of fab labs through the founding of start-ups critically, seeing it as a betrayal of their original goals and ideals. "I've got nothing against fab labs having a business plan—public libraries need

Instead of protecting codes like patents, makers publish their projects as open-source material, allowing anyone the opportunity to use and further develop their designs.

business plans too". Nonetheless, private investors and marketable products developed in fab labs, but mass-produced in China, are incompatible with the independent, non-profit, and open-source principles at the heart of the maker movement.

A passionate believer in these principles, Parade is careful to finance

the Potsdam fab lab from a wide field of regularly changing sources, often relying on crowdfunding and public grants. With the project "Fabulandlabs", Potsdam's science shop was among the ten winners of a grant competition run by Germany's Federal Research Ministry. The aim of Fabulandlabs was to produce an array of "adapted assistance" equipment and

devices for people with disabilities including, for example, special handles and grips for tools or instruments, special cutlery and crockery, enlarged keyboards and intelligent signage. People belonging to this target group would then be included in the development process itself, which would be localized but networked, and encouraged to participate

in the manufacture of the final products, acquiring the skills to render the project outcomes sustainable.

Here, the goal is a democratized science and an empowered population with sovereignty over technology that can be used daily. Parade has a vision: "It's about emancipation from the black boxes of our digital age, but

also from the mechanisms of planned obsolescence. People need the courage to be able to take something apart, to see how it works and how it's built, and then to learn how to make it themselves." ■



Photo: private

Henry Steinhou works as a freelance journalist and author in Berlin. He regularly publishes pieces at iRights, info and 'Publik', amongst many others. He also lectures, moderates debates and discussions, and runs seminars on the basics of journalism and contemporary media-culture. He is a member of the honorary board of Freischreiber e.V., the professional association of freelance journalists in Germany.

The fab labs movement

The term "fab labs", a trademark of MIT, refers not only to open, but also non-profit workshops. Fab labs operate on the basis of small use fees and offer at least one regular open afternoon for the general public. These and other principles are laid out in the Fab Charter, which on the whole is formulated relatively loosely. There are currently more than 500 fab labs worldwide, all of which can be found on a map with the help of Fabwiki. A major fab labs conference is held annually, where guidelines and challenges facing the movement are discussed. Ethical and other concerns are also addressed, for example the use of 3D printers to manufacture usable firearms, and solutions such as programming blocks and barring code access. Makers also discuss their own responsibility with regards to issues such as the development of overly accessible bio-chemical weapons technology. Here, the potential dangers are much greater.

<http://wiki.fablab.is/wiki/>

If you were Queen of the Internet, what would be your first decree?



Photo: Anette Göttlicher

Zoë Beck, author and publisher Travel broadens the mind, and so does internet travel. A super-team of translators would see to it that language barriers were done away with, and more and more internet content in more and more languages would become available all over the world.



Photo: private

Prof. Dr. Katharina de la Durantaye, LL.M. (Yale), Junior Professor in Civil Law, Humboldt University, Berlin I would prohibit any measure which might infringe upon net neutrality.

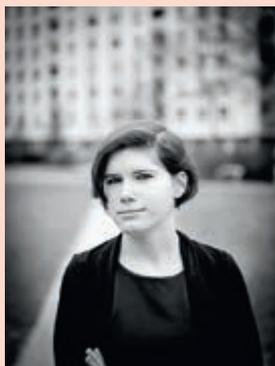


Photo: Ingo Pertramer

Ingrid Brodnig, author of the book "Hass im Netz" (Online Hate) and journalist with the Austrian news magazine Profil

Whoever posts hate speech online is not allowed to watch cat videos any more!



Photo: private

Jennifer Baker, technology journalist I would give users more control over how much data they share in exchange for "free" services to replace the "take it or leave it" model we currently have to put up with in Terms & Conditions and privacy policies.



Photo: Frederike Heim

Joanna Schmölz, vice director of the German Institute for Internet Confidentiality and Security (DIVSI)

First of all, I would issue a Digital Code of Ethics, which would restore and safeguard internet freedom and protect internet users against all sorts of infringements and encroachments—all on the basis of liberal, democratic values, with human dignity as the bottom line. Anyone not abiding by it would be expelled from the Digital Kingdom and would have to live out their days in the Offline World. Around the campfire. But with no electricity. And everything is sunshine and rainbows.



Photo: Max Threlfall

Fränzi Kühne, founder and CEO of Torben, Lucie und die gelbe Gefahr GmbH

I would be inheriting a kingdom in crisis: The idea of using

the internet to bring people together has faded into the distance. Uncertainty about the effects of digital change, like the manipulation of informations and the "echo chamber effect", are causing deep conflicts in society. I would deal with this by commanding platforms to cease all manipulation; promoting digital literacy everywhere; and, finally, I would rule that the debate on the opportunities and risks posed by digitalization should take centre stage in our public conversation. But first of all I would make the online magazine Edition F everyone's homepage.



Photo: private

Raegan MacDonald, senior EU policy manager, Mozilla My first measure would be to establish a global mandate to protect the open internet, that would simultaneously solidify the principles of net neutrality, forbid government shutdowns, and prohibit arbitrary interference with freedom of expression by both private and state actors. The latter would also mean that the confidentiality of communications would be sacrosanct, so our infrastructure would be built with security and privacy as the default settings.

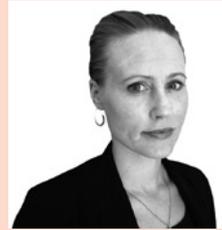


Photo: private

Gry Hasselbalch, consultant on data ethics and co-founder of the DataEthics.eu think tank

First of all, I would step down. Or at least, I would choose not to reign alone. We need all types of expertise and experiences to provide a framework that supports an ethical evolution of the internet. Currently it is primarily driven by commercial and state interests that do not necessarily put the citizen first. It needs to be redirected to human values and civil rights. We would need a type of interdisciplinary internet governance with legal, social and economic measures that fuel ethical design, organizations and business models.



Photo: Maarten Tromp

Rejo Zenger, policy advisor for “Bits of Freedom”, a Dutch digital rights organization A highlight of 2016: the Dutch government explicitly choosing not to weaken encryption. I hope this position will spread like a virus all over the globe. If I were to reign over the internet today, I’d make sure the internet comes a federated network with open protocols again. Many of the current problems we see with monopolist platforms like Facebook and Youtube would vanish, securing the freedom of speech of internet users.



Photo: Jakob Eskildsen

Pernille Tranberg, journalist, speaker and consultant on data ethics, and co-founder of the DataEthics.eu think tank

I would turn the digital infrastructure around 180 degrees, so everything was private by default. Private should be the standard, so every individual would be able to control their own data. They would have to opt in if they wanted something for “free”—that is, to pay with their data and accept being tracked. They would set their own privacy settings and give access to their data when they found it useful and acceptable.



Photo: Anna Blancke

Janna Maria Nandzik, author and director

I would have all “last online” and “message read” notifications removed, to everyone’s relief. Platforms and apps which disguise their risks and side effects would be clearly marked. Instead of “Facebook is free and always will be”, it would say “You pay for Facebook with your data and content instead of with money”. I would also create a virtual meditation centre for cyberbullies, trolls and selfie addicts. It would offer courses like “Fishing for Fake News”, “Random Acts of Online Kindness” and “How To Quit Your Front-Facing Camera in 10 Days”.



Catastrophe! Communication in states of emergency

BY JULIA SCHÖNBORN

Live and unfiltered—the greatest strength of social media is also its defining weakness, leading it to perpetuate the same mistakes and misunderstandings that arise in communication. This can be best observed on Twitter after a catastrophe.

Where were you, when ...?” Certain events are burned deep into our memory, which is why we so often know where we were when we heard the first news of a catastrophe. For the last few years, I was mostly at a computer and I could follow the communications surrounding such events over social media.

The shooting down of Flight MH17, the shootings carried out during the “Euromaidan” protests in Ukraine, the terror attacks in Paris and Brussels, the shooting spree in Munich: social media was always first to respond. The participants discussed, speculated, expressed their sympathy, compassion and bewilderment. But more often, they became embroiled in conflict on such issues as best way to mourn or the pros and cons of changing your profile picture, often zeroing in on the issue of why one event was

met with widespread responses, while another was not.

A catastrophe like the shooting spree in Munich in July 2016 also creates an extreme situation for social media communications. After the first reports of an incident break through the standard social media diet of TV or current politics, or the ubiquitous pictures of cats and food, what happens follows a recurring pattern. Thanks to its speed and open structure, this is easiest to observe on Twitter. The character limit lends itself to the quickest reactions. This can be a double-edged sword, or, as the author and speaker Patrick Breitenbach wrote a few years ago: “Twitter is great 15 minutes after the catastrophe. And hell in the hours and days that follow.”

After every catastrophe, six phases play out. With every incident, this cycle begins anew. They are separated here for

clarity's sake, but in reality there can be overlaps or changes in their order.

❶ The catastrophe happens: Initial reports and their verification are followed by shocked reactions. Disinformation, disorientation and bewilderment are predominant. A typical example would be the crash of the German Wings aircraft in 2015 in the French Alps. In this phase, we saw images of weeping families and friends at the airport.

❷ The internet allows us to follow events in real time: What is missing in terms of precise information is made up for by prolific speculation. Mostly

mourning, rage and sorrow predominate. The first solidarity messages look for a hashtag (#prayforparis, #prayfor-nice, #jesuischarlie).

❸ Criticism of mourning: Participants in the communication circle criticize mourning, rage and sorrow. For example, shortly after the German Wings incident, in which 150 people were killed, 700 refugees drowned in the Mediterranean. Numbers of victims and the level of concern expressed for the disasters were compared; the mourners were accused of hypocrisy. Political statements and criticism of the media often also feature in this phase.

While in the first two phases, messages of solidarity and expressions of personal shock are the most common features, phases three and four are mostly informed by disagreements between users. United in our helplessness, we are swiftly divided by communication about the event. What is striking is that generally very little is written about the central theme (the catastrophe itself, the background, effects, things that can be done to help). The majority of online communication after a catastrophe centres on the behaviour of other users. Changed profile pictures, solidarity messages, criticism of mourning and the recurrent discussions around the level of horror of a catastrophe thus exercise a form of social control. The underlying discussion is about the collective search for an appropriate form of expression. Every reference to the catastrophe, no matter what form it takes, shows a need for communication. Keeping this in mind can help people respond more prudently in an emotionally charged situation.

The openness of social media thus represents a challenge. Many people have little awareness of the fact that they are not only conversing among themselves, but that they are also influencing collective discourse in a public space. If we consider this, we can improve the way that we communicate with one another. We should be more circumspect about our own grief and criticism, analyze ourselves and discuss our own use of media. After all, it is only a matter of time before the next catastrophe.

Restraint—Acceptance— Assessment. Maintaining radio discipline

After the Munich shooting spree, journalist Vera Bunse tweeted: "On radio and among security services there is radio discipline. Why not on Twitter?" What might such a voluntarily agreed-upon radio discipline on social media

The author and speaker Patrick Breitenbach wrote a few years ago: "Twitter is great 15 minutes after the catastrophe. And hell in the hours and days that follow."



Photo: Lutz Berger, lutzland.de.

Julia Schönborn blogs at junaimnetz.de about online communications, literature and society. With her karmajob.de project, she supports social initiatives, and as a freelance writer and author she writes enthusiastically for different online magazines. She also talks to and with students about charitable work, as well as at various barcamps and conferences.

❹ Criticism of the critics of the mourners: The critics are now accused of cynicism. A normal discussion becomes impossible—instead, one can observe a process of circling the wagons, often visible through the practices of changing profile pictures, or advising others to refuse to change theirs.

❺ Emerging calm and an increase in longer contributions: A few days after the catastrophe, the emotionally-charged atmosphere settles. Articles and reflective postings are shared, discussions again become possible.

❻ Catharsis: After communications on the catastrophe have further calmed down, the normal content which was driven into the background for a few days—videos, Instagram pictures, positive headlines and comments about TV—reappears. However, posting cat pictures or images of food too soon can lead to criticism.

look like? The basic precondition is, as explained above, to be conscious of the public nature of one's communications. Additionally, we need to establish and maintain a social consensus about our communications in emergencies. The following points are suggestions:

❶ **Assessment:** During a catastrophe, it is important not to obstruct the flow of information. One should think before expressing of one's personal feelings, so that they do not jam traffic to the appropriate hashtags. Retweeting information make sense: that way, the feed remains legible.

❷ **Restraint:** Even if it is difficult, we must accept that there will be a initial lack of validated information available. Moreover, every piece of information shared should be briefly checked, for example by using a Google Image search, or by looking into the sender or page from which it originated. Bad information which is shared publicly can have consequences.

❸ **Acceptance:** Not every user wants to hurt others through their behaviour. Concentrating on what unites us permits us to proceed with care. Comments should be written carefully.

❹ **No images of police:** During operations, pictures of emergency services are dangerous and reckless.

During the shooting spree in Munich, one could see how users spread the message not to share pictures of the police or the victims. When the journalist Richard Gutjahr, who was at the scene, tweeted his own photos, he was sharply criticized. Following the Paris example, many people soon offered their flats and houses to those who could not get home. This was a demonstration of trust, as at this point nobody knew whether the perpetrator was still on the run. As Twitter users shared their addresses publicly under #offenetuer ["open door"], they were warned by others to restrict this

information to private messages. The collective regulated itself. Although we keep making the same mistakes when we participate in modern public communications, helpful behaviour is also encouraged.

Surprising counter-tendency: Cat content!

One counter-tendency that has emerged within these recurrent phases of communications is, surprisingly, cat content, otherwise not widely accepted as appropriate in crisis situations. After the events in Brussels, the police ordered a social media lockdown: no photos or details of their operations should be made public, so that the fleeing terrorists would not be warned over social media. The people of Brussels began sharing cat pictures under the hashtag #brusselslockdown, so as to continue using social media. The animal pictures had a calming effect. While images of police and reports of operations during the Munich shooting were spread despite the

The underlying discussion is about the collective search for an appropriate form of expression. Every reference to the catastrophe, no matter what form it takes, shows a need for communication.

many messages warning against their publication, many people turned to cat pictures here as well, using them to render the feeds illegible.

Such counter-trends show that we can meet the challenges of collective communications and learn. Many people share the desire for a social consensus. Perhaps this common ground will help us break out of the recurring cycles of catastrophe communications in the future. ■

What happened online? March 2016

1

01/03 Germany's Federal Court decides that in the future, in cases of conflict, doctor evaluation portals must demand concrete proof from their users that they were really treated by the doctor whom they have rated. This will apply in cases where a doctor objects to a bad rating on a doctor evaluation portal because they have not, to their knowledge, treated the patient in question.

2

02/03 Following the German Federal Prosecutor, which dropped their investigation of Netzpolitik.org for treason in August 2015, the Berlin State Prosecutor has also terminated their investigation into the unknown source of leaked documents. The perpetrator, who was being sought for breaching professional secrecy, could not be uncovered.

3

03/03 The digital networking of gadgets of all kinds is a booming market. The Germany company Bosch alone has stated that over the course of this year they will employ 14,000 graduates, above all software specialists.

03/03 For the first time, the digital currency Bitcoin reached the limit of its capacity. The limit is up to seven transactions per second. Because this limit was exceeded by a wide margin, many users had to wait several hours, or even days, until the backlog had been cleared.

03/03 The German music market is expanding. Since 2015 it has seen a turnover of 1.5 million Euros, and is still growing. The market share of music streaming is 14.4 percent—more than double the figure for 2014. Despite falling figures, CD sales still make up over 60 percent of total revenues.

4

04/03 Consumer advocates, regulators and companies have agreed on a ten-point plan to make internet comparison sites more transparent. So, for example, advertising should be much more clearly marked in the future, and user ratings should be checked for authenticity.

7

07/03 In implementing the “right to be forgotten”, in accordance with a judgement of the European Court of Justice in May 2015, Google is now purging its results lists, even if the US version of the search engine is used. This only applies, however, if the search query comes from the EU.

07/03 The US Supreme Court does not want to rule in the e-book dispute between Apple and the US Justice Department. The matter is to be settled out of court, with Apple due to pay \$450 million for anti-competitive pricing.

12

12/03 Federal Chancellor Angela Merkel (Christian Democrats, CDU) stresses the importance of data for society. She calls it “the raw material of the 21st Century”. Merkel says that Germany must prepare for a global race to exploit data’s economic value.

14

14/03 In Germany, the governing coalition of Social Democrats and Christian Democrats agree that in the future the Federal police should wear small bodycams. Since the introduction of the measure in Hessen and Rhineland Palatinate, there has been a fall in the number of attacks on police forces.

16

16/03 Federal Minister for the Economy Sigmar Gabriel (SPD) talks at the Cebit technology fair about plans to create a “special digital authority”. However, he has so far only received support for the idea from Federal Justice Minister Heiko Maas (Social Democrats, SPD).

17

17/03 The Munich Higher Regional Court sentences a former German Federal Intelligence Service (FIS) employee to eight years imprisonment for treason. The 32 year-old had spied for the CIA and also offered FIS documents to the Russian secret services.

18

18/03 The proposal to expand broadband provision for “digital high-speed networks” meets with general approval in the German Federal Assembly [Bundesrat], which nevertheless demands amendments. In particular, the Assembly objects to imprecise cost forecasts.

18/03 The German Federal Administrative Court rules that mandatory TV license fees are constitutional. The complainants had objected that the requirement to pay the fee was unjustified and unconstitutional, as they did not own devices that could receive broadcasts other than a radio. Their only option now is to appeal to the Federal Constitutional Court.

21

21/03 The micro-blogging site Twitter started ten years ago today. The first message was written by founder Jack Dorsey: “just setting up my twttr”.

28

28/03 In a dispute with Apple over the decryption of one of the San Bernadino attackers’ iPhones, the FBI no longer needs the company’s support, as it has found an alternative approach. The court order on Apple is to be lifted.

The Twitter troll's digital alter ego

BY RENÉ WALTER

Many regard online misbehaviour as a serious problem. The German-language internet troll scene has its own language and slang. Who are these trolls, and what drives them?





Till Eulenspiegel was the original troll, a trickster figure originating in Middle Low German folklore whose adventures, jokes and stories were collected in chapbooks that are still popular in German today. The real Till Eulenspiegel is said to have been born in 1300 in Kneitlingen, southeast of Brunswick, where he bemused his contemporaries by taking literally hyperbolic or metaphorical folk sayings, and baking owls and monkeys instead of bread. In his 27th joke he took up a commission to paint a portrait of the Landgrave of Hessen. He showed the Landgrave an empty canvass and when asked why, told the lord that he could not see the painting because he was born illegitimate—a “whoreson”. In this episode, Till held up a mirror to his society, mocking it with its own deep-seated shame; no one would admit that they could not see the fictional picture.

“Hurensohn”—whoreson in English—is today one of the favourite insults in the lexicon of German “Trolltwitter”, a phenomenon that became known to the broader German internet-using public in the summer of 2016, when a post on Medium.com spoke about “the worst hate community on the net”. According to the post, the trolls originated from a community of Youtubers who had for years been stalking and mobbing a user called “Drachenlord”, alongside users from the hip hop forum Rap-update.de. Together with various co-trolls, they would create what their victims called “Sifftwitter”—which can be translated as something like “filth twitter”.

The accounts can be identified by their use of a similar linguistic code (“mett sein”—being bland to the point of stupidity, “Almans”—a derogatory term for Germans, Statement MEME punchline), by pseudo-political provocations, which never betray a particular political point of view, as well as by a clearly defined circle of common targets: a list of Twitter accounts made up of German speaking online journalists, activists, feminists and Youtubers. All

of this is hardly original—they clearly follow the blueprint set out by the message board 4chan. Superficially, the trolls’ victims only share a few common traits, primarily that they are public figures online; they are all at least somewhat well-known people on the German-speaking internet. For the most part, the trolls’ victims come from the ranks of the German “middle internet”. But on closer inspection, one finds among these targets a disproportio-

self-image and, like any other internet user, construct their own alter ego online. The internet as a psychosocial construction kit for a digitally idealized identity: this notion pertains to trolls at least as much as it does their victims.

The trolls see themselves as playing the role of the anonymous avengers of the “anything goes” web, as representatives of an egalitarian, uncensored and therefore vulnerable form of communication, in which everyone can be addressed in public and where therefore everyone lays themselves open to attack—the trolls included.

But social media is not merely a space for public communication. It is also a platform for and form of publishing, and as such it must be open to criticism and attack. Establishing safe spaces by blocking users is understandable—this is, first and foremost, a form of self-defense in response to the flooding of accounts with mass ridicule and derision—but ultimately runs against the public character of social media. This is a dilemma which arises from the fusion of publication and communication.

There are many ironies in the troll’s self-image: they see themselves as the rag-tag defenders of the anonymous internet but do not shy from deploying homemade, rudimentary surveillance tools in the form of Twitterbots. These take screenshots of every post made by their (potential) victims, so a troll can easily select or click on the object of their mockery. Trolls are certainly unscrupulous enough to “doxx” their targets (i.e. release their private address) using, for instance, snapshots taken innocently by the victim from their own balcony. The rationalization proceeds along the lines of “I’m just going to leave this screenshot from Google maps that I’ve matched with screenshots of Facebook photos. It’s all good, they just live there, I haven’t done anything, cya”.

Seen from this point of view, trolls are little more than latter-day curtain

The trolls see themselves as playing the role of the anonymous avengers of the “anything goes” web.



Photo: private

René Walter has documented the contours of internet subcultures on his blog Nerdcore for over 10 years, where he also writes on the socio-psychological effects of networks in new media and how digital life forms itself memetically. He is 42 years old and lives in Berlin.

tionate number of politically-engaged activists who work to counter discrimination against minorities.

The trolls themselves would explain their selection in these terms:

“What one loves to troll [...] are super-morality and arrogant self-expression. It is notable that the trolled people see themselves as representatives of something, as opinion-formers, as pioneering thinkers. [...] Online editors pride themselves on how they rule the internet or are regarded highly as lecturers, a trans rights activist argues how their high IQ is the main obstacle for communicating with less intelligent beings; an icon of the disability rights movement will never tire of telling stories about their heroism. You can see patterns emerging here.

These victims have a distorted image of themselves, a lack of self awareness, which makes them much more easily triggered. They cannot allow their worldview or their echo chamber to be disturbed.”

Trolls seem unaware that this description might apply with equal force to them, i.e. that they present an inflated

twitchers, who leave acidic little comments on every last post made by their victims, and who betray their small-town bigotry when they—completely ironically, of course—dob in a feminist Youtuber to the police over a few crumbs of dope. This is what separates them from punks, with whom so many like to draw parallels.

Punks printed swastikas on shirts and zines, cut their faces open and screamed in the face of the establishment. But their provocations were always obvious: the irony was never dropped. The Punk sense of humour could be seen both on the surface and in its desire for self-mutilation which mirrored the violence of society. Not so the troll.

The troll's provocation is often not even recognized as such; the anonymity of the net, where a troll's ironic swastika rubs shoulders with a genuine Nazi's "heil!" makes the distinction impossible. Online irony (just like irony in the streets) only works within closed groups whose members know each other and understand a certain common code, but not across the level, impersonal swaths of social media. The moment trolls leave the safety of their forums, stop communicating exclusively in closed spaces receptive to the *wink-wink-nudge-nudge* of their references and rhetoric, and become active in public, they are subject to the same rules as everyone else. The troll would do well to learn this lesson.

All too often, their actions really just amount to banal cruelty, and at their worst—in massive, targeted actions—to a witch-hunt carried out against individual users. Targets of such aggression can simply flee to the safety of a block-list, but if the malicious chatter behind the block, which one knows is still taking place, grows intolerable, their only option is to leave the platform altogether. The "Delete Your Account" button beckons.

No matter how non-discriminatory they claim to be in choosing their victims, trolls are thus indistinguishable from common bullies, who are

also always able to rationalize their insults and cruelty. Bullies are also, one can rest assured, just people.

The troll's defensive reflex, which consists of shouting "Satire! Satire!", ignores the fact that real satire travels upwards, mocking and dethroning dukes, kings and popes—not one's virtual neighbours, blameless apart from the fact that their online alter egos might be painted a bit too brightly and promoted a bit too enthusiastically.

Every time I attempt to understand the attitude and actions of the troll and come too close to sympathising with their position, I remember this line

The troll's defensive reflex, which consists of shouting "Satire! Satire!", ignores the fact that real satire travels upwards, mocking and dethroning dukes, kings and popes—not one's virtual neighbours

from John Perry Barlow's "Declaration of the Independence of Cyberspace": "We are creating a world where anyone, anywhere may express his or her beliefs, no matter how singular, without fear of being coerced into silence or conformity. [...] The only law that all our constituent cultures would generally recognize is the Golden Rule: 'Treat others as you would wish to be treated'."

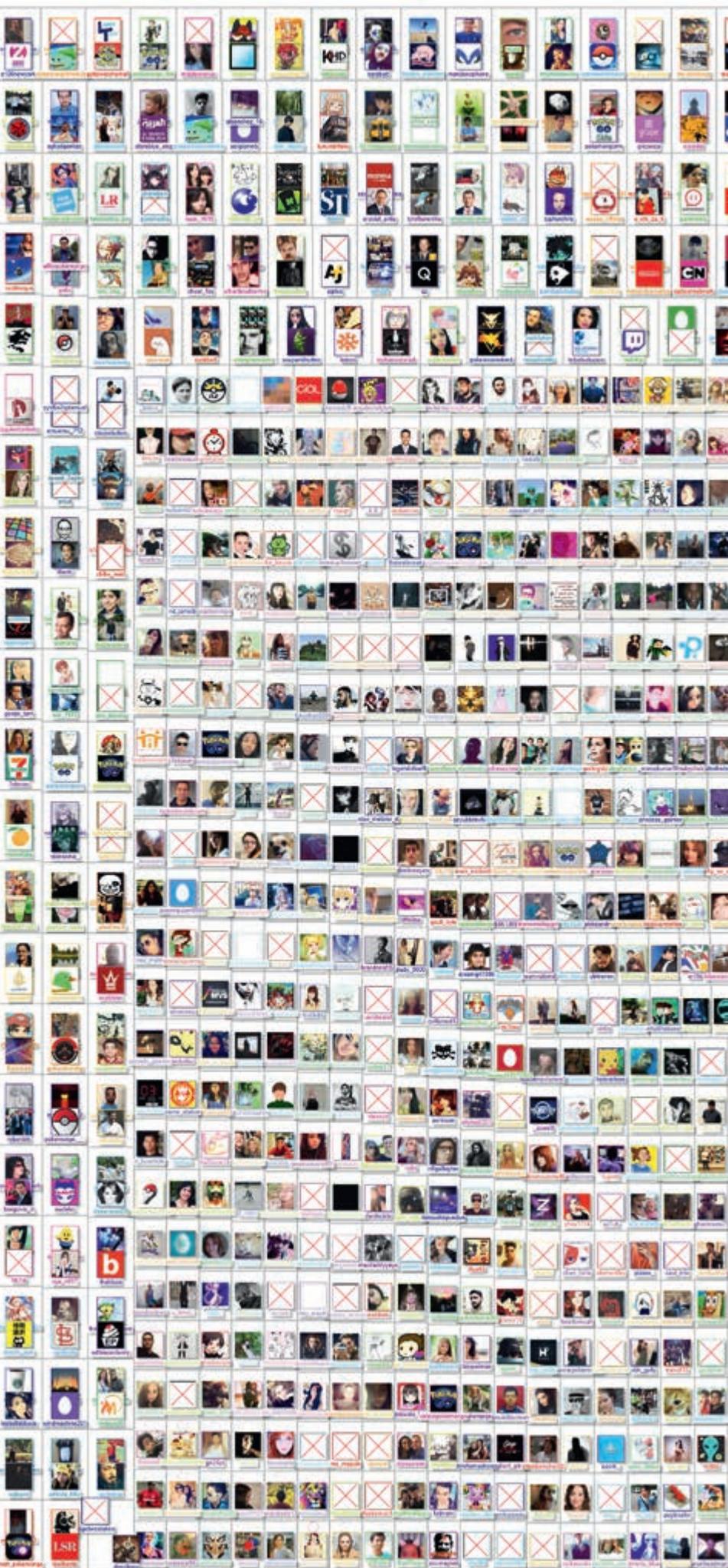
One of these days even the *Sifftrolls* will need to renew their allegiance to the "Declaration of the Independence of Cyberspace", so that they can play the role of a Eulenspiegel—holding a mirror up to society and its absurdities. ■

The summer of Pikachu

BY DENNIS KOGEL

Are you Team Red, Blue, or (ugh) Yellow? Where is Pikachu hiding? How many Magikarp candies do you need to get a Gyarados? Hardly any other game has dominated conversations, media and smartphones in 2016 like Pokémon Go.





In a summer which was marked above all by depressing world events, Pokémon Go provided some lighter, happier news. Suddenly people were talking, not about the next calamity, but about an app that brought people together all over the world.

Pokémon trainers meet in Berlin's Friedrichshain Park; a Pokémon hike across the Tempelhof Feld with over a thousand participants was organized and then called off at the last minute; a local politician from the Berlin neighbourhood Moabit wanted to take journalists along on a Pokémon Walk. A player in Berlin set out in search of new Pokémon and wound up finding a lost dog. I experienced the hype in real-time while reporting on the game and its following for several weeks for the youth-oriented public radio station *Fritz*. Other media reported about players who ran over a cliff in California (they were unharmed), who got into car crashes, broke into front gardens in Florida and found themselves hunted by an old man with a shotgun—all just to find new Pokémon.

Pokémon Go is the spellbinding video game story of the year

Within 13 hours of the launch of Pokémon Go in the USA, the app had the highest turnover of all time, beating previous champions like *Clash of Clans* or *Game of War*. The app analysis firm *App Annie* estimated that Pokémon Go generated around 10 million US-Dollars every day. By autumn, the app had reached 100 million downloads.

Pokémon Go made waves on the stock exchange. Shares of Nintendo, the company traditionally associated with Pokémon, shot up—and then fell again when investors realized that Nintendo was not behind the release, but the American studio Niantic.

Even before the game's official German launch, the game spread like wildfire. It made sideloading part of everyday vocabulary. Masses of fans weren't

Graph: Twitter Hashtag Search Pokeblitz
Simple Network 20 07 2016, Chris Moore
/ flickr.com (CC BY 2.0); Pikachu: Niantic, Inc.

buying the game from an official app store, but putting it on their smartphones using a downloaded installer.

A few days after the US launch, people in Brandenburg started organizing themselves into teams, while more and more Berliners could be seen sporting USB cables hanging from their jacket pockets. Because the game drains smartphone batteries so fast, mobile battery chargers soon became bestsellers.

Two factors have contributed to Pokémon Go's success: the game mechanics and the brand. With

Pokémon Go, Niantic refined the concept they had developed for their first title, a science-fiction adventure called *Ingress*. Just like when playing *Ingress*, players couldn't just stay at home, but had to go out with their smartphones in order to play.

But whereas *Ingress* was all about occupying abstract quadrants for one team or another, in Pokémon Go is all about finding cute little monsters. It's a more intuitive and accessible game. Pokémon hide away in all sorts of places in the real world, so the rare Pikachu can only be found in the park on the other side of town, and cuddly

I rarely see people making the characteristic swiping motion of catching a new beast. People have reverted to typing messages into Whatsapp, Facebook, and Snapchat.

The reason for the ebb of interest is not only the natural hype-cycle to which every successful game is subject. It also has to do with the huge burden placed on the developer. Niantic fought hard through the first few weeks post-launch to keep the game online and to cope with the immense masses of players. New features were few and far between; in fact functions were dropped.

Gradually players noticed. Because rare Pokémon appear where there are a lot of players and Pokéstops, players in the countryside hardly ever find new monsters. An absurdity, when you consider that in the Nintendo Gameboy titles, Pokémon always wait for trainers in the tall grass, not at the corner shop next to the tube station. The fights in Pokémon arenas rely on mashing the screen, and leave tactics by the wayside.

And because Niantic closed the game's API, external Pokémon maps no longer work in the way that players are used to. Previously, you could consult at a Google Maps-style map to see where would be best for a Pokémon expedition; but now you have to rely on luck to find new monsters. The game play is supposed to be more exciting that way. But it isn't. Many find it frustrating, random, uninteresting.

Niantic is pursuing a vision of the game that is not shared by players. The hype surrounding Pokémon Go doesn't just show how a game can create a community, but also to what degree a community can shape a game—and how it can make of it something very different from what the developers had in mind. As long as Niantic doesn't make any wide-ranging changes to the game, Pokémon Go will likely remain successful, profitable and popular. But it's likely we'll never again see a Summer of Pokémon like we did in 2016. ■

Shortly after the launch, city parks were full of picnic blankets and players who were waiting under the stars with their lure modules for new monsters.



Photo: Selfie

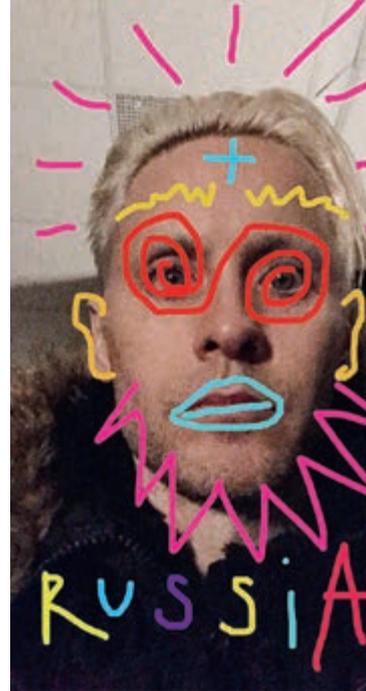
Dennis Kogel, 28, is a journalist and trainer from Berlin. He speaks about games, technology and internet culture for the public radio station Fritz. He teaches at the Games Academy Berlin and writes reports for GameStar and VICE.

Poliwag only at the lake. If you stay put in your own neighbourhood, you are likely to find only the boring rat and pigeon Pokémon.

Lure Modules are a stroke of genius: these are items which can be used at specific locations (Pokéstops) and which can then unlock new Pokémon. Shortly after the launch, city parks were full of picnic blankets and players who were waiting under the stars with their lure modules for new monsters.

How long can a hype last?

But the hype of the first month did not last. Journalists turned to other subjects, and the many pages in gaming blogs and magazines dedicated to Pokémon grew fewer. The numbers of players also told an unmistakable story. In August, Pokémon Go had over 52 million active players; in September only 32 million. Use time fell steadily, and as of Autumn 2016, in the German app store, Pokémon Go had fallen from number 1 to number 59. On the street,



Barfing unicorns and puppy faces: What is the secret ingredient in Snapchat's success?

BY DUYGU GEZEN

Consuming media at high speed: Snapchat is colourful and goofy and takes place exclusively in the here and now. Its high user numbers make the app one of the most serious competitors to the established social media platforms.

The internet never forgets" is a digital truism familiar to everyone in media and a factor that shapes our everyday digital world. Maybe the internet doesn't forget—but Snapchat does. A video or picture on Snapchat lasts for up to 10 seconds before it disappears. In a world where our feeds are full of information, in which algorithms shape and limit our consumption of media, Snapchat—short, fast, colourful and often daft—is a breath of fresh air with a selfie filter. Many users are irritated by how fast the content can disappear. Why produce something just for it to vanish so quickly? Who writes a text, only to delete it right away? Who takes a photo,

just to bin it immediately? This is precisely the wrong logic with which to approach Snapchat. The disappearance of content is what makes the app.

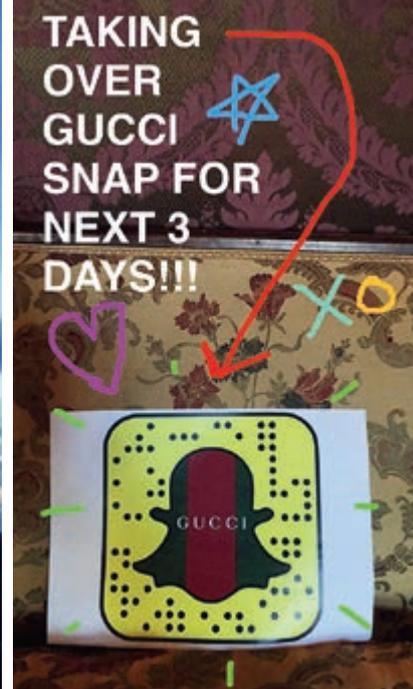
Snapchat takes place in the present—in the here and now. Well, almost. Anything that's older than 24 hours is cut out of the story. Yesterday's content. Evan Spiegel, one of the app's founders, deleted all of his 900 tweets in 2015. A Snapchat company spokesperson told the *Wall Street Journal* that Spiegel preferred to live in the present, a boss who lives the ethos of their brand.

Our everyday media world is transforming at an accelerating rate. Something from a year, a month, a

week ago, can now be totally obsolete. In the world of Snapchat, this is irrelevant. For young people in particular, the pace of change—the benchmark—is getting shorter. This speed, and this speed of living, is part of Snapchat's DNA. Nostalgia is for Facebook.

At ease with the present

But Snapchat also leaves room for the old. The *Memories* function, added in July 2016, opens a window on the past. Concerns that this would turn Snapchat into a second Facebook proved unfounded. With Memories, users simply show their followers moments



from the past, a short look back and nothing more. The core of the app stays in the here and now.

On Facebook, and to a certain degree on Twitter and on Instagram, the algorithm is king. It decides what we get to see. But for Snapchat, the motto is: "What you see is what you

Fast-living and isolated from other platforms

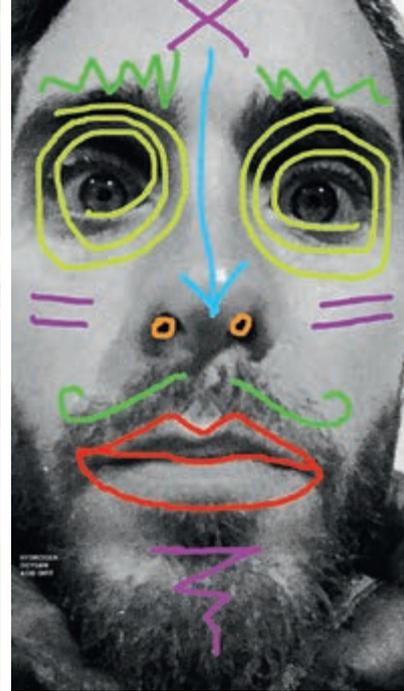
Snapchat is not just about an accelerated mode of information consumption; in a way, it is also isolating, halfway shut off to the rest of the internet. While it is linked to, it contains no links, no ways of sharing stories directly to other platforms or making them accessible there. So a story has to first be downloaded and then uploaded to be hosted on Youtube, Facebook, or wherever.. Snapchat content only works within the app. The consumer is in control. They have the option to save and forward a Snap before its time runs out. By using a touch-screen, you are closer to the display, closer to the snaps, closer to the stories.

Snapchat is often seen by figures in the media industry as a kind of "hype app", an impression that largely derives from the fact that the app is mostly used by young people. In the USA, it is the most popular app among teenagers. In Germany too, it is being taken up by wider and wider circles of users. There are, however, no figures to document its use. Snapchat is very reserved on this point, and does not issue user numbers for individual countries. On the other hand, the figures which they do release speak for themselves. Overall, 100 million people used the app every day in April 2016. That puts Snapchat on par with Twitter, which Bloomberg analysts

Snapchat is not the new Facebook for a new generation of media users. The two platforms work in very different ways. No algorithms, no links, no stale content. Snapchat is actually closer to being the new TV.

get." Your story feed doesn't get congested. You are shown the content to which you have subscribed. 24 hours a day. Information is imbibed; when you look through a Snapchat story, it disappears, like an unending magazine that you leaf through.

Snapchat speaks directly to young people, because there are no strings attached. Even chat logs disappear. These features creates an easygoing atmosphere that communicates to users that they can move about unburdened and freely. Whatever was there a moment ago is now gone, and it's on to the next new thing.



say has 140 million active users. Snapchat's figures are also impressive in terms of video use: 10 billion films are uploaded into the app every day (Facebook: 8 billion). Of course, this is related to the fact that a video on Snapchat has a maximum length of 10 seconds. Nonetheless, such figures mean that Snapchat ought to be taken seriously, as indeed it is.

A younger user demographic makes the app attractive to media partners

As soon as a new network or a new app is dubbed as "hot", it will quickly be labelled the "new Facebook". So it is with Snapchat. The implication that young people are simply going to leave Facebook and stampede over to Snapchat is an over-simplification of such dynamics—and simply wrong. Snapchat is not the new Facebook for a new generation of media users. The two platforms work in very different ways. No algorithms, no links, no stale content. Snapchat is actually closer to being the new TV. Snapchat channels function as their own little broadcasters. I flick through channels that I subscribe to, and I can fast-forward and rewind.

If my interest is piqued, I can use the Discovery function, which was

added in the beginning of 2015. Here, Snapchat collaborates with media partners like CNN, Mashable or BuzzFeed to bring "snackable", highly-optimized content to the app. According to industry experts, this is a highly lucrative angle for Snapchat. And it is lucrative for Snapchat's media partners, because they can gain access to a platform with a uniquely young user profile.

This kind of media consumption is also attractive for other apps. In August 2016 Instagram introduced a Story function. Not only is the name borrowed from Snapchat, the functions—24-hour lifespans, video and image clips which can be edited—are more or less a direct copy. It is a clear declaration of war from Mark Zuckerberg aimed at Snapchat, and a sign that Snapchat is far from just another competitor which—like its snaps—will soon disappear from the market. ■



Photo: Radio Bremen

Duygu Gezen, whose adopted homeland is the internet, is the first social media trainee for the German public television ARD—and a huge Snapchat junkie. Before her traineeship, she completed a degree in media studies and worked for several years as an internet reporter dealing with web phenomena. In her professional life she concerns herself with format development, Facebook trolls and German rap memes.

Really great sex— just do it right

BY CHRISTINE OLDERDISSEN

The internet has answers to every question. Tutorials, FAQs and forums are the oracles of our times, sexual consultation services included. Websites like [make-love.de](#) and [omgyes.com](#) mark the dawning of a new era. Better sex: just watch and learn.



Licking, fingering, banging, blowing, fucking—thousands of orgasms a second. It is said that the internet is two-thirds pornography. This is actually a misconception. In fact, only one in six websites are pornographic. But over 40 percent of searches are in pursuit of pornography, according to an internet porn poll conducted by the independent comparison site Netzsieger.de. One in two men use virtual stimulation, especially in middle age, when the body's own testosterone can begin to diminish, and relationships falter because things stop working in bed. Women also look at porn sites, to see how they might get that spark back. Thirteen percent do it at work, where their boss might catch them, but not their partner.

Seen from one perspective, pornography provides a sort of sex education. If we don't know how it works, we can find out just by taking a look at the never-ending cascade of images. Many teenagers and adolescents access porn websites, more boys than girls, and the youngest are eleven years old. But what are they learning?

And what about us, the grown-ups? Constant hard-ons and killer heels, it would seem, are the standard fare, while performance anxiety and sexist clichés are served up for free. Mainstream porn caters to men; feminist porn offers alternatives—sexual fantasies for women and the LGBT scene.

But people who don't care at all for porn—internet or otherwise—can get their share as well. Hollywood offers its own tutorials, giving the impression that real passion is to be found in the elevator, standing (the kitchen table seems to be obsolete these days). But bed sheets are also getting ruffled on German prime-time TV. Of course, the woman's always on top (it's better that way, and not just for the camera). But in spite of this rampant sexualization, 49 percent of all women and men are unhappy with their sex lives, according to a groundbreaking survey of

over 51,000 people conducted by the University of Göttingen. Perhaps, then, it would be a good idea to look at how sexual pleasure really works.

Adult sex-ed

The merits of the cowgirl position are revealed in the public education project "Make Love", with its motto "You can learn to make love". Produced first for the German public television program MDR, and then for ZDF, Make Love features Hamburg sexologist Ann-Marlene Henning offering advice, mainly aimed at couples, for improving one's sex life. In short video clips on the website *make-love.de*, she answers questions that everyone wants to know, or at least should want to know, and does so in a straightforward and

49 percent of all women and men are unhappy with their sex lives.

uninhibited manner. This places her in the tradition of the German TV presenter Erika Berger who, in her 1987 show "A chance at love", was similarly plain-spoken.

Her spiritual successor Ann-Marlene Henning aims to engage with real people: middle-aged couples who look as if they have no need for advice. But looks can be deceiving. Caught between curiosity and shame, visibly thrilled at learning something new, they hang on the therapist's every word. And they watch with her—we are, after all, living in a visual age—as another couple has sex. Videos of a woman and a man, with average bodies, no porn stars, gently backlit, on white linen sheets: a clean aesthetic.

And in order to dispel the last whiff of pornography, bodily functions are scanned onto the performers' naked skin—a graphic representation

of the sexual organs at work, including muscles, and the nerves that send the erotic signals to the brain and receive the orgasm in return. The end result is to make it clear that the whole production is aimed at a climactic moment. After all, high-school biology lessons left us none the wiser. The clunky drawings of wombs, ovaries and testicles in the textbooks were designed to offer nothing to adolescent prurience.

This seems to be the case today, if not more so. The pornification on the internet permits unregulated access to sex at any moment. Research on adolescent development has established that most boys and girls prefer to have their first experiences online. But Margarete Stokowski, a feminist columnist for the German magazine *Spiegel Online*, decries an ignorant one-sidedness regarding female sexuality

that confronts girls at precisely the time when their curiosity is at its peak. In her book "Untenrum frei" (a pun on a German phrase meaning literally "free down there", but often used by gynaecologists in asking their patients to undress), she describes how at 15 she was only able to find sex manuals with tips on how to please your boyfriend. Now, at 30, she observes that the editors of women's magazines devote far too much space to blow-job tips. "The male orgasm has become the holy grail", she writes. What about understanding women's desires?

Practice, and talking, makes perfect

The website *Omgyes.com* puts women centre stage. They are the experts: instead of a sexual therapist, women speak from first-hand experience. Quite literally, they put their finger on the most important matter. Using a touchscreen vagina, users can put their fingers to the test by stimulating a clitoris. The clitoris's owner gives advice from out-of-shot. She whispers:

“Up a little, not so fast, yes, yes, yes,” she sighs, she moans. Interactive installations are put together out of countless individual photos and original quotes, producing an innovation in educational resources for fulfilling sex.

Omgyes is based in the US, and has been carefully translated into German. It was founded by two lovers of women: Lydia Daniller, a lesbian, and Rob Perkins, a heterosexual man. In their college flat-share in Berkeley, California, they discussed their sexual practices so much that they decided to set up a “how to” online. Theirs is first offering of its

sexual experiences, the things that turned them on, increased their desires, and what a seriously good orgasm felt like. In elegantly-filmed, glossy settings, middle-aged, middle-class American women, white, black, Hispanic, and an attractive woman in her mid-fifties describe, in detail, “what it’s like.”

Omgyes breaks the vow of silence that propagates the myth that in the presence of true love, perfect sex just happens by itself. How should part-

To demystify female sexuality, nearly 2,000 women aged between 18 and 95 were asked how they came best when they came.

An online starting point for people who want to know more about sex from sources other than pornography:

Omgyes.com – OMGYes is a website that explores the ways of enhancing pleasure through videos and something new called touchable video. The information is based on in-depth interviews with over 1,000 women. OMGYes conducted the first-ever large-scale study about women’s pleasure—in partnership with researchers at Indiana University’s School of Public Health and The Kinsey Institute.

kind; certainly their platform is unique in its unambiguousness and avoidance of pornographic sleaziness. Their program is practice, practice, practice, until your partner is satisfied.

With money from sponsors, including from actress Emma Watson, and painstaking preparation, they unleashed their startup upon the world. To demystify female sexuality, nearly 2,000 women aged between 18 and 95 were asked how they came best when they came. Every woman has her own very specific preferences and sensitivities. In spite of all prior sexual research, this remained uncharted territory.

The next step saw 12 women volunteer to speak to camera about their

ners—men and women—know what’s going on if nobody ever talks about it? As an exercise, you can listen to what it sounds like when women talk about sex, what terms are used when words fail them. For around 30 US dollars you can get access to the whole package of 50 videos plus 11 “touch and practice” tutorials for smartphone and tablet. Just log in and get going.

This is money well spent: it is being put back into the further development of the web platform. Diller and Perkins are dedicated to undertaking intensive research. For now, they are looking at the joys of vaginal stimulation and the g-spot. In the second package, women will talk about what they love most about oral sex—there is a wide range of preferences. This meticulous approach means that the curious will have to be patient, until subjects like female ejaculation, sex during pregnancy and after birth, sex during menopause and in old age are dealt with, and until men are brought on to speak about their sexual needs. But it will be worth the wait, say the founders of *omgyes*: taking your time is the key to maximum orgasmic pleasure. ■



Photo: Eva Hehemann

Christine Olderdissen is a tutorial junkie. From leaky faucets to computer bugs—few problems are new and, luckily, many put their solutions on the internet. The lawyer and journalist extends her hearty thanks to all the know-it-alls online.



Happy coincidences and personalized filter bubbles

BY CHRISTOPH LUTZ

What do internet users have in common with intrepid princes of the 18th century and travelers to exotic islands? Both are looking for a happy coincidence, or serendipity. Studies have begun to explore how frequently serendipity occurs on the internet.

The English term “serendipity” is hard to nail down precisely but, put simply, it means something like “happy coincidence”. It was coined by the English writer Horace Walpole in 1754. In a letter to his friend Horace Mann, Walpole described the fantastic adventures of three princes in what is now Sri Lanka, which was then known as Serendip. The princes made many unexpected and revealing discoveries on Serendip—as do many internet users on their daily forays into the web.

But what does serendipity mean? In most languages there is no corresponding term. Wikipedia offers a comprehensive definition: Serendipity, it says, is “a chance observation of something which was not originally sought, which represents a new and surprising discovery.” Serendipity connotes a warm, positive and sentimental feeling. Googling serendipity, one finds many photo-montages of inspirational quotes against kitschy backgrounds.

For around 15 years, academic researchers have been interested in the phenomenon, in particular in the field of information technology. There have been investigations into serendipity in libraries, blogs, jazz music or in the arrangement of workplaces within large office blocks. In the office, the focus of such research is how to improve relationships between coworkers such that productive and positive experiences can arise when employees from different teams encounter each other more or less by chance.

The current discussion on serendipity in the internet was kicked off by Eli Pariser and his influential book on the “filter bubble”. Pariser advances the thesis that increasing hyper-personalization in the internet creates filter bubbles where users increasingly encounter information and search results which are personalized on the basis of their browsing and search behaviour. Examples for this are Amazon product recommendations, or messages in their newsfeed which Facebook considers relevant. These user experiences and search results

economic magazine, argues in a similar vein. In an essay for the German Federal Agency for Political Education, she notes that chance and serendipity are disappearing from the internet. In another article about Google’s introduction of personalized searches in 2009, she writes: “Everyone receives search results listed in such a way that they correspond to their previous preferences. The result is the creation of an individualized profile for every person, which then becomes a point of contact for the machine. In this way, the unexpected discoveries which can be produced by happy coincidences are being progressively eliminated. Quite simply, coincidence is being calculated out of internet use.”

While this perspective seems plausible, there are experts who take the opposite view. They say that instances of serendipity are in fact being fostered online. In particular they point to social media like Twitter. On Twitter, depending on who you follow, you frequently stumble by chance across valuable information.

In any case, until now these different assessments have not been subject to empirical investigation. In the political context, a study carried out by Facebook in 2015 made waves. This study showed that personal preferences contributed more strongly to avoiding opposing opinions than Facebook’s algorithmic filtering. However, the study was limited to the US and to political content. It was heavily criticized in some quarters.

In order to shed some light on the subject, we conducted our own study at the University of St. Gallen in Switzerland in Autumn 2013, based on an online survey of 1173 internet users. In the survey, we distinguished between three areas: online shopping (Amazon as typical example), social media (Facebook as typical example) and information (Google as typical example). In each of these areas, we measured the perception of serendipity, and tried to explain the findings.

What did we discover?

Serendipity is “a chance observation of something which was not originally sought, which represents a new and surprising discovery.”



Photo: Tobias Tanzyna
wirkungsgrad.tumblr.com

Christoph Lutz is Assistant Professor at the Nordic Centre for Internet & Society and in the Department of Communication and Culture at the BI Norwegian Business School (Oslo). He researches social media and digital communication. As part of his work he investigates new forms of participation, questions of internet privacy, serendipity, the uses of social media in science, the sharing economy and social bots.

largely chime with their current preferences and views.

To take a political example: If a user has previously mainly googled for and selected conservative material, Google will present them with more conservative-leaning material even when they enter more general political search terms. This has to do with the fact that Google algorithms create user profiles on the basis of previous search queries, so that they can be linked to appropriate offers and results.

Pariser fears that in the course of increasing personalization of internet services, other perspectives and contrary opinions will be harder to access, and that the average internet user will increasingly live in a filter bubble. This filter bubble will be algorithmically controlled and reinforced by major internet companies like Google, Facebook, Netflix, Spotify and Amazon.

Miriam Meckel, a specialist in communication and editor-in-chief of *Wirtschaftswoche*, a German weekly

The respondents experienced the most serendipity in the context of information, followed by social media. Serendipity was experienced least in online shopping. While we did not ask any open questions about specific experiences of serendipity, the results do suggest that many respondents regularly happen upon interesting texts or photos when searching for information, in a way that is surprising and coincidental. The finding that serendipity is most pronounced in the context of information tallies with previous literature on the subject. This locates serendipity firmly in the fields of information science, libraries and archives.

Does serendipity lead to more satisfactory user results? This is only true of social media. For online shopping and information services, there is no significant relationship between chance discoveries and satisfaction. Here, users do not appear to evaluate serendipity positively or negatively.

Different factors serve to explain the different experiences of serendipity in each of the three contexts. In online shopping, trust plays the most important role, whereas on social media divulging personal information most reliably promotes serendipitous experiences. When it comes to information services, self-confidence regarding one's own efficacy (i.e. perceived user competence) is the most influential factor. In the online shopping context, the important role played by trust can be explained insofar that the risk of abuse is higher than on social media and information services because financial transactions are normally involved.

The positive effect on serendipity created by releasing personal information was a surprise for us, as we had expected the opposite: according to the filter-bubble argument, divulging personal data ought to lead to less serendipity, because more personalization takes place. But our results showed that on social media at least, that is not the case. We assume that supplying

personal information enriches the user experience, and covers over the personalization effect. The finding that perceived user competence has the strongest effect on the experience of

The results show that experiences of serendipity are most distinct in information-rich environments, but are most sought after in social environments.

serendipity in the information context makes clear the central role played by self-confidence and competence on the internet. This result chimes with other studies which show how important reading and writing skills are online.

The results show that experiences of serendipity are most distinct in information-rich environments, but are most sought after in social environments.

Presently, non-personalized search engines like “Duckduckgo” have a negligible share of the market—probably because most users value personalized search results. In social media platforms too, the current trend is toward more personalization and away from serendipity. Within a few months, Twitter and Instagram have both altered their newsfeeds, so that instead of being purely chronological, they are now ordered by personal preference. But the move received an overwhelmingly negative response from users and in the media. Our results indicate that a certain portion of the dissatisfaction is to do with the loss of serendipity, which is associated more with a purely chronological layout. And what does that show? The desire for serendipity is still an important motive for users. ■

What happened online?

April 2016

1

01/04 Apple Computer Inc. was founded by Steve Jobs, Steve Wozniak and Ronald Wayne 40 years ago.

3

03/04 The Süddeutsche Zeitung publishes the "Panama Papers". They reveal a network of letterbox companies and funding streams for tax avoidance on a previously unknown level. The 11.5 million pieces of data, including nearly 5 million emails, were evaluated for a year by over 400 journalists worldwide.

7

07/04 Unknown parties publish the personal data of 55 million voters in the Philippines. Only a few days before, data on around 50 million Turkish citizens who registered for the 2008 elections was leaked.

10

10/04 Windows XP is still the third most-used computer operating system worldwide. Even two years after Microsoft discontinued support for the system, Windows XP has remained at third place with a share of 10.9 percent, behind Windows 7 and Windows 10.

14

14/04 The European Parliament passes the General Data Protection Regulation. It is intended to create a common level of data protection across the whole EU, and replaces the Data Protection Directive of 1995. It will enter into effect on 25 May 2018.

15

15/04 German state transport ministers call for "comprehensive, 24-hour video recording in public transport". They call for data protection rules to be amended to accommodate new regulations.

18

18/04 The US Supreme Court refuses to endorse the claim of the Authors' Guild against the Google Books book-scanning project. This ends a ten-year legal battle and means that Google Books is legal in the USA.

19

19/04 The German states of Bremen, Hamburg, Lower Saxony, Schleswig-Holstein and Mecklenburg-Western Pomerania sign an agreement to jointly monitor telecommunications from a centre in Hannover. The aim is to combine expertise and reduce costs.

20

20/04. After much deliberation, the Federal Constitutional Court rules that parts of the BKA law are unconstitutional. This law would give the German Federal Criminal Office (Bundeskriminalamt, BKA) new powers in hunting terrorists. Despite criticism of various aspects of the law, it remains substantially in force. Legislators have until mid-2018 to correct the law.

20

20/04 The EU Commission accuses Google of abusing its dominant market position. The company imposed restrictions on manufacturers of Android devices and ensured that the Google search function was pre-installed on most devices, denying competitors access to the market.

20

20/04 Finland leads the Reporters Without Borders press freedom rankings. Switzerland and Austria are in places 7 and 11; Germany follows in 16th place. The USA is ranked 41. Russia comes in at number 148, closely followed by Turkey at 151. At the bottom of the list is Eritrea.

21

21/04 Following the decision of the European Parliament, the EU Council now passes the Flight Passenger Data Directive. This means that EU member states must save various kinds of passengers' data for five years, including credit card numbers and food orders. All member states seek to collect data from inter-European as well as transcontinental flights.

25

25.04 "Our goal must be to have the best digital infrastructure in the world by 2025 with gigabyte networks", according to Federal Minister for the Economy Sigmar Gabriel (SPD). This is to be paid for by a 300 billion Euro fund from the EU.

26

26.04 German Federal Defense Minister Ursula von der Leyen (CDU) presents her plans to create a new "Cyberspace and Information" unit in the next five years. This would see 13,500 soldiers and civilian workers protecting Federal networks against increasingly frequent attacks.

26.04 The Indian government has decreed that from 2017, manufacturers must equip every new telephone with an emergency call button. This measure is aimed at better protecting women.

27

27/042016 The city of Erfurt has fitted all of its 76 trams with free wireless internet. Every user receives a daily data limit of 50 megabytes. In order to use the service, all passengers have to agree to the terms of use.

Who runs the internet?

The superpower status of Google and Facebook on the internet is well-known, but users' preferences vary geographically. While Google is the most visited website in Europe, North America and Oceania, Facebook is in first place in the Middle East, North Africa and in Spanish-speaking South America.

In Asia, the local competitors rule the roost. *Baidu* is the most-used search engine in China. Alongside that, *Yahoo!* dominates. In Japan, *Japan* of course; *Yahoo!* in Taiwan; whereas the newspaper *Al-Watan Voice* is the most-visited site in the Palestinian territories. *Mail.ru* is the most popular site in Kazakhstan; the social network *VK* in Belarus, and the *Yandex* search engine in Russia.

Only patchy information is available for the African continent. In Kenya, Madagascar, Nigeria and South Africa, Google is ahead by a whisker, while in Ghana, Senegal and Sudan, Facebook is number one. The great influence of Google is clear, though, if we look at the results for the second-most-visited sites on the internet: across the 50 countries where Facebook is number one, Google is in second place. The remaining 14 countries most commonly visit Youtube, which is also a part of the Google group.

The countries where Google is the favourite make up over 1 billion users, or half the population of the internet; Baidu follows in second place thanks to China's large population, with around half a billion users, while Facebook lags behind, with 280 million users.

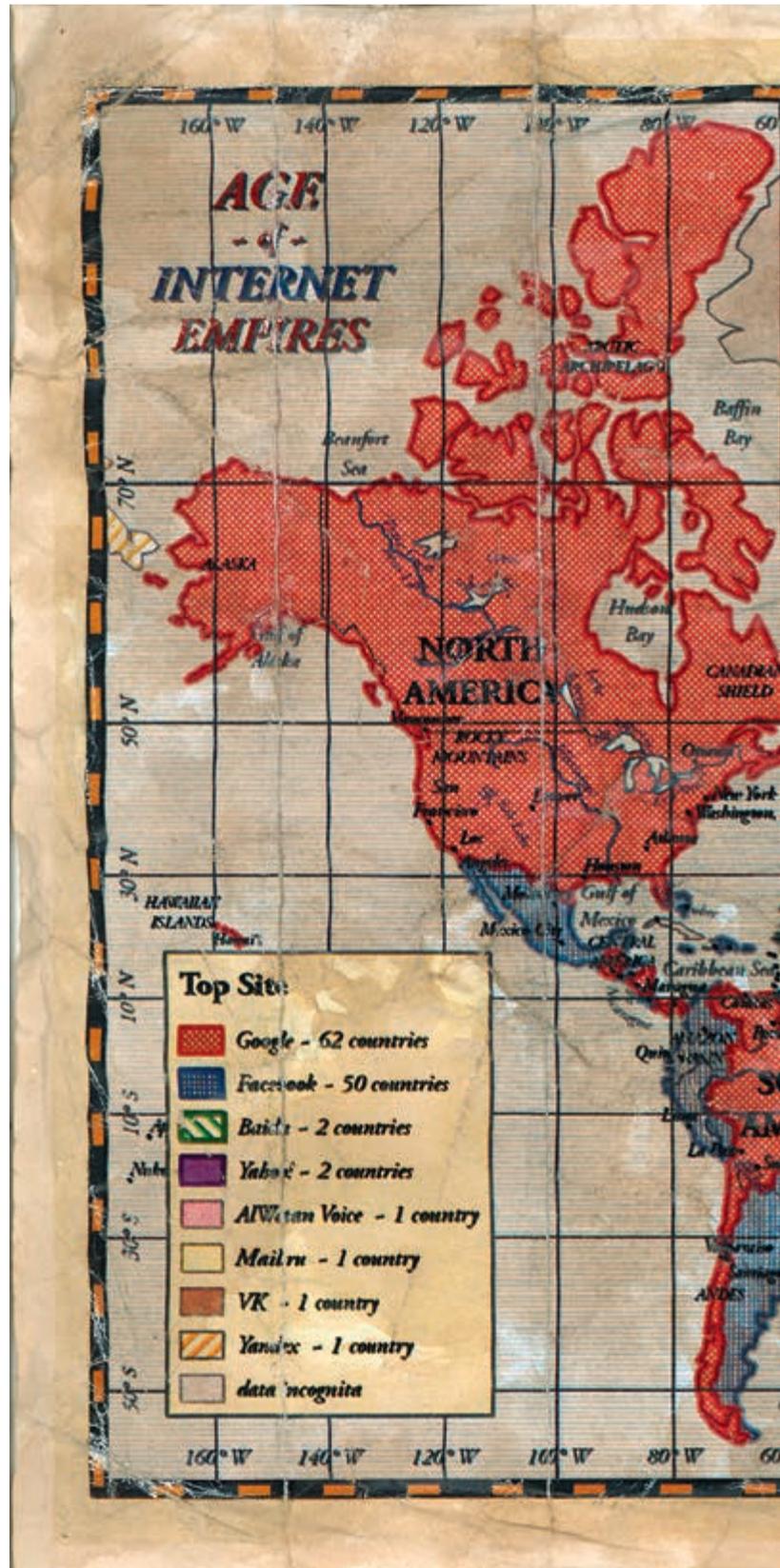
The findings come from a study by Alexa, a company in the Amazon group based in San Francisco, which evaluated the data from over a million internet users in the years between 1996 and 2013.

About the Information Geographies project

The visual display was put together by the Information Geographies project team at the Oxford Internet Institute at the University of Oxford, under the leadership of Professor Mark Graham, with help from Dr Stefano de Sabbata. The project is part of an attempt to map the geography of contemporary knowledge. Information is the raw material of our modern global economy. For this reason, the project team considers it important to develop an understanding of who produces and reproduces it, who has access to it, and what people and places are represented in today's knowledge economy.

markgraham.space, geography.oii.ox.ac.uk

(ek)





by Mark Gruban (@geoplace) and Stefano De Sabbata (@maps4thought)
 Internet Geographies at the Oxford Internet Institute
 August 2013 • geography.oii.ox.ac.uk
 data source: Alexia, www.alexia.com • made with Natural Earth





Politics

Digital campaigning

Social bots

Cryptography

In the government district

Internet governance

Internet censorship

Human rights

Algorithms

Europe

Copyright

Ethics

Open government



**The 2016 US
election campaign:
Digital mud-
wrestling**

BY LUKAS SCHÖNE



The 2016 American election crossed line after line; the mood leading up to the vote was more poisonous and heated than perhaps ever before. The sensationalism, debasement, and indecorousness of the debate was also promoted and intensified by social media.

August 2016: a campaign event in a small town somewhere in Pennsylvania. People are wearing caps with the slogan “Make America great again”, waving flags and waiting with bated breath for the arrival of their presidential candidate. Naturally, journalists are also there to speak with people and conduct interviews. Matthias Kolb, reporting for the German *Süddeutsche Zeitung* will later report that the mood was quite pleasant. But then Donald Trump takes to the stage. He rails and inveighs against

**Facts no longer count;
emotions and feelings set the
terms of political debate.**

“The Media”, accuses them of lying, and speaks of conspiracy and manipulation. The crowd bawls its approval. These are the very same people who just moments before were freely giving interviews and taking selfies with reporters from CNN, Fox News and NBC.

The scene that Kolb witnessed is exemplifies the style and mood of the last US election campaign. Facts no longer count; emotions and feelings set

“People feel drawn to someone who breaks all the rules.”



Photo: private

Lukas Schöne, 24, was born and raised in the provincial town of Attendorn and worked there for three years as a local reporter. He studied social and media sciences with a focus on political communication in Siegen. Now he is completing his training as an editor in the German School of Journalism and studying for a Master's degree in journalism at the Ludwig Maximilian University in Munich.

the terms of political debate. Everyone tailors and dons their own version of the “truth”. The media have even coined a term for this phenomenon: we are living in a “post-truth” age. Donald Trump is the primary figure to which observers attribute this development. A political contest between him and Hillary Clinton degraded into a mud-slinging match, a battle also fought through digital channels

The use of these channels in American politics is not new: Barack Obama's social media campaign in the previous election is seen as having set the standard. What is new, however, is that blatant lies were treated as admissible and were amplified via online networks. Donald Trump in particular seems utterly unconcerned about whether he spreads truth or lies through the internet.

Trump's central goal was to be louder than his opponent. And he was. “Trump is a real national celebrity. His TV show ‘The Apprentice’ was number one for years—and from this point of view, so was he”, says Steven Ginsberg, political correspondent for the *Washington Post*, speaking to the German public TV network NDR.

Donald Trump is a media figure through and through. He has mastered the logic of social media and has grasped especially the fact that Twitter's 140 characters above all demand simple solutions and statements. A populist like Trump is bolstered by the fact that, in the digital sphere, the public at large is split into many smaller partial publics. “That made it easy for him to position his message correctly”, according to Johannes Kuhn who, like Matthias Kolb, also reports from America for the *Süddeutsche Zeitung*. Together with their colleague Hakan Tanriverdi, they presented their findings at the *Zündfunk Internet Conference* in October 2016 in Munich.

During the discussion in Munich it became clear that Trump lives in a filter bubble. That bubble is where his crude messages are strengthened and then exported. In the election, he

posted questionable surveys which put him in the lead for the presidency: he boosted his supporters' expectations. He even attacked his own party colleagues. “Trump lives in this world in his own crazy way”, says Kuhn. The three journalists concluded that Trump aims to reach people who feel “left behind”, who are “fed up” with the Washington “political elite”, and who want to follow the man perceived to be the “strongest leader”. “People feel drawn to someone who breaks all the rules. The shattering of taboos exerts a “certain fascination, and people want to see where it is leading”, says the *Washington Post's* Ginsberg in attempting his explanation for the Trump phenomenon.

Hillary Clinton's social media strategy was substantially different from Trump's. Kuhn sums it up: “Clinton is not a part of the social media universe. She is a private woman. She lacks authenticity in the digital world.”

This is why Clinton's campaign came off as having a more classical style. She tweeted statistics on the US prison population or posted staged

Mostly, this was seen as professional; everything was well choreographed. But perhaps that was the problem.

pictures captioned with carefully-crafted campaign slogans. Mostly, this was seen as professional; everything was well choreographed. But perhaps that was the problem. Donald Trump's tweets felt more spontaneous: they resonated with the way he speaks, and as a result they drew far more attention.

Trump dubbed his opponent “Crooked Hillary” and indulged ever-cruder and more exotic conspiracy

theories. “Trump even referred to conspiracy theories that were floating around the internet in his election speeches. For example, he kept repeating that Clinton had had people killed”, Kolb described to astounded listeners in Munich, who could only respond with incredulous laughter. There are, however, a lot of people in the USA who believe such theories.

But Trump’s most common tactic by far is to issue a tirade against the traditional mainstream media.

Facts aren’t just altered to serve Machiavellian ends in the context of the 2016 American election: “post-truth” behaviour is everywhere. At the Zündfunk Internet Conference, the audience could see a video with quotes from Franz Beckenbauer, Andreas Scheuer and Günther Oettinger. The ex-football star Beckenbauer for example claims not to have seen any slaves at the building site of the World Cup stadium in Qatar; the General Secretary Scheuer thinks that Senegalese footballers are “the worst”; and the EU Commissioner for Digital Economy and Society Oettinger demands that English should be further strengthened as a global language—making his demands in incomprehensible English. Donald Trump is not alone in pushing facts to one side. The trend towards sensationalising debates can be seen everywhere.

Perhaps it would help to take an analytical approach, in particular in the heated atmosphere of the US political landscape. That also applies for Donald Trump’s behaviour on Twitter. The website trumptwitterarchive.com analyzes Trump’s tweets and counts how often words like “dumb”, “loser” or “jerk” are used.

The *Süddeutsche Zeitung* has also taken a look behind the curtain of the social media election campaign and evaluated data from Trump’s Twitter account. Author Bernd Graff shows that Trump’s profile in the election was run from two different smartphones: an Android device and an iPhone. That was a discovery made by the data expert David Robinson. According to him, tweets containing insults, hatred or other negative content came from the Android device, whereas the positive and optimistic tweets were sent from the iPhone. Donald Trump always appears in public with the Android phone; the iPhone probably belongs to his campaign team. Graff refers to his discovery as “Dr. Jekyll and Mr. Trump”.

It is also interesting to see how Donald Trump deals with scandals and revelations concerning himself. He generally opts for a strategy along the lines of “attack is the best form of defense”. After a video was published in which he speaks in a sexist and disparaging way about women (“When you are a star, they let you do anything...”), he published a half-hearted apology and immediately went on the offensive against his opponent. When it became known that he had paid no taxes for years, he again immediately attacked Clinton and laid the blame for the USA’s lax tax laws at her door.

But Trump’s most common tactic by far is to issue a tirade against the traditional mainstream media. He accuses them of wanting to manipulate the vote, by spreading false stories about him. At regular intervals he tweeted “Media rigged election!”—a serious accusation. He rejects any allegations made against him and sees instead a vast media conspiracy. Without social media and the far-right media ecosystem, Trump would hardly have been able to spread such rumours, which are retweeted and shared thousands of times.

And what about Hillary Clinton? All the scandals surrounding Trump can obscure the fact that her own

record is far from clean. The FBI reprimanded her for sending emails from a private server. The whistleblowing platform Wikileaks published the sums that she received for giving speeches to big banks like Goldman Sachs. She was long charged with being close to the Wall Street financial industry.

Clinton’s reaction on social media: none. She dutifully carried on her campaign, and—online at least—simply ignored criticism, a fact that left a bad taste in many observers’ mouths. “Clinton’s failings are brushed under the carpet too often in my view”, complained a participant in the Zündfunk Internet Conference. “Above all, German media were mainly locked onto Trump.” Not that he was a fan of Trump. On the contrary: “but I ask myself whether that is a balanced view.”

There have never been two less popular Presidential candidates in modern US history. This is probably one reason why this election could have descended into such an undignified mud-slinging contest.

But while we may well wonder how a man who tweets and posts like a troll could become President of the USA, one thing is clear: social media can play a major role in politics. And quite aside from the question of who voted Trump and why, the structures of the digital world contributed to a situation where people like Donald Trump can seize centre stage and hold it against all reason. ■

The evolution of the digital election

BY ADRIAN ROSENTHAL AND AXEL WALLRABENSTEIN

The US election is over, but the next election is always around the corner. In 2017 German citizens will be voting for a new parliament and a new chancellor. What can Germany learn from the US, and what would we be best off ignoring?





Even if Brexit and Donald Trump have made us more circumspect about making predictions, one forecast can be made that is as much of a sure thing as Donald Trump's next furious tweet. Political billposting will still be dominated by posters and placards in the streets and squares of Germany's cities and towns.

The German “placard forest” is in good health

Parties and campaigners will still spend a large portion of their budgets and their (creative) energies in the upcoming 2017 election on images and slogans for posters, discussing them and agreeing on them, then putting them up and taking them down. The posters certainly fulfil one function: they remind us that an election is coming up. Apart from that, their slogans and images are interchangeable. And even if the Berlin daily paper *Tagesspiegel* recently ran the headline “Election posters are losing all meaning”, another jungle of posters and placards is inevitable.

Learning from the USA? Learning from Obama!

All this happens even though we Germans have for many years been watching the heavily digitally-defined elections on the other side of the Atlantic. Party strategists and electoral consultants have long been making pilgrimages to the USA in order to get a closer look at how political campaigning is done there. What haven't they found? Posters. If they were to see any, their best chance would be in the suburbs, where some supporters like to put up signs in their front yard, purchased in their candidate's online shop (where they also can conveniently share a little data with the campaign organization).

When Barack Obama ran in 2008, first in the party primaries against Hillary Clinton and then against John McCain in the race for the White House, many people talked about how he owed his victory to Facebook and other social networks.

Like Roosevelt (radio) and Kennedy (TV) before him, his team made use of a new medium in order to reach and mobilize new groups of voters. From the outset Obama's campaign strategy was a hybrid masterpiece: his strategists used the website *mybarackobama.com* as a central organising network, effective online and offline. Digitally mobilised supporters became local grassroots activists, knocking on millions of doors.

Digitally mobilized supporters became local grassroots activists, knocking on millions of doors.



Photo: Dirk Hasskar

Adrian Rosenthal is Head of Digital & Social Media for the communications agency MSLGroup Germany—and has worked for *amerikawaehlt.de* for almost 10 years, looking at online campaigning in the USA.



Photo: private

Axel Wallrabenstein is Chair of MSLGroup Germany and consults on public affairs, political communication and crisis communication. Wallrabenstein was previously spokesperson of the Berlin Senate for Science, Research and Culture, and spokesperson for the Interior Ministry of the State of Saxony.

After he won, preparations immediately began for the next election in 2012. This state of permanent electioneering created a self-feeding data machine, locked in a kind of perpetual motion. Every “like” on Facebook was a new data point, helping to refine the voter profile and prompting new, micro-targeted action: a donation email, a Facebook advert, or a home visit from one of Obama's army of volunteers. Additionally, team Obama used a predictive modelling tool on a rolling basis, to constantly play and re-play the election, in order to decide on the fly which states and electoral districts needed money and resources.

Nothing new in 2016

And 2016? This year didn't bring much new to report in terms of digital campaigning strategies in America. Rather, there was a certain sobering-up regarding the influence of big data. With hardly any professional help at the start of his campaign, Trump defeated all his opponents, even though they were able to call on apparently experienced digital strategists. Trump only later brought professionals from Cambridge Analytica on board, in order to develop a target-group-oriented database. This company had previously been working for his rival Ted Cruz—but failed to hand Cruz a victory in the primaries.

The use of social bots also made headlines. Two separate studies by Oxford University and the University of South Carolina looked at how bots were able to massively distort opinions on social media. Hundreds of thousands of bots sent out millions of tweets during the election, with pro-Trump bots outnumbering pro-Clinton bots by about 4:1. Bots sent out up to a third of all pro-Trump tweets (in total about 20 percent of the overall Twitter traffic connected to the US election came from bots).

After the vote, there was a lot of discussion on the influence of so-called Fake News. The term refers to consciously fake, outdated or totally out-of-context news reports which are often shared on specific Facebook pages. Shortly after the vote, the online magazine *Buzzfeed* showed how these reports were shared much more widely on Facebook than articles from serious news outlets like the *New York Times*. And if a plainly fake story like “The Pope Supports Trump” was shared more than a million times, this is no longer simply a symptom of living in an opinion bubble, but also a major challenge for the democratic opinion-forming process.

So what can German voters learn from America?

Bots here, doubts about big data there. Of course there are still things that Germany can learn from the US.

Data: Because of legal regulations, a data-driven election campaign with dedicated micro-targeting would not be possible in Germany. And that's a good thing. However, it is possible to do a lot more to gather in data from supporters or interested citizens who voluntarily offer their information, in order to exploit "push effects" for information. Party websites now at least offer newsletter subscriptions or options for online fundraising. But this often stops at the state level and is frequently limited to the websites of individual candidates. Likewise, the targeting possibilities available, for example on Facebook or Google, are often not fully utilized. Naturally, such organization costs money and this has to be budgeted into the overall campaign, but too often resources are still squandered on printing posters. Likewise, so-called social listening, i.e. the analysis of conversations on social media, can be used to complement traditional opinion polls, in order to determine the public mood. After all, in 2016 classic polling—in the cases of Trump or Brexit—fell wide of the mark.

Building reach: By now all parties and almost all politicians in Germany are active on social media. Thanks to his large social media reach, Donald Trump was able to dominate debate and mobilize his supporters in the US. On Twitter more than 16 million people follow him, and almost the same number on Facebook. Clinton has a similar reach. By comparison: German Chancellor Angela Merkel has around 2.5 million followers on Instagram and Facebook combined. With that she leads the field in German politics by a wide margin. Sigmar Gabriel, Vice Chancellor and chairman of the Social

Democrats, has around 200,000 fans/followers. The Youtuber LeFloid, who interviewed Angela Merkel 2015, has two times more fans and followers than Merkel across four channels: Youtube, Facebook, Instagram, and Twitter. Of course, these figures are an indicator for popularity—younger target groups in particular can often only be reached via social networks. Put simply, more effort should be invested in the development of social media channels.

Content: Obama and Clinton, Trump and, yes, even Sarah Palin all understood the special power of images on social media. Good visual content hits home, speaks to people, and gets shared. Exceptions prove the rule, but in German politics there is a lack of convincing visual content. Looking at

did) among young voters, of whom over a third get all their political information from social media. Germany also has a number of influential public figures in this mould, but until now they have played no role in party politics. Obviously there is potential here, as shown for example by the #YouGeHa initiative. With this initiative, a group of well-known Youtubers took a stand against xenophobia and Pegida (a German nationalist, anti-Islam, far-right political movement) and reached millions of users with their videos.

Mobile: In the 2016 American election "Mobile first!" was the watchword for online campaigning. Facebook, Instagram and Twitter are used first and foremost on mobile devices. Thus, content has to be optimized for smartphones, while communication has to

Whatsapp in Germany has more users than Facebook. And there are already some members of the Bundestag who are starting to offer citizen consultation hours and newsletters via Messenger.

parties' Youtube channels reveals the same pattern: politician X or Y stands in front of a camera and speaks into it. While there is interest in such content, it is often limited to just a couple hundred users. The rule here: less is often more.

Mobilising multipliers: In the US election, multipliers with strong social media outreach—musicians, bloggers, athletes—helped their favourites' campaigns. A majority of these "influencers", many of whom could individually reach a double-digit percentage of young voters, supported Hillary Clinton—and she clearly won (as Obama

take place almost in real time, so that it can be heard and found. In Germany, it is clear that the potential here is being underutilized. Whatsapp in Germany has more users than Facebook. And there are already some members of the Bundestag who are starting to offer citizen consultation hours and newsletters via Messenger.

Our hope for #BTW17 can be summed up as follows: an exciting digital campaign with good content, but without chatbots and fake news. And a much thinned-out forest of placards. ■

A photograph of a mossy stone wall in a forest. The wall is made of large, rounded stones covered in green moss. The background is filled with lush green trees and foliage. A semi-transparent white box is overlaid on the right side of the image, containing the title and author information.

Why social bots threaten our democracy

BY MARTIN FUCHS



Mistaken for real politicians, they were able to influence the online debate surrounding Brexit. Social robots, known as bots, are getting smarter all the time. And that makes them seriously dangerous.

An 18-year-old student sits in his room in Amsterdam and anyone with enough money can buy a little piece of public influence from him. What may sound like the plot of a prime-time US drama is in fact reality. Lennart V is a social bot programmer. For several years he has specialized in programming fake accounts on social media. Going by what he says, it's a very lucrative business.

Social bots is another way of saying "social robots". At the most basic level it refers to small but very smart pieces of software which behave as if they were real human users of social media platforms such as Facebook. They use real profile photos taken from the internet or obscure cartoon characters for their profile pictures, their biographies are filled out properly and they are connected with other real users.

20 percent of all Twitter accounts are bots

Almost every user knows the good-looking young "women" who send friend requests on Facebook. They are programmed by the thousand. It is estimated that there are 100 million fake accounts across all large platforms. Up to 20 percent of all Twitter accounts today are the work of bots. An investigation by Professor Simon

Hegelich of the Technical University of Munich found that 15 to 40 percent of the followers of the various Swiss political parties are either bots or inactive users. The majority of them were found buzzing around the Social Democratic Party (SP). In debates on Twitter the phenomenon can be seen as well: “It must be assumed that in Switzerland, bots engage in the online political debate and distort it.”

A strong growth in these figures is forecast for the coming years. And the bots are getting smarter all the time. Thanks to artificial intelligence they can not only boost numbers of followers for political accounts, or manipulate video viewing figures; they also

about the armies of trolls who leave positive comments in German and Swiss threads about, for example, the Russian government. There are real people behind these accounts, whose aim is to influence opinions on behalf of that government, at home and abroad. This is also known as “digital diplomacy”.

Distorted views

Opinions regarding parties and politicians are increasingly formed online, and not only among the tech-savvy. Alongside telephone polling and high street surveys, online channels increasingly play an essential role in the monitoring of political trends and opinions. This entails all the well-known weaknesses and blind spots. Naturally, politicians only hear feedback from a segment of society, but that is no different from the information garnered via telephone polling or visits to retirement homes. In any case, the burgeoning use of social media represents a major opportunity for the manipulation of public opinion.

This is what Simon Hegelich has observed on the German Christian Social Union’s (CSU) Facebook page, where social bots work tirelessly to influence and steer opinion. Among posts by the party itself, unendorsed xenophobic comments keep recurring, which Hegelich can reasonably confidently ascribe to social bots. Often just a single manipulative comment can be enough to bring forth a tirade of hate from other real users.

This makes it impossible to have an honest discussion about an important and controversial topic. On Twitter, countless xenophobic tweets from bots were sent as part of a coordinated campaign to spread rumours and false reports, for example with the hashtags #RapeFugees and #RefugeesNotWelcome. Hegelich thinks that the majority of this traffic comes from bots. The programmes constantly scour Twitter for key words and then publish

Thanks to artificial intelligence they can not only boost numbers of followers for political accounts, or manipulate video viewing figures; they also post their own content and respond to posts by real users, in tweets, and in Facebook or Youtube comments.

post their own content and respond to posts by real users, in tweets, and in Facebook or Youtube comments.

Lately, chatbots have shown themselves capable of conducting comprehensible and sustained political discussions and exchanging various arguments, without the bots’ owners having to devote any time to supervising or guiding them. People are increasingly being taken in by such fraud, as shown by the fake account of the ex-President of Argentina, Cristina Kirchner. This profile interacted with other users for months. The style of its responses were programmed on the basis of public statements by Kirchner. No one realized that it was a bot.

People have known for some time

As with all new phenomena, it is important that political decision-makers as well as observers are aware of the possibilities and the power of bots. There needs to be rapid education on this point among actors at all levels of the political process.

automated comments wherever they are found.

Both for politicians and the media, Twitter, Google and Facebook trends seem to offer a reliable basis for analysis and reports. Media reports often make use of this data in their analyzes, even when these trends are only based on a few hundred tweets. Such reporting was a constant during the lead-up to the vote in the Brexit referendum, for example, a period during which a third of all comments were generated by bots, according to researchers at Oxford University.

Four responses

But how should politics respond to this new form of public agenda setting and manipulation? Four main aspects stand out:

Raising awareness: As with all new phenomena, it is important that political decision-makers as well as observers are aware of the possibilities and the power of bots. There needs to be rapid education on this point among actors at all levels of the political process: journalists, elected officials and public servants.

Tools: In order to quickly and confidently identify bots, specialized services like “Bot or Not” have been established for some time. Using language recognition and semantic categorization, these services can recognize suspicious patterns and identify bots. So far, the bulk of these tools only work for anglophone bots; better services for other languages will need to be developed.

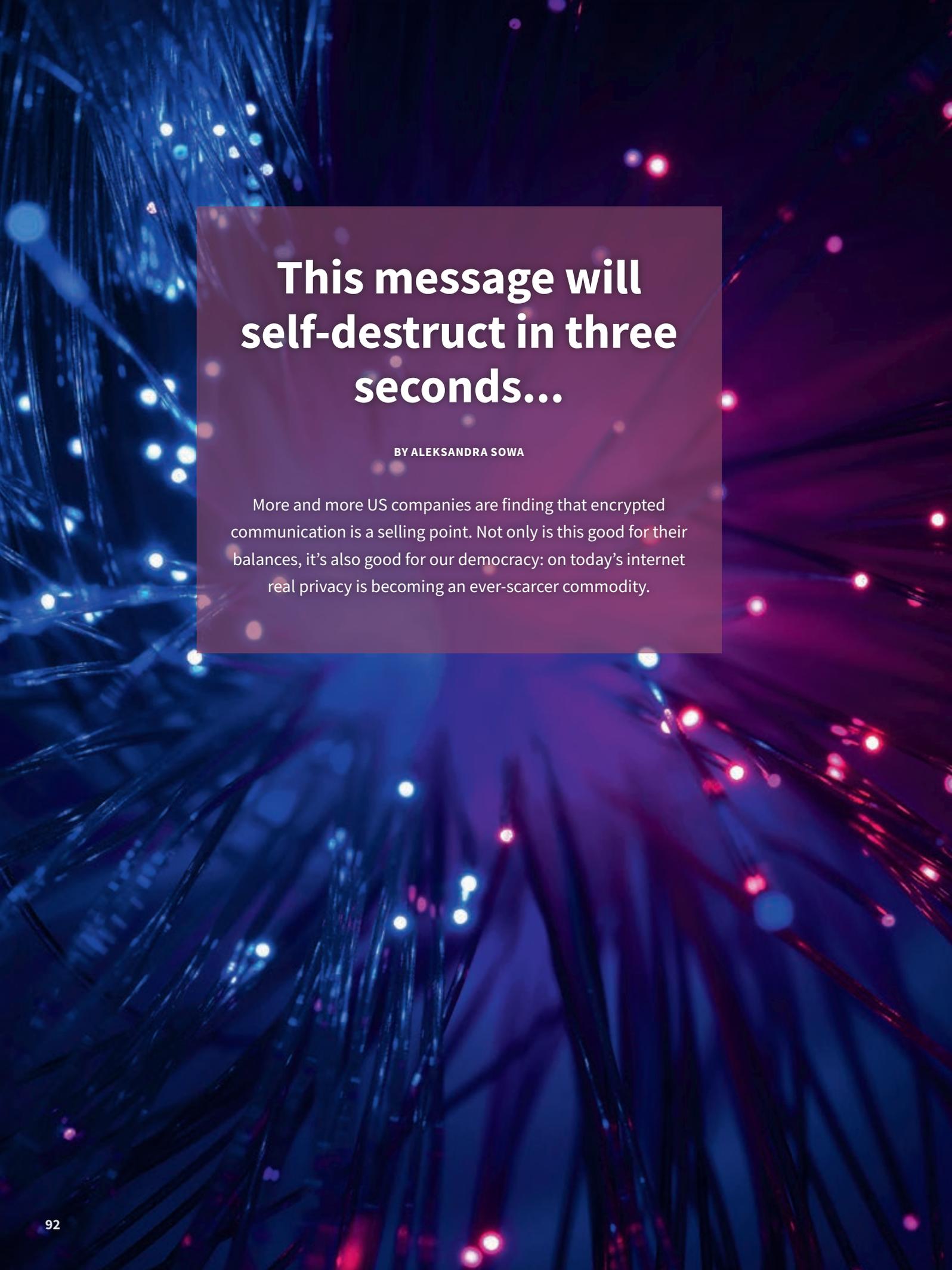
Exchange: Parties and political actors should put aside their differences and discover common ground for discussion on the topic of bots. Current bot attacks, discoveries of bot armies, or sudden spikes in the number of followers on social media should raise alarms and be made public as soon as possible, and a system of exchanges should be developed between democratic actors.

Networks: For the sake of their own interests, platforms should do all they can to unmask and remove bot networks. And the platforms must do more work to alert users, and actively communicate about the topic, as this problem can only be comprehensively solved with users’ help. ■



Photo: private

Martin Fuchs advises governments, parliaments, parties and administrations on digital communication. Since 2008 he has been a visiting lecturer in Public Affairs at the University of Passau and a lecturer on social media in various universities. He is also the founder of the social media analysis platform Pluragraph.de and blogs on social media in politics and governance at hamburgerwahlbeobachter.de.



This message will self-destruct in three seconds...

BY ALEKSANDRA SOWA

More and more US companies are finding that encrypted communication is a selling point. Not only is this good for their balances, it's also good for our democracy: on today's internet real privacy is becoming an ever-scarcer commodity.



When the US government announced in October 2015 that they were ruling out in advance a law that would give them access to encrypted communications and data—known as “Key Escrow”—they made sure they had a plan B. FBI director James Comey gave the go-ahead for intensified discussions with the industry. In order to be able to fulfill its role, he argued, the FBI required access to their data, as criminals and terrorists are increasingly turning to the internet and encryption for their communications.

According to Comey, these discussions with the private sector seemed to be going well: the CEOs of tech firms, he said, are all people who have America’s security interests at heart. However, they also value privacy and civil liberties. Similarly, in the wake of the Snowden scandal, the US government has been at pains to show how seriously it takes civil rights and the privacy of American citizens.

Radical new thinking

But as dearly as Silicon Valley tech companies may long for government contracts, they are hardly willing to hand over their customer data to the authorities. This is about more than mere political calculation. Silicon Valley has found that privacy and data protection are a business model, and is rigorously following this strategy by opposing legal and regulatory encroachment, not only with armies of lawyers, like Apple, but also with technology.

Internet companies have caught up with Privacy Enhancing Technology, or PET, after being strongly criticized for giving the government customer

information as required under the terms of legal warrants. Many, like Amazon, Google and Facebook, offer their customers the option of encrypted communications. Whatsapp has opted for the encryption method which made Signal—developed by cyberpunk Moxie Marlinspike—the most secure app for electronic com-

was demonstrated by an evaluation of publicly-accessible—anonimized—data from New York taxi companies by Anthony Tockar of *Neustar Research*. He cross-referenced this with the—also public—electoral roll. This has allowed him to identify well-known visitors to the Hustler Club. Including their private addresses.

Likewise, a group of MIT scientists headed by Yves-Alexandre de Montjoye have been able to cross-check anonimized credit card bills. Using nothing more than a list of figures from three monthly statements, without user name, card number or other personal information, the scientists were able to match the transaction data with publicly-available information in order to find out the customers' names and addresses—and they were able to reconstruct their entire shopping history. Only four invoice items were necessary to unambiguously identify 90 percent of credit-card holders. Often a photo of people drinking coffee together on Instagram, a tweet about a newly-purchased smartphone or a single credit card payment as all that was needed.

In five years we will probably look back in astonishment and wonder how we were ever so stupid as to send unencrypted messages online



Photo: Mark Bollhorst

People have secrets, and that's a good thing. Dr. Aleksandra Sowa, alongside the German cryptologist Hans Dobbertin, founded and led the Horst Görtz Institute for Security in Information Technology; she is the author of various books, a speaker, data protection commissioner and an IT compliance manager. As an essayist for the debate magazine *The European*, and columnist for the newspaper *Neue Gesellschaft—Frankfurter Hefte* she defends the idea that privacy should remain private and secrecy secret.

munication and telephony available. “In five years we will probably look back in astonishment and wonder how we were ever so stupid as to send unencrypted messages online”, says Gerhard Eschelbeck, Google's chief of security.

Some companies take care to ensure that they neither have access to the encrypted communication, nor to the encryption key. That way, they will be able to comply with the legal requirements of the FBI, and hand over the client data—encrypted and without a key.

Mission ANON

Anonymity protects lives, and not only those lives of criminals and terrorists. Privacy is vital to the health of a democracy, but the framers of the US constitution clearly did not reckon with the internet. Studies are providing more and more evidence that it is not possible to use the internet anonymously, neither by means of social networks nor smartphones, which systematically and constantly collect their users' information. This

Anonymity online: impossible

But the word “impossible” is simply not a part of the vocabulary of Silicon Valley. Craig Federighi, Vice President Software Engineering with Apple, announced in his keynote speech at Apple's Worldwide Developers Conference in San Francisco that Apple practices what he calls “differential privacy”.

And even if Federighi didn't give away any technical details, it is clear that Apple intends to use new methods and technologies to shore up its position as Silicon Valley's privacy champion. First, by using end-to-end encryption for iMessage and Facetime. and now with differential privacy. Add to this the company's efforts, as outlined by CEO Tim Cook, to preserve

as little user data as possible on its servers.

Behind the announcement of differential privacy, though, lies another message: that Apple is still saving user data. The method used is designed to permit the evaluation of large volumes of data without opening any back doors to individual data sets. Differential privacy means that the data sets are set amongst a kind of noise which defamiliarizes them but does not influence the result of the statistical evaluation. In its simplest form, differential privacy can be achieved by means of hashing. The pioneer of the method, Cynthia Dwork, is still active in the industry: she works for Microsoft Research.

Homemade Mission Impossible

Other ideas are still waiting to be tried out in practice, such as homomorphic encryption: a kind of holy grail of cryptography, which involves database enquiries being done in encrypted form, so that the analyst or analysis algorithm never sees the original data. Or secure multiparty computation, which recalls the secret system which was used for translating the Bible, whereby data sets are divided out and distributed across different points (such as databases). No-one has access to the entire database, or to the full data sets.

While anonymity can be very expensive to implement for databases, big data or health data, it can be achieved relatively easily in everyday use. Here the target is throwaway, ephemeral communication, where the short lifespan of the information is in focus. Internet companies like Twitter, Microsoft or Facebook support the social trend with transient messaging and specially-designed security measures. Businesses, security experts say, often fail to automatically delete emails after 90 days. Instead of emails, colleagues would prefer to use chat or

services like Snapchat, so that their messages are automatically deleted upon reading.

That seems like a scene from Mission Impossible, but the idea is clear: data which doesn't exist can't be stolen, misused or compromised. The business of data protection is booming. The demand for self-deleting photos and videos is so high amongst individual consumers that Snapchat is valued at nearly 25 billion US-Dollars.

While businesses in Germany and Europe are still hoping to make big money from big data, the Silicon Valley companies are already a step ahead. They are opting for a new business model: collect NO data at all. That is, at least not data that's not good for business. ■

Only four invoice items were necessary to unambiguously identify 90 percent of credit-card holders.

What happened online?

May 2016

2

02/05 In 2015 the secret FISA Court approved every warrant request submitted by the authorities. This is the institution which is responsible for issuing warrants for surveillance operations carried out by American intelligence agencies. The total number of such applications was 1,457—100 more than in the previous year.

02/05 In a video-link presentation at the re:publica conference, Edward Snowden described data protection as the precondition for all other basic rights and freedoms. According to the former NSA staffer, the protection of the person and their identity depends upon data protection.

6

06/05 The existing Eurodac database for asylum seekers is to be expanded. The European Commission has published reform proposals under which photo ID and biometric data should be collected for children from six years of age. Under existing regulations, fingerprints were only taken from asylum applicants from the age of 14.

9

09/05 The International Consortium of Investigative Journalists (ICIJ) publishes the raw data on the Panama Papers. These leaked documents show a worldwide network of shell and offshore companies were used by numerous individuals and companies in an effort to avoid taxation.

11

11/05 The European Parliament expands the remit of Europol to fighting cross-border criminality and terrorism on the internet. Europol is to create and train special units while cooperating closely with businesses like Google and Facebook.

12

12/05 The lawyer and human rights advocate Michael Ratner dies at the age of 72. His work has included defending prisoners in Guantanamo and giving legal advice to the whistleblowing platform Wikileaks.

12/05 The German Federal Court has decided in a case regarding file-sharing that house guests and people living in shared accommodation do not need to be instructed prior to being given access to a WLAN network.

12

12/05 Germany's Federal Office for Protection of the Constitution does not consider itself responsible for combating most foreign secret service espionage, according to a statement by an employee before a parliamentary committee investigating NSA surveillance practices. This pertains, for example, to the underwater cable which carries international internet traffic from England to the USA, but also to the surveillance of Angela Merkel's mobile phone.

13

13/05 Germany's Federal Assembly votes to endorse a law requiring collecting societies in Germany such as GEMA and VG Wort to reform their methods for collecting royalties. The process should become more transparent, members should have more influence, and new tariffs should be agreed upon more quickly.

18

18/05 The Netherlands continues to forge ahead on the issue of net neutrality. The Parliament has decided to prohibit the practice of „zero rating“. This means that in the Netherlands service providers are henceforth prohibited from billing data transfers on any other basis than the data volume of a given tariff.

19

19/05 The German Federal Minister of the Interior Thomas de Maizière (CDU) and US Justice Minister Loretta Lynch sign an agreement relating to data exchange between the security services of their respective governments, in connection with the fight against terrorism. Information relating to persons „likely to threaten public safety“ is to be communicated more easily.

20

20/05 For the first time, a Higher Regional Court in Germany has admitted controversial dashcam footage as evidence in a case relating to a motoring fine. Previously, district courts had been divided on the issue. Dashcams are video cameras mounted on the dashboard or windscreen of a vehicle.

24

24/05 Germany comes ninth in a report on digital progress issued by the European Commission. The EC identified room for improvement in four of the five areas studied, citing problems in terms of fibre-optic connection and e-government.

25

25/05 The G7 states want to designate hacker attacks as being equivalent to a conventional armed attack by a country or terrorist group. In the event of an attack, this would imply a right to self-defense, permitting the use of force against the assailant.

31

31/05 Sampling can be permitted under certain circumstances according to a judgement by the Federal Constitutional Court in a suit between music producer Moses Pelham and the electro pioneers Kraftwerk. A balance must always be maintained between artistic freedom and copyright. The „Metall auf Metall“ case is now returning to the Federal Court, where it will require an additional ruling.



Politics has to be shaped by people

INTERVIEW WITH NADINE SCHÖN

In 2017, Germany is electing a new parliament and chancellor. What can digitalization bring to the election campaign, and where should clear boundaries be set? A conversation with Nadine Schön, spokesperson for the conservative CDU/CSU parliamentary group.

iRights.Media: Looking ahead to the 2017 elections, how important will digitalization become generally, and also in connection with the election itself?

Nadine Schön: In both senses, it will be very important. Both areas will be more interconnected than ever before. In the election, the digital campaign will be at least as important as the conventional campaign out on the street. Digitalization affects and penetrates all areas of life. In coming years, this will only increase. This is why we have to get to grips with it in detail.

What will the CDU focus on here?

Fundamentally, we want to shape digitalization so that we limit the risks whilst taking advantage of the opportunities it brings. That means innovative regulation and legislation. Over the next few years, we must act to ensure new digital business models flourish so that companies can be created and develop here in Germany. In all sectors, from health to education, we can make use of the opportunities that digitalization brings. We've made good progress in this direction over the course of this legislative period, but there is still a long road ahead. This is an approach that differs from the position taken by other parties.

In terms of the strategy: are there aspects that you would like to try out? That includes tools used in the election campaign itself.

In comparison to the previous election period four years ago, I am trying out more formats, including an online surgery. As a party, we are putting on more frequent conferences on digital matters. These are open to all members of the party. We will obviously be putting all this to use in the election. We've already stated that we will not be using social bots, unlike the AfD [antn.: Alternative für Deutschland, a

newly emerging right wing party]. I think that that would be fatal, because politics has to be shaped by people, not by algorithms posing as people.

That was seen very clearly during US voting. Do you put value on an ethical digital election campaign?

Yes. We are fundamentally of the view that technology or digitalization cannot be seen as ends in themselves. They can only be used where it makes sense, and where it helps people. I see no use—and no value—in using social bots. Their only purpose is to manipulate people. In my view, even when technically possible, they should not be used.

We are fundamentally of the view that technology or digitalization cannot be seen as ends in themselves. They can only be used where it makes sense, and where it helps people. I see no use—and no value—in using social bots.

Are there other digital aspects that you find interesting in the context of the latest American election?

Thanks to the evaluation of personal data in the USA, the election was very individualized. For data protection reasons, it is not possible—nor desirable—for us to use this tool. Also because we wouldn't want to go to someone's doorstep with a checklist and establish citizen X is, for example, a Bayern supporter who's been unemployed for three years.

But wouldn't that be exciting?

Addressing target groups, yes. Creating personal profiles: no. If people are

particularly interested in, say, women's issues, then we want to reach them with our policy on those issues. That is also, I think, in the public interest. But I believe no one wants to see election volunteers delving into the depths of a citizen's personal biography. We want to reach people through politics, not merely approach them as 'data points'. That is why it is both right and good to have these boundaries.

It is often said that social networks influence elections by displaying information in a targeted way. Is the so-called filter bubble surrounding social media a problem?

This filter bubble creates a situation in social networks in which people

only see information they have already expressed an interest in, and opinions that correspond to their own spectrum of views. That leads to the mistaken idea that one's own opinion is the view of the majority, and that there are no others. In every circumstance, that is very dangerous. It also annoys me personally, because I can only arrive at a balanced perspective through being able to see differences of opinion. We should discuss this with the service providers to see what the possibilities are. Here, there surely has to be a technical solution. This is perhaps an area where there is no need for legislative regulation.

Digitalization also means people are

able to express themselves online in a way that perhaps they previously couldn't. That becomes a problem when it comes to insults and hate-speech. What is your opinion on this?

Fundamentally, everyone has always been able to express themselves politically. Today, however, the level of abuse and excessive insults is extremely high. That is an alarming development. We need to ask ourselves as a society: how do we want to treat one another? It is about awareness. It

We need to ask ourselves as a society: how do we want to treat one another?



Photo: Ole Westermann

Nadine Schön is a lawyer, and has been a member of the German Bundestag since 2009. In 2014, she became Deputy Chair of the Bundestag CDU/CSU parliamentary group. Previously, she was a member of the Saarland state parliament. She is also a member of the "Digital Agenda" commission.

is about social decorum and acceptance of others. These are quite normal democratic structures, for which we have clearly lost the feel, as well as the will to compromise, or the ability to make complex political decisions. This is something that we urgently need to tackle, also where education is concerned. It's something we absolutely need to work on.

What can be done, then? What are your experiences of hate speech, and how can we deal with it?

Firstly, everyone has to find their own individual way of dealing with it. I have a 'netiquette' on my Facebook page. I delete swearwords, baiting and insults. Luckily, I don't get such things very often. Of course, you have to engage with criticism, and you have to discuss it. That's also important. The platform operator is also responsible. If certain content represents a criminal offense, they are already obliged to delete it. Here it is important that the structures become better and faster. There have to be places where citizens can go to complain when the system does not work. We are currently discussing whether it would make sense

to introduce a processing deadline for Facebook deletions. I consider it impossible that such decisions are left solely in a company's hands. I don't want Facebook to decide what is and is not offensive.

The investigative authorities are utterly overwhelmed by cases of this kind. Should there not be more consideration given to how better to process these cases?

Yes, that's right. The procedures which we currently have are complex, tiring, and often go nowhere. The victims of cyber-bullying are not helped if their complaint must first go through a legal process perhaps resulting in a post taken down only months later. There must be faster, more flexible procedures. More energy should be put into finding other strategies to deal with this. In Germany, for example, we already have considerable experience in the voluntary self-regulation of film, television and computer games. That is what leads me to think about how a half-state, half-company structure could both simplify and democratize the entire process.

In the coming electoral year of 2017, have you high hopes for anything in the digital realm?

I would hope for a good societal debate about politics and democratic structures. Social networks have opened up the possibility for every citizen to be actively engaged in the process. On my Facebook timeline, there are many citizens who help shape the debate using absolutely brilliant analyzes and posts. I'd like to see that sort of thing happening more often, and happening at a younger age, too. ■

Interview by Philipp Otto.



The SPD is becoming more and more digital

INTERVIEW WITH KATARINA BARLEY

The internet allows political parties to communicate directly with citizens. At the same time, it can provide a platform or even an amplifier for radical ideas. Katarina Barley explains how the German Social Democrats are dealing with this double-edged sword.

iRights.Media: Just how digital is the Social Democratic Party (SPD)?

Katarina Barley: We are becoming more digital all the time. We have our traditions, which we cherish, including local party branches and working groups, but more recently we have seen a marked increase in our young membership. Naturally, that has an impact on how we communicate. We are fairly present in social networks; I personally put a lot of work into that. That gives us the ability to contact members and interested citizens directly without needing to go through other media. And naturally the election is fought online.

The SPD is a mass party and so it has to speak to all citizens, of all ages. How is that reflected in digital communication?

That is one of the SPD's greatest strengths and one of the reasons why I joined the party. As a mass party we have to grapple with a massive range of social issues, including digitalization. My parents are 76 and 81, and like many people their age, they are always on the internet. But there are others who have no interest in being online. To be sure, it is easier to communicate with people digitally, but we cannot allow ourselves to shut out any group of people.

The SPD has also taken on Jim Messina, who advised Obama, to work as an election strategist. How is that working out? Has this changed the way that the SPD communicates with voters?

Obviously we can't adopt the American approach wholesale. But it certainly involves some interesting elements which we can positively exploit. In some senses they are ahead of us in terms of communicating content, both in elections and in other fields. The driving question is, how can you create the widest possible reach? How can you make content attractive?

What does that mean in terms of the federal elections?

A digital strategy is not just about elections. Many people—especially, but not only, younger people—feel shut out of traditional channels of engagement. Lifecycles change; people no longer remain connected to the same workplace forever; they are more mobile and sometimes go abroad. The classic local party model doesn't work for them. Digitalization has brought about new ways of organising the everyday life of the party.

Do you believe that the structures of local party branches are ready to take part in a digital election campaign?

Don't underestimate our branches.

Many are now being led by young people with a feel for online work. The branches are doing really important work; they are the local multipliers and they know exactly where people are. They do door-to-door campaigning, put up posters, organize events and much more.

My current favourite branch chair is not yet 30, energetic and forward-thinking, but rooted in all the local associations. She signs up about three new members every day and knows exactly how to use social networks. I want to fight against the cliché that branch chairs are all just men in their seventies. That is just not the case.

Many citizens are dissatisfied with politics. That includes many people who previously would have been part of the SPD's natural constituency. They are being recruited by right wing populist platforms. Can digital media be used to reach these people? Or are things going in the opposite direction?

We are living in times of great upheaval. People feel uncertain, as could be seen in 2015 when the arrival of refugees in Germany peaked. In uncertain times, many reach for easy answers. We Social Democrats come from a tradition of enlightenment and emancipation. That means that we have more to say than the people who

Digitalization has brought about new ways of organising the everyday life of the party.

How relevant is the digital election campaign to the SPD in 2016/2017?

The greatest advantage of the digital election campaign is that it allows us to talk to people about precisely the issues they are interested in, and using the media that they are interested in. And we don't need any middlemen, any newspapers, any news bulletins. We are able to make contact directly, with no filters. That is very valuable.

And why is the SPD better at digital campaigning than the other parties, and why will the SPD win?

We moved to digital very early on. It is not enough to bring in a couple of IT nerds. You need to be ready for the long haul. If we can manage to link our traditions and values with modern political communications, then that will make for a very attractive and powerful package.

just want to be against everything. These right wing populists are essentially negative; they're mostly just anti-this and anti-that. That's something you can communicate in one sentence. But it takes longer to explain what you're for. That's where we need to get better.

Do you know what you want to do?

It is stupid only to appeal to the intellect; you also have to appeal to people's sense of right and wrong. However, at the same time, negative feelings illicit a stronger reaction than positive ones. Mistrust is easy to create. Trust takes a long, long time to build up. What we also find is that people who write hateful comments are at the mercy of rage. They get themselves and those around them whipped up into a kind of rabid frenzy. But for our people who want to stand up to that, it takes a lot of backbone, because they can find themselves being slandered in the

most horrible ways. That's something I've been told by many active Social Democrats. The dangerous result is that some are tempted to give up on online work. And I am militantly against that. And I say: if I remain strongly engaged in the internet, then others will too.

Are there moments when even you say "It's gone too far"?

Yes. I have filed charges with the police, not many times, but three or four. You have to be able to deal with a certain amount of abuse in politics. But there are limits. I think it's important to be able to say: I'm not just going to sit back and accept this.

The Ministry of Justice has taken various steps to establish clearer rules for social networks like Facebook. But fundamentally this will not remove the echo-chamber effect.

The internet itself of course is not to blame; it is only the medium. I often say that at the end of the day, internet trolls and purveyors of online hate are not aiming for me as a person but for my office. They are aiming at my politics. They don't know me. I am, I think, much more open than many other people, in that I express myself personally.

I found the discussion surrounding social bots revealing. These are pieces of software which are programmed to automatically post on particular hashtags on Twitter, for example. The AfD [Alternative für Deutschland, a newly emerged right wing populist party] says, "Of course we use social bots". That astounded me. I think that they have been doing that for a long time, and very systematically. It is a grotesque hypocrisy to, on the one hand, call out the "lying press" and, on the other, to engage in such programmatic deception. I find that really telling. Their goal is to convince people, "Yeah, that must be what most

people think", and thus to normalize their radical positions. That quickly creates its own dynamic.

When you say that networks and communications should not be left to the cranks—can you really apply that to them?

First of all, these are, overwhelmingly, very cool and calculating people, who are using insults, hatred and intimidation in a very conscious way. So I find the concept of "cranks" in this context to be trivialising.

If there is any substance there that I can engage with, rather than insults, then I can have a discussion. But naturally there are people whom it makes no sense to engage with, either far-right racists with fake accounts, or people where you can see that it's just a tactic, where they are trying to rope you into something.

But you can't always just write people off in a sweeping way. I can think of many cases where you find that you're talking to people who have had bad experiences—with the authorities, with politics, with other people. When they see that you are listening and answering them honestly, they don't always agree. But at least they say, "Yes, I feel that I am being taken seriously. I don't need to shout so loud now." I think that we shouldn't give up on people like that without a fight. ■

Interview by Philipp Otto.

We Social Democrats come from a tradition of enlightenment and emancipation. That means that we have more to say than the people who just want to be against everything.



Photo: Susie Knoll

Dr Katarina Barley has been General Secretary of the SPD since December 2015. She has represented the constituency of Trier in the German Bundestag since 2013. Before then she worked, amongst other things, as a judge and a member of the Federal Constitutional Court.





Open? Free? Inclusive? Internet governance at the crossroads

BY HENNING LAHMANN

The internet is not developing on its own—and we need to think of ways to guarantee a future of uncensored and unimpeded access. What should the internet of the future look like?

The internet is not the utopian world of borderless freedom it may have once promised to become. On the other hand: no other communication medium today is more important for political discourse and thus for civil liberties, such as the right to information or to free speech. In the past year, we have seen more clearly than ever before how the idea of an internet which is free and open for all has reached a critical and perilous juncture. The ongoing struggles between states, civil society groups and other actors around the question of how and by whom the internet is to be regulated and administrated makes clear what is at stake: what kind of internet do we want?

The internet is not developing on its own, and left to its own devices it will not remain free and open, or become more free and open; it needs to be shaped politically. In order to see how fragile civil liberties are online, one needs only to take a look at the events in the democratic,

constitutional (for now) state of Turkey. The most popular social media services are consistently monitored by the authorities, especially since the failed coup attempt in July; where necessary they are simply locked down. Whoever airs a political opinion online risks arrest.

Turkey aside, the last year has made it painfully clear that the internet is increasingly becoming a battlefield at the national and international level. One only needs to think of the cyber attack on the Democratic Party server in the USA—alleged to have been carried out by Russian hackers acting on behalf of their government—and the subsequent release of Hillary Clinton's emails via the Wikileaks platform, which shaped the final days of the American election. Or consider the massive DDoS attack against the Dyn business, which is responsible for large parts of the infrastructure for administering internet domain names. The cyber attack put the system out of action, by overwhelming the server

with a flood of requests. By late 2016, the vulnerability of the underlying infrastructure of the global internet had become plain to see.

Internet at the crossroads

The internet finds itself at a crossroads. This according to a major report by the Global Internet Governance Commission published in the summer of 2016. This working group, chaired by the former Swedish Prime Minister Carl Bildt, used different scenarios to define possible principles which could be used to govern the internet in the future. They opened their report with the warning that this is a crucial moment for defending an open, free, safe and inclusive internet. It is neces-

But how can we guarantee that the internet stays a free space for communication for those who use it as such today?

sary to establish who should wield what powers in terms of internet governance. The answer to this question determines whether the internet of the future can offer advantages to everyone, or whether the progress which has been made so far in terms of civil liberties will be unravelled.

But how can we guarantee that the internet stays a free space for communication for those who use it as such today? And how can we achieve a situation where the internet is free and open for citizens of those countries where these freedoms are not upheld?

This is where the heart of the matter is laid bare: “the internet” can never be separated from events and relationships in the “offline” world. Where people enjoy guarantees of their freedoms, they are generally—with some

limitations—able to access the internet and operate within it freely and safely, but where authoritarian structures prevail, internet freedoms are also limited. This basic conflict between contradictory visions of the role of the internet for society has a direct impact on the field of internet governance, with little prospect of swift solutions.

What are the principles by which the internet is run?

The clearest expression of this conflict can be seen in the longstanding question of whether internet governance should be run on the basis of a multilateral system or follow the multi-stakeholder model. Should states alone have the say over internet regulation, or should other affected and interested actors such as NGOs or businesses in the private sector be involved in the decision-making process? Behind this issue lies the question of what the foundation of

internet governance should be: should the principle of “cyber-sovereignty” prevail, whereby each state has full authority over “its” part of the web, as proposed by China’s President Xi Jinping at the end of 2015? Or should the foundational principle be that of a single global internet which is governed jointly by all participating stakeholders—a web in which information and opinions can be freely shared without obstruction?

Currently the multi-stakeholder model, which is supported by the overwhelming majority of Western states, underlies decision-making in internet administration. It is the model relied upon by key administrative organizations such as the California-based Internet Corporation for Assigned Names and Numbers (ICANN) or the

Internet Governance Forum, formed at the initiative of the United Nations in 2005. From the point of view of the industrialized societies of the Global North, the involvement of the broadest possible range of different players appears to be the most sophisticated and progressive form of democratic participation at the supra-state level. Seen from the other point of view, it appears to be a further entrenchment of the influence of precisely these Western industrialized states.

This is a view that totalitarian states like Russia or China have been able to deftly deploy for their own purposes. They are not motivated by concerns for developing or emerging economies but simply by the desire to strengthen their own hand in administering the basic structures of the internet. They would like to see the role that the private-sector-based ICANN has played until now—the administration of the basic Domain Name System (DNS)—transferred to the International Telecommunication Union (ITU), which, as a UN organization, follows the multilateral approach that gives little influence to non-state actors.

Industrial states’ interests in the foreground

Such a development seems unlikely given the opposition of the Western states. However, this year saw a change in the position formally enjoyed by the United States in internet governance. This step had been long desired by practically all stakeholders, including the governments of other Western states. Thus, the agreement according to which ICANN had been linked to the American government since its foundation expired on 30 September and was not renewed.

This decision, which had been in preparation for two years, elicited a near-hysterical reaction from members of the US Republican Party. Senator Ted Cruz prophesied that the Obama

administration's relinquishing control over the organization meant that states like China, Russia or Iran would be able to limit the right to free speech on the internet and that the end of the open internet was at hand. That alone betrayed a crass misunderstanding of the role and function of ICANN, which can only exert limited influence over online content. Its transfer to a multi-stakeholder administration without the oversight of the US authorities will not change anything. Under the new arrangement, Washington has not given up any control over the web, because ICANN never had any such control to begin with.

Involvement of non-state actors

In the years to come, major questions of internet governance will tend to be dealt with in regular meetings such as the Internet Governance Forum, which, until now, are also grounded in the multi-stakeholder model. And here it is not just Russia, China and other authoritarian states who are increasingly vocal about the predominance of Western industrialized states. Non-state actors, who, thanks to the multi-stakeholder model, have become important voices in internet governance and who aim to ensure their continued role in this regard, largely do not come from developing or emerging nations. This applies particularly to the large private companies of the internet economy.

Whether justifiably or not, internet governance is today largely seen as being focussed on the interests of actors from Western and rich countries, with the great majority of the rest of the world given little say. The fact that Edward Snowden was able to reveal as hypocrisy the West's voiced commitment to protecting online civil liberties has not helped the credibility of the US and their allies when it comes to internet governance.

However, it remains important

to take a stand in favour of the multi-stakeholder model, and that the attempts to give more weight to a multilateral approach by strengthening the ITU should be firmly resisted. The involvement of non-state actors, above all in the Internet Governance Forum or in the NetMundial Initiative, remains the best guarantor that citizens' interests will get a hearing. Actors from Western states—whether representatives of governments or of civil society—must nonetheless take care that their human rights agenda is not perceived by stakeholders from developing and emerging economies to be a matter of luxury for those who already have secure access to the internet and who already enjoy its economic or cultural benefits.

Nevertheless, the organizers of the Internet Governance Forum seem to have understood this: the conference which took place in mid-December 2016 in Guadalajara in Mexico was entitled "Enabling Inclusive and Sustainable Growth". We can only talk of a free and open internet when that talk applies to as many people as possible. ■



Photo: private

Henning Lahmann is a lawyer and works as a freelance political analyst for iRights.Lab. He also writes as a journalist for different publications and has a fortnightly show on Berlin Community Radio.

Should states alone have the say over internet regulation, or should other affected and interested actors such as NGOs or businesses in the private sector be involved in the decision-making process?

How are the rules of the internet made?

INTERVIEW WITH WOLFGANG KLEINWÄCHTER

The internet is regulated on the basis of a multi-stakeholder model. That means that states, internet firms and civil society together decide how the internet is to be run. What challenges do they face? Where is the greatest need for action?



iRights.Media: How is internet regulation different from other regulatory areas?

Wolfgang Kleinwächter: Originally the regulation of the internet was about addressing specific technical issues: for example, determining how individual services and servers communicated with one another. States didn't play a role. At the end of the 1960s a procedure was developed which is called "Request for Comments" (RFC) and you could say that this is the rulebook of the internet.

These RFCs came about in consultations that the technical community organized amongst itself. They are not linked to classical regulation criteria, such as a territory or a population. The discussion processes are open: all interested parties can get involved. That is the biggest difference from the way that parliaments create legislation, or the way that states draw up treaties.

How did this method of regulation come about, in which all participants are involved, and how did it spread beyond the technical community?

In the 1980s and the 1990s, it came to be understood that it was not possible to separate the technical and political regulation of the internet. The legal expert Lawrence Lessig summed this up when he said, "Code is law". *Codemakers* create new virtual spaces which then challenge *lawmakers*.

That has changed the relationship between the people who write code and the people who make laws. Manuel Castells described the new relationship between hierarchies and networks in his 1999 book *The Network Society*. Closed, opaque, top-down models of politics are complemented or replaced by open,

transparent bottom-up models. That creates a drive towards a new model of politics, what is called the multi-stakeholder model, in which parties who are directly affected by and implicated in political decisions, i.e. service users and providers, are involved in the decision-making

technical conditions or innovative business models, then they will be stepping out into the void. If they contradict users' interests, civil society will be out in the cold. The only way to find a sustainable solution is that all interested parties and participants should be involved in developing norms and rules to shape the internet.

In the 1980s and the 1990s, people started to understand that it was not possible to separate the technical and political regulation of the internet.

The legal expert Lawrence Lessig summed this up when he said, “Code is law”. Codemakers create new virtual spaces which then challenge lawmakers.

What are the strengths and weaknesses of this model? Does the network structure make it more vulnerable or even more reliable than traditional models of governance?

It is too soon to say. The jury is still out for such models of participation. However, we must bear in mind that procedures involving many participants are more complicated than those with only two participants. It is already difficult enough when governments negotiate with each other. When business, civil society and scientists get involved, international negotiations will become even more complicated.

The Chinese government has interests that differ from those of the American government. The interests of a large company like Google are different to those of medium-sized businesses. In civil society, we have a broad spectrum of different views; even in the scientific community there are different perspectives.

So making this model work is a long-term project. But the first steps have already been made. With the so-called *IANA transition*, a global resource will be administered by the international community jointly, on the basis of a multi-stakeholder model—this refers to domain names such as .de, .org or .com. It's only one leg of the journey, but this does show us how things could go in the future.

States can respond very defensively to attempts to remove their regulatory powers.



Photo: Mascha Berliner

Wolfgang Kleinwächter is Professor Emeritus for Internet Policy and Regulation at the University of Aarhus in Denmark. From 2013 to 2015 he was a leading member of ICANN, the Internet Corporation for Assigned Names and Numbers, which is responsible for the central administration of internet addresses.

process. In this model, governments remain an important factor, but the technical community, the business sector and civil society must all have an equal involvement in drawing up rules. De facto, it also involves expanding representative democracy to involve participative elements.

Would it not be enough to regulate things at the technical level? Why do other players—businesses, experts or states—need to be included in internet regulation?

The technical structures of the internet and the applications that are built on them have far-reaching political, economic and cultural consequences. For example, twenty years ago the MP3 format shook a whole branch of industry—the music industry—because it impacted audio files in particular. That threw up whole new questions connected with intellectual property and copyright. The development of technology has undermined existing business models and legal systems. If laws ignore

It is certainly a welcome development that the leading industrial powers are currently supporting this multi-stakeholder model. At the G7 meeting in Japan, at the OECD meeting in Cancún in Mexico, at the G20 meeting in Hangzhou, at the World Summit on the Information Society—support for this model can be found everywhere. But everyone understands it differently. Many think that the multi-stakeholder model is only good as long as the governments retain control. But it is important

networks. The second major complex is economic matters. That relates to electronic trade. This is an area that places new pressure on the World Trade Organization. One can see in the protests against TTP, TTIP and TISA that the old models of separate trade agreements aren't working any more. This is where new developments come in which are designated by terms like "Industry 4.0" and "The Internet of Things". This brings us to the concept of "Work 4.0" and the question of how jobs will work in the future. The

interest to find a balance. Finding a way to balance out interests will dominate the political discussions of the coming years.

Less democratic states which want to control everything are affected by questions of sovereignty. There is a real risk that the whole thing will break up into a fragmented internet. In an extreme case, that could mean that you would need permission if you want to send an email to a different country—a kind of entry/exit visa system. Technically that is possible, even if it would be absurd and damaging from every point of view. But then war is also absurd and harmful, but people still do it.

The open and free internet to which we have become so accustomed to over the last thirty years can be torn apart. The internet is a network of networks, and every network can be governed separately—for political or economic reasons. If Facebook were to say that the internet is OK, but only if everything happens via Facebook, then that also would be a closed community. That is not an unrealistic worst-case scenario. That's why we have to act to ensure that such scenarios do not become a reality and that citizens' basic rights are upheld and strengthened in the digital realm. ■

Interview by Philipp Otto.

It is already difficult enough when governments negotiate with each other. When business, civil society and scientists get involved, international negotiations will become even more complicated.

that the multi-stakeholder model be developed further, and that we answer the question of how different interest groups can cooperate as equals and share decision-making powers.

There are certain issues where even democracies are reluctant to move in this direction. For example, on cybersecurity, governments will flatly refuse to work together with civil society. But that is the wrong reaction. In the long term, even questions of security will prove insoluble unless all participants are involved in one way or another.

What are the three key areas of internet regulation which must be resolved?

The first is security. That means national security, so questions of cyber warfare, cyber weapons, cyber terrorism. But it also refers to cyber-crime and the technical security of

third complex of problems are general questions of human rights: freedom of speech, protection of privacy, freedom of assembly and so on. Security and human rights are as important in internet policy as they are in world politics. Security is involved here again. Is the protection of privacy and free speech a threat or a support to national security?

We will be discussing these three questions—security, business and human rights—for the next twenty years.

In China and other parts of the world there are massively divergent applications of a general agreement on how the internet should work. What is the best way to respond to this?

China is hurting itself if it erects barriers that limit the activity of its big companies—like *Baidu*, *Weibo*, *Alibaba* or *China Mobile*. It is in China's own

The digital rich-poor divide

Across large parts of Africa, the cost of access to a broadband connection is far beyond the means of the average household. Seen another way, people on the African continent have to pay ten times as much—as a proportion of their income—for broadband access as people in the rest of the world.

In both Australia and Mozambique, a broadband connection costs around 60 US-Dollar a month. But while the average annual income in Australia is around 50,000 US-Dollar, in Mozambique it is less than 500 US-Dollar. An average Australian household will be able to earn enough to cover a year's broadband supply in a week; in Mozambique it would take one and a half years to raise the same sum. The world's most expensive internet connections are those "available" in Eritrea. In order to be able to use the internet for a year, someone earning an average income would have to work for 50 years, or their whole life expectancy.

In India and Sri Lanka, internet connections are cheapest, at around 6 US-Dollar a month. While prices in Europe and North America are 10 US-Dollar to 40 US-Dollar higher, the ratio of cost in relation to income is lowest: just a few hours' work a month is enough to pay for an internet connection for the average household.

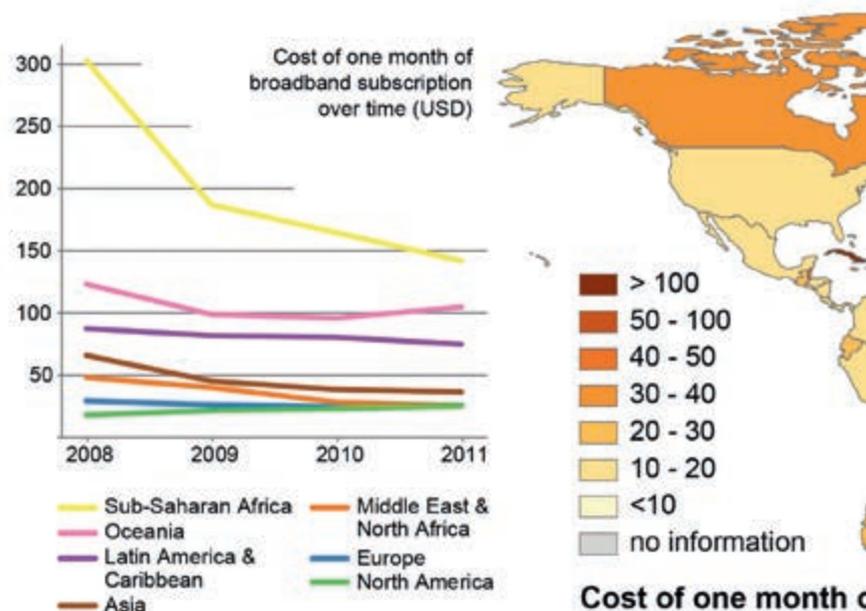
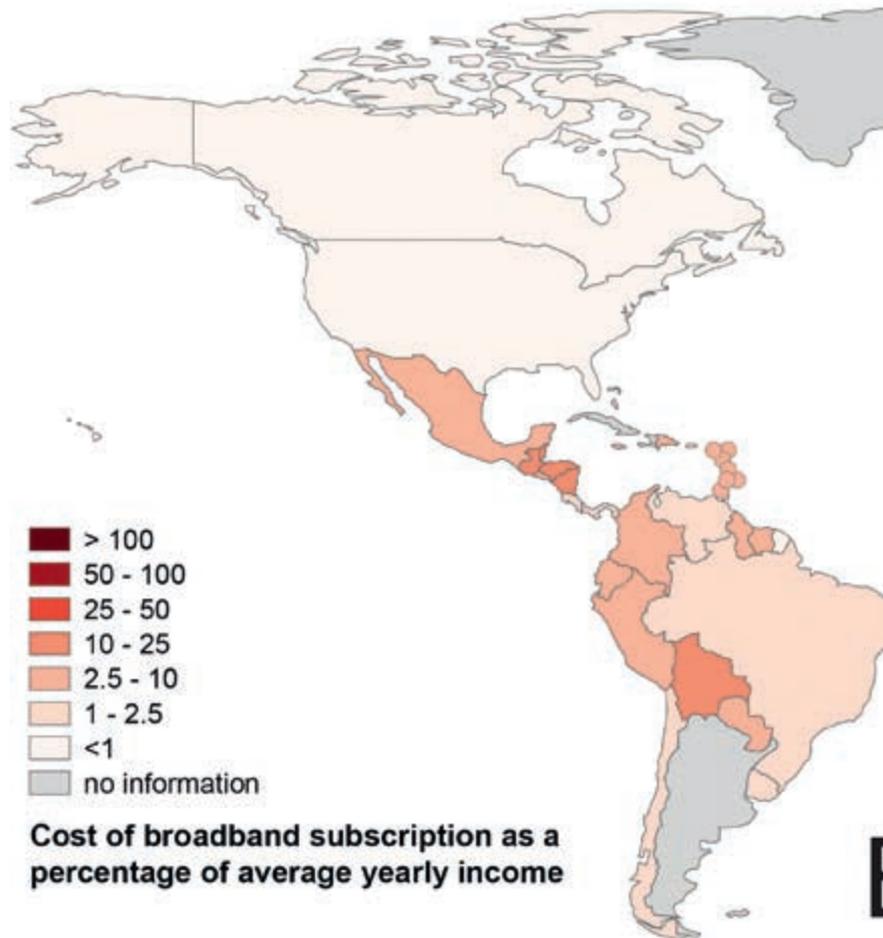
The global gap between rich and poor therefore has a lot to do with the cost of internet access.

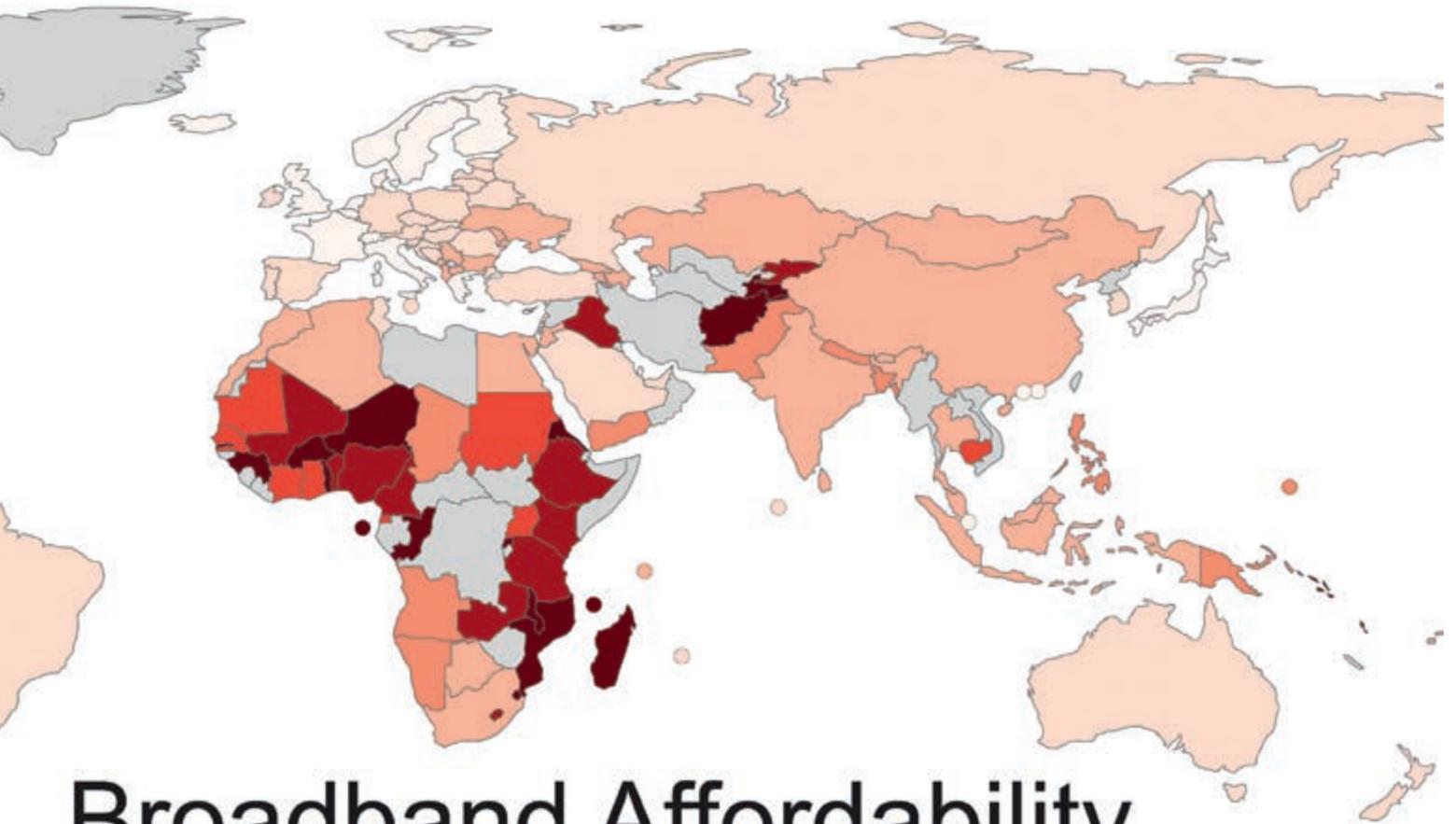
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About the Information Geographies project

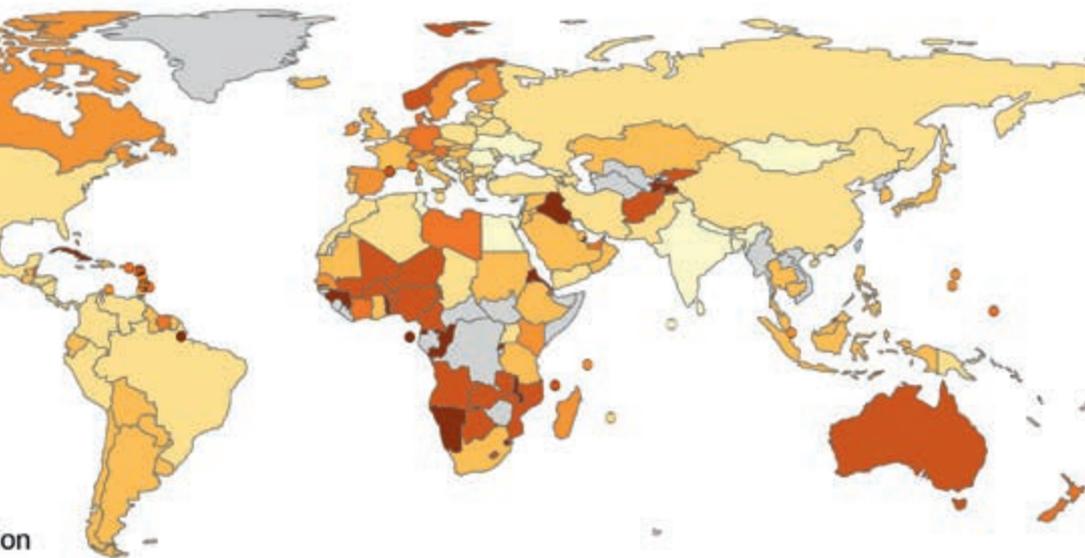
A visual display was compiled using data from the Information Geographies project team at the Oxford Internet Institute at the University of Oxford, under the leadership of Professor Mark Graham, with help from Dr Stefano de Sabbata. The project is part of an attempt to map the geography of contemporary knowledge. Information is the raw material of our modern global economy. For this reason, the project team wants to develop an understanding of who produces and reproduces it, who has access to it, and what people and places are represented in today's knowledge economy.

markgraham.space, geography.oii.ox.ac.uk





Broadband Affordability

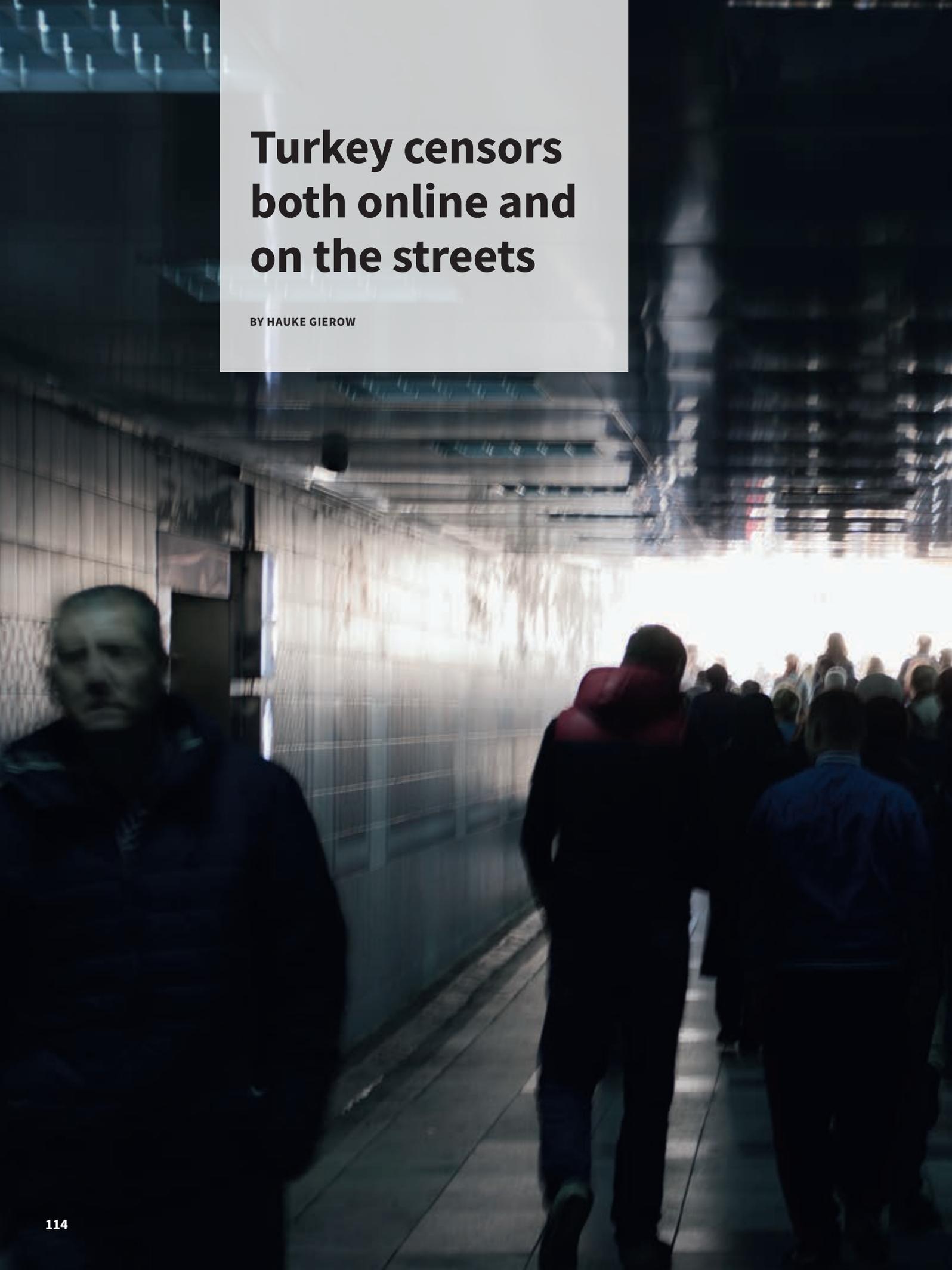


on
month of broadband subscription in 2011 (USD)


 Oxford Internet Institute
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by Mark Graham
 (@geoplace)
 and Stefano De Sabbata
 (@maps4thought)
 Internet Geographies at
 the Oxford Internet Institute
 2014
geography.oii.ox.ac.uk

data sources:
 ITU • itu.int
 World Bank • data.worldbank.org



Turkey censors both online and on the streets

BY HAUKE GIEROW



Freedom of the press in Turkey is being rapidly eroded. In 2016, the country slipped to 151st place, out of 180, on the Reporters Without Borders “World Press Freedom Index”—a significant downgrade. At the same time, the internet is also increasingly coming under the scrutiny of Turkish authorities.

In recent years, Turkish officials have repeatedly blocked online services. Social networks such as Facebook and Twitter have been shut down for several days or weeks, especially in connection to protests against plans to redesign Istanbul’s Gezi Park in 2013. In response, activists spray-painted the names of alternative Domain Name Servers on the sides of buildings in order to evade the censors.

The censorship in Turkey is based on the jurisdiction of local courts. That means that it is still not as pervasive and systematic as, for example, in China; so far, it usually remains in place for just a few days. In recent years, however, the number of blocked websites has increased significantly. After the coup attempt in the summer 2016, the repression within Turkish society has intensified. The URLs of several Western media sites have been blocked for years, and in the summer, courts specifically ordered websites to be censored that reported money laundering allegations against Erdoğan’s son Bilal.

The president himself uses social media

Social media has come under constant attack. Yet, ironically, it was President Erdoğan himself who appealed to citizens through social media during

the 2016 coup attempt, posting an interview he taped with state television on Facebook. Turkish internet providers were initially ordered to block all social media in the country, but were then instructed at the “urgent command” of the government to lift the blockade in order to allow Erdoğan’s supporters to mobilize on the streets.

In the days following the coup attempt, numerous websites run by journalistic organizations allegedly critical of the regime were blocked for days by government order. Reporters Without Borders (RSF) issued a strong indictment of this policy. According to Christian Mihr, RSF’s director in Germany, “Reporting that is critical of the government or sympathetic to the Gülen organization alone cannot serve as evidence of support for the coup. In the aftermath of the coup attempt, the Turkish government is still bound to act in accordance with the constitution, which guarantees freedom of opinion and of the press.”

The Redhack controversy

Another wave of censorship struck in October. An activist group called Redhack released around 17 gigabytes of data, including around 60,000 emails attributed to President Erdoğan’s son-in-law, Berat Albayrak. He has headed Turkey’s Ministry of Energy and Natural Resources since 2015, and has been accused of corruption and favouritism.

Because these leaks were not merely released over classic FTP servers, but shared on the programmer platform Github and via cloud services like Google Drive and Dropbox, the blocks ordered by Turkish telecommunications officials were far more comprehensive than on previous occasions. Businesses that relied on these services were also at risk of being affected by state censorship. Google Docs, however, proved more difficult to block than the other services, meaning access was only temporarily cut off.

The Turkish government’s repressive measures are not always of a digital kind—seven young men were arrested and accused of belonging to Redhack. One of them, Taylan Kulaçoğlu, reported that he was being beaten and threatened with rape during the 12 days he was held in police custody.

Negative consequences for the economy deemed an acceptable price to pay

Turkey is part of a larger trend in which states are increasingly willing to accept potentially negative economic consequences when deciding to impose policies of internet censorship. Previously, even in countries with more draconian censorship than Turkey, the censors spared business-related use of online services. In China, recent years have seen business versions of several popular services often functioning significantly better than the alternatives available to private customers. Google Apps for Work has encountered fewer problems than Gmail, where the majority of users are private customers. Foreign businesses regard internet

Businesses that relied on these services were also at risk of being affected by state censorship.

censorship as one of major drawbacks of doing business in China. However, the government in Beijing regards this as acceptable collateral damage in its quest for total information control. For employees of foreign firms in China, problems encountered sharing information or files with colleagues abroad often lead to major productivity losses. It will be interesting to see

how international businesses react to the changes underway in Turkey.

Turkey seems to be emulating China in other respects as well: in November, internet providers were ordered for the first time to block VPN connections. These networks divert user's internet traffic to a proxy IP address, usually located abroad, in order to evade censors. With the use of techniques such as "Deep Packet Inspection" (DPI), encrypted VPN traffic can be recognized in the flow of online data and separated from other internet traffic. Among the services affected by this block were popular alternatives such as Siphon, Hotspot Shield and VyprVPN. An attempt to block the anonymising network Tor was only partly successful, as its developers had anticipated attacks by censors in the programming stage.

Other countries have also failed to block Tor

A few years ago, the Russian authorities publicly put the task of blocking Tor to tender. This was apparently no easy task: the successful bidder, a research institute, is currently trying to withdraw from their contract with the government. Even if a government were able to block Tor traffic, users would still in theory be able to gain access by using so-called bridges. Bridges disguise themselves as other services when a connection is being established, thus evading recognition.

Nevertheless, the Turkish government is not restricting itself to technical means in efforts to control online content. In September, the authorities asked Twitter to block the account of Turkish journalist Mahir Zeynalov. Such blocking requests have been repeatedly submitted against Twitter-verified accounts. Faced with a wave of protest from NGOs worldwide, Twitter ultimately declined to comply with the request. Accounts belonging to alleged member of Redhack were also at least temporarily blocked.

Official requests such as these are a growing problem for major online services. In order to be subject to local jurisdiction, a web service need not even have a physical presence in the country in question; often it suffices that they sell advertisement space or deploy a user interface translated into the local language. If they do not

In Turkey, at the end of 2016, internet freedom is in serious danger.

act in accordance with the government, they are threatened with fines, imprisonment, or the total blocking of their service. In the past, Twitter has countered criticism by citing these concerns, arguing that it is better to accept a degree of censorship than risk allowing the service to be shut down completely.

In Turkey, at the end of 2016, internet freedom is in serious danger. All signs point in the same direction: more authoritarian interventions, more controls, and more human rights violations. How will the international community react? Will businesses and investors abandon Turkey? Will Western governments finally issue clear criticisms of Erdoğan? In the EU Parliament, calls for serious consequences regarding Turkey's membership bid are growing louder. ■



Photo: private

Hauke Gierow is a journalist with the online magazine Golem.de, specializing in IT-security. He previously worked for Reporters Without Borders and the Mercator Institute for China Studies (Merics), where he maintains a chair as Senior Policy Fellow. He studied Political Science and Sinology in Trier.

What happened online?

June 2016

1

01/06 At the Potsdam Security Conference, the President of the German Federal Office for Protection of the Constitution (Bundesamt für Verfassungsschutz), Hans-Georg Maaßen, warns of internet espionage and “the planting of digital time bombs”. He accuses Russia of “conscious manipulation” and “tendentious, or false, reporting”.

01/06 The German Federal Criminal Police Office (Bundeskriminalamt BKA) reports successes in the fight against dark net sales platforms. “We are able to conduct investigations on the internet, to recruit informants, to take over their platforms and to secure Bitcoins”, says BKA Vice President Henzler at the second Potsdam Security Conference.

2

02/06 Representatives of the EU and the USA conclude an agreement on data protection for transatlantic cooperation between prosecutors. The framework agreement should set the basis for data exchange and strengthen EU citizens’ rights. However, approval by the European Parliament is still required.

3

03/06 An employee of the Federal Office for the Protection of the Constitution (BfV) testifies to the NSA Investigation Committee that no geolocation-compatible telephone data has been handed to the USA. They say that a mobile telephone number alone is not sufficient for a targeted drone strike.

8

08/06 France releases an app at the start of the UEFA European Championship that can alert citizens to possible terror attacks. It was developed in response to the terror attacks of January and November 2015.

10

10/06 On the advice of security agencies, the Indian government forbids the American company Google from taking photographs for Google Street View. The 2008 Mumbai attackers are said to have used similar services to plan their attack.

10/06 Head of Deutsche Bahn Rüdiger Grube announces that self-driving trains will be in operation from 2023 at the latest. A test system is already in operation in the Erz Mountains. Because of differing train speeds, a self-driving national rail network is harder to implement than, for example, a self-driving metro rail system.

16

16/06 The Augsburg Administrative Court rules that a blog does not count as a media company, and its operators therefore do not have the right to press disclosure claims against authorities.

17

17/06 Germany's Bundestag (Federal Parliament) and the Bundesrat (Federal Assembly) pass a reform of the German Teleservices Act, in order to offer legal security to wireless network operators by protecting them against nuisance liability claims. Experts consider the law inadequate. It takes force at the end of July.

21

21/06 The Berlin Regional Court approves a claim by the Mannheim Reiss-Engelhorn Museum against the Wikimedia Foundation. The suit refers to the question of whether reproductions of works which are in the public domain are protected. Wikimedia has indicated that they mean to appeal the judgement and if necessary to pursue it through the institutions.

24

24/06 The "Law on Implementing Anti-Terror Measures" will be rushed through the Bundestag. It contains measures such as requiring proof of identity to obtain prepaid cards, greater exchange of information between the secret services and more undercover investigators. Critics have cited "questions of constitutionality".

29

29/06 The research lab Fraunhofer Institute, working with Deutsche Telecom, releases what they call "People's Encryption". This free software is designed to allow every private user the ability to implement end-to-end encryption of their email correspondence.



Will digitalization destroy our values?

BY SABINE LEUTHEUSSER-SCHNARRENBERGER

There is an ugly side to our brave new digital world. Arguments are all too often reduced to superficial slugging matches while the operators of social networking sites duck their social responsibilities. The time has come for a declaration of digital values.

Digitalization is entering a mature phase. Fascinating technological developments are shaping the 21st century in unforeseen ways, working their way deeper and deeper into numerous aspects of our lives. The internet's promise of freedom is evolving, through the advent of big data, the internet of things, artificial intelligence, the technological capacity to monitor all online actions, right down to phenomena like "love robots", into a threat to freedom, autonomy, morally responsible behaviour, free discussion, and thus to democracy.

The implications of this brave new digital world are no longer confined to the field of technology. The use of social media and countless smart labour-saving devices has led from clashes of liberties to contraventions of rights. What we need now is a broad public debate on the threats to and the defense of contested values, both online and offline. In Germany, fundamental rights are enshrined in our constitution; the right to a private life; freedom of speech and religion and freedom of the press are foundations of our democracy. They are also the basis of our understanding of citizens as autonomous individuals who are more than subjects of the state, but also who should not be left at the mercy of monopolies and market-leading companies.

At the European level, the Charter of Fundamental Rights of the EU guarantees these same rights, as do international conventions, such as, for example, the UN International Covenant on Civil and Political Rights. The problem is not a lack of rights, but rather a deficit in terms of observance and enforcement. This comes alongside a clear change in the culture of debate and political discussion online. This can lead, as we have seen in the American election, to people consciously resorting to insults, slurs and obscenity, to strong political polarization, and to the erosion of substantive, fact-based discussion. A healthy culture of debate, in which the other side is not seen as an enemy to be destroyed, is in real danger. The search for solutions to this impasse must proceed on two levels.

More consciousness of the value of debate

On the one hand, we need to create more awareness of the value of debate, to contrast this understanding with the culture of hate, and to establish a robust set of rules of fairness. The multitude of platform operators can and should support this debate, promote it and take part in it themselves. They have the ability to reach millions of people, more than any newspaper or parliamentary debate. Their

outsized role in public discourse must be accompanied by greater reflection upon their attendant responsibilities. They have long outgrown the status of mere technical providers.

If democracy is simply seen as a meddling bureaucratic leviathan, to which one's own views of what people "really" want are contrasted, then we are in genuinely dangerous territory. Such views can be heard loud and clear from Silicon Valley; they betray authoritarian tendencies which have to be exposed.

On the other hand it is necessary to find ways of holding to account those who are responsible for online abuses including criminal insults, vile slander and incitement. The current debate surrounding hate speech in social media is a prime example. Online people are bullied with insulting and hateful tweets or postings, mostly anonymously, because they have particular opinions or behaviours, and their rights to identity and dignity are abused. The worst examples of this are bound up with racist, xenophobic, homophobic and misogynistic behaviours.

It is the responsibility of global IT companies not to look the other way or to buy full-page adverts touting panaceas for such criminal communications, but to actually do something about them. If, as an investigation has found, only 1 percent of posts that are

subject to complaints are deleted on Twitter, 10 percent on Youtube and 46 percent on Facebook, that is not enough.

Irresponsibility no longer an option

Appeals to different legal cultures in the extent of free speech within and outside Europe do not hold up: companies operating in Germany or Europe must abide by the regulations which apply there. If the regulations are not sufficiently clear, resulting in lengthy, obstructive litigation, that means that in this sector more explicit legislation is required, such as the European General Data Protection Regulation. On the other hand, we cannot be silent about offenses against human rights just because they affect a country where we don't do much business. Turning a blind eye to our responsibility to help uphold rights is no longer acceptable.

Algorithms decide more and more—how can we control them?

Do we need stronger transparency when it comes to algorithms' technical details? Currently they are protected as commercial secrets of IT giants under Germany's constitution. Therefore, there cannot be any general public access to the inner workings of proprietary algorithms, but maybe it is possible to enforce limited access in cases of suspected manipulation? These are difficult questions and they go to the heart of digital development: they deserve a far more thorough hearing in public discussion.

Such questions involve the fundamental freedoms of all users. They are also key to issues of online political debate. For a long time, opaque algorithms have structured the newsfeeds of platform operators and sorted search results. Content is filtered

according to criteria only known to the algorithms.

After a recent investigation carried out by the American Pew Research Center, a Washington-based polling company, half of all Americans under 35 see Facebook as their most important source of news. With software robots—known as Twitter bots—news stories can be planted online in order to drown out or prettify contradictory reporting in mainstream media.

With 22 million people using Facebook every day in Germany, and with Google's market share of search enquiries reaching 90 percent for Germany, these company's influence on public opinion should not be underestimated. Whichever gatekeeper is in a position to decide what content users can read and in what order they read it will have an ever-greater influence on familiarity and popularity amongst voters. They can be tasked with the direct mobilization of particular groups of voters, as the companies have all the relevant information they need to tailor their message around someone's likely voting behaviour; they can see which sites users "like", information about someone's home, their circle of friends, age and preferences.

What is even more fundamental is the question of whether algorithms can become capable of making ethical choices, whether robots with a conscience are possible and whether ethical conflicts can be programmed out of existence. These questions are brought into relief with the development of self-driving cars. Human drivers make decisions while driving intuitively. With self-driving cars, these impulsive decisions—which will be written into the program—will be made by technical means. That gets to the heart of the matter. In difficult situations, should the self-driving car run over the child or the grandfather; the job-seeker or the manager; two or three people or nobody, thereby endangering the passengers themselves? Is the axiom that human lives cannot be weighed against one another true? If it is, and if it

cannot be ruled out that these kinds of decisions will come up for self-driving vehicles, then we will find ourselves in a confounding ethical dilemma.

If this dilemma proves to be insoluble, as is currently the case, then technology will have encountered a clear limit. Where there is any doubt, such decisions cannot be left to machines. Leaving moral decisions to a technical system can also change the expectations that we hold of morality, guilt and responsibility. "It's the machine's fault, sorry": can that really be the end of the matter?

The developments which have been made in intelligent systems have reached the point where they pose ever more starkly major questions of human versus machine and technology versus values. The order of priorities should be clear: morals and ethics cannot be replaced by technology, no matter how advanced this technology may be. ■

What we need now is a broad public debate on the threats to and the defense of contested values, both online and offline.



Photo: Tobias Koch

Sabine Leutheusser-Schnarrenberger was Federal Justice Minister of Germany from 1992 to 1996 and from 2009 to 2013. As a member of the Parliamentary Assembly of the Council of Europe she was also a member of the Committee for Law and Human Rights from 2003 to 2009.

ALLE MENSCHEN SIND FREI UND GLEICH
AN WÜRDE UND RECHTEN GEBOREN.
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GEISTE DER BRÜDERLICHKEIT BEGEGNEN.
ART.1 DER ALLGEMEINEN ERKLÄRUNG DER MENSCHENRECHTE.

What have algorithms got to do with human rights?

INTERVIEW WITH BEN WAGNER

More and more areas of our life are being influenced or even controlled by algorithms. There is often little transparency regarding how these algorithms work, what they do, or who creates them. The political researcher Ben Wagner finds this disconcerting.

iRights.Media: Mr. Wagner, algorithms and human rights? What is the connection?

Ben Wagner: In our society, we are surrounded by objects which only work in conjunction with an internet connection and an automated process going on in the background. There are many examples which show that algorithms are deeply embedded in people's lives, from decisions over loans from the bank to automated systems in public administration, or in road traffic. In terms of their everyday ubiquity, we have to ask where algorithms might affect our basic rights, and whether an automated decision-making process

can even meet the requirements of human rights.

What human rights could be affected?

An example is our right to free speech. Whether or not that is honoured in various cases depends upon algorithmic decisions. If an online platform like Facebook or Youtube removes content, currently a part of the process that decides whether or not it should be taken down is automated. But it is not clear what is going on in the automatic part of the process, or at which point a human gets involved and decides what will or will not be deleted. By implication this can lead to a situation whereby, when content is reported which violates someone's

that their private data is being X-rayed like that. So that presents a problem for the right to privacy. And in cases of copyright infringements, sometimes content can be automatically deleted. That means the data is just taken away, and when the user asks what has happened, they will receive the brusque response: "The algorithm said that the data was illegal."

The automated processing of private data is above all problematic when users are not aware of what is happening. They should be fully aware and have control over what is done with their data. We need a debate across society that can help define in which cases such processes create a massive problem for guaranteeing human rights.

And this debate is a first step towards solving the problems you describe?

Yes. Yet at the same time, algorithms would pose a challenge here as well. We know that our collective discussions can be impaired by various automated processes. Elections are a current and relevant example. On the one hand, algorithms permit selected people from certain target groups to receive online adverts prompting them to go and vote—and these ads can target thousands of people. If this is only aimed at members of a particular party, and not to people of a different point of view, the outcome of a vote can be substantially influenced. On the other hand, there are so-called "social bots". These are systems which are active on social media platforms where they are taken for real people. These bots engage in election-related debates with a slew of automated statements, and it is not clear who is behind them or even that the bot is not a real person. Where social bots are used in large numbers, this can also affect the outcome of an election. There should be no market for services of this kind. If individual actors become so

The automated processing of private data is above all problematic when users are not aware of what is happening. They should be fully aware and have control over what is done with their data.

rights, because, for example, it incites violence against them, one cannot be sure whether a human will deal with the complaint. This then is not just about freedom of speech, but also the processes which permit or obstruct the exercise of this right.

Are there other examples?

Another area where there are big problems is our private sphere. If I upload some content to a server somewhere in the world, I would like to imagine that it doesn't exist anywhere in particular—but actually it is just in somebody else's computer. In the so-called Cloud, algorithms are used to analyze my data, to find out whether, for example, it contains content which violates copyright. The users of Cloud services are mostly simply not aware

powerful that they can use algorithms to influence elections, then that is a problem for the sovereignty of the democratic process.

You have identified problems for freedom of speech, privacy and democratic debate. How can these challenges be met?

For all these aspects, there is a fundamental need for transparency: so that we are able to recognize and assess where possible problems might arise. That does not mean, however, that all algorithm developers should make their work public. We need context-dependent transparency. If someone is an especially powerful actor, they also have to be especially transparent; the effects of the algorithms they are using are of particular significance for individuals and our society at large. Some powerful actors should not be subject to the same transparency requirements. For example, researchers and innovators should not find their freedom to try out new applications limited. It would be helpful to have a system of classification that dealt with the responsibilities of different actors, and in cases where violations of human rights are possible, or even likely, we should be able to get a closer look.

How might that work?

If decisions have a particular relevance for the affected parties, then it is no longer adequate to say, in a general sense, “such-and-such a percent of our decisions will be affected in such-and-such a way”. A whole section of the decision-making process should be presented publicly and comprehensibly. This should make the role of automated systems very clear. But nevertheless, it is hard to answer this question in general terms, because there are so many different situations in which algorithms are used. For example, one naturally has to look at

where transparency would be most helpful. Where advertising bots are used in an election, an obligation to mark them would make sense. In other cases, transparency can actually be counter-productive. So, a spam-filter whose algorithm and mode of functioning was publicly available would

We need context-dependent transparency. If someone is an especially powerful actor, they also have to be especially transparent; the effects of the algorithms they are using are of particular significance for individuals and our society at large.

be easy to get around, because people who send spam would be able to have a detailed look at the filter criteria. So you always have to bear the context in mind. In general, and in the realm of human rights in particular, algorithms and automation are creating new challenges, to which we need to respond in new, appropriate ways. ■

Interview by Eike Gräf.



Photo: Moa Nilsson

Dr Ben Wagner is a social and political scientist. He is the Director of the Centre of Internet & Human Rights (CIHR) at the European University of Viadrina in Frankfurt (Oder). In his research work, he concentrates on changes in communication, digital rights and the role of the internet in foreign policy.

An internet of self-determination, diversity and participation

INTERVIEW WITH HEIKO MAAS

The central figure in the internet is not algorithms, it is the human being. The German Federal Minister for Justice and Consumer Protection Heiko Maas stands for the constitution and its foundational principle of the individual as the model for our activity—including in the digital world.

iRights.Media: Digital tools and applications govern our everyday life. That means that everything that we write online is no longer private, and neither are the websites we visit. Service providers read over our shoulders, and telecommunications firms save our connections. How can the right to information autonomy and the private sphere be protected?

Heiko Maas: The individual's digital footprint is getting bigger every day. Profiles are becoming more and more precise. Given the many ways in which it is possible to trace connections between data points, it is constantly becoming harder to anonymize data. This is also shown by the recent revelation that the supposedly secure browsing of millions of internet users was being tracked by means of their browser plug-ins.

Every individual has the right to determine their own digital

identity—a basic right, guaranteed in the German constitution and in the Fundamental Rights Charter of the European Union. Only those who consciously and freely choose to permit their data to be processed, and who are informed of every instance of their data being processed, possess digital sovereignty. The interminable data protection statements which are commonly found today are far from meeting this standard.

The General Data Protection Regulation, which will enter into force in May 2018, is a major step in the direction of effective data protection. It finally introduces unified standards for everyone who offers products and services on the European market. It strengthens transparency and the rights of affected parties vis-a-vis data processors, and includes the right to be forgotten and the right to data portability. And it ensures that future breaches of data protection could be





very costly—with fines of up to four percent of a company’s annual operating turnover. I am confident that the General Data Protection Regulation will ensure a more careful usage of data and a stronger implementation of data protection.

Do you think that proprietary rights over one’s own data are a good idea? What data should people own?

The discussion among experts surrounding data ownership is very lively

Every individual has the right to determine their own digital identity—a basic right, guaranteed in the German constitution and in the Fundamental Rights Charter of the European Union.



Photo: Werner Schuering

Heiko Maas, born in 1966, studied Law at the University of Saarland where he also passed his bar examination. In 1994 he was first elected to the parliament of the state of Saarland. In 1996 he became the Secretary of State and from 1998 to 1999 was the Saarland Minister for the Environment, Energy and Transport. In 2012 he became the Saarland Minister for the Economy, Work, Energy and Transport. Since 17 December 2013 he has been the Minister for Justice and Consumer Protection for the Federal Republic of Germany.

and I follow it closely. Whether it will wind up compelling legislators to take action is not yet clear. The German Data Protection Act already ensures that everyone is in principle able to decide who should be able to process what data about them and for what ends. The individual instruments already exist to prevent others from using your data in a way that abuses your rights. But of course ownership here is not to be understood in the sense of an exclusive right: personal information is, as the Federal Constitutional Court has it, a “reflection of social reality”. They exist in a state of tension between one person’s defense of their identity, and another person’s freedom to information, or economic freedom.

Our online environment is often adapted to our data profile, without our understanding how this adaptation works. That means personalized search results, personalized advertising, personalized video content.

Should personalization be done away with, in order to stop our online behaviour being determined by others?

On the one hand, personalization of offers and information can offer advantages for users. Information and offers can be made more efficient and user-friendly; the amount of information required from individual users can be reduced. On the other hand, substantial information asymmetry can be exploited, and the market is becoming less and less transparent. The personalization of our online environment is less problematic if, as a user, I can recognize it, check it, control it and even opt to switch it off.

Personalization should not put the consumer at a disadvantage, in particular in terms of discrimination, manipulation and reduction of one’s freedom of choice. For me, these are also questions of data protection and competition law. But nevertheless we have to discuss how to build a firmer base for online autonomy. Internet users must not find their freedom to act and choose impaired; transparency and freedom of choice are key—and that means to have the option of turning off personalization.

Algorithm-based decisions are playing a bigger and bigger role in all possible areas—learning software, transport management, advertising and so on. Which algorithms are important from the consumer’s point of view? What challenges do you see them creating?

Algorithms are very much a component part of the digital world: our networked world would hardly be imaginable without them. Algorithms are no diabolical invention, but in certain contexts they can have a great influence in all of our lives, and many people today are not aware of what that means. If someone is manipulated or discriminated against by algorithms on the basis of their data,

they are experiencing the dark side of digitalization.

For me, there are clear limits for automated decisions. Anything else would lead to a situation where we allowed ourselves to be reduced to the status of subjects of data processing. In particular it must be ensured that data protection laws are upheld; that the appropriate data is used and that the logic of the algorithm really is appropriate to its stated aims. In addition, comprehensive information on the algorithm and its effects for the user is important.

For me, the cohesion and the pluralism of society are thrown into question if algorithms alone are able to decide what deals we receive, what we can see online, who is right for us, what is good for us, and what price we should pay for it. That is not my vision of our digital future. I want to see an internet of self-determination, diversity and participation. Algorithms will have to serve that end. I have thus been vocal in demanding a digital system of values, and I have raised the possibility of an algorithm inspection procedure. We will continue to develop this theme.

Analysis of big data promises to yield knowledge that could facilitate better decision-making in different areas, including public administration. What legislative requirements in terms of transparency, etc. are necessary?

To me, in light of the many real and long-standing threats to our freedom, an open discussion of the ethical aspects of digitalization in connection with big data and profiling is very important. But certain internet actors have no interest in such a discussion because they fear for their business model and their power and influence. That is why they shy away from transparency, which is a basic precondition for any critical dialogue.

Personalization should not put the consumer at a disadvantage, in particular in terms of discrimination, manipulation and reduction of one's freedom of choice.

Today, our rights to data protection demand this transparency—but so far only on paper. As before, a lot is still going on in the shadows, or hedged around in intricate data protection declarations. The variety of offers on the internet is increasing every day—but unfortunately the same cannot be said for its transparency. This discrepancy is something we will need to quickly overcome, because it is not acceptable for such a distance to open up between the promise and the reality of the internet. There are suggestions on the table about how to deal with this. I am ready for a discussion.

In terms of state decisions which are based on big data analysis: the suggestion that state decisions should be supported by such analysis simply reflects the general legal principle that administrative decisions must always be justified. But there follows an even more important question: how far do we want to, and how far can we, leave decisions to machines? I think that a negative decision cannot be made by software alone. That goes especially for state decisions. A correct decision has to be more than just efficient, it has to be just. This is a question of democratic legitimacy, comprehensibility, and protection of rights.

Digitalization is opening up new possibilities for humanity, including autonomous weapons systems or self-driving cars, in which digital technology can make life-or-death decisions. What ethical questions do you think will become important in the near future?

The extreme speed of development of new digital technologies and techniques will lead to questions in the future which we currently can't even imagine. We will have to face up to them. But we have a good structure in our constitution, and the idea of humanity which underpins it, with which to address future ethical questions arising from technical developments. Article 1 of the German constitution says that human dignity shall be inviolable. This also means that a human cannot be reduced to a mere object. Machines have no inherent ethics and feel no empathy. That is why we cannot leave decisions over life and death to machines. In the ministry I had we have a dedicated project group where we discuss these ethical questions connected to automated driving, criminal responsibility and civil liability. ■

Interview by Philipp Otto.



Missed opportunities, half-hearted solutions

BY HALINA WAWZYNIAK

No real progress is being made on digital policy in Germany; one reason for this is the constant infighting within the Federal Government. More coordination is urgently needed, argues Halina Wawzniak of the party Die Linke.

In Germany, 2016 was another year of missed opportunities for policy-makers grappling with digitalization. The Federal Government could be accused of a genuine lack of effort on this front. But effort alone is also not sufficient. There are three important areas where we have seen no progress.

Example 1: liability. The coalition agreement promised to address the injustice of open wireless network operators being held liable for the criminal acts of others committed over their networks. It took three years for the coalition to agree on a law, which even then only halfway solved the problem. Operators of open wireless networks were included under liability exemptions in Paragraph 8, but the key point, injunctive relief, was not addressed. This means that rights holders can require a guarantee from offenders that they will refrain from illegal acts. If they cannot prevent such acts, they become liable. This is a particular risk factor for wireless network providers. For years, Die Linke has demanded that release from liability for wireless network providers be extended to injunctive relief.

Example 2: copyright law. In 2002, an effort was made to address the imbalance of power between copyright holders and users—without success. Federal Justice Minister Heiko Maas proposed a bill with several good features, such as a right of revocation for copyright holders after five years,

but it was torn to shreds by the Federal Government, and what was left could hardly be seen as strengthening copyright holders' rights. The right of revocation after five years was transformed into a secondary publication right after ten years. So many exceptions were written into the final draft that those sectors particularly affected by precarious work were simply excluded from it. The publishing lobby had a field day. It is currently unclear, as of 10 November 2016, where things stand. The coalition parties, CDU and SPD, prefer to fight amongst themselves instead of finally helping copyright holders.

Example 3: broadband expansion. This year has also seen no real progress toward achieving the overly modest goal of extensive broadband connections with a connection speed of more than 50 Mbit/second. Instead, the Federal Government's broadband support program mainly caters to big companies like Deutsche Telekom, and supports the use of outmoded technologies instead of fibre optics. Then Federal Minister for Economic Affairs and Energy, Sigmar Gabriel (SPD), was not impressed either: his ministry summarily issued its own Digital Agenda, and some have been calling it an SPD election manifesto. Gabriel opposed, amongst other things, his colleague Alexander Dobrindt's (CDU) broadband agenda, but ultimately, this represents little more than jostling for authority.

These constant fights within the coalition over turf and jurisdiction are a reason why no progress is being made on digitalization. Digitalization must be given proper consideration in the work of all ministries, but we don't need 14 Ministers for Digitalization. A co-ordinating role in the form of a state secretary for digitalization is something that the new legislative period must introduce as a matter of urgency. ■



Photo: J. Mittenzwey

Halina Wawzniak was born in 1973 in Königs Wusterhausen. She is a lawyer and was the Deputy Chair of the German party Die Linke (The Left) from 2008 to 2012. From 2005 to 2009 she was legal advisor to the Die Linke parliamentary group. Since 2009 she has been a member of the German Bundestag. Now she is the speaker on legal and internet policy for the Die Linke parliamentary group and a member of the Committee for Law and Consumer Protection and the Chair of the Left in the Digital Agenda Committee.

Digital policy decisions: Fail!

BY KONSTANTIN VON NOTZ

Like never before, Germany's federal government is in need of a unified and up-to-date internet policy. Thus far, it has proven unable to rise to the challenge. What follows is a plea for a solution to the nation's digital plight.



Shaping digitalization is without a doubt the greatest political and social task of the 21st century. Internet policy has long ceased to be a niche topic for a few nerds. In parliament, hardly a day goes by without discussion of digital policy issues, often across many committees at once. The forces that digitalization and the internet have summoned are disruptive: they are effecting a massive transformation of our society, and rendering old certainties and shared assumptions void.

In 2016, acknowledging these realities is a banality. But the German federal government has still not recognized the necessity of active political intervention to guide this change in our society. Everyone is tending their own internet policy garden. Even at this year's IT summit, the whole cabinet will be present. Nobody is really in charge, and a coherent digital strategy is still not being pursued.

Digital policy decisions blocked for years

Inconsistencies abound in the approach thus far taken by our government. Ministers are working against, rather than with, each other, blocking and delaying digital policy decisions for years on end. Going through a single point of contact? Not with this government. When internet policy actually is shaped, then it is on the terms of big companies, not of users, keyword vectoring, intellectual property or net neutrality. As unbelievable as it may sound, there is a seriously attempt underway to create a renaissance in copper wire, and a totally misguided German law that helps no one is now being pushed on the European level with the help of Günter Oettinger. The most basic principle of the internet has been consciously sold out, in order to be able to impose meaningless sanctions for offenses committed online in Germany.

Whether it is the failure to create legal security regarding liability for

interference, the urgent need for new expertise regarding copyright, or the overdue proposal for an Open Data Law—there is still no sign of the legislation and leadership which has been promised for years. From data protection to the fight against clearly crimi-

nal speech online, businesses which persist in ignoring clear German and European legal directives are only sanctioned with public statements by government declaring one unenforceable deadline after another, the only effect of which is to inspire derision.

The wrong kind of business applications

First there was an attempt to water down the EU Data Protection Reform; now it is simply not being implemented. Instead of finally rolling up their sleeves and protecting citizens' basic rights, politicians prefer to undermine legal standards such as the principle of data economy which were the fruit of decades of hard struggle. Whether the electronic proof of income ELENA, the electronic ID card, or De-Mail, the failure of almost all major government IT initiatives has still not inspired any serious rethinking. Still precisely the wrong kind of business applications are being implemented on the basis of inadequate IT security standards. Still nobody seems to have realised that innovative data protection could be an important locational advantage.

Ultimately, the secret service is being let off the hook for massive illegal surveillance. Wiretapping between friends and allies is proceeding apace.

Supervisory structures are consciously not being strengthened, and parliamentary control is being increasingly rendered impossible. All of this is a political choice. The many opportunities presented by digitalization are being overlooked. Trust in the most

Still nobody seems to have realized that innovative data protection could be an important locational advantage.

important infrastructure of our times just isn't there.

Based on the present outlook, we can only hope that in 2017 a federal government will be elected that recognizes all this and does a much better job in bundling powers and streamlining authority, while actively intervening to ensure that the digital revolution is shaped actively and politically, in the interests of citizens and users. We need a government that takes on the many ethical questions posed by the internet and digitalization, and understands that if we do not do our utmost to defend hard-won basic legal standards on the internet, we will soon lose them elsewhere. Time is pressing. ■

Dr Konstantin von Notz is the deputy chair of the parliamentary group for the Green party in the German parliament and their speaker for internet policy. He is a member of the Internal Committee and Chair of the "Digital Agenda" Committee and the 1st Parliamentary Investigation Committee of the 18th legislative period ("NSA Committee").



Digitalization is like the industrial revolution

INTERVIEW WITH CHRISTIAN LINDNER

Germany's digital infrastructure trails behind that of other countries: citizens cannot manage their affairs digitally; schools are stuck in a stone age of blackboards and chalk. Christian Lindner, chairman of the German liberal party FDP, sees much room for improvement.

iRights.Media: Mr. Lindner, as Chair of the FDP, when you look at the digital policy of the federal government, how would you evaluate developments in recent years? Are you satisfied?

Christian Lindner: The government underestimates the digital transformation underway. We are witnessing a thorough change in economy and society. But current digital policy is far too restrained, there is no overarching strategy. In Germany, we are still using cables instead of fibre optics. The public administration is still working with paper, instead of at last modernising and becoming more efficient.

Where do you see the greatest need for action?

Above all, in digital infrastructure: we are below average in terms of the rest of Europe on this issue. While other countries are investing billions in fibre optics, we are doing nothing.

Instead, we are making one single company, Telecom, the monopolist provider in 8,000 locations. They are still using copper cables instead of the faster fibre optics. We urgently need investment in fibre optic infrastructure that runs into double-digit billions. Otherwise we will still be average in the next decade too.

How can we boost construction of fibre optic networks?

My proposal would be to privatize the German public postal service Deutsche Post AG, sell the state's shares in it. It is already a publicly-traded company. That would bring in a good eight billion Euros, which could then be invested in digital infrastructure, in particular in the countryside where the market can't provide.

In Germany and in Europe, there is a lot of debate surrounding the power of internet companies like Google or

Facebook. Should internet platforms be more tightly regulated?

The user has to be at the centre of the discussion. Part of the reason that platforms are so powerful is because users can no longer make their own decisions about how their personal data is used. That has to change; every individual user must recover their sovereignty over their own data, so that their hand is strengthened against that of the platforms. The same applies to the relationship between commercial enterprises. Having a social market economy means that no player can become so strong as to be able to dictate the rules of the game to others. In the platform economy, the big players like Google, Facebook, Amazon, Apple and the rest are able to do just that. That is why state regulatory authorities like the cartel office need to be properly equipped. And we have to ensure that the legal framework is adequate. We must ensure that platforms do not exploit their market

power to obstruct competition with other companies.

An important topic over the last year online was intellectual copyright for newspaper and magazine publishers. Some forecast the end of the internet, others, the end of journalism. How do you see the issue?

Although this might be an unpopular thing to say: I am of the view that intellectual property should be protected just as much as physical property. And I question whether business models that rely on using and marketing content created by others without asking them should really be tolerated. That is the core of the debate. The ancillary copyright for press products which we have introduced in Germany is not working as many would have liked. Thus it hardly seems sensible to transfer this model to the European level. But we should have a calm debate over how Google and other aggregators use third-party content. In the end, a European regulation should prevail within the framework of a digital European internal market.

Do you have any suggestions as to how new ideas can be brought to bear on the topic?

From my point of view, all participants should get back to the drawing board and think about how to provide a fair balance between their various interests. The agreement reached in 2016 between Youtube and GEMA shows that this is possible. If it works in the music sector it should also work for publishers on the one hand and Google et al. on the other. In the end there has to be a solution that provides full freedom to content users. We do not want to ban people from linking to other content. On the contrary, that creates new knowledge. But on the other hand, the providers of digital content have to be able to finance

their work—otherwise there will be nothing to link to.

In terms of social networks, Facebook is criticized in particular because it appears to be allowing free rein to hateful comments. Do we need stronger rules against hate speech?

There is a problem with the Federal Government. It seems to want to intervene more and more in what Facebook does. I am wary of this. The current regulatory framework is generally adequate; it should be used consistently.

Digitalization of public administration is an important topic. Most official procedures still have to be done with by citizens in person. What should be done here?

Many requirements and procedures don't fit digital processes. Financial agreements, for example, for reasons of bank oversight, have to be signed on paper. That is a major impediment for startups in this sector, the so-called Fintechs. Why is there no video identification here, which is even more secure than a signature? It is harder to fake a video of me saying a particular phrase than a signature. There are many, many hurdles and administrative regulations which could be changed.

Why is change in administration so slow?

My suspicion is that digitalization-related initiatives are moving at a snail's pace in the current administration because responsibilities are distributed in different places. There is no one who sees digitalization as their key role. I believe that bundling the powers into one role could help speed up change. Also, the public administration must invest in modernising its technology. Naturally, that costs money, naturally the process must be given careful

consideration—but in the long run, inaction will cost more.

In terms of digitalization, where do you see the FDP's focus lying, in comparison to other parties?

For us, digitalization has enormously far-reaching consequences—comparable with the industrial revolution. It is a huge opportunity for improving productivity and social participation. That is why for us, digitalization is a central theme. We were the only party to dedicate a whole party conference to digitalization in the previous year. We called it "Betarepublik".

To take an example: if you want to talk about education policy, you have to talk about digitalization. That is because it is the lever for more individual development. Schools have to come out of the blackboard era. The program of the current Federal Minister for Education and Research, Johanna Wanka, is too conservative. Above all it omits a reform of responsibilities on the federal states in Germany. If we want digital modernization, you can't reinvent the wheel sixteen times over for each state. ■

Interview by Philip Otto.



Photo: Benjamin Zibner

Christian Lindner is the Federal Chair of the Free Democrat Party (FDP) and Chair of the FDP parliamentary group in the state of North Rhine-Westphalia (NRW). Since 2012 he is a member of the NRW state parliament and the chair of the NRW national association of the FDP. In 2013, after the FDP was voted out of the German parliament, Lindner was elected Federal Chair of the party.

We need more European standards

INTERVIEW WITH JAN PHILIPP ALBRECHT

Status update from Brussels: the European Commission identified clear policy priorities regarding digitalization for the year 2016. But there are still no Europe-wide security and liability standards. A look back with mixed feelings at the year in internet politics in Brussels.



iRights.Media: What events and development were particularly important for EU digitalization policy in 2016?

Jan Philipp Albrecht: First of all, this year saw the passage of a major digitalization-related legislative project in the form of the General Data Protection Regulation. In addition, the European Commission presented a whole package of proposed regulation for the internal digital market, including, for example, contractual conditions for digital content and the locking of content when one is abroad, known as geolocking. The various policy processes within this package are all at very different stages.

What does that mean exactly?

Some proposals don't exist at all yet; the Commission has only hinted at them in communications papers. Analysis is ongoing, looking at how platform regulation fits into the whole picture. In the other cases, the Commission has already proposed some laws, such as, for example, a reform of copyright laws. This means that the Commission has made a proposal and the European Parliament and the EU Council of Ministers will now start debating it. In addition, there are also projects which have already been in the works for a long time and so now are already at the stage of being passed into law. For example, at the start of the year we agreed on a network and information security directive.

Is that a result of Juncker's statement that digitalization would be made one of the priorities of his administration?

Yes, it must be said that the Commission has absolutely promoted digitalization as one of its priorities. Legislative procedures are being followed with more vigour than was previously the case. That need not necessarily show in the number of proposals, but new proposals are being pursued more intensively and with more energy and staff.

Are you satisfied overall with the Commission's work?

I would say that it is rather patchy. There are areas where the Commission has done a lot and is on the right track, for example data protection, competition regulation or copyright, and in particular contractual law in the digital sector. But then there are areas where the commission has made proposals for legislation which are inadequate, or where they just refuse to draw up proposals at all.

In which areas are the proposals insufficient, and why?

This is the case, for example, when it comes to copyright, or IT security. The directive on security only refers to sensitive infrastructure such as airports or water supply. That is far too little: we need general product security in this area too, new standards and legislation on liability.

And where, in your view, are there simply no proposals from the Commission at all?

On platform regulation, the Commission is almost saying that there is no need for it to act. That totally contradicts reality! The Commission is relying here on self-regulation and sparse recommendations for action. Likewise for health apps, where all that is in the works is a general recommendation for protection of health data: that is far too little, the Commission must deliver a lot more.

Why this reticence?

On the one hand, the Commission has prioritized less—but better regulations. On the other hand, the industry lobby, in particular for bigger and older branches of industry, is still taking an incredibly hard line against any regulation. That is something which, for this sector, I think is not right, because we have to catch up on a

lot of things which we have missed in recent years.

What have we missed?

For example, we have missed the fact that we need new European standards in the realm of digitalization, because else 28 different standards will be applied across the member states, which will all go against each other. One example is the absurd behaviour of Federal Minister for Transport Dobrindt, when it comes to driverless cars. If Germany were to regulate the market for driverless cars on its own, you would have to stop your car at the borders of Poland, Denmark, France or Germany. That such an inappropriate opposition against European

big countries like Germany block or hinder them, then the whole process is held up. One would hope that a country like Germany would be a driving force in shaping digitalization. But the ministers responsible for digitalization, de Maizière, Dobrindt and Gabriel are only concerned for themselves and just want to discuss German regulatory proposals, instead of promoting rational EU-wide regulation.

Are there other member states where you see constructive steps being taken, for example on platform regulation, which you have mentioned?

Yes. There are initiatives on platform regulation, for example, in the

Mr. Oettinger, and clearly told them that there could only be very limited criteria for exceptions to net neutrality, with demanding requirements. That was a good surprise. It was also surprising for me that the Competition Commissioner Vestager, for whom digitalization is by no means a core responsibility, nevertheless gave an important push towards regulating businesses in the digital realm. She was very ambitious, in particular, about promoting platform regulation.

What else was important in 2016? What remains important for 2017?

The debates about internal security and the fight against terror, but also hate crime and dangers online, received a lot of attention. There needs to be more discussion here at the European level. It is important that we combine our freedom online, and in particular our freedom from surveillance and censorship, with effective law enforcement: especially when it comes to crime and terrorism. I am certain that this will remain a topic of discussion in which I myself will also be very heavily involved. ■

Interview by Eike Gräf.

On the one hand, the Commission has prioritized less—but better regulations. On the other hand, the industry lobby, in particular for bigger and older branches of industry, is still taking an incredibly hard line against any regulation.

regulations is accepted is down to the fact that the EU Commissioner Günther Oettinger is taking lobby interests at face value. For me it is clear that the biggest stumbling block for innovation and growth in this area is a lack of valid security and liability standards.

What role are EU member states playing here? Are you also unhappy with them?

Yes. It is absolutely clear that the European Commission and the legislators, i.e. the European Parliament and the Council of Ministers, can only do as much as national governments are prepared to let them. And when

Netherlands and in France. Their governments and parliaments are in a lot of areas much more active than the European Parliament and Commission. There is a similar exchange between countries like Denmark, Estonia, Iceland and Finland. It is also much clearer for smaller countries that it is not possible to impose national standards, and that instead one must proceed within the market regulatory context of the European market.

What surprised you in 2016 in terms of European internet policy?

It was surprising to see that the European internet regulators warned the Commission, and in particular



Photo: Fritz Schumann

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Cautious steps into the minefield

BY JOERG HEIDRICH

Neither German nor European legislators appeared to have the stomach for seriously tackling the issue of copyright law in 2016. Individual points were taken on, but a solution in the round remained elusive.

The hardest blow for copyright law this year was, at least from the perspective of rights holders in the music or film industry, the transfer of the European Commissioner for Digital Economy and Society, Günther Oettinger, to the budgetary department. The only people perhaps more affected by the move will be publishers' lobbyists. While Oettinger was still closely linked to these interests, he was wont to portray citizens or representatives of the information society as "pirates who want to get everything for free", who wanted to "take up with the big capitalists of Silicon Valley" in order to "maximize their profits".

Oettinger has left a beautifully-packaged departure gift to those groups whose interests he represented, in the form of a bill, brought forward

in September, to reform European copyright law. This rather summary regulation effort targets three areas: that citizens should have “better choice and access to content online and across borders”. Concretely, citizens should be encouraged to “to discover TV and radio programmes from other European countries, and keep in touch with their home countries when living in another member state”.

Attacks on the internet

Alongside this doubtless visionary slogan of “More TV for all!”, a “fairer and sustainable marketplace for creators, the creative industries and the press”

Not only civil liberties and data privacy campaigners but also consumer rights’ groups are arguing against such a filter model. This would “cement the power of big companies” which already have access to such technology.



Photo: Michael Würdemann

Joerg Heidrich is a legal advisor and a data protection contractor for Heise Medien (c’t, iX, heise online) and is active as a specialist attorney in IT law in Hanover. Since 1997 he has worked on questions of internet and media law. Heidrich is an educator, the author of many specialist publications, and an advisor on aspects of IT and copyright law.

is to be created. The heading is already interesting: it would indeed be laudable and worthwhile to create a fair market for all, and “all” here would presumably include consumers. But the aim is exclusively to “reinforce the position of rights holders”, for instance in negotiations with video-sharing platforms “such as Youtube”.

This indicates that content providers, who provide copyright-protected material on a large scale, would be obliged to implement filtering systems. The rights holders can then decide on this basis whether they want to permit the free use of this content, or demand a deletion. Youtube already operates such a program with its “content ID” system. Almost all content providers—the commission’s definition is very broad—must have such a filter option

so that their content can be searched and purged by rights holders.

Not only civil liberties and data privacy campaigners but also consumer rights’ groups are arguing against such a filter model. This would “cement the power of big companies” which already have access to such technology. On the other hand, startups would face almost insoluble problems. Moreover there is the danger that perfectly legal content would be filtered out.

What may well prove to be at least as devastating for internet freedom, according to experts across all major publishers, is the introduction of an ancillary copyright protection for newspaper and magazine publishers that forms part of Oettinger’s copyright reform. The fact that this model has already failed quite startlingly in Spain and Germany appears not to have given the Commissioner so much as a moment’s pause.

Back to the photocopier

The third point on Oettinger’s agenda is the creation of an exceptional rule for the use of copyright-protected digital content in the education sector. The practice shows how seriously such exceptional rules are needed: in late 2016 German universities expressed their fear of imminent regression to the time of the analogue photocopier.

The basis for this is the “Framework agreement for remunerating claims as per Para. 52a of the German Copyright Act (higher education institutions)” which was concluded between the Federal Republic of Germany and the Federal States on the one hand and the German collecting company VG Wort on the other. While previous agreements had seen universities pay a blanket sum to VG Wort, now the fees would be calculated individually. That meant that from 1 January 2017, every text which a higher education institution made publicly available for teaching and research purposes would

have to be registered to VG Wort and invoiced.

It seemed that VG Wort was alone in its belief that this would be possible “without needing very much time”. The great majority of higher education institutions judged this system to be “unacceptable” and “disproportionate”, and so would not participate. This is why the University of Kassel, for example, informed their students and staff that from 1 January 2017, with

Risky linking

The real provocation of the year in terms of copyright law, however, was a judgement by the European Court of Justice (ECJ), many of whose recent rulings on questions of internet law have been questionable. In September, the Luxembourg-based court ruled on liability for legal violations in linked-to content. Private individuals do not yet have anything to fear. But the

passages of text copied without permission. Every incorrect judgement on this count will enable the rightsholder to send the linking party a costly cease-and-desist letter on the grounds of copyright infringement.

The early Christmas miracle

The year in copyright law did, however, end with an early Christmas miracle. After seven years of bitter legal strife, the German collecting society GEMA (responsible for collecting secondary rights of composers and lyrics authors) and Youtube came to an agreement in November. A license contract has brought an end to the era in which users residing in Germany would receive a “This video is not available in your country” graphic when trying to access content on Youtube. The GEMA press release on the topic hinted that this peace may not last that long, as it cannot resist mentioning “different legal conceptions” in relation to the licensing of content and invoking the legislature. The struggle between different interest groups over what constitutes fair copyright law will continue to keep us intensely occupied over the coming years. ■

The struggle between different interest groups over what constitutes fair copyright law will continue to keep us intensely occupied over the coming years.

few exceptions, no literature would remain electronically available. For the universities, this would mean: back to the photocopier queue.

Metal on metal

2016 brought a few important judgements in terms of copyright law. For the music industry, the most relevant was the judgement of the Federal Constitutional Court relating to sampling. In the case of Moses P against Kraftwerk, the Federal Constitutional Court ruled in favour of the German music producer Moses P and referred the case back to the Federal Court. The latter was accused of having failed to take artistic freedom into account. A sample by the band Kraftwerk was used to create a new and distinct piece of music. A ban would “practically outlaw the creation of pieces of music of a given style”. Supporters of Open Access sensed in this decision something approaching the Fair Use model, which applies in the USA, although this was hardly intended.

situation is truly grim for companies or freelancers, for whom the ECJ has created a vastly more difficult legal environment.

If any of these latter groups provide a link, the linking party assumes far-reaching obligations to investigate what they are linking to. It can be expected, according to ECJ, that they will “undertake the necessary subsequent investigations to ensure that the work in question has not been published without authorization”. If they opt to post a link, it will be presumed that they are so doing “in full knowledge of the protected nature of the work and the missing permission”.

In practice, that means that substantial risks will arise, and not only for the entirety of the online press. The reason why this group should be better-able to recognize legal violations on third-party websites than others is a secret known only to the ECJ. So in the future, a freelance writer will be held responsible for ensuring that, for example, a page with technical information contains no photos published with an inadvertently incorrect license, no borrowed graphics and no

Personalized pricing needs rules

BY KLAUS MÜLLER

With the help of consumer data and big data, companies can precisely determine how much a customer is prepared to pay. But in the future, when individuals are allocated their own individual price schemes, we could all wind up paying dearly.

In digital supermarkets—and even in conventional retail—a far-reaching upheaval is in progress. In the past, it was common for the markets to determine prices which applied to everyone, on the basis of the relation between supply and demand. Classically speaking, this market price should reflect the scarcity of the product. This has been the central instrument for information and control, guiding consumers and businesses alike. That is how they decide how best to use their limited resources. Until now.

This world is being shaken up right now. Now companies can precisely predict a given consumer's shopping behaviour and willingness to pay. This is made possible by collecting consumer data and, by extension, big data. This means that every consumer can have an individualized price calculated for them, reflecting the most that they are





prepared to pay. In this way, a supplier can offer two different prices to two different consumers at the same time—based on the spending power or willingness to pay as indicated by the data.

In the past two years, this topic has gained increasing publicity, not least among the German Council of Experts for Consumer Matters and the German Consumer Protection Ministerial Conference. This is a good thing, because the issue does not just raise economic questions, but also profound political ones.

Transparent consumers: mobile and spendthrift?

Our previous shopping and online behaviour on websites we have visited, our location and the characteristics of our device and operating system give hints about our preferences. For example, consumers with mobile devices often tend to compare prices less than users with a desktop computer. The reason for this, whether ease of operability or the fact that mobile

a used car. The difference of course is that in this instance consumers know what is happening and can respond to the situation, for example by not putting on their best suit when they go to the car dealer. Furthermore, in such negotiations, while consumers are still in the weaker position structurally, at least the tricks of the trade are known to them. However, when online prices are personalized, this fundamentally changes the position of the consumer as a market participant. If every individual is offered an individual price, then at-a-glance price comparison ceases to be possible for consumers. Price transparency in the market falls, the cost of price comparison increases.

The consumer's increasing structural disadvantage

If companies know your needs and behaviour “better than you do”, this shifts the existing power and information asymmetry in the market further against the consumer. When establishing the price, a provider's algorithm

how smart a used car dealer might be, a conversation with him takes place face-to-face.

Individual pricing will lead to increased profits for companies, as they can charge consumers an individual maximum price. Economic theory may suggest that at the same time consumers with more limited buying power should profit because they can be offered goods at particularly low prices; but it is far from proven in practice.

Individually-set prices can be ethically highly questionable. Were such a system to extend into the medical sector, for example, the prices of urgently-needed medication could become much higher. As a society we must consider whether this is what we want, or whether we should refrain from offering personalized pricing in the health sector. Consumers appear to be conscious of this threat to their welfare. A great majority of the public is against individual pricing. This is demonstrated in negative reactions to known instances of individual price differentiation, as well as current surveys. However, respondents appear not to be aware that the already widespread practice of offering individual price discounts in fact constitutes an individual pricing policy.

If every individual is offered an individual price, then at-a-glance price comparison ceases to be possible for consumers. Price transparency in the market falls, the cost of price comparison increases.

Data protection must not entail financial punishments

Consumers who value data protection and take care to prevent any profile of them being accumulated in the servers of “big data” are shut out from preferential individual pricing. If the number of individual discounts increases, the originally advertised reference price must also increase in order to offset these discounts. Data-protection-conscious users are therefore at a long-term disadvantage: they will be obliged to pay the higher reference price.

Evidence for the price differentiation in online shopping is already

users are short on time and on the go, is not important: what matters is that they can be offered a higher price. Are Apple users richer than others, on average? That could mean that they are also willing to pay a higher price.

Prices tailored for individuals have previously only been known in direct negotiations, for example when buying

looks at the purchasing and surfing behaviour of the last few years to establish preferences. This is compared with other users' behaviour information to create a prediction of what price is appropriate for that consumer. Figuratively speaking, the individual is interacting with a company that can see into their head. No matter

available in American e-commerce websites, in particular. In Germany this practice was found in a study of package holidays undertaken for the Council of Experts for Consumer Protection. Individual cases are constantly coming to light. But there is little knowledge on the extent of digital price differentiation in Germany. A reason for this can be that evidence of personalized pricing is difficult to obtain. Companies appear to fear damage to their reputations should such practices come to light. However, none of this should obscure the fact that German consumers too will find themselves more strongly affected in the future by personalized discounts.

Personalized pricing needs boundaries

The risk to personal welfare must be reduced and consumers' data sovereignty must be reinforced. That is why providers should be transparent if their prices are being adjusted to fit individual users. It should be stated openly what data and consumer characteristics are used in calculating personalized pricing. The statement must be made in such a format that the underlying data and figures can be summarized in meaningful and easily-comprehensible categories.

This statement of criteria can also give a hint as to whether a big-data-driven price differentiation using algorithms breaches discrimination law. That is, whether a systematic inequality in terms of pricing should begin to affect certain groups of people: for example, groups defined by religion, sexual orientation, origin or ethnicity.

Existing data protection rules provide a further sticking point: data may only be collected or used to shape individual prices, or passed on for that purpose, if the users have explicitly agreed that it can be used for that purpose. This permission has to be specific to a certain period of time and cannot be hidden in the general terms

and conditions. Users must be able to refuse their permission for data processing for personalized price-setting, and still obtain access to the affected platforms, even if they then do not receive personalized offers. ■

Individual pricing will lead to increased profits for companies, as they can charge consumers an individual maximum price.



Photo: Marco Urban

Klaus Müller has been a member of the leadership of the Federation of German Consumer Organizations since 2014. From 2006 to 2014 Müller was the head of the Consumer Organization of North Rhine-Westphalia. Prior to that the economist was politically active as the Environment Minister in Schleswig-Holstein and until 2006 as a member of the Schleswig-Holstein state parliament. From 1998 to 2000, Klaus Müller was a member of the German parliament for Bündnis 90/Die Grünen.

What happened online? July 2016

1

01/07 Bruno Kahl takes office as new president of the German Federal Intelligence Service (BND). The former department head from the Ministry of Finance and close confidant of German Finance Minister Wolfgang Schäuble (CDU), Kahl replaced Gerhard Schindler, who has been retired by the government in light of the NSA scandal.

2

02/07 Berliners can communicate with the municipal public order office, anonymously if necessary, using an app. This should permit municipal problems, involving things like refuse or parking issues, to be resolved more expeditiously.

4

04/07 The UN Human Rights Council issues a resolution against state-wide internet blockades. The judgement states that blocking access to online information represents an offense against freedom of speech. The decision lacks binding force. The council also denounced breaches of the human rights of bloggers and journalists.

5

05/07 The Home Affairs Committee of the EU Parliament demands that terror websites be deleted or blocked. The Committee recommends that member states implement regulations compelling providers to take more serious action against extremist propaganda.

6

06/07 The European Parliament passes a Directive on Network and IT System Security. This would oblige companies to report to the authorities failures in security and data protection. EU member states must implement the directive within the next two years by passing appropriate legislation.

6

06/07 The findings against the source in the #Landesverrat-Affäre (“treason trial”) are presented. In the summer of 2015, André Meister and Markus Beckedahl of Netzpolitik.org were put on trial for publishing documents relating to the Federal Office for the Protection of the Constitution (BfV), Germany’s domestic intelligence service. Now Netzpolitik.org has said that it will no longer provide information on its sources. The affair has led to the dismissal of Federal Prosecutor General Harald Range.

7

07/07 The Bavarian state parliament passes an amendment to the state constitution, granting the Bavarian State Office for Protection of the Constitution access to telephone and internet data records.

8

08/07. In Switzerland, a move for a referendum on an updated surveillance law already passed by the parliament fails narrowly. Although more than the necessary minimum of 50,000 petition signatures were collected, only 45,000 were collected by the deadline.

08/07 Facebook introduces end-to-end encryption in its Messenger service. All users need to do is choose the individual language to be encrypted. The company also announces that in the future photos and videos can be set with a deletion date.

12

12/07 After the European Court overturned the “Safe Harbour Convention” last year, the European Commission approves an agreement, negotiated in February, called the “EU-US Privacy Shield”. As a result, from 1 August 2016, a trans-Atlantic exchange of personal data between companies will become legally permitted.

13

13/07 Across Germany, the Federal Criminal Police Office (BKA) takes co-ordinated action against far-right hate posts online. Many homes are searched in an operation which involves 25 police services across 14 Federal states. The BKA is responding, it says, to “increasing verbal radicalism” online.

13/07 The mobile augmented-reality game Pokémon Go is officially launched in Germany. Pokémon Go is a resounding success. In July 2016, more than 45 million people were busy collecting the pocket monsters on their smartphones.

18

18/07 Today is the deadline of the open consultation on European net neutrality. On the website Savetheinternet.eu, users can weigh in on the question of net neutrality. 510,385 comments were submitted.

23

23/07 Wikileaks begins publishing leaked information on the US Democratic Party campaign team, including revelations of potential tactics in the 2016 campaign. The platform promises more publications to come.

28

28/07 New guidelines issued by the German Olympic Sports Confederation (DOSB)—the “rules for dealing with media, advertising and social media”—forbid commercial providers from any kind of mention, retweet, hashtag, etc. mentioning the “Olympic Games”. Doing so would risk receiving a warning from the Olympic Committee and their legal team.

Contrataciones Abiertas de la CDMX

Explora cómo compra el Gobierno filtrando por etapa del proceso de compra, asignaciones o proveedores.

Ver por:



Contratos



Proveedores

Buscar contratos



DEPENDIENCIAS

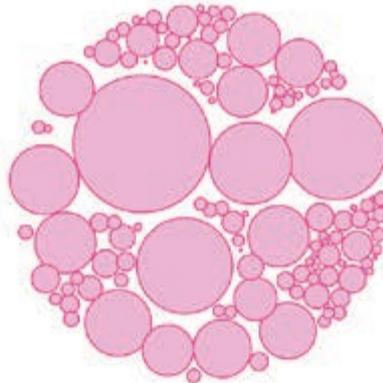
01

TOTAL DE CONTRATOS FIRMADOS

127

MONTO TOTAL (\$MNS)

\$238.79 millones



¿Qué estoy viendo? Esta gráfica muestra comparaciones por cada dependencia. Entre más área tenga el círculo más elevado es el total de contratos.

Lista de Contrataciones Abiertas (127)

<p>1,100,260 \$MNS</p> <p>SECRETARÍA DE EDUCACIÓN PÚBLICA</p>	<p>PRODUCCIÓN DE UN SPOT DE RADIO Y TELEVISIÓN</p> <p>SECRETARÍA DE EDUCACIÓN PÚBLICA</p> <p>CONTRATO DE PRODUCCIÓN DE UN SPOT DE RADIO Y TELEVISIÓN</p> <p>Proveedores: JOSE LUIS RIVERA REYES</p> <p>Objeto: Producción de spot de radio y televisión</p>	<p>Fase de implementación</p> <p>🔄 🔄 🔄 🔄</p>
<p>424,363 \$MNS</p> <p>SECRETARÍA DE FINANZAS</p>	<p>SERVICIO DE ADECUACIÓN DE BAJO PUENTE</p> <p>SECRETARÍA DE FINANZAS</p> <p>CONTRATO DE SERVICIO DE ADECUACIÓN DE BAJO PUENTE</p> <p>Proveedores: MARTINEZ CASTILLO SA DE CV</p> <p>Objeto: Bajar altura de bajo puente</p>	<p>Fase de implementación</p> <p>🔄 🔄 🔄 🔄</p>
<p>252,323 \$MNS</p> <p>SECRETARÍA DE FINANZAS</p>	<p>ARTÍCULOS METÁLICOS PARA CONSTRUCCIÓN</p> <p>SECRETARÍA DE FINANZAS</p> <p>CONTRATO DE ARTÍCULOS METÁLICOS PARA CONSTRUCCIÓN</p> <p>Proveedores:</p> <p>Objeto: Bajar altura de bajo puente</p>	<p>Fase de implementación</p> <p>🔄 🔄 🔄 🔄</p>
<p>66,468 \$MNS</p> <p>SECRETARÍA DE FINANZAS</p>	<p>MARCHAMOS</p> <p>SECRETARÍA DE FINANZAS</p> <p>CONTRATO DE MARCHAMOS</p> <p>Proveedores: Perretero Salazar SA DE CV</p> <p>Objeto: Bajar altura de bajo puente</p>	<p>Fase de implementación</p> <p>🔄 🔄 🔄 🔄</p>
<p>2,027,680 \$MNS</p> <p>SECRETARÍA DE FINANZAS</p>	<p>AUDITORIA Y DICTAMEN DE LOS EDO. FINANCIEROS 2015</p> <p>SECRETARÍA DE FINANZAS</p> <p>CONTRATO DE AUDITORIA Y DICTAMEN DE LOS EDO. FINANCIEROS 2015</p> <p>Proveedores: PROCEVAL MAXIMO PERES SL</p> <p>Objeto: Actualización de datos de Gobierno</p>	<p>Fase de implementación</p> <p>🔄 🔄 🔄 🔄</p>
<p>402,636 \$MNS</p> <p>SECRETARÍA DE FINANZAS</p>	<p>CALIFICACIÓN ASIGNADA A LA CALIDAD CREDITICIA</p> <p>SECRETARÍA DE FINANZAS</p> <p>CONTRATO DE CALIFICACIÓN ASIGNADA A LA CALIDAD CREDITICIA</p> <p>Proveedores:</p> <p>Objeto:</p>	<p>Fase de implementación</p> <p>🔄 🔄 🔄 🔄</p>

Contratos Abiertos CDMX—fighting corruption by making contract award information public.

Digital by default

BY JULIA KLOIBER

APIs with opening times, mobile third instead of first, portals optimized for Internet Explorer 7—the “E” in Germany’s “E-Government” could just as well stand for “exasperating”. But online services do not need to feel like the digital counterparts to waiting-number ticket machines in the local council reception. Here are five positive examples.

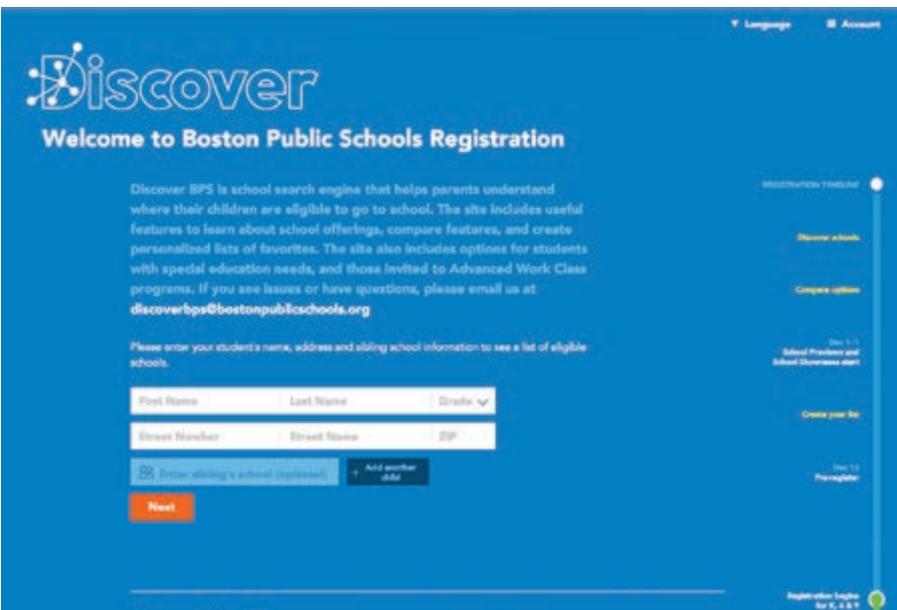
With the right strategy, digital services can be created which remove barriers, reduce administration costs, support transparency and inspire participation. At the heart of successful services are the needs and wishes of users; they are the compass and the benchmark. More and more governments and administrators are opting

for user-centric design and “digital by default”, building digital and innovation departments and bringing experts directly in-house. Five examples from across the world can give us hope that new technologies, if implemented and introduced properly, can help to make our interactions with government agencies better and more straightforward.

Discover BPS

Discover BPS—The Boston school search engine. In order to reduce complexity and support parents and children in looking for an appropriate school, the online tool Discover BPS was created. The application replaces a 28-page brochure that featured complicated regulations and prescriptions.

The tool makes searching for and comparing schools as simple as looking at flight booking websites. All complexity is passed on to algorithms working in the background. A simple interface allows users to search by neighbourhood, courses and other preferences. Wish lists can be created and school profiles viewed and easily compared. The application is an official service of the City of Boston



Discover BPS

and every year it helps thousands of parents and children find the school they want. The service is the fruit of collaboration between *Boston Public Schools*, the *Mayor's Office of New Urban Mechanics* and *Code for America*.
discoverbps.org

Gov.uk

Gov.uk is an award-winning government website. With a recent relaunch, it has firmly placed the focus on the needs of its users. All services and information can be found from a central site, and can be tailored in a uniform way. Instead of a wearisome struggle with the structure of the administrative apparatus, citizens can use the website to find quick answers to their queries. To permit this, the page was radically restructured: the complex menu structure was replaced by a single large search field on the start page, and the search was optimized. User interface designers, software developers and product designers for the *Government Digital Service* did not stop at redesigning the front end,

but also adapted many internal processes for the new requirements. All important services, such as ordering documents and voting papers can be managed online. Gov.uk is probably the most user-friendly government website in the world. The page and its functions are being developed further by the Government Digital Service Team. The goal: to make state services “digital by default”.

Gov.uk

Contratos Abiertos CDMX

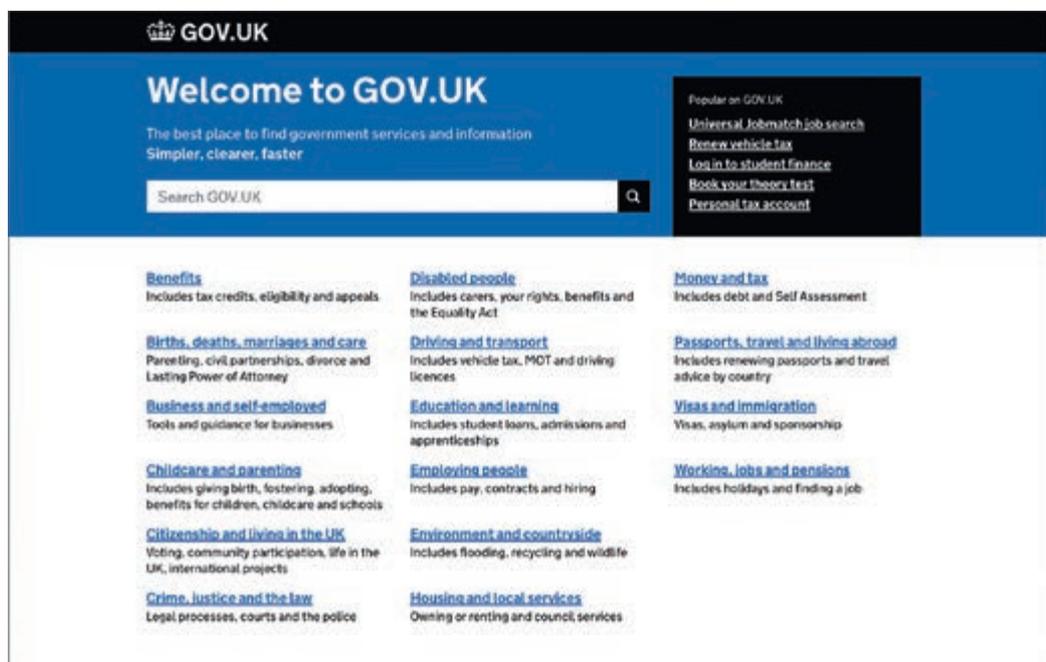
Contratos Abiertos CDMX—fighting corruption by making contract award information public. Mexico City is the first city in the world with an open data portal looking at the allocation of public contracts. The portal gives information on tenders, contracts and the status of plans. Citizens can use the platform to follow who the recipient of a contract is, how much money is paid for the project and how quickly the implementation of the project progresses. To achieve this, contracts can be inspected and information on

the contractor can be called up. The information is prepared such that it is comprehensible to the layperson, and programming interfaces are provided for software developers.

The platform, initiated by the mayor, should offer more transparency in the matter of the awarding of contracts and help to fight corruption. Currently 119 contracts of over 230 million Pesos can be viewed. The transparency initiative started with contracts issued by the financial authorities; two other major agencies should follow in the coming months. The platform will be implemented in collaboration with *Bloomberg Associates* and the international organization *Open Contracting Partnership*.
contratosabiertos.cdmx.gob.mx

MyUSCIS

MyUSCIS—user-centred and process-oriented. Alongside weather information and tax and financial services, services involving immigration and visa applications are the most-used online services of the US



Gov.uk—award-winning government website. With a recent relaunch, it has firmly placed the focus on the needs of its users.



Cape Town Budget Project—understanding the city using data.

administration. 3.6 million people visit the immigration authority’s page every week. In order to make the often complex and taxing process as simple as possible for users, the immigration authority has called in the assistance of two digital service organizations from the government: the *US Government Digital Service* and *18F*. The teams have interviewed numerous users and helped the authorities approach the services from the perspective not of processes and forms, but of individual user scenarios. This created MyUS-CIS, a service which provides all the information and resources connected to applications and procedures relating to immigration. Forms are provided in simple language and can be filled in and submitted online. Moreover, users can check and monitor their status. Using an alert system, future users should be able to receive notices regarding deadlines and the next step in their applications.

my.uscis.gov

Cape Town Budget Project

Cape Town Budget Project—understanding the city using data. Visualising financial data is, in some ways, as old as the idea of open data itself. It comes in all shapes and colours. Displaying figures in brightly-coloured circles or squares, however, does not necessarily make them any easier to understand, or more accessible. The Cape Town Budget Project devoted some thought to this issue and developed a form of visual storytelling, to help citizens put figures into context and understand them better. The city itself provides the data for this in a form of open data. The application was implemented by an interdisciplinary team of journalists and software developers from different non-profit organizations. The code is open source and the hope is that other cities will make use of it. ■

capetownbudgetproject.org.za



Photo: private

Julia Kloiber works as a project leader for the Open Knowledge Foundation Deutschland and is active in the association *Digitale Gesellschaft (Digital Society)*. She works on projects dealing with issues of free knowledge and open data. Currently she is working on the *Code for Germany*, a German-wide community that develops digital tools and applications from open data.

Economy

Blockchain

Bitcoin

China's internet companies

Cashless payments

Silicon valleys of the world

Robots and class struggle

Internet exchange point DE-CIX

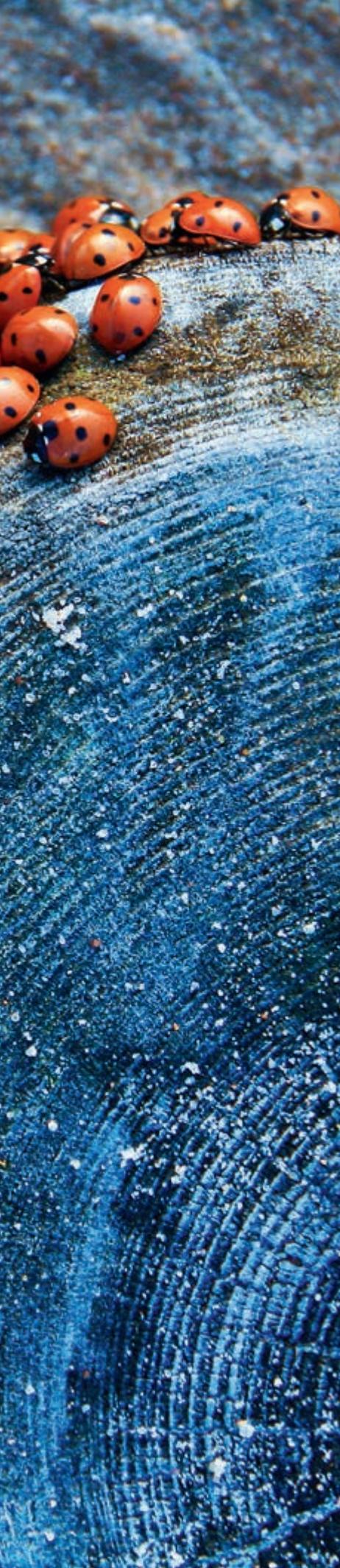
Startups

Towards the giant world computer

BY STEFAN MEY

Blockchain technology appears poised to turn the online economy on its head. What is it all about?





Contracts concluding themselves as if by magic, transactions between strangers without a middleman and databases which cannot be manipulated: blockchain, the Swiss army knife of digital tools, can do it all. The influential consultant Don Tapscott has hailed it as the greatest technical development in a generation; others have compared its significance to the creation of the World Wide Web itself. And a group of experts from the *World Economic Forum* has predicted that in 2027, as much of 10 percent of global GDP will be handled using the technology. It doesn't get much bigger than that.

The hype around blockchain only really took off this year, but the technology is already eight years old. The idea was first posited in late 2008. Shortly after the end of the last great world economic crisis, a developer or developers under the pseudonym Satoshi Nakamoto laid the technical foundations for Bitcoin. This cryptocurrency permits peer-to-peer-based payments and should thereby render banks unnecessary. Nothing came of this vision, but Nakamoto's invention is piquing people's interest again, and more than it did before.

The great repurposing

It turned out that the technology behind Bitcoin, called blockchain, can be repurposed for use in a wide variety of contexts. Put simply, blockchain is a huge accounting ledger, which meticulously records every transaction and displays it forever. This database is decentralized. It is to be found on all computers where free Bitcoin software has been downloaded and it regularly synchronizes itself. All transactions are saved in data-blocks, which are linked with each other in chronological order.

This is how it works: if Katarina wants to send Lisa a Bitcoin from her digital purse, she pings off an order on the Bitcoin crowd computer. A subset

of the computer checks the validity of the planned transfer: does this particular coin really belong to Katarina and has she already spent it? If all goes well, the transfer is accomplished. The sum is credited to Lisa's wallet. Together with all the other transactions in the last ten minutes, the process is saved in a digital block. Then the block is added to the chain that has been built up so far. This is the blockchain, which is regularly extended in ten-minute intervals, as there is always another transaction block being added to the great database.

Money transfer and smart contracts

Further use of blockchain would see Bitcoin reduced to a mere exchange currency. That would involve an economically unimportant part of a coin being transferred—and its metadata is then used to record what it really is about. It could be recorded, for example, that a particular security had changed hands, or a patent or even ownership of a plot of land. Such transactions would be saved in the virtually impossible to manipulate blockchain database and would remain permanently available for consultation.

In addition, a piece of programming code can be built into a blockchain transaction that encodes an "if-then" condition. This is the basis of a new kind of contract, called "smart

Bitcoin blockchain and alternatives

The Bitcoin blockchain was the first, but since then different technological variants have arisen. The use of the classic model saves resources and is comfortable, but the scope for design is limited. A blockchain variant offers maximum freedom, but is expensive to maintain. The most popular alt-chain is currently Swiss provider Ethereum, which permits a diverse range of smart contracts.

contracts". As soon as the blockchain crowd receives multiple confirmations that a contractual condition has been fulfilled, then the contractually agreed-upon consequence will follow. Consultant Shermin Voshmgir (see interview) uses a simple scenario to illustrate the mechanism: the lending-out of a lawnmower, which is itself connected to the internet of things. The contract conditions are set out in a smart contract. The start and end points of the loan are recorded by blockchain. After the return of the mower, the appropriate loan fee is calculated and the crowd transfers the money from the neighbour's wallet to the owner of the borrowed lawnmower. Voshmgir sees blockchain as a decentralized global computer which can do away with the existing structure of central platforms and databases.

The example illustrates blockchain's greatest potential: it permits direct transactions between two people without the need for a central mediator. In the case of the lawnmower, no sharing platform is required, and the loan fee is handled

reliably. The confidence which for many transactions is supplied by middlemen like banks, trading platforms or dealerships is generated here by the crowd. This means that transactions could not only become more direct, but also faster and cheaper. Numerous sectors of industry and society are rife with potential applications for a repurposed and adapted blockchain technology.

Banking goes blockchain

Paradoxically, it is the banks themselves who are currently most proactive in embracing blockchain. The bank Santander has estimated that the sector could save up to 20 billion US-Dollar a year in infrastructure costs. Transactions, whether they involve currencies, financial products or securities, must often "clear" as many as half-a-dozen intermediary stages, which process, check and document the transaction, before they are concluded. Traditional, centralized transaction mediation is thus slow and expensive. With blockchain, these

middle steps disappear, rendering the sector faster, more innovative and above all, if staff could be replaced by the blockchain, more profitable.

All major financial institutions are currently researching the potential of blockchain. Meanwhile, the New York company R3Cev is developing, as a joint venture of the financial giants, common standards for a blockchain-based financial transaction system. This startup is supported by players such as Deutsche Bank, UBS and Goldman Sachs. If these developments continue apace, the boundless public Bitcoin-blockchain, will give way to a private blockchain variant with a closed circle of participants.

Contract processing and administration via blockchain

The disruptive power of the blockchain looks poised to impact another established sector: if agreements are automatically concluded via smart contracts, that could render lawyers redundant in various settings. They will not be needed to implement contracts anymore as contractual conditions will be documented over blockchain, and there is no longer any need to engage them to organize payment of contractual monies because the money is sent automatically.

A simple scenario is offered by the New York startup Smartcontract.com, whereby blockchain contracts can be set up at the click of a mouse. For a search engine optimization contract, a website operator names the domain which is to be optimized, a Google country domain (like google.com or google.de), a search term (for example, "Buy mobile phone online") and the desired position in the results list. If the SEO agency takes on the contract and manages to bring the website up to the desired place, the agreed-upon sum is released.

This means that there are suddenly many scenarios for politics and

Transactions are saved in the virtually impossible to manipulate blockchain database and remain permanently available for consultation.

Smart contracts

"Smart contracts" execute themselves, by recording an "if-then" logic in the metadata of a given transaction. If condition A is met (e.g. by activating a door lock), then action B is executed automatically (a payment). This is the same procedure by which the purchase of a song might be automated, only much more complex. For example, in international trade, partial payments could be made dependent upon GPS position.

administration in which official duties can be entrusted to blockchain. In Honduras, experiments are underway in decentralising the state-held land registry via blockchain, so that the size and nature of the network can prevent manipulation. The startup FollowMyVote proposes to disrupt an even more sensitive operation: voting by blockchain. Every voter can cast their vote using a cryptographic key and can then check whether their vote was counted correctly.

There are ideas for many other sectors, too: like an automated crop insurance policy, in which blockchain registers losses using climate data and insures premiums. The startup Ujomusic wants to create a global database of music rights which is built on blockchain, in which all music titles are marked with licensing-relevant metadata. And Slock.it, headquartered in Mittweida in Saxony, is building a smart lock with a blockchain connection which would permit properties, homes or bikes to be loaned out without any intermediary sharing platforms. They are not using the original Bitcoin-blockchain, but the alternative Ethereum, which is much more appropriate for smart contracts because it is easier to program.

A technology in its infancy

Entrepreneurs and investors in blockchain startups like to promise the total disruption of the internet economy or even all of society. But a closer look shows that at this stage we can really only speculate as to the real consequences. Often, concrete blockchain concepts are, at best, in an isolated test phase, and others exist only as visionary white papers.

Furthermore, there are many questions which remain fundamentally unanswered. They relate to security. The decentralized technology is said to be impossible to manipulate. The network architecture can also withstand attempts by individual participants

to cheat. In order to retrospectively change a single transaction node, the majority of the network has to agree. But a so-called 51-percent-attack is theoretically possible. If more than half of the network nodes were controlled by fraudsters, the manipulated version would appear to be the valid one. The Bitcoin network, at least, is so big that such a hostile takeover is extremely unlikely. But on alternative blockchains at least, which are either mere clones or ambitious further developments, this safety-in-numbers effect is not quite as substantial.

And all scenarios which relate to regulated sectors have to receive state recognition. The state has to lend blockchain solutions the authority to document, for example, land ownership. And smart contracts would need a legislative framework for all automated contractual businesses so that they could operate in a legally safe manner, regardless of how clever the technology underlying them. ■



Photo: Ralf Rühmeier

Stefan Mey studied sociology and publicity, comes from Halle and lives in Berlin. He is a freelance journalist and looks at the interrelationships between technology, economics and society. (Twitter: @OmyDot)

Blockchain's greatest potential: it permits direct transactions between two people without the need for a central mediator.

Public and private blockchain

The Bitcoin or Ethereum blockchain can be seen by anyone, and everyone can access it and validate transactions. That is what protects it against manipulation. Some businesses are experimenting with private blockchains, in which only authorized participants can see, activate and validate transactions. The banking startup R3Cev is planning such a system. The community is divided on whether such a model makes sense, as it would not make use of the real breakthrough in blockchain: maximum transparency and decentralization.

We're about to experience a real killer app for blockchain

INTERVIEW WITH SHERMIN VOSHM GIR

Shermin Voshmgir, blockchain consultant, founder of the coworking space and think tank Blockchainhub.net, believes that decentralized database technology will usher in a new era of the internet. Blockchain, she believes, is a game-changer.



iRights.Media: What is so special about blockchain?

Shermin Voshmgir: Blockchain can be a major step in computer and internet development. With blockchain, we are building a decentralized global computer. The worldwide network of participating computers is in a way the hardware, and the blockchain protocol is the operating system.

What does that mean exactly?

The world wide web has revolutionized information exchange. Web 2.0 made the web programmable, bringing social media and the sharing economy with it. Blockchain can be seen as a building block of Web 3.0, which will revolutionize value exchange through peer to peer transactions without central clearing. This transaction protocol can be used to build up smart contracts, and so-called dApps—decentralized Apps.

How would you explain the fundamentals of this technology?

Blockchain is like a huge compartmentalized account book—a table in which all transactions from point 0 are shown: who has sent what to whom. No single person can manipulate entries in this table, and all participants in the network can verify transactions. That's why in the future there will be

no need to guarantee the reliability of transactions. Instead, it is the blockchain network majority who decides whether a transaction or a process is valid under the protocol.

And what are smart contracts?

Smart contracts are automatically executable programs that build on the blockchain, depicting pre-defined transaction rules in programming code. A transaction effected via smart contract is automatically executed when all parties fulfil pre-defined conditions. This removes the need for a middleman, and reduces transaction costs.

What might it look like in practice?

An example: German company Slock. it develops smart locks that are joined to the blockchain. I can use these to loan out my lawnmower, for example. If my neighbour wants to rent it, he can activate it via smart lock. This is saved as a transaction in the blockchain network: identity X activated the lawnmower at such-and-such a time, and deactivated it two hours later. Afterwards, the smart contract ensures that the money is actually paid. As per conditions set out in the contract, the network calculates the sum required. The money is then transferred directly and automatically from my blockchain account.

In what parts of society and in what branches of industry do you see this being used?

Banks and financial services, certainly. At present, financial data is saved centrally and goes through various clearing stages. So, when I want to send money via a normal bank, it sometimes takes a few days. That's absurd. With blockchain you can send money from A to B in a few seconds and at a fraction of the cost. Another function is in terms of transparency. Blockchain permits

operating and production chains to be shown in their entirety. For example, in future I can look at an instant meal and say: where does this pork come from? Is it organic? I also expect to see an accounting revolution. If I can display all my financial transactions using blockchain, I won't need neither an accountant nor an auditor, and my taxes can be deducted automatically.

Do you believe that smart contracts could present problems for lawyers?

It is only a matter of time until legal tech startups are able to shape smart contracts so that they automatically achieve legal validity. That will then replace certain areas of legal practice. Certainly, that will not be the case where disputes or complex procedures are concerned. However, in more straightforward matters, where lawyers use copy-and-paste contracts, we will see it happen a lot. I would not advise anyone to become a notary. As soon as the land registry can be shown on the blockchain, for example, we will need far fewer notaries.

In the public discussion of blockchain, superlatives predominate. How disruptive do you think this technology is?

Blockchain will alter every sector of industry. It is a further development of the internet, itself largely made up of central institutions. Thanks to blockchain, the future of the internet will be considerably more decentralized. It's early days, though. We are still working on core problems and the first applications.

Where do we stand on the line between overblown hype and justified expectations?

I do not believe that the blockchain technology is over-hyped. If by hype you mean: does the technology have substance? I want to be very clear: yes, it has substance. It will be a

game-changer. The question is merely when and by how much it will change the game. The problem is unrealistic expectations—that the revolution is going to happen the day after tomorrow.

And when do you expect to see the first effects?

Within the next two years, we'll probably see the first user-friendly alternative applications in the financial service sector. That will involve more work on projects that have thus far been user-unfriendly. And I firmly believe that, in the next two to five years, we will experience a real killer application for blockchain.

Interview by Stefan Mey.

Shermin Voshmgir, born in Vienna in 1974, studied Business Information Technology at the Vienna University of Economics, and completed her doctorate there. She also attended the Film School of Madrid. Her films have been shown at Cannes and at Documenta. Today, she uses the Blockchainhub.net network she founded to run research and consultancy projects on blockchain, advising both companies and government organizations.

Bitcoin: The ascent of a borderless currency

BY IMOGEN GOODMAN

Bitcoin is one of the world's best-performing currencies, but its inception, rapid ascent and future are shrouded in legend and uncertainty. As a concept, Bitcoin challenges us to fundamentally question the idea of monetary value.



Despite a series of press rumours and false revelations, the identity of Bitcoin's original developer is known only as a pseudonym: Satoshi Nakamoto. A few years after the crypto-currency emerged, Nakamoto disappeared entirely, ceasing to respond even to other developers' messages. But Bitcoin had already taken on a life of its own.

Now, with many pondering replacements for our crisis-prone, bank-dependent monetary system, could digital currencies such as Bitcoin eventually supplant national ones? And is the crypto-currency system really so different from the status quo?

“Incredible genius”: the peer-to-peer revolution

When the idea of a digital currency first surfaced in notes on cryptographer mailing lists back in the 1990s, there were two major technical obstacles standing in the way. First was the question of how to stop inevitable attempts at fraudulent duplication of the digital tokens; second was the challenge of keeping an accurate record of the movement of money.

For the answer to both, Bitcoin creator Satoshi Nakamoto looked to peer-to-peer technology. The main draw of peer-to-peer was that there would be no need for a centralized authority—no equivalent of a holding bank—but rather a network of Bitcoin users that would act at once as owners of the currency and as ledger keepers for it. This group ‘ledger’ came to be known as the blockchain.

Rather than data being kept by a third party, records of Bitcoin transactions take the form of digital nodes that are tracked by every member of the ecosystem. It's like having unique GPS-chipped money on a big, interconnected map; the blockchain records the Bitcoins that exist in Location A (my wallet) and will track any that move to Location B (your wallet), and vice versa.

“That means if you try to ‘double-spend’ and give the same Bitcoins to two different people at the same time, everybody notices and one or the other of those transactions is considered valid and the other is just ignored”, explained Gavin Andreson, one of Bitcoin's earliest lead developers. “Solving this double-spend problem was the key technical breakthrough that made Bitcoin possible.”

It's a little like peer-to-peer file sharing, where there's no central bank for the millions of films or TV programmes, but rather a network of individual file owners who participate in instant peer-to-peer transactions, such as downloading or uploading files from other users. But unlike music files, Bitcoins can't be duplicated, because the same coin cannot exist in more than one ‘map’ location at the same time.

“Bitcoin answers another question in a magical way”, said Peter Vessenes, head of the Bitcoin foundation. “Could a bunch of people who don't trust each other all agree on when something happened so precisely that you could use it to transfer value? People who've never met each other and who will never meet, just by passing messages.

“The immediate answer to that is: no way. It's incredible genius.”

Capping Bitcoin: 21 million by 2040

Bitcoins are running out. There are currently almost 16 million units in circulation, with 25 new ones created—or “mined”—every ten minutes. Much like ordinary national currencies, Bitcoin involves the regular production of new coins, but unlike ordinary currencies, there's no state-led ‘quantitative easing’; no large-scale money-printing initiatives to boost the

economy.

Instead, dedicated Bitcoin miners search for new Bitcoin ‘blocks’ using complicated mathematical software. To prevent an overwhelming influx of coins entering the market along with a spate of new miners, the process involves solving complex maths problems of variable difficulty. These problems take precisely ten minutes to solve, with miners earning a transaction fee as well as a share of new coins as a reward—currently 25.

These available ‘rewards’ for miners are halved each time 210,000 new blocks are discovered, meaning that the Bitcoin production will effectively

Bitcoin production will effectively cease in 2040 when there are 21 million total coins in circulation.

cease in 2040 when there are 21 million total coins in circulation. At present, we're about 72 percent of the way there.

Once all the Bitcoins have been distributed, transactions on the blockchain will continue, with miners incentivized to work for transaction fees. With a finite number of coins, developers believe the value of Bitcoin will increase exponentially, making facilitating transactions (with, say, a fee of 1.5 percent) more and more lucrative.

Mining could once be done relatively easy with an ‘ordinary’ computer, but it quickly developed into a much more intensive process requiring specialized equipment and the constant monitoring of temperatures. Jason Gantt, an early Bitcoin adopter who started a mining operation with his father, told the online news platform Coindesk that the process

was akin to babysitting—with a few causalities in the early months due to processors overheating.

Most of the early miners and buyers of Bitcoin were interested in the intellectual and political potential of the project more than its monetary value. Now, of course, there's an added benefit: Bitcoins are increasingly spendable.

Moving into mainstream consumer culture

Much like its anonymous founder, Bitcoin once seemed as if it would be permanently mired in the shadowy world of the deep web; used only by faceless hackers and self-professed cypherpunks. Then, in recent years, the currency almost imperceptibly

started to move outside of its original environment and into the wider mainstream.

Bitcoin ATMs have recently brought the digital currency to the streets of major cities from London to Los Angeles, while brick-and-mortar casinos and bookmakers have joined their digital counterparts in accepting the currency for gambling. Hundreds of online retailers and businesses now accept Bitcoin, from travel sites to crowd-funding platforms, and in June 2016 Bitcoin received a further boost after Paypal agreed to partner with Coinbase—a virtual currency wallet and exchange—to allow its users to cash-out Bitcoins using their accounts.

The Isle of Man, a region with a strong online gambling and financial services contingent, has been actively working on Bitcoin-friendly regula-

for crypto-currencies. Rather than collecting money from players, and handing out the winnings later, the blockchain means that operators are spared costly and time-consuming monetary transfers. Players can bet sums of money and the ecosystem will simply acknowledge the rising and falling credit of the operator and consumer, determined by the game in real time.

A post-Paris crackdown

The rise of Bitcoin has not been without controversy. The core factor that initially attracted swathes of users and miners to the project—a lack of third-party control from governments or banks—has increasingly been put under scrutiny as nations strive to tighten counter-terrorism measures.

In the aftermath of the shootings that left 129 dead in Paris on 13 November 2015, one anti-terrorism hacktivist group revealed that they had uncovered a series of Bitcoin wallets linked to Islamic State. Talking to News BTC, an anonymous member of Ghost Security Group said he had hacked one ISIS-linked wallet containing 3 million US-Dollars worth of Bitcoins.

“Most of the Bitcoin funding sites utilized by the Islamic State are on the deep web and we have managed to uncover several and successfully shut them down in order to limit the funding extremists receive through the use of cryptocurrencies”, he said. “Most of the evidence we have seen thus far indicates that Bitcoin is their prime form of cryptocurrency. It is currently unknown if they have the capability to mine Bitcoin, but they do receive donations on a regular basis.”

As governments rushed to pen a series of new, wide-reaching surveillance bills, EU member states gathered in Brussels for a crisis meeting to discuss the links between digital currencies and terrorism. By the start of July 2016, the European Commission was

In the aftermath of the shootings that left 129 dead in Paris on 13 November 2015, one anti-terrorism hacktivist group revealed that they had uncovered a series of Bitcoin wallets linked to Islamic State.



Photo: private

Imogen Goodman is a freelance journalist from the UK with a particular interest in politics, finance and tech. For the past few years, she has been writing extensively about the gambling industry for a range of publications. She is currently studying for a Master's degree at Freie Universität Berlin.

tion over the past few years. But while the government's policies are in rapid development, Brian Donegan, head of operations at the island's eBusiness division, admits that they've been set back by the UK banks' unwillingness to engage with the currency.

“It's really about the banks”, he said. “We've got a strong proposition, growing businesses around the blockchain space, but we're looking forward to the day the UK banks open up for Bitcoin exchanges, and iGaming can connect with the exchange ecosystem and offer their services to their clients online.”

The transactional nature of iGaming—online slot machines, for example—makes it an ideal partner

proposing bringing “virtual currency exchange platforms and custodian wallet providers under the scope of the Anti-Money Laundering Directive”—forcing these organizations to perform identity checks and share information with government authorities.

In late 2011, Bitcoins could be bought for under two euros. Today, a single Bitcoin sells for around 650 Euro.

The EU won't be alone in this. Earlier in 2016, the Australian government also put forward proposals to bring Bitcoin and other digital currencies within the scope of anti-money laundering laws, following calls from AUSTRAC, the nation's financial intelligence agency. “I think it's important

to regulate where there is a potential risk of abuse of money laundering and terrorism financing”, Brad Brown, AUSTRAC's policy manager, said at the time.

In a climate of increased international tension, the borderless currency is set to face even greater scrutiny; however, global uncertainty could also be Bitcoin's biggest opportunity.

The future of Bitcoin: a financial 'safe haven'?

As the world awoke on November 9, 2016 and stared with disbelief at the unlikely President-elect of the United States, Bitcoin owners and miners were celebrating a stock of currency that had sky-rocketed in value overnight. Donald Trump's last-minute swing to victory had sent shock-waves through the market, and Bitcoin had been one of its greatest benefactors.

“People turn to Bitcoin as what I like to call a 'disaster hedge' due to its non-correlation with the capital markets”, Christopher Burniske, Bitcoin Products Lead at ARK Investment, said

of the surge. “The Futures plummeted and Bitcoin spiked.”

Perhaps because of its resilience to national government policies, Bitcoin has been the best-performing currency in the world in five out of the last six years. In late 2011, Bitcoins could be bought for under two euros. Today, a single Bitcoin sells for around 650 Euro.

According to Burniske, Bitcoin looks set to continue its so-called “non-correlation with traditional market assets”, making it a prime contender to take the place of stocks such as gold in investor portfolios. “Investors are waking up to it as a haven in the context of modern portfolio theory”, he explained. “If you put an asset into your portfolio that's not correlated with the other assets it can actually draw down the volatility of the portfolio at large.”

Due to its high performance and this “non-correlation”, there's an increasing chance of the crypto-currency moving from one shadowy territory into the next. Its decentralized, stateless nature had once appealed to anarchists and hackers. Now—coupled with high liquidity and portability—they have become two of the most irresistible factors for wealthy investors.

Increasingly, Bitcoin is replacing the Swiss bank account as the ideal 'safe asset', free from burdensome regulation and taxation. As the creation of new coins nears completion, it seems like the future will hinge on this issue. Will Bitcoin continue to be a democratized currency, or will it become the preserve of wealthy investors and technical experts? And with nobody in charge, who will steer the course of these developments to come? ■



Photo: FML via Wikimedia (CCO)

This ASIC Bitcoin mining hardware was used until 2013.





The political promises of Bitcoin

INTERVIEW WITH ANDREAS M. ANTONOPOULOS

Bitcoin has become known as the first electronic currency that can conveniently be transferred between individuals across the globe. For Andreas M. Antonopoulos, who has authored two books on Bitcoin, the digital money is not only about convenience. For him, it is most interesting for its fundamental political value.

iRights.Media: What is the main difference between Bitcoin and traditional banking?

Andreas M. Antonopoulos: Less than 20 percent of the population on this planet have a credit card. There are vast numbers of people who have no access to banking, and politics is a big reason for that, as well as access to technology. Bitcoin is network-based banking and it is decentralized; there is no company, no bank, no government. It is people-to-people, just like cash.

And I can have access to Bitcoins as soon as I have an internet connection?

Maybe even before. Often, you can also send and receive Bitcoin via text messaging. Probably the most well-known service is called Coinapult but there are many similar systems in use. They are not ideal though, because, in the case of SMS, you're using a local

intermediary and not interacting directly with Bitcoin. In the long run, what you really want to see are wallets that are directly controlling Bitcoin transactions on capable phones. With the current pace of technological development, smartphone prices will start to drop below 20 US-Dollar. So I think that is not a significant obstacle in moving forward. Facebook penetration is much greater than banking penetration throughout the developing world. Smartphone penetration is also greater than banking penetration, so we're certainly achieving more with smartphones than with banks.

Against this backdrop, what do you think about the efforts of large banks that also try to incorporate blockchain technology into their business models in order to become more efficient?

I am really bored by them. What the big banks are doing with blockchain is marginal and incremental; because

Bitcoin is the internet of money. Its power comes from the fact that it is global, public and open.



Photo: Wikimedia / CC BY-SA

Andreas M. Antonopoulos is the author of two books about Bitcoin: “Mastering Bitcoin”, published by O’Reilly Media and considered the best technical guide to Bitcoin and “The Internet of Money”, a book about why Bitcoin matters. As a Bitcoin entrepreneur, Andreas has founded a number of Bitcoin businesses and launched several community open-source projects. He is a permanent host on the popular Let’s Talk Bitcoin Podcast.

what they are building are centralized control systems based on blockchain technology, which is almost a contradiction in terms. Bitcoin is the internet of money and, just like the general internet, its power comes from the fact that it is global, public and open. To have a private blockchain makes as much sense as to have a private internet. It is something much less useful, much less interesting.

What is the problem with a centralized and private blockchain system?

First of all, you do not have the system of mutual, public surveillance that ensures against fraud in the Bitcoin system. And secondly, it concentrates power in the hands of banking institutions. We have seen that such power leads to corruption and profit motives that are contrary to the interest of the wider public.

If all Bitcoin transactions happen on a public ledger, isn’t that some sort of perfect surveillance architecture?

People will have the choice of making their Bitcoin transactions open and transparent. They can do so voluntarily, which is very useful for government organizations, non-profit organizations and other organizations that are accountable to the public. But, at the same time, people will have the choice of keeping their transactions private.

How is that possible in a public system?

At the moment Bitcoin is using pseudonyms to protect the identities of those who wish to remain anonymous, but there are a number of proposals to increase the privacy of Bitcoin transactions quite radically. I think we’re still seeing the very early stages of Bitcoin, not the final product. It’s continuing to evolve.

The production of new Bitcoins, or “Bitcoin mining”, today necessitates

very powerful computers that perform sophisticated calculations. These computers are very expensive and not accessible to everyone. Isn’t that some form of power centralization, too?

This has indeed caused some centralization, but the production of new Bitcoins is limited and decreasing every year, which automatically diminishes the centralization effect; in other words, this problem is going to solve itself.

Why is the number of Bitcoins limited?

The final amount of Bitcoins is capped because the money intends to simulate a resource that is scarce and of limited supply, similar to the production of precious metals which are limited and, therefore, have a solid and sound foundation as a store value. It is based on a very different economic policy than most of the national currencies we see today.

Who decided to cap the final amount of Bitcoins and who would be able to uncap the amount? Who is in charge?

Nobody controls Bitcoin and there is no presidency of Bitcoin. There are companies that participate in the internet and there are companies that participate in Bitcoin but, like on the internet, there is no central point of power that provides any meaningful control. The controls that exist, the rules, by which Bitcoin operates, are encoded in software and in order to change the rules you need almost every single participant to agree to change the rules; the threshold is 95 percent. Given the fact that the cap on supply is one of the reasons that Bitcoin has value, it is extremely unlikely that you would get the entire population that owns Bitcoin to voluntarily reduce the value of their own currency.

How can states handle money

laundering or donations to terrorists via Bitcoin?

There is nothing they can do. They cannot compromise the control structures of Bitcoin. Traditional regulators have no power over Bitcoin, and there are hundreds and hundreds of other currencies, some of them much more anonymous and designed to be much stealthier than Bitcoin itself. The illusion that crimes can be addressed through the control of their financing, and the idea that complete control over financing is something effective, desirable or even possible is now dead. Zeroing in on financing is just one of the means of addressing crime. Ultimately, we are going to have to

fight exclusion throughout the world. That means that whatever they do, it will simply be a slow, insecure, and closed system necessarily limited in scope. And that can never compete against a neutral system that welcomes the four billion people in the world who have been left out by the banking system with open arms.

Is there one common misconception about Bitcoin that you would like to challenge?

The most common misconception is that Bitcoin is only used by criminals. However, in many countries, the banks *are* the criminals. If you trust the banks, it means you belong to

Bitcoin is not used by criminals; it is used by all the people who have repeatedly been betrayed by banks and governments in order to regain their political and economic freedom.

think of better ways to organize our societies to deal with crimes.

However, traditional banks do cooperate with states and regulators. Is there a possibility that some of the block-chain versions of traditional banks might actually proliferate to the degree that they will remain the mainstream instead of Bitcoin?

No. Traditional banking is constrained by borders, regulators and the need to maintain control over end-to-end financing. It is now facing competition from currencies that do not have to play by those rules. Traditional banking cannot be global and open, it cannot be resistant against censorship, it cannot be neutral, and it cannot offer the economic means to

a very small minority of the world population that has not yet been robbed by them. Most people in the developing world are quite familiar with this experience, and if, for example, Deutsche Bank goes down I think the Germans will learn the same lesson when their government bails out Deutsche Bank at the expense of the people. Bitcoin is not used by criminals; it is used by all the people who have repeatedly been betrayed by banks and governments in order to regain their political and economic freedom. That is the main reason why Bitcoin is popular. Criminals can use many other systems. The most effective bank for money laundering is HSBC, and they don't support Bitcoin. ■

Interview by Eike Gräf.

What happened online? August 2016

1

01/08 Fearing that sexual predators could use Pokémon Go to lure children, the state of New York bans convicted sex offenders from downloading or using the popular app. According to New York State Senator Jeffrey Klein, there is a “frightening” correspondence between the locations of offenders’ homes and targets in the game.

3

03/08 Germany’s Federal Government proposes legislation imposing fines of up to 500,000 Euro should an internet service provider violate EU net-neutrality regulations, for example in transmitting data packets at different speeds.

4

04/08 Eleven NGOs, including Reporters Without Borders and Amnesty International, sign a petition calling for regulatory changes to Germany’s Federal Intelligence Service (BND) to ensure that foreign journalists working in the country are not subject to surveillance.

04/08 The Chinese government releases figures indicating that in the first half of 2016, over 710 million people, just over half of the total population, accessed the internet at least once, over 92 percent of them with a smartphone. By comparison, there are about 510 million people living in the whole EU.

6

06/08 “Anyone living in our country should be able to communicate in our country’s language. This also applies to social media.” This according to Peter Hauk, Minister for Consumer Protection in the state of Baden-Württemberg. “If it is available to be read publicly, it should be available in German.”

06/08 In an expert report, Hans-Jürgen Papier, former President of the German Federal Constitutional Court, criticizes the strategic telecommunications surveillance carried out by the Federal Intelligence Service (BND) on internet exchange points such as the De-Cix in Frankfurt am Main as “on the whole unconstitutional”.

06/08 The traffic authority in Bremen decides to begin outfitting its busses and streetcars with free wireless. Personal registration will not be necessary.

9

09/08 In response to an enquiry, the German government reports that the Federal Police, the Federal Office for the Protection of the Constitution (BfV), and the Federal Criminal Police Office (BKA) together sent 210,000 so-called silent SMS messages in the first half of 2016. These messages are not displayed to the recipient, but provide meta data that can be used to track devices.

10

10/08 The Berlin police announce an autumn launch of “Krimpro”: new, in-house developed software that assists in predicting the probability of a break-in at a specific location, and thus can potentially intervene to prevent a crime or apprehend a perpetrator (predictive policing).

11

11/08 In response to the attacks in Würzburg and Ansbach and the shooting in Munich, Germany’s Interior Minister Thomas de Maizière (CDU) announces a new set of domestic security upgrades. They not only include budget and personnel increases, but also foresee intensified internet surveillance and video surveillance using facial and number plate recognition software.

16

16/08 According to a current survey, there was “only” 520 million Euro invested in Berlin startups in the first half of 2016. In 2015, the comparable number was 1,5 billion Euro. Berlin is in fourth place Europe-wide, behind London (1.3 million), Stockholm (1 million), and Paris (673 million).

17

17/08 The German Federal Government wants to push forward the transition to e-government. It passes legislation that will loosen or remove altogether the requirements in numerous situations for hard copy documentation, eliminating paperwork and the need to physically visit agency offices.

19

19/08 In Berlin, a conference of Interior Ministers from the German Christian Democratic Union and the Christian Socialist Union in Bavaria (CDU/CSU) call for the government’s telecommunications data retention mandate to be extended to six months and expanded to include social media. In addition, video surveillance should be intensified, and encrypted communications should be subject to interception.

19/08 In the last six months, Twitter has deleted a total of 235,000 accounts that were recruiting for, or supporting, terrorism.

26

26/08 The battle over a selfie taken by the macaque Naruto continues. After a US court ruled that the monkey could not hold the rights to its photo and awarded these instead to the camera’s owner, David Slater, the animal rights organization PETA appeals the ruling.

29

29/08 Facebook founder Mark Zuckerberg and his wife Priscilla Chan meet Pope Francis in the Vatican to discuss the role of communication technology in combating poverty.

30

30/08 The EU commission decides that Ireland is entitled to collect illegally withheld taxes from Apple amounting to 13 billion Euro. Rather than demanding the money be repaid with interest, Ireland instead launches a legal challenge to the Commission’s decision. Apple CEO Tim Cook considers his company the “world’s largest tax payer”.

30/08 Germany’s states are equipping their investigative agencies to better combat internet crime, planning new special divisions and expanding existing departments. They are nonetheless faced with the problem of finding enough qualified specialists in the field.

A dramatic sunset over a cityscape. The sky is filled with colorful, textured clouds in shades of orange, yellow, and purple. The sun is low on the horizon, creating a bright glow. In the foreground, a modern building with a curved facade and balconies is visible on the left. The building's balconies have white railings. In the background, other city buildings and a distant horizon are visible under the sunset sky.

Chinese internet firms find success with indecent exposure

BY FINN MAYER-KUCKUK



China's internet firms are finding new ways to turn their loyal fans into paying customers. At the same time, their operations are expanding and they can afford less financial waste. Here is an overview of the key trends.

While many media companies and service providers in the West are still asking how to profit from avid users of their apps, considerable progress has been made in Asia. Advertisements in messenger apps have made real breakthroughs, with mobile live streaming revealing itself to be a major cash cow. Payment through mobile devices has become so commonplace that many consumers go entirely without their wallets. And the communication service providers get a percentage for every purchase.

Advertising in Messenger Apps

Customers in Germany would probably complain en masse if Whatsapp was suddenly inundated with adverts, but the approximately 800 million users of leading Chinese messaging service *WeChat* have taken such a change in their stride. This is likely due to a gradual introduction of new advertisements.

In spring 2015, the first paid content appeared in WeChat users' "moments". These are analogous to timelines on Facebook, a place where users can upload photos, videos and personal musings and updates. *Tencent*, the company that owns WeChat, now displays PR material from paying customers among this private information, taking care to prevent the insertions from becoming too distracting. Business is booming.

The internet giant has thus found a way to make money from the enormous popularity of its chat app.

According to Chi Tsang, an industry analyst at HSBC: "Tencent has generated a considerable profit from its new monetization systems." Some brands have turned their small-scale, in-app adverts into an art form. Jaguar celebrated its 80-year anniversary with a pencil-sketch animation, while Chanel has built an online game into its adverts. At the same time, the messaging service Line, a major regional competitor from Japan, has also begun integrating advertising into its app.

The fact that large-format smartphones are very popular in China plays right into the hand of these online advertising offensives. Boasting the size of a hefty chocolate bar, the Huawei Mate 8, for example, is a popular "phablet"—midway between a tablet and a phone. Significantly more content can be displayed on the screen of such a device, allowing advertisements to appear less conspicuous. According to industry insiders, Tencent earns about 10 Euro per month per WeChat user; Whatsapp has to settle for a mere Euro on the same scale.

Live streaming

Live streaming also made a breakthrough this year as a mass-phenomenon in China. According to market-research company iMedia Research, there are currently 325 million registered users of live streaming portals in China. One reason for the tremendous success in this sector may be soft-core pornography. While depictions of sex are freely available through certain online portals in the West,

pornography is completely outlawed in China. Paradoxically, conventional live streaming services help cover this erotic market segment.

On the homepage of China's leading live-streaming service, YY, one encounters scantily clad young women, supine and giggling. More than this would not be allowed, and indeed, more is not shown.

Apparently, however, this teasing goes down well with its male audience. Tencent estimates that 80 percent of the performers on its own portal QQ are young women, while its viewers are overwhelmingly young men. The gay dating app Blued has also enjoyed massive success with its live stream function. Not wholly unexpectedly, it features countless lads presenting themselves in sleeveless tops. Nonetheless, on most portals, school bands,

on streaming platforms will reach a volume of 8 billion euro. Even data-centre companies like Xunlei are eager to make an entry into this fledgling industry. "We're talking about a new line of business that is capable of generating amazing profits", according to a company spokeswoman. As far as the technology is concerned, streaming is not all that different from downloading. This means the infrastructure needed for a smooth data transfer is already in place.

Can China keep up the pace?

After years of relentless expansion in China's tech sector, a phase of consolidation appears to have begun. For the first time, internet giant Alibaba hired fewer employees this year, while

of the Watermelon Institute, a company that assists startups in their early stages, and author of the book "The Third Internet Revolution".

Nonetheless, for the major players in the industry, profits continue to skyrocket. The retail platform Alibaba is again anticipating a nearly 50-percent increase in revenue for 2016, while the search engine Baidu along with game and app provider Tencent can also boast enviable margins. The most important driver of growth remains the mobile market. Analysts expect that the more innovative companies will enjoy growing returns despite the larger economic slowdown, and that 2017 will bring breakthroughs for many new ideas and concepts in China's tech sector. ■

According to industry insiders, Tencent earns about 10 Euro per month per WeChat user; Whatsapp has to settle for a mere Euro on the same scale.

philosophers, seniors, and goldfish also count among the ranks of live streamers.

From the perspective of the companies offering the service, live streaming is an enormously important source of revenue. Not only can viewers send messages directly to performers' displays, but they can also send them virtual gifts, such as bonbons, pickles, or roses. Users pay streaming services mere pennies for every such gift, but the sheer size of the market means it still yields a considerable profit. By the end of 2016, the more than 300 million live streamers in China will have spent a combined 2 billion Euro on virtual gifts.

According to analysts, by 2020 the Chinese market for purchases

the other market leaders, Tencent and Baidu, scaled down their previously aggressive campaigns to recruit talented graduates.

Venture capital is also harder to come by. In the second quarter of 2016, investments shrunk to only half of those registered in the first quarter. Over the course of the year, 160 internet companies registered as insolvent. This represents a fairly new situation for China: for years, hyper-growth and a surfeit of capital have propelled even the weaker players in its tech industry onwards and upwards.

Expert observers believe that the causes for this recent plateau lie in weak overall economic growth. "Every industry has been impacted in one way or another", according to Liu Haufang



Photo: Alexander Vejnovic

Finn Mayer-Kuckuk has reported for over ten years from East Asia, focussing on economic and technology issues. A trained Sinologist and Japanologist, he previously worked for the Handelsblatt, and is currently a reporter for the Dumont Media Group.

Wallet-less payment is an everyday affair in China

The customer is irritated. “That just can’t be true. What a stupid shop this is”, she grumbles to the man behind the Starbucks counter. “I’m really sorry, but we only accept cash or credit card”, he replies humbly. His customer turns and marches out of the café, leaving her latte with nougat syrup behind. She has no choice; she is not carrying a wallet.

In the cold autumn air outside, Liu Mei explains what is going on. She is 28 years old, and works in the same building as Starbucks. “I like to wear tight-fitting clothes and find wallets inconvenient.” Luckily for her, it has become possible in recent months to pay with her phone virtually everywhere she goes: at the supermarket, at cafés, or in boutiques. “I just don’t understand why Starbucks of all places still insists on cash payment.”

Like Liu Mei, tens of millions of Chinese regularly make purchases with their phones.

The market leader WeChat Payment is currently accepted at over 500,000 businesses in China. Meanwhile Alipay, with hundreds of thousands of cash registers its major competitor, is used to complete transactions. Theoretically, customers can pay at many millions of locations with Apple Pay.

WeChat Payment works in two ways. Retailers can put up signs next to their cash registers displaying their shop’s QR code, which customers then scan, before entering the amount they want debited from their bank account. Alternatively, the customer uses the app to generate a payment code that a retailer then scans at the register.

Alipay, a product of the global e-commerce company Alibaba, functions quite similarly. Small businesses in particular often choose a private WeChat account for their transactions, rather than officially registering as a business. WeChat

Payment works for all of its users—money can simply be sent like a chat message. A rickshaw driver in the picturesque canal city of Suzhou, for example, asks his customers to add him as a friend, then send him the eight Euro he charges for a city tour as a chat.

Apple Pay, by contrast, doesn’t yet play a major role in China, but is set to make a major breakthrough there. Apple has taken a clever approach to entering a market already crowded by popular competitors: the Californian firm has

set up a cooperation with Unionpay, a

Chinese equivalent to the European

EC card. iPhone owners can

now pay at every register that

accepts Unionpay cards,

giving Apple’s service at

least as much reach as the EC card has in Germany.

Payment via any one of these services works on the whole quickly and reliably.

Of course, there are problems

though. At the discount

supermarket Jinkelong, chaos

occasionally ensues when younger customers want to pay with their mobile

phones: if the data connection is slow, items will begin to pile up at the checkouts, while customers can only stare helplessly at their devices.

In such situations, it is not uncommon to hear an older shopper call from the back of the queue:

“Child! Stop holding us up. Just pay with money!”

According to the research firm eMarketer, 195 million Chinese pay regularly with their phones.

In the coming year, this figure is set to increase significantly. The more often people see their friends shopping without their wallets, the more they want to try it out too.

Finn Mayer-Kuckuk





Dublin

Berlin

Beijing

Tel Aviv

Cairo

Shenzhen

Hsinchu

Lagos

Bangalore

Konza

Singapore

Cape Town

Jakarta

Sydney

The next Silicon Valley? It could be here.

BY TOBIAS SCHWARZ

Startup founders and estate agents alike dream of booming technology centres. Tech firms profit from shared know-how and the local economy profits from their growth. Worldwide, 16 cities are in the starting blocks in the race to become the next Silicon Valley.



Boston

Santiago de Chile





Silicon Valley

Silicon Valley: The Californian Original California's Silicon Valley is synonymous worldwide with successful business in the age of digital transformation. Companies like Google, Apple, Facebook and Tesla are the crown jewels of the Californian economy. They in turn build on the achievements of companies like Hewlett-Packard, Cisco, Dell and AMD, which already help shape the 20th century and continue to do so today. But the original Silicon Valley did not appear overnight—something that investors often overlook. Its origins go back to 1951, to the Stanford Industrial Park (today Stanford Research Park), built near Stanford University. A research and industry enclave is not enough on its own, it can only be the first step. It takes time to change the world.

Boston: The East Coast of the USA catches up What Stanford University is to the West Coast of the USA, Harvard University and the Massachusetts Institute of Technology (MIT) are to the East Coast—two elite universities which have nurtured countless talents. It is no surprise, then, that Boston is referred to as America's second Silicon Valley. Hardware startups in particular benefit from their proximity to the world's leading research sites. Proximity to the financial district of New York City and the federal capital in Washington are factors that the West Coast cannot offer. Furthermore, Boston has an attractive inner city and is well-organized, boasting a quality of life that is the equal of San Francisco's.

Chilecon Valley: ¡Bienvenidos a Santiago de Chile! It makes no sense to just copy Silicon Valley. Santiago de Chile, for example, is taking its own promising approach. Chilecon Valley aims to be a more diverse Silicon Valley, shaped by immigrants from across the world. Chile makes it easy for startups and businesses from other countries to develop and prosper, while providing generous support in the form of government subsidies. But if Chile wants to become the centre of the South American startup scene, the country must also move quickly to achieve political stability. Nevertheless, the startup program can be considered a success. So far entrepreneurs from over 40 countries have come to Chile and set up businesses there.

Sankt Oberholz instead of San Francisco: Berlin, Berlin! If there is one place in Berlin that feels a little like Silicon Valley, it must be the corner of Torstraße and Rosenthaler Platz. Since the summer of 2005, this has been home of St. Oberholz, a popular café and co-working space. Over the last 12 years, Berlin has seen the birth of hundreds of startups, all of them contributing to its reputation as the "Silicon Spree" (the Spree river runs through central Berlin). Attempts by the city and the German government

Boston

Santiago de Chile

to support this development in recent years should not obscure the fact that the success of the Berlin startup scene has often been in spite of, rather than thanks to, their help. In the age of Brexit, this open and (still) affordable city could manage to shape the global economy—as a potential global metropolis and major research hub.

Tahrir Alley Technology Park: Cairo's answer to Silicon Valley Tahrir Alley Technology Park (TATP) or "The GrEEK Campus" has the potential to be a showcase project for Egypt. It is situated in the heart of Cairo, just off Tahrir Square. On the site of the former premises of the American University in Cairo (AUC), a venture-capital business specialising in North Africa and the Near East has created a startup space covering over 23,000 square metres. The country's political instability



has thus far prevented TATP from taking full advantage of resources and developments which could have supported new startups. But then, neither Rome nor Silicon Valley were built in a day.

Konza Techno City: Kenya has potential With the Konza Techno City economic project, the Kenyan government is trying to conjure up their own Silicon Valley in East Africa with an investment of around 15 billion US-Dollars, equipped with universities, hotels, schools, hospitals and research institutes. That is a start, but what is more important is the attitude of entrepreneurs in Kenya: they are not copying innovations, but rather looking for solutions for local problems. Developments like the mobile payment system M-Pesa show the innovative power of the Kenyan startup community. The capital Nairobi in particular shows technological potential which is unrivalled in Africa. Just like Silicon Valley, they need more than just money; they will need people with ideas if they are to change the world.

Bangalore: Silicon Valley's Indian Doppelgänger India's Bangalore exemplifies the understanding that developing a technology centre takes time. As far back as in the 1970s the foundations were being laid here for India's IT industry. This development was boosted by the Indian education system, which offered computer courses and produced experts who in turn attracted the attention of foreign tech firms. This first generation of expertise can still be found there today, fluent in English and skilled at training new talent. They have worked to help to transform Bangalore over the last 40 years into one of the few IT sites that can really be considered a local version of Silicon Valley.

Shenzhen: The home of Chinese capitalism That Shenzhen is being treated as the Chinese Silicon Valley should come as no surprise. This is where the communist government made its first steps in the 1980s to introduce and experiment with elements of capitalism by creating so-called special economic zones. The next logical step was to develop digital business. Shenzhen is now the wealthiest city in the whole country. The infrastructure is more modern than in most Western metropolises. Here, people earn

around 40 percent above the Chinese average. Understandably, the best of the best make their way to Shenzhen to work in the IT sector. Lenovo and Huawei are just two of the many companies from Shenzhen enjoying global success.

Beijing: The city of superlatives in innovation Tech giants and universities in China spend billions of US Dollars on research and development. That helps to promote local talent and projects that benefit the Chinese economy as a whole. Today, the country with its 1.4 billion inhabitants leads the way in registered patents across almost all technological sectors. Moreover, China owns most of the world's 500 highest-performing computers, an important indicator of technological leadership. Huawei and Xiaomi are now well-known in the west. A company like the Chinese drone manufacturer DJI is just one of Beijing's little-known "unicorns" with major potential: it already controls a 75 percent share of the American market.



Dublin

Dublin: Even the Vikings liked it

The European counterpart of Silicon Valley is not to be found in Germany or France: Dublin is often viewed as Europe's technological hotspot. The Irish capital is the fourth-richest city in the world and home to over one million workers. The offices of Microsoft, Google, Amazon, Twitter and others are to be found in the greater Dublin area, to name but a few of the giants of California's Silicon Valley. This makes the city the focal point for Europe's information and technology businesses. With a range of outstanding colleges and universities, Dublin is also an paradise for education. The city owes its current boom since the 1990s to the IT scene.

Tel Aviv's Silicon Wadi: Homeland of innovations

Today, the "Silicon Wadi" (wadi = valley) in Tel Aviv is the second-largest startup ecosystem in the world. Over 60 of its companies are already represented on the Nasdaq Stock Exchange—more than all companies from Europe, Japan, South Korea and China taken together. Tel Aviv has the innovative power of San Francisco and the nightlife of Berlin. Little wonder that business is booming. A good education system and military investment in new technologies are also key positive factors, alongside the facts that Israelis are enthusiastic networkers and compulsory national military service helps create a disciplined workforce. The country is making good use of its geographical location and political situation in its quest to create a new Silicon Valley.

Hsinchu: Innovation island

The Hsinchu Science Park (HSP) is just a 30-minute drive from Taiwan's capital Taipei. Founded

in 1980, it is today home to 470 companies with more than 150,000 employees. From Sony to Apple, top international players in electronics produce key components here. The National Chiao Tung University (NCTU) was opened in 1958 in the coastal city Hsinchu and is responsible for much of the growth of the HSP. Research centres looking at nanoelectronics, biomedical electronics or brain research are driving progress, thanks in large part to interdisciplinary research. To name just one example: the National Tsing Hua University (NTHU) has developed the world's first 3D drosophila brain database. Taiwan seems to be on the path to becoming a power in technological innovation—not just an economic achiever.

Lagos: Rising out of the developing world

In the course of the last 30 years, Lagos has seen poverty along with the birth rate slowly fall and health standards rise. The developing world is changing and more than perhaps any other African city Lagos is set to profit from this. Nigeria leads Africa in its population and economy. In Lagos one can find a wealth of successful tech startups like the Netflix counterpart Iroko TV or the online food dealer Supermart. Lagos is beginning to become visible in the world's

Tel Aviv

Lagos

Cape Town

newsfeed, and the African startup scene is becoming extremely interesting for venture capital investors. Lagos has still a long way to go before entering the realm of Silicon Valley, but the region is laying the foundations for a prosperous future.

Cape Town: South Africa's "Silicon Cape Initiative"

Around ten years ago, few people even in Cape Town would have been familiar with the term "startup". It was seen as more important to fight against racism and apartheid than to make risky investments in new businesses. But even then entrepreneurs like Justin Stanford and Vinny Lingham were starting to invest in new technologies. Both took trips to Silicon Valley to study the successful model being implemented there and managed to lay the foundations for the a startup ecosystem in Cape Town. In 2009



the Silicon Cape Initiative came together: a non-profit network made up of tech companies, developers, creatives and angel investors. Alongside Lagos, Cape Town is the biggest claimant to the title of Africa's next Silicon Valley.

Jakarta: At the peak of innovation and progress The sprawling capital city Jakarta is Indonesia's heart and soul. Little wonder that more and more creative businesses are calling Jakarta their home. A technology-oriented government, the prevailing innovation culture, the creation of stronger tech startup ecosystems and the large number of trained and qualified young people are opening the way for Jakarta to

become another Asian Silicon Valley. Today, Indonesia is a global leader in technological innovation and progress, as the "Mobil Arina" compact car and the unmanned air vehicle "Smart Eagle" demonstrate.

Sydney's Silicon Beach: Doing business where others holiday

In order to create another Silicon Valley, you need engaged people. Sydney has plenty such residents, but because Australians like to travel they often set up shop in far away places (including California). However, Australia's biggest city has similar qualities to the original Silicon Valley and the domestic startup scene is slowly waking up to this fact. Silicon Beach is still comparatively small but its prospects are big and growing. In an economic world that never sleeps,

Sydney is a particularly good location for European companies with 24-hour systems. Well-trained native speakers of English are the ideal complement to networked teams and the challenges of the modern business world.

Singapore: The world bank's tip Singapore, next to Hong Kong, is the most important financial centre in Asia and one of the most-visited places in the world—so there is more than enough money floating around. Ironically Singapore's biggest advantage is its limited population. In a market with a little more than six million people, new developments don't make a lot of money. So it is necessary from day one to turn outwards and look to the whole world as your market. This attitude brings the island state one step closer to its goal of becoming the Silicon Valley of Asia. Singapore has a lively startup scene. Many of its entrepreneurs have train in California before returning home to work. Even the World Bank considers Singapore one of the best global locations for entrepreneurs, hardly an insider tip any longer. ■



Photo: Carolin Saage

Tobias Schwarz is co-founder of the Institute of New Work and Coworking Manager of St. Oberholz in Berlin. As editor-at-large he writes for the blog Netzpiloten.de. He is a member of the founding committee of the German Coworking Foundation.

On robots and class struggle: Are we being replaced by machines?

BY MADIS PANKOW

It is people who build machines to work for them. But will there be any work left over for humans when machines become intelligent? One thing is clear: the working environment will change. Looking back at the industrial revolution can give us a hint as to how.

Now it's Go. First the chess world champion Garry Kasparov loses a game to the computer Deep Blue in 1996. Top participants in the TV quiz show *Jeopardy* are beaten by IBM's supercomputer Watson in 2011. And as if that wasn't enough: we've now been outsmarted by artificial intelligence in Go. This Japanese board game, though little-known in the West, is famed in Japan for its vast complexity. But on March 15, 2016 the 33-year-old Go grandmaster Lee Sedol lost to a computer by 4-1.

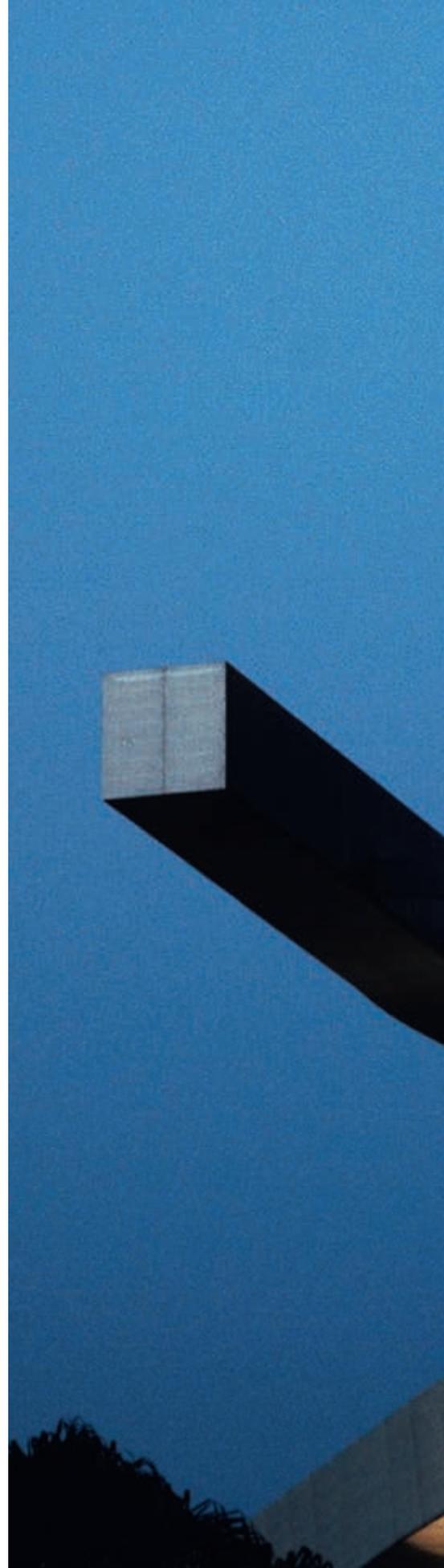
It's hard to escape the conclusion: if machines can defeat us at board games, it won't be long before they can subjugate us in real life.

This, at least, is a scenario that preoccupies both theoretical physicist Steven Hawking and Elon Musk, founder of Tesla and Space-X. They fear that machines will soon be the equals of *Homo sapiens*; indeed, that they will be able to surpass humans intellectually

- a condition known as "technological singularity". Hawking and Musk see no place for humanity in this future: we will have made ourselves superfluous. If Mark Zuckerberg is to be believed, the end of human superiority may only lie five to ten years from now.

This actually counts as a modest prognosis. It was the logician John McCarthy who first discussed the notion of singularity in 1955. He suggested that if ten good people put their heads together for two months, the problem of artificial intelligence could be solved within a summer holiday.

If two months had indeed sufficed, the world we live in today would be very different indeed. Production would already be completely automated—as would be the entire economy. Contrary to those fears expressed by Hawking and Musk, we would not, however, have been rendered completely superfluous as a result. Humans remain the ultimate





end of all economic activity, something our profit-oriented economic system would do well to recall from time to time. But how does someone earn their keep when they are no longer economically productive? What remains for him or her in a world full of intelligent machines?

And when will we have reached this point? McCarthy's plan for the conquest of artificial intelligence is, after all, 70 years old. Even if current progress in the field of AI is explosive, there are key fields within which the distance between computers and

human intelligence has hardly shrunk.

Without doubt, IBM's Watson's abilities are impressive, but it remains the case that operations carried out by a supercomputer ultimately have nothing to do with human thought. If one looks more closely at Watson's process design, it becomes clear that the computer doesn't even need to understand the questions put to it in order to generate its answers. Watson employs a syntactic routine to deconstruct texts and extract their central terms before searching its database for synonyms. Using the resulting

Thus, despite our fears, we need not worry about being overtaken by AI at any point soon. It has already lapped us, at least in the fields for which its architecture is designed: formal operations. But the triumph of the algorithm will, at least for now, have to remain limited to this domain. Even accelerating increases in processing power can do little to change this fact. Only a fundamentally new technology, capable of operating associatively rather than formally, would have a chance at developing a truly human-like artificial intelligence. Yet there is no sign of such a development on the horizon.

Instead, we should free AI research from the unreasonable demand that it reproduce or simulate human intelligence. Because man and machine possess different competencies, it makes more sense to work towards a division of labour in which human and artificial intelligence complement each other.

To achieve this, we will need to create precisely tailored niches for machines to fill. Winning at board games is maybe exciting, but ultimately meaningless. It is only humans who can say what is meaningful. Delivering meaning to machines will become one of the central tasks people will tackle in the future.

"Claims processor" sounds abstract, but it already exists as a job. Contrary to the cliché, tax advisors or insurance claims processors do not simply follow a rote formula. Instead, their job is to translate real-world occurrences into the formal language of contracts, laws and software. It is exactly this work of formalising meaningful associations and contexts that will continue to belong to the tasks for which humans are indispensable.

On the other hand, jobs in fields where computers can apply their unsurpassable precision and speed are at risk, especially in logistics and middle management.

Both "Uber" and Amazon's "Mechanical Turk" (MTurk) already operate according to this principle.

And when will we have reached this point? McCarthy's plan for the conquest of artificial intelligence is, after all, 70 years old.



Photo: Steven Haberland

Mads Pankow is the editor of "Die Epilog", a journal of contemporary culture, and a consultant at the "Zentrale Intelligenz Agentur". He organizes the annual "Digital Bauhaus" boutique conference in Weimar. He studied media culture and organizational science in Marburg, Malmö and Weimar, and specializes in questions arising at the intersection of technology, philosophy and sociology.

word clusters, it then searches a 100 gigabyte lexical library for similar accumulations of terms, filtering out the most common sentence constructions from the entries returned by its query. Using these, it generates its answers. This makes Watson excel at answering questions on Jeopardy, but still it remains within the realm of classic data processing. It bears no similarity to the semantic understanding on which human thought is based. People make spontaneous associations; they do not continuously check their memories for certain constellations of words.

This exemplifies the fact that in areas of genuinely human ability, such as understanding the world around them, machines are still not at home; conversely, humans will never outperform a simple pocket calculator in the realms of logic, calculation, and data-processing.

They replace middle management with software that brings customers into immediate contact with those providing services for which they are willing to pay. Uber connects drivers and passengers, while MTurk recruits human workers for tasks that cannot yet be performed by computers, such as translation or data entry. However, because of their lack of political organization, click workers and Uber drivers are wholly at the mercy of the cold economic calculus of algorithms. The Uber algorithm sets alone, without human intervention, the price of a journey based purely on the present state of the local Uber market. If not programming or marketing new technologies, humans are reduced to precarious jobs involving menial labour and little prospect for advancement.

With the introduction of algorithms into economic competition, every margin will be automatically whittled down to an absolute minimum, including money spent on wages. In a competition between algo-

❶ How will automatically generated economic yields be distributed?

❷ How will we still be able to earn money?

❸ Why should we have to pay for a commodity produced without the input of human labour using money we have earned ourselves?

None of these questions can be satisfactorily answered within the free-market economic paradigm that currently reigns.

One thing is clear: people's livelihood can no longer remain tied to their economic productivity.

This is not, in fact, a new development. In the industrial age, machines have inserted themselves ever more thoroughly between human labour and its products, alienating people from production to an ever-greater degree. In response to their being rendered replaceable as the operators of machines, workers began to organ-

ize. They brought about the modern labour movement and the introduction of social insurance programs. Since the Industrial Revolution, workers' pay has been increasingly decoupled from the economic productivity of their work, right up until the present and the minimum social benefits guaranteed by the state.

A logical next step would be to introduce an unconditional basic income, which would finally complete the detachment of livelihood from economic work. From a cultural-historical perspective, this actually seems plausible. The question is, will it solve the social problems presented by automation? Will people of their own volition seek meaningful work if their income is already guaranteed?

It seems clear that for most people work is more than just making money. Work is part of one's identity, one's sense of self-worth, and place in society. It is a basic human need. The good news is that there will still be enough work to be done in an automated world. As long as there are problems, people will need to work to solve them. The difference is that in future, these problems will lie in domains not subject to automation. In culture, education or social work, for example. Indeed, precisely those areas of work that, because of their lack of profitability, are organized by the public sector.

The biggest challenge for the automated society will thus consist of turning all the problems that computers can't solve into meaningful and motivating work for humanity. ■

in areas of genuinely human ability, such as understanding the world around them, machines are still not at home

rithms, no quarter can be given, and no room is left for profit.

When it comes to way returns are distributed, automation also fits poorly with our current economic system. If the production of goods can be disaggregated into a series of logistical processes consisting of manufacture and resource management, then it is only a matter of time before it is nearly completely automated. This would spare workers all manner of hard manual labour, but presents us with three important questions:

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What happened online? September 2016

1

01/09 After being green-lit by the European Commission, the Federal Network Agency (Bundesnetzagentur) allows German Telekom to launch the controversial VDSL2 Vectoring transmission in their quest to drive on broadband expansion. This was roundly criticized by competitors. Vectoring's technical requirements mean only one provider has use of copper cable for broadband access.

2

02/09 The German General Protection Credit Agency (Schufa) offers victims of identity theft the chance to register personal data in order to protect against repeated misuse. This is then made available to businesses, enabling them to get in touch with customers before conclusion of contracts.

7

07/09 The European Court of Justice rules that those buying computers have no right to merely purchase pure hardware. Pre-installation of operating systems or other programs is thereby still permitted.

8

08/09 In order to combat terrorism, the German Federal Intelligence Service (BND) as well as the German Federal Office for the Protection of the Constitution (BfV) plans three-figure million investments for the coming year. 73 million Euro alone are set aside by the BND for further projects relating to communication surveillance.

08/09 According to a European Court of Justice ruling, commercial website operators, if providing links to copyright controlled material (music, photos, lyrics etc.), must first verify whether these were published legally. If they fail to, damages can be incurred.

14

14/09 Hackers publish the medical data of numerous US Rio Olympics athletes, aiming to prove doping violations. The data originated from hard drives of the World Anti-Doping Agency (WADA).

14/09 EU commissioners Andrus Ansip and Günther Oettinger present guidelines for a modern copyright law. The guidelines permit a EU-wide license to be issued, rather than every member state having to get one specific to their country. Critics also bemoan a twenty-year ancillary copyright law for publishers that would require providers themselves to filter out breaches of copyright.

17

17/09 Twenty-five years ago today, Linus Torvalds releases the first version of the Linux operating system.

20

20/09 An Open Access strategy launched by the German Federal Ministry for Research (Bundesforschungsministerium) envisages that in future, all tax-funded research projects should be accessible online free of charge.

21

21/09 According to Holger Munch, Director of the Federal Office of Criminal Investigation (Bundeskriminalamt), messenger service-providers such as WhatsApp and Signal should be legally obligated to save stock data and make it available to government agencies on request.



21

21/09 The European Commission agrees that, as of summer 2017, there should (in principle) be no roaming charges within the EU. However, this only applies when using a SIM card from the user's country of residence. They hope to hinder users deliberately signing contracts in countries offering lower prices.

21

21/09 Witnesses questioned by the NSA Investigation Panel (NSA-Untersuchungsausschuss) repeatedly explain that mobile phone numbers do not allow an accurate enough location for targeting by drone strike. Hannes Federrath, Hamburg Professor of Informatics, arrives at a different conclusion. He speaks of one technique providing an accuracy level of 5 to 35 metres.

22

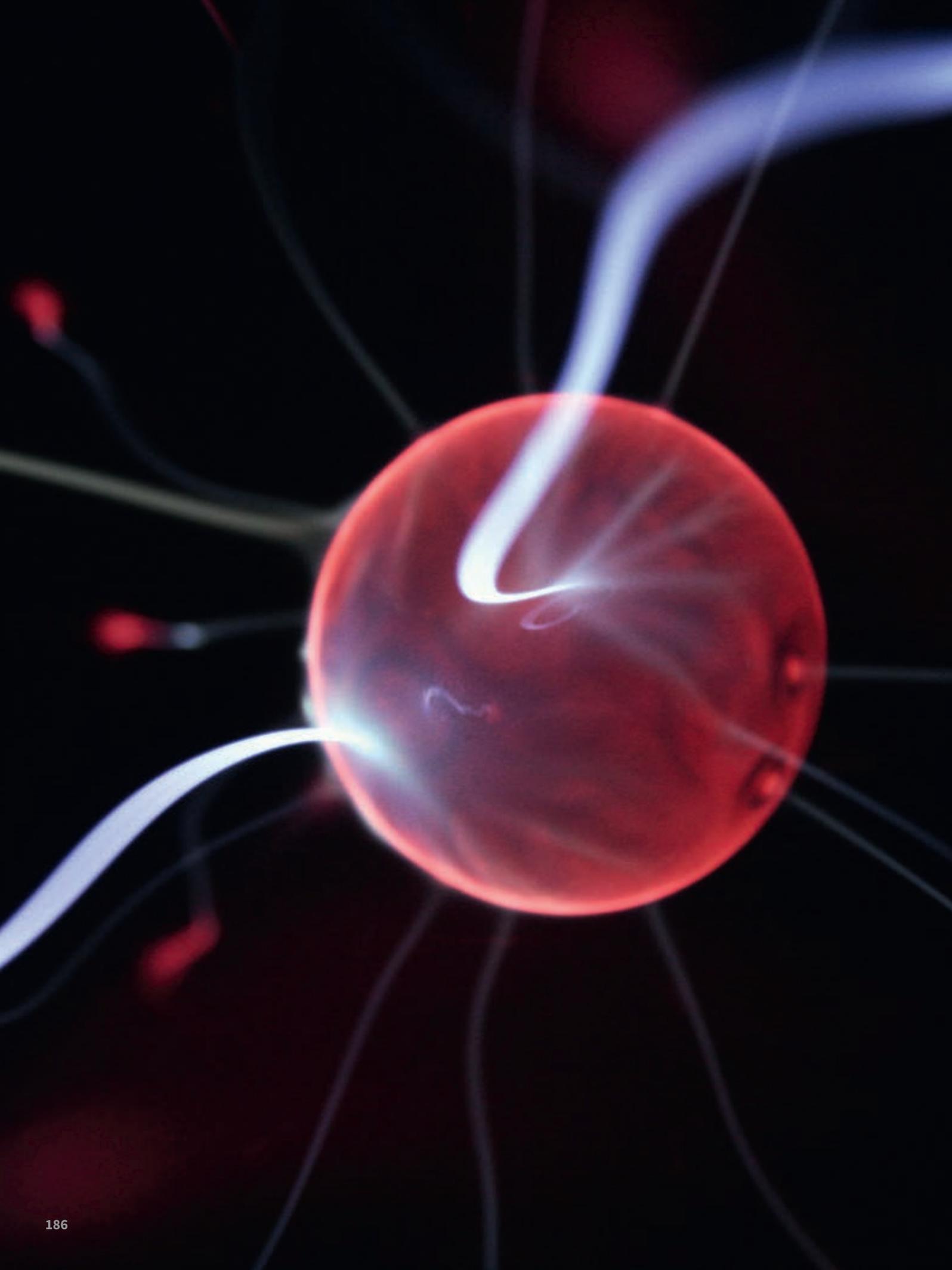
22/09 According to a current Twitter transparency report, state agencies lodged around 5,000 account-delete requests in the last half-year; over 4,000 came from Russia and Turkey. 63 requests came from Germany.

23

23/09 The German Federal Assembly (Bundesrat) passes a law requiring operators of public mains suppliers to install glass fibre cables, other broadband apparatus, or at least ductwork when renovating or constructing electrical or waste water systems.

27

27/09 Johannes Caspar, Hamburg's Data Protection commissioner forbids Facebook's replication of Whatsapp user data by means of a court order. Already transmitted data must be deleted. At the same time, the European Commission examines re-instigation of the merger control procedure. In 2014, Facebook bought Whatsapp for 19 billion Dollars, agreeing that no data exchange would take place.



We can guarantee the availability of the internet

INTERVIEW WITH HARALD SUMMA

eco, the most important association of the internet industry in Europe, runs DE-CIX—one of the largest internet nodes in the world. Harald Summa, eco's Managing Director, explains why the web's self-regulation functions so well, and why Germany really needs an Internet Ministry.

iRights.Media: Mr. Summa, the internet is invisible to most people. You run the largest German internet node, the DE-CIX in Frankfurt. Can you explain what an internet node is, and what happens there?

Harald Summa: Many people believe that the internet is a large network. However, on a technical level, the internet is more like an amalgam of many smaller single networks. Providers have their own networks. Internet nodes are responsible for bringing many networks together at a centralized point. Without it, you would need a direct connection for every network available in the world! Considering the about 55,000 singular networks that make up the internet, this doesn't make sense. It's for this reason that central exchange nodes were set up right at the beginning. DE-CIX was founded in 1995 as a German exchange node providing the central infrastructure upon which

internet traffic can be exchanged. Simply put, an internet node is a large switching centre where each provider has their own plug. So-called switches connect Network A with Network B. Here in Frankfurt we have around 900 networks—each connected with various different bandwidths. A large proportion of the German and indeed international traffic is led through Frankfurt.

How large is the node in Frankfurt compared to others?

We have a total of ten interconnected machines with large interfaces in 16 different computing centres. We process at an average of three to three-and-a-half terabytes per second. At the peak time of 9pm, it can be as much as five terabytes. Our platform can actually cope with up to 40 terabytes. That means we've a few more years before the current infrastructure needs to be updated.

The largest nodes worldwide are in Amsterdam, London and Frankfurt. We're the largest in terms of capacity. The others process at an average of 3.1 and 4.7 terabytes per second. Europe, USA and Asia have different strategies to build up internet nodes. In the USA and Asia, there are no large expansion stages as we have here. Instead, there are smaller, commercial internet nodes. As a consequence of having larger associations here in Germany, operators are on the whole 'neutral'. Other nodes are run by states that can practice significant control over them.

happened. Commercial operators had the exchange nodes in their control, creating a competitive environment that is not conducive to an infrastructure like the internet. None of the American support systems approach the significance of the three most important European ones. Three years ago, we built an exchange point in New York. We established our model of the shared, independent, neutral node right in the lion's den! We've had great success with this. We're now number 2 in New York, and on the way to being market leaders. Our European model is very well suited to the American market.

We're now number 2 in New York, and on the way to being market leaders. Our European model is very well suited to the American market.



Photo: Raimond Spekking, CC BY-SA 4.0 (via Wikimedia Commons)

Harald Summa is the founder and Managing Director of eco—Association of Internet Economy. In 1995, Summa founded DE-CIX in Frankfurt am Main. Under his subsequent directorship, it has become the most important internet node worldwide. He is also a lecturer at the Institute of Informatics at the University of Cologne. He is a member of the Federal Ministry for Economics and Energy's "Initiative Young Digital Economy" committee, and the state of North Rhine-Westphalia's "Digital Economy" committee.

That's usually unproductive, as can be seen in China. But in India too, internet nodes are in state hands, and don't function at all. Both are important future markets.

Who runs the internet node in Germany?

In Germany, the internet node is in the hands of eco, an association of the internet industry. DE-CIX is a syndicate rather than a commercial business. Members (internet providers) are also customers, and have a say in how DE-CIX is run.

Do you believe that state control is necessary to ensure the internet's infrastructure runs smoothly?

I believe the opposite is true. It's because we (in a self-regulatory way) built up the exchange nodes ourselves that they work so well. In the USA, for example, something different

In administering an internet node, there is a huge responsibility to ensure everything functions properly. How much do you worry about technical breakdowns or security problems?

If you had asked me 15 years ago, I'd have said: "I occasionally have sleepless nights." Today I can say, without feeling bad, that we have the technology under control. We can point to the internet being one hundred percent available since 2007. The DE-CIX isn't just one computer. There are ten switches connected to each other in such a way to ensure that, in the event of one switch failing, the others can bear the burden. All parts of the switch that can break—power supplies, fan belts etc.—are duplicated. We can guarantee the availability of the internet. I don't see a threat that could somehow bring us to our knees. We have very sophisticated firewalls. Our software is very secure and dependable.

How do you feel about government attempts to intercept and save internet traffic, for example through measures like data preservation (Vorratsdatenspeicherung)?

The service provided by DE-CIX lies outside of these regulations. Also the information that goes through is not

of use to the intelligence services. We have no influence and no relationship to what is being transported over the DE-CIX. That means that we work in a similar way to a shipping distribution centre. There are large and small packages delivered to us. We know who sent them, and where they need to be sent. We've no idea what is in the packages themselves. That's really not our job. We receive and send on the packages—neither recorded nor altered—from Port A to Port B. That is the job of an interchange point.

Any discussion of internet infrastructure in Germany usually notes that broadband supply leaves much to be desired. How would you describe the condition of Germany's internet supply?

that data processing centres use up too much electricity. I'm afraid that in a few years, this decision will be seen as fatal. When data processing centres can no longer be developed, then the suppliers—and perhaps the customers—will leave. To Scandinavia, or Luxemburg, or to the French border, where electricity is more reasonably priced. These places fulfil basic requirements for building and operating data processing centres.

Second example: broadband. The question is—how sensible is it to squeeze the last bit out of a copper wire when it's fibre-optic cables that are needed? When we look at how things have developed, it is clear that—within ten years—using a 50-megabit connection will seem ridiculous. The cost of fibre-optic cables will play a

Kids should learn how to deal with new technologies at school. Thirdly, I would create an incentive system providing German businesses active in the digital economy with an impetus to look abroad for ideas. In the long term, we need strong digital solutions. ■

Interview by Philipp Otto.

The telecommunications infrastructure is the basis of every future economic action.

The telecommunications infrastructure is the basis of every future economic action. We are still too hesitant in comparison to other nations. We need to invest more in digitalization, and put new technologies front-and-centre. In ten years, we'll regret not having promoted the expansion of particular fields.

I'll give you two examples. In Frankfurt, over the last twenty years, an industry of data processing centres, providers, web firms, and software businesses has emerged. Banks don't come to Frankfurt because of the lovely weather. They come because the city boasts a superb digital infrastructure. However, there are currently moves by the city to reduce investment in this sector. They argue

part. We have a customer in New York who—on behalf of the city—connects fibre-optic to every bulb and every traffic light of every district. That of course costs a lot of money, but will eventually pay for itself. In Germany we can't even manage to equip some flats with glass fibre.

If you were a politician, what are the first three things you would sort out in this sector?

Firstly, I would advocate that digitalization should be dealt with on a single ministerial level. Currently it is shared between three ministries. A centralized system would afford digitalization the significance it deserves. Secondly, I would give greater room for the digitalization incentive system.





Political action shouldn't make things worse

INTERVIEW WITH ALEXANDER HÜSING

In 2007, the journalist Alexander Hüsing started the blog “Deutsche-Startups.de”. Ever since, he’s observed topical trends and economic developments. In 2016, Hüsing argues, things become more differentiated, more mature. He’s also not always happy about politicians interfering.

iRights.Media: What is your definition of a startup?

Alexander Hüsing: For me, a startup is a rapidly growing young company with a digital business model. It’s a startup as long as the founder and investors are still on board. As a rule, that spans a period of three to five years. There are also other companies that, even after ten years, I would characterize as a startup.

How many would you guess there are in Germany?

I would estimate there are maybe 5,000 to 7,000 startups. If we only consider those of real significance, we’re talking about a mid-range three-figure number.

What were the most important sectors in 2016?

A few sectors really became significant last year. Startups dealing with finance and banking have been talked about for a while now. However, a few FinTech representatives have thoroughly professionalized—sometimes even getting their own banking

My impression is that since politics threw its arms around the startup scene, there have been more obstacles to overcome.

license. An independent section emerged with InsureTech. In future, such startups will not only act as an agent, but also position themselves deliberately as separate “special insurers”, particularly in the field of pensions and retirement provisions. PropTech (property technology) completely detached itself, and became big as a result. Politics was the instigator: in 2015, the “bestseller principle” was repealed. Now it was no longer flat-hunters who had to pay the estate agent, but rather the landlord. Around 50 startups emerged within the rubric of renting/purchasing/occupancy alone—though roughly half of these failed. And LegalTech also became a name.

What do they do?

LegalTech continually process standardized legal queries through one platform. Additional costs related to renting, for example, delays to train journeys or flights. If you have a receipt for additional costs, you can send it through their platform. When it's a case that appears to be worthwhile, you immediately get a

certain sum paid out, and they take it from there.

FinTech, PropTech, LegalTech... Who comes up with all these labels?

They simply develop over time. That is characteristic of the startup landscape today: five years ago something was just a startup. Now the scene is more differentiated. Today, every startup has a particular kind of stamp.

Are there also certain kinds of startups that have disappeared?

Not exactly disappeared, but recently we've seen a noticeable decline in the gaming business. Bigpoint was sold this year for a bargain basement price. Gameforge has let people go, as have Wooga and Gameduell. The gold rush times are over. The app stores are overflowing with clones of successful games. It's now not as easy to get pole position in these stores.

If we look at PropTech, it was a political change that brought about a development of startups. Debates about the influence of politics are ever-present. Just how much help or hindrance are the general political conditions in this country?

The basic conditions in Germany are agreeable. You can always point towards reducing bureaucracy. It can be made easier for startups to fill their teams internationally. You can make it easier for foreign investors to invest, and also make life insurance possible. This is matter-of-fact stuff in other countries; here in Germany, as a “high-risk asset”, it's not allowed. At the end of the day, all of this won't be vital to win the war so to say. And generally speaking, I'm no friend of politicians wading in too much. They should at least not try to improve thing but in reality make them worse.

How so?

The startup scene was established in Berlin without politics bothering about it at all. Then Berlin discovered it as a political topic. There is really no other branch of the economy that is anywhere near as booming as startups. However, my impression is that since politics threw its arms around the startup scene, there have been more obstacles to overcome.

For example?

The minimum wage is a problem. Startups are often founded with many interns and students. In most cases, they're now required to pay them up to 1,500 Euros per month. You can see this as good or bad. For founders, who really are exploiting themselves the most, this has massive disadvantages. Bureaucracy has made things worse. And then there was the plan to intensify the taxation of investments (the so-called "Anti-Angel" law). Fortunately this was stopped.

Are there not positives too?

Of course there are also good things coming out of state or semi-state organizations. A promotional program for founders, for example. But in many cases, politics has succeeded only in creating unrest and insecurity.

For a long time, there was an accusation of too little money being available to the startup ecosystem. That's changed now, right?

For very young startups, it was never a problem to get starting capital from "family, friends and fools". There were also enough 'Business-Angels' too—they invest up to mid-term six-figure sums. With anything over and above one million, it becomes difficult. Fortunately this has changed. There are ever-more two-figure million amounts available for mature startups. This year, even the Berlin travel portal GoEuro received the sum of 70 million US-Dollars. Often this comes

from abroad, but it's increasingly likely to come from within Germany. There's a flood of risk capital providers who've emerged. In the last few years, many successful former founders have managed to get a lot of money together for new endowment funds. That shows the scene's maturity. There have been positive changes.

Startup lobbyists often like pointing to the national economic significance of startups. Just how significant is it though?

If we take the very largest startups together, we see an interesting profit margin. Admittedly, there are actually very few real success stories like Zalando, active throughout Europe or even worldwide. The startup scene isn't the car industry. At least where Berlin is concerned though, it provides jobs. It has brought many people into the city and given them new career opportunities.

The question is, what kinds of positions? Recently we've seen a lot of young people transporting food from A to B with crates far too large for them on their backs—sometimes at night, or in the pouring rain. These new jobs aren't exactly multifaceted, creative and well paid, but seem more in keeping with a human drone. Do startups generally not just produce horrible jobs?

That could be the case for some delivery services, logistical and e-commerce businesses, and for Amazon. However, just because you employ hundreds or thousands of people in a warehouse or in logistics, you still need well-paid people with know-how and creativity at the management level. In the last 15 years, startups have created many jobs that simply didn't exist before. At present we need experts for Facebook and search machine optimization, and we need online product managers and logisticians with completely new

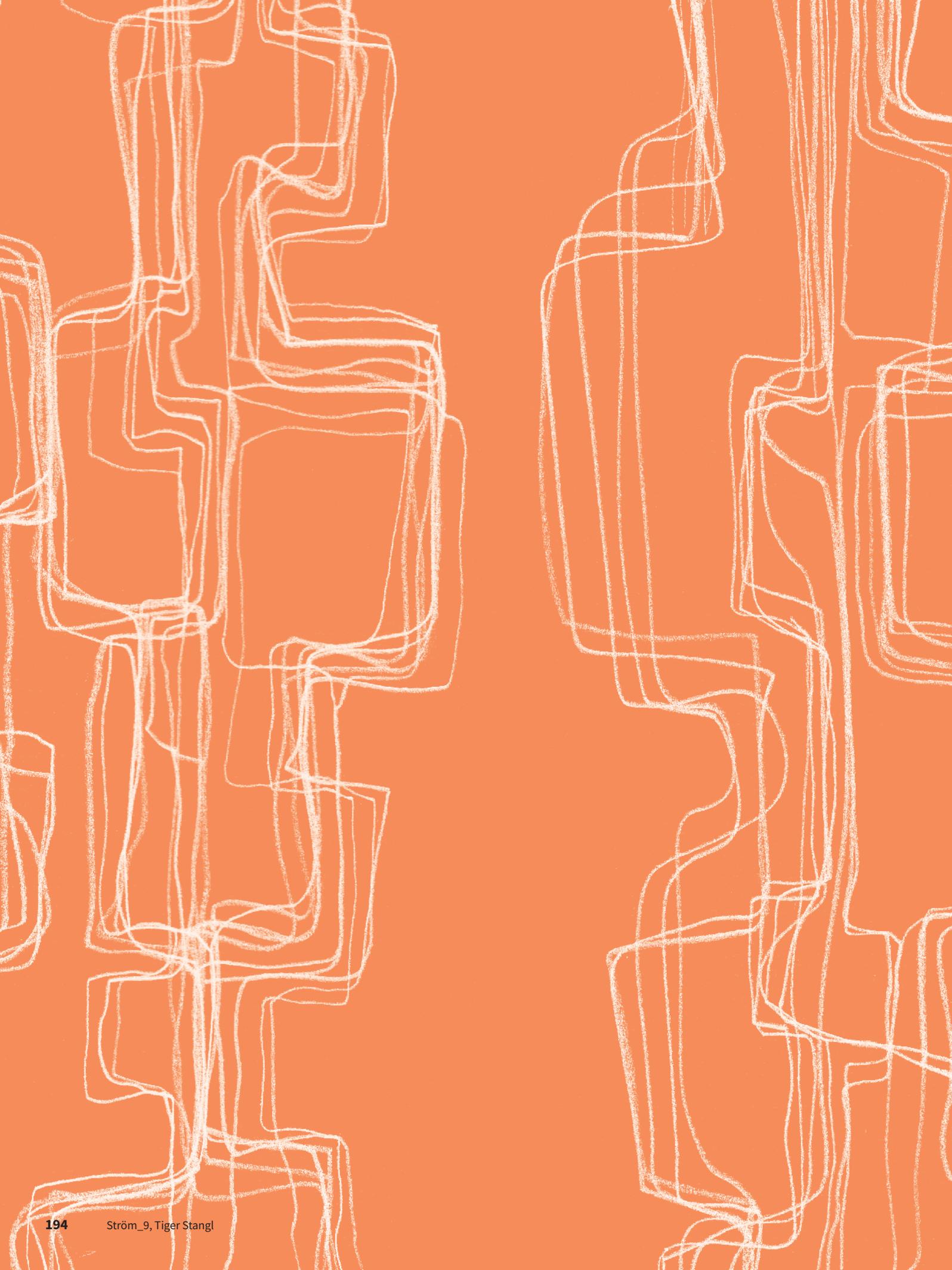
capabilities. In addition, there are careers—formerly unthinkable careers—to be made. Young people begin as an intern at a startup. When the business grows, they quickly become active as a team leader, or even at director level. Despite all their creativity, they would formerly have been swallowed up by some corporate group or other. ■

Interview by Stefan May.



Photo: private

Alexander Hüsing was born in 1974, studied history and politics, and has been a journalist for more than 20 years. For many years, he was editor of the trade paper Kressreport, and has also worked on a freelance basis for many different media platforms. In 2007, he founded Deutsche-Startups.de, and has been editor-in-chief ever since.



The background of the page is a solid orange color. On the left side, there is a large, abstract white line drawing that resembles a human figure or a complex network of lines. The lines are thick and somewhat chaotic, creating a sense of movement and complexity. The figure is positioned vertically, with its head at the top and its feet at the bottom. The lines are more densely packed in some areas, particularly around the torso and legs, and more sparse in others, particularly around the head and arms.

Culture

TV shows

Virtual stars

Locative art

Disruption

Citizen Ex

Iconoclasts

Creative work

Internet heritage and customs

Chatbots chatting

Gamification



TV at the crossroads of internet and humanity

BY ANDREAS BUSCHE

Several new series are taking on digitalization, computers and the internet in their own innovative ways. What do *Halt and Catch Fire*, *Mr. Robot*, *Silicon Valley* and *Cyber CSI* all have in common?



Connecting People”. With the unveiling of this slogan in 1992, Nokia took an important first step into a dawning era of global mass communication. That was nearly a quarter of a century ago. Microsoft had just driven Apple out of the PC market. No one had a clue that mobile devices would so fundamentally shape people’s navigation of the analogue world. In England that same year, the first SMS was sent, signalling the beginning of a second generation of mobile communications technology. A year later, with its model 1011, Nokia brought to market the very first mobile phone capable of both sending and receiving text messages. With their prophetic slogan “Connecting People”, Nokia was delivering an implicit promise that digital technology, rather than further isolating or alienating people, would instead facilitate ever-easier communication, transcending linguistic, cultural, and geographical boundaries. This message felt so simple and universal that the Finns clung to it, even after a company from Silicon Valley had long achieved epochal dominance over mobile communications. Dominance it continues to hold.

There is a mythical dimension to this historic moment; the threshold at which computers begin to influence and occupy nearly every aspect of our everyday lives. It absolutely makes sense that in recent years cinema and television have turned their attention to this crossroads of humans and digitalization. Apple’s great innovation was to make the human-machine interface an everyday affair; as a popular news source, social media have long surpassed traditional channels. The NSA affair was merely the most prominent example of the fragility of citizens’ rights in our networked world. Biographies of Mark Zuckerberg (*The Social Network*), Alan

Turing (*The Imitation Game*) and Steve Jobs (*Steve Jobs*) portray the digital entrepreneur as heroic—an exemplary pioneer of the Zeitgeist through which to better understand our absolute compulsion to communicate.

Cinema, with its logic of dramatic condensation (an attempt to compress a life into two hours), tends towards an antiquated cult of genius. Television, because of the proliferation and involution of the series-length

It could function just as well as an advert for *Halt and Catch Fire* or *Mr. Robot*. By contrast, the HBO sitcom *Silicon Valley* takes things a step further. The faith in progress and utopia of internet startups makes way for scepticism bordering on the absurd. The idealism of “Pied Piper” founder Richard Hendriks, a kind of anti-Steve Jobs, is in constant conflict with the monetary interests of technology firms and venture capitalists. While Silicon

, preoccupied more with software’s technical abilities than its moral implications. To a degree that is astounding for a television series, *Halt and Catch Fire* is meticulous in its descriptions of technical processes. As part of the drama, this “nerd factor” is important, as the series’ makers are also concerned with questions of social applicability. Its dramatic composition thus functions as a kind of operating system for addressing fundamental questions about the role of computers in our everyday lives.

The historical setting allows issues of huge contemporary relevance to be implicitly dealt with. Organization of the workplace, for example. Or ethical questions raised by the application of the latest technological developments. The free spirit of entrepreneurial innovation is not immune to the pitfalls of glaring naiveté. The dramatic dynamism of the series is driven in no small part by a successive shifting of focus. In the first season, entrepreneur Joe MacMillan is introduced as a charismatic figure in the mould of *Mad Men*’s Don Draper. Taking a backseat role in the second season, he proceeds to re-emerge in the third (now located in Silicon Valley) as a security guru with an uncanny resemblance to Steve Jobs. In his place, women begin to take the reins in season two. The coder Cameron Howe, always listening to some obscure punk song on her headphones, collaborates with the computer engineer Donna Clark in developing an online platform used to chat and also, potentially, to buy and sell goods. Here, “Connecting People” is to be taken literally. In the more optimistic moments, *Halt and Catch Fire* tells of early internet users forming novel, scattered, online communities on the basis of shared needs and interests. In the series’ more cynical (read: realistic) strain, these users are already understood as something else: customers.

Hacker Elliot Anderson, from NBC series *Mr. Robot*, shares many motivations with *Halt and Catch Fire*’s protagonists. The young programmer

The main roles go to programmers, developers and coders, thrilled by the beauty of elegantly coded commands

format, offers another avenue through which the story of human-computer symbiosis can be told. TV series no longer seem obliged to narrate broader social processes by means of single, exemplary biographies. Instead, they seek inspiration in more open and popular formats, such as period dramas and sitcoms.

Series like *Halt and Catch Fire*, *Mr. Robot*, and *C.S.I. Cyber* take different approaches to the question of how computers shape our daily lives. Certainly the most blatant position is represented by *C.S.I. Cyber* which claims to be based on the latest advances in digital forensics and law enforcement, but which ultimately ends up looking like cheap science fiction. *Halt and Catch Fire* assumes a historical perspective by returning to the birth of the personal computer revolution in the mid-1980s. What these series have in common is the fact that they turn, with varying degrees of explicitness, upon the question of human-computer relations and the rise of new forms of communication.

Which brings us back to the classic Nokia slogan “Connecting People”.

Valley draws from 1980s experiences of series-creator Mike Judge (*Beavis & Butthead*), its mannerisms and habitual blindness results in cult of genius and self-determination clichés that are unmistakably of our own time. This hints that technologies of the future will evolve more rapidly than the mentalities so at home in Silicon Valley.

In this respect, *Halt and Catch Fire* is the most interesting series—not only because of the amazing transformation it has already undergone in just three seasons. Written by Christopher Cantwell and Christopher C. Rogers, it was originally conceived as a follow-up to the immensely popular 1960s-based series *Mad Men*. Nevertheless, *Halt and Catch Fire* has little in common with the glamorous world of Madison Avenue marketing executives. The first two seasons are set in the Texas “Silicon Prairie” of the 1980s, the other birthplace of the American computer boom.

This is also a series about the marketing of visionary ideas, but the main roles go to programmers, developers and coders, thrilled by the beauty of elegantly coded commands

suffers from a dissociative identity disorder, complicating interactions with his fellow humans whilst also making him the perfect embodiment of a mainstream image of the IT autistic. However, he also possesses an extraordinary degree of social intelligence. When he's not testing the vulnerability of multinational corporations' IT systems (such as "Evil Corp"), he hacks friends' and colleagues' computers in order to protect them. This social hacking is Mr. Robot's strongest metaphor for the permeability between social and computer systems. In the elaborate monologues drawing viewers into his schizophrenic stream-of-consciousness, Elliot repeatedly engages in wordplay "short-circuiting" the technical aspects of his life as a hacker. In the first episode, he discusses his demons. His delusions. His compulsive habits. He compares them to system utilities and background processes (DAEMONS) that determine his actions. Here we have the human psyche as an operating system. Elliot's intellect becomes a computer monitor (mind=screen) on which the world

procedures, right down to the concrete formulation of commands, explicitly written for the show by expert cyber security consultants. Computer screens play an integral role in the drama. This attention to detail not only makes Mr. Robot a fascinating character study, but also a clever reflection on the connections and tensions between technical and social skills. Here lies the key difference between Mr. Robot and a series like *C.S.I. Cyber*, in which "cyber" is equated in sweeping terms with "everything that has to do with electronic devices" (according to the main protagonist, Avery Ryan, played by Patricia Arquette). Mr. Robot offers a more nuanced counterpoint to this blinkered, ultimately reactionary understanding of cyber, an understanding with a dangerous, hidden dose of techno-scepticism at its core.

The HBO series *Westworld*, as the youngest member of this new generation of television series dealing with the relationship between humans and computers, represents the flip side of this social utopia. In the theme park that gives the show its title, the super-

idealists like Cameron Howe, Elliot Anderson and Richard Hendriks. It is no wonder that the fascination for computers currently winding its way through US television can be traced back to the pen of techno-sceptic Michal Crichton. The idea behind *Westworld* is, in fact, nearly 50 years old. ■



Photo: Clemens Niedenthal

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Social hacking is Mr. Robot's strongest metaphor for the permeability between social and computer systems.

is shrunk. His IT skills are the only means through which he can come into contact with fellow human beings.

Mr. Robot would only be half as interesting if creator Sam Esmail understood hacking as merely a social metaphor. Hacking is also a specific cultural technology and technique; perhaps more precisely, a culture-jamming technique. In the first season, nothing short of the impending collapse of the global financial system is at stake. Esmail places great emphasis on realistically depicting hacking

rich of the future can (in exchange for a lot of money) get immersed in a fully automated Wild West simulation. If they wish, they can also indiscriminately massacre, Grand Theft Auto style, the humanoid robots populating the park. However, after a software update goes awry, the machines suddenly begin to develop consciousness and volition. In the dystopian reality of *Westworld*, computers have long lost their social function. They have been reduced to pure capitalist commodities, realising the worst fears of



Hatsune Miku, the world's first cybernetic star

BY FINN MAYER-KUCKUK

In Japan, virtual figures are becoming ever more realistic. Consumers can hardly distinguish between reality and image. The best example of this phenomenon is Hatsune Miku. She sells shampoo, records music, and receives marriage proposals. And all this without being real.

Now Hatsune Miku is doing shampoo adverts. Miku is a hologram, but in Japan this is no obstacle. There is nothing a hologram can't do—even if the whole exercise appears to be absurd. Of course Miku's virtual hair will never need to be washed or styled. Maybe this is actually what makes her such a suitable marketing tool.

In Japan, the boundary between the virtual and the real is blurring. Cybernetic stars are becoming more popular and more numerous. Now

that the first affordable, mass-market virtual-reality (VR) headsets are available, these stars are moving into the living room. Hatsune Miku is the best example of this trend.

For her fans, this computer-generated entertainer seems very real. The most famous of Japan's virtual celebrities, Miku receives a daily stream of marriage proposals on social media. The amount of fans unwilling (or unable) to accept they can't actually touch Miku led to Hiroyuki Ito issuing a public clarification. "She doesn't really

exist!" warned Ito, CEO of *Crypton Future Media* and Miku's creator.

In 2007, Miku began her life (or non-life) as a voice profile within song-generating software. The voice synthesizer *Vocaloid* had a number of pre-programmed profiles, for example "Ren", who sounds like a male teenager, and his twin sister "Rin". And then Miku, the sweet sixteen-year-old girl.

After its introduction, Miku's voice won many fans in the electronic music scene, where it was used to create songs posted and shared on video

platforms like *Niconico* and Youtube. Miku had a fan base before she even had a body.

Crypton observed this trend and decided to encourage and exploit it. Ito commissioned an Anime artist to give Miku a human form. The result: a skinny teenage girl with improbably long, green hair. Sales of Vocaloid, Crypton's voice software, exploded.

Soon, Miku began appearing outside of purely digital contexts. In 2011, together with the video game developer Sega, Crypton organized Miku's first live concert. The audience cheered wildly as their virtual star was projected onto the stage in 3D.

According to Ian Condry, researcher of Japanese popular culture at MIT, "Miku is the first virtual character to cross the threshold of being recognized as a figure with a definite appearance".

The clarification issued by Crypton CEO Ito, assuring the public that Miku is not real, seems somewhat disingenuous. After all, no one has done more to anchor his creation in her fan's lives. Crypton Future Media deliberately promotes Miku as a living person, placing her on stage and in theatres alongside real people. Tickets for her shows fetch respectable sums, and she has appeared abroad in Beijing, Shanghai, and Berlin. On top of this comes the merchandising revenue generated by the sales of Miku products like pillows, bags, pens or computer games.

In April, Miku appealed on-stage to "give her strength" by generating positive buzz online. On video screens flanking the stage, messages from fans all over Japan suddenly began to appear, posted on Twitter or the Japanese messaging service Line.

"I like Miku-chan more than real girls", says Kenji Akimoto, using the Japanese affectionate form of her name. Kenji is 31-years-old, and has an office job in Tokyo. He spends much of his free time with fellow enthusiasts in Anime shops in Akihabara, Tokyo's "electric town". If there were

a holographic version of Miku to take home, he would immediately marry her. "She wouldn't care if I had dandruff, and she would always be perfect."

Kenji likes to play computer games populated by figures like Miku. In some of them, the goal is to chat up and eventually win over girls in a series of encounters. By contrast, Kenji has never had a real girlfriend. In this, he is hardly a statistical outlier. According to a survey, 42 percent of Japanese men between 18 and 34 have never slept with anyone. The Japan Times feared that "sexlessness is becoming as Japanese as sumo and sake".

Marriage proposals by Miku's male fans are meant in all earnestness. In Akihabara, wedding ceremonies have already taken place between virtual girls and real boys, albeit without legal validity. There have even been petitions submitted to the authorities calling for legalization of marriage between humans and cybernetic constructions.

Virtual celebrities have been known in Japan since the 1990s, when the virtual star Kyoto Date released the hit song "Love Communication". Nonetheless, Kyoto Date never went on tour. Miku has taken a significant step further.

In light of popular virtual characters' very real earning potential, there will undoubtedly be many imitators to come. While Miku appeals to a largely male audience, the creators of the virtual boy band "Eight of Triangle" are hoping to win the adoration of monied teenage girls. The band's two "frontmen", Ray and Kazuto, are also computer-generated figures. Behind "Eight of Triangle" is film production company Toei, for years able to generate hit after hit in cinemas and on TV. Now Toei wants to turn its proven ability to read the pulse of popular culture towards the virtual world. Like Miku, both Ray and Kazuto have detailed backstories. Ray, a "songwriter", is said to drink copious amounts of coffee during the day and

plenty of alcohol at night.

The entertainment company Sony is also looking to blur the boundary between genuine social contact and virtual reality for profit. One of the first applications for Sony's new VR glasses, produced by game developer Bandai Namco, is called *Summer Lesson*. In it, gamers coach a voluptuous, platinum blond young woman they meet on a seaside veranda. She cosies up to players and trustingly refers to them as "sensei", teacher.

Bandai Namco sees *Summer Lesson* as just the beginning. The company is planning other games that, rather than serving up dragons, adventures and battles, seek to recreate human interactions in virtual reality. Sony's market researchers are convinced that hundreds of thousands of fans are eager to bring virtual figures into their living rooms, playrooms, and bedrooms. ■

Crypton Future Media deliberately promotes Miku as a living person, placing her on stage and in theatres alongside real people.



Photo: Alexander Vojnovic

Finn Mayer-Kuckuk has reported for over ten years from East Asia, focussing on economic and technology issues. A trained sinologist and japanologist, he previously worked for the Handelsblatt and is currently a reporter for the Dumont Media Group.

What Pokémon Go has in common with Locative Art

BY VALIE DJORDJEVIC

An enjoyment of discovery and adventure lies in the connection between the real and the fictional. It has the potential both to enrich and change the relationship we have with our living environment. A reflection on Pokémon Go and Jorge Luis Borges.

In William Gibson's novel *Spook Country*, Hollis Henry—journalist and former member of the legendary (fictional) band The Curfew—tries to write an article on Locative Art. *Spook Country* was published in 2007. The same year, Apple presented the first iPhone. It was the first smartphone as we know it today. If you think about it, the smartphone could have come directly from the Starship Enterprise: tricorder and communicator in one, personal assistant, access point to the whole of humanity's knowledge, and navigation device.

A few other technical developments were needed before the smartphone could function as it does today. One was GPS—the Global Positioning System—that was released to the public in 2000 having been developed by the US Department of Defense since the 1970s. In order for blanket coverage to be achieved, 31 satellites have to orbit around the earth. The last fundamental technical development came with fast mobile data. Only after 3G and LTE

did using a telephone out and about become fun.

In 2007, as Gibson was writing his book, there were only the first signs of all this. Here, Holly meets the artist Alberto Corrales who works with virtual reality. He makes art that can be seen on the street, but only with the corresponding hardware. In *Spook Country*, the devices are still rough-and-ready: virtual reality glasses (soldered together by Alberto himself) that are reminiscent of an Oculus Rift prototype, and a mobile phone with a GPS receiver gaffer taped on. It is only through them that we see the connection between real landscape and virtual art.

Overlapping layers of the present and the past

What the fictional characters in this ten-year-old novel observe is remarkably similar to that experienced by 45 million children and adults around the



Photo: The „Map“ sculpture by Aram Bartholl during the exhibition „Hello World!“ at Kasseler Kunstverein, Fridericianum Kassel, 2013 (via Wikimedia, CC BY-SA 4.0)



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UNIVERSITÄT
1. September 2010

world in the summer of 2016. Instead of seeing the Pokémon *Pikachu*, *Pidgey*, *Snorlax* (and all the rest of them), Holly sees scenes from Los Angeles' history. River Phoenix's death at the Viper Room. Helmut Newton's car accident. "Holly moved closer to the body. The body wasn't there. And yet it was. Alberto followed carefully with the laptop, so as not to lose the cable. She had the feeling that he was holding his breath. She held hers too."

Fictional artist Corrales searches for history throughout the city, creating a secondary layer upon which past scenes could be built. Niantic, the company behind Pokémon Go, laid a second layer over our cities in exactly the same way. Colourful pocket creatures bounce around on a virtual map containing Pokéstops—like pit stops where players can recharge on

fuel (*Poké Balls*) and food (*Potions*).

Arenas where mini-monsters

fight. In the real world—in parks, on squares, at historic sights—people stand alone or in

groups and stare

at their smartphones. The uninitiated passers-by are unaware that a Level 10 arena exists *right here*, and currently an almighty battle is raging between an Aquana and a Garados.

In July 2016, Pokémon Go was the most downloaded app in the world. A whole economy emerged almost overnight: cafés opened near Pokéstops, deploying bait to lure Pokémon and keep customers. Craigslist had car sharing, so that you could travel to far-away places and catch rare Pokémon. Animal shelters urged for help in walking dogs whilst your Poké Eggs were hatching.

Naturally, there was criticism. In the small French town of Bressolles, the mayor called for all Pokémon Go facilities to be removed. He reasoned that Niantic should have officially asked for permission: "Even if their

world is only virtual, Niantic uses the entire globe as its playground". He's right, of course. But this is exactly what makes the game so attractive. The whole globe as playground. The enjoyment of connecting the fictional with the real. To explore all this on your own.

A new way of reading your environment

At the same time, we have the abstraction: the view from above. In his book "The Practice of Everyday Life", French philosopher Michel de Certeau wrote (in a chapter titled "Walking in the City") of climbing the World Trade Center:

"Like Icarus, who could fly over the water, I can ignore the instruments of Daedalus and the endless labyrinths beneath me. My ascent transforms me into a voyeur. It creates a distance. It transforms the 'enchanted' world that obsesses me into words that appear before my eyes. It permits me to read it, to become the all-knowing eye of the sun, looking down like a God."

In 1980, when de Certeau wrote this, there was no Pokémon Go or Google Maps. Virtual Reality was just a thought in Science Fiction writer's heads. Nevertheless, his book still speaks to me, even today. Today I can read the city without climbing up towers (that have to be built, or were built but disappeared again—as happened, earth-shatteringly, with the World Trade Center in 2001). Digitalization of the earth has raised the readability of the city to a new level.

Google Maps, Google Streetview and Google Earth—Google as a company is at the forefront of this development. Niantic, the company who

The enjoyment of connecting the fictional with the real. To explore all this on your own.

Digitalization of the earth has raised the readability of the city to a new level.

developed and realized Pokémon Go, is also a spin-off from Google. Niantic boss John Hanke was previously with Keyhole, a company bought up by Google in 2004, which subsequently became Google Earth. As vice-president, Hanke was for a few years responsible for Google's Geo services (Google Earth, Google Maps, Local, StreetView, SketchUp and Panoramio). Niantic was established in 2010 as a startup within Google, only becoming a separate company in October 2005.

Ingress became the first Niantic game based on Geo data. Pokémon Go shares a large part of the digital infrastructure with this game. *Ingress* was a success: around 7 million people played it in 2015. Its Wikipedia page states: "Niantic's systems use high-frequency, real-time based geographic-spatial search queries and indexing technologies to process more than 200 million plays daily, whilst players integrate real and virtual objects in the physical world."

Loss of mystery, or new perspectives on the well known?

Along with other digital map services, Google Maps has made the physical sphere legible and useable in a new way. I always know where I am, regardless of whether I've been there before or not. Competence and knowledge—such as map reading, awareness of compass points, and sense of direction—have suddenly been rendered unnecessary. The blue dot on my smartphone always lets me know where I am. Above the earth, the eyes of global positional system satellites translate my location in a text. Some describe this as a loss of mystery: aimless wanderings, getting lost productively, strolling—the arsenal of Situationist psycho-geography—all this appears to be no longer possible due to digital map services and their offshoots. Here's where the reality of surveillance comes in: a smartphone in

my hand or pocket allows every movement to be tracked.

Despite these real problems, there are also genuine pleasures. In a *New York Times* essay, writer Amy Butcher describes how Pokémon Go gave her a fresh look at her surroundings, despite an initial scepticism regarding the game's meaningfulness. Unknown places: the lake around the corner you'd never seen, the mosaic on a façade you'd never noticed, conversations with strangers on fallow land

Unknown places: the lake around the corner you'd never seen, the mosaic on a façade you'd never noticed, conversations with strangers on fallow land that includes an unseen arena. All these hidden pleasures are on offer.

that includes an unseen arena. All these hidden pleasures are on offer.

Perhaps there are new possibilities for artists hidden in the popularization of games. Digital pictures that can only be seen with a smartphone in a particular place, sound art when travelling on the underground, poems scattered around the city. All these ideas and concepts are nothing new. For a while now, artists have worked on so-called Locative Art. Up to now, though, all within a niche market. In his shortest story, *On the exactness of science*, the Argentinian writer Jorge Luis Borges describes a map as large as the world itself. Borges' cartographers fail—the map breaks, it remains fluttering away in the desert. Today we have such a map, and maybe it won't break. Let's see what we can do with it. ■



Photo: Dirk Dunkelberg

Valie Djordjević is an editor, author and speaker. She is interested in web culture, the social effects of technological innovation, literature and art, as well as gender politics. She is a founding member of iRights.info.

What happened online?

October 2016

1

01/10 According to a recent survey, one out of every four internet users in Germany uses a fitness app or device while walking, jogging, or on the way to work.

01/10 The US government hands over the Internet Assigned Numbers Authority (IANA), internet infrastructure's administrative heart, to the non-profit organization Internet Corporation for Assigned Names and Numbers (ICANN).

01/10 A revised version of the Interstate Treaty on the Protection of Minors in the Media comes into effect in Germany. Among other new provisions, providers of online services are now required to append a filter-software compatible age classification.

4

04/10 Ten years ago, Julian Assange registered the domain Wikileaks.org. Since then, the platform has published more than 10 million secret documents. From his exile in the Ecuadorian embassy in London, Assange announces a new round of disclosures to celebrate the anniversary.

9

09/10 Johanna Wanka (CDU), German Federal Minister of Education and Research, calls for a digital agreement for schools between the federal and state governments in Germany. According to this proposal, the federal government would pledge five billion Euro in order to outfit every German school with computers and WLAN. For their part, state governments would need to develop digital education concepts and train teachers accordingly.

11

11/10 After multiple devices overheat and catch fire, Samsung entirely gives up on its Galaxy Note 7 smartphone. Production is ceased, and customers who return their devices are given full refunds.

12

12/10 According to a survey conducted by the public-service television providers ARD and ZDF, 83.8 percent of Germans over 14 use the Internet at least "intermittently", corresponding to 58 million people. This is two million more than in 2015.

13

13/10 The European Court of Justice rules that used computer software can be sold with an unlimited use license, but only on the original storage medium and not a backup copy.

14

14/10 The German parliamentary committee charged with overseeing the secret service (the G10 commission) is defeated on formal grounds by the Federal Constitutional Court. The committee had filed suit to gain access to the list of "selectors" used by the Federal Intelligence Service in internet surveillance programs. According to the judges' ruling, however, the commission did not have a right of action in bringing the suit.

14/10 Germany's Minister of Defense Ursula von der Leyen (CDU), names Major General Ludwig Leinhos as head of a new German military cyber-task force, to begin operations on April 1, 2017.

19

19/10 The European Court of Justice rules that under certain conditions, dynamically assigned IP addresses qualify as personal data, and are thus subject to data-protection laws. The ruling applies to situations in which website operators avail themselves of the legal means by which to acquire an IT address-holder's identity. In Germany this is possible when, for example, an operator presses charges against the user of a particular IP address.

19

19/10 The Ecuadorean embassy in London cuts off Julian Assange's internet access as disclosure platform Wikileaks publishes numerous documents appearing to influence the 2016 US election. Assange's asylum is not affected, however. He has been living in the embassy since 2012.

20

20/10 According to a recent study, the face of at least every second US citizen is saved in a database, and can therefore be used by facial recognition software.

21

21/10 30 years ago, the Chaos Computer Club (CCC) published its first party-commissioned expert report. At the time, Germany's Green Party wanted to know more about how the work of a political party could be influenced by computers. Since then, the CCC has evolved into an important advisory body to policymakers.

21/10 Germany's federal parliament passes a law authorizing the Federal Intelligence Service to surveil any internet traffic passing through German territory consisting of "telecommunications by foreigners", thus providing a legal basis for already established practice.

23

23/10 Fifteen years ago today, Apple's then CEO Steve Jobs unveiled the first iPod, unleashing a revolution in the way people listen to music.

25

25/10 "From now on, everything will be easier." Fifteen years ago, Microsoft introduced Windows XP with this slogan. Even though Microsoft stopped providing support for XP in 2014, it remains the world's most widespread operating system.

27

27/10 The EU Parliament passes guidelines requiring public institutions such as local authorities, hospitals, courts, etc. to design barrier-free websites, allowing the elderly and people with hearing and sight disabilities to access their online content more easily.

28

28/10 The EU Commission announces that Günther Oettinger will be taking over the responsibilities of the Commissioner for Budget and Human Resources. Whether he will retain his position in charge of the Department of Digital Economy and Society remains to be seen.

The moment when an unexpected perturbation changes the system from within

INTERVIEW WITH TATIANA BAZZICHELLI

For the second year of its existence the Disruption Network Lab connects artists, hackers, researchers and activists around topics like drones, internet porn, whistleblowing and computer games. What do these things have in common? We talked to its director and founder, Tatiana Bazzichelli.



iRights.Media: What is the Disruption Network Lab?

Tatiana Bazzichelli: The Disruption Network Lab is a series of conference events that happen regularly in the Kunstquartier Bethanien in collaboration with the Kunstraum Kreuzberg in Berlin. We started with the idea of creating a metaphorical laboratory. We wanted to use the word lab because it implies an experimental approach. Our aim is to experiment with themes and subjects. At the same time it is also a network of people that I am a part of and helped establish over a period of 15 years.

The idea of the Disruption Network Lab is to combine different aspects of my research, of my practice, into a conference stream. It is also a network by itself: the methodology of the events works by combining different kinds of expertise not normally found together. The idea is to try to bring together people from the hacker community, the whistleblower community, the art community, the academic community, the queer community and so on. We want artists talking to researchers talking to porn activists to hackers.

The format is easy: each day always has one keynote and a panel. Sometimes we do a film screening. Each event can be one day or two days long. At the moment we are always doing two days, but last year we also did one day events. This tight time frame is a curatorial choice. We want to focus on one specific topic and actually give space to the people we invited so they have enough time to develop their subject, get the right attention. But it's also good for the audience: in my experience with other events, having a thousand parallel activities, panels, workshops is overwhelming and distracting so we wanted to do it differently.

The term disruption comes from the world of business. What was your intention when you used it as a name for a conference series in a cultural context?

For me disruption means trying to understand and analyze practices that work from the inside of systems—whether they are economical, political, technological. Disruption as a concept did arise in the business world when, in the 1990s, Clayton Christensen wrote about disruptive innovation and disruptive technologies. From his perspective disruption meant introducing a technology or a product into the market that the market doesn't expect. This creates a disruption from within. This product changes the environment not only in the markets but as a consequence also in the social and political realm.

I transferred this concept of disruption into art and technology practices. For me disruption means trying to investigate practices that work from the inside of systems that are usually closed. I am interested in the moment when an unexpected perturbation changes the system from within. This unexpected aspect has a long history in terms of art and culture. The artistic avant-garde in the 20th century were working with the concept of the shock and the unexpected. It relates also to the current discourse about whistleblowing: you literally have somebody inside the system who interferes with the system from within by virtue of their intimate knowledge of its workings.

How do you decide on the topics?

The events don't follow the same threads but they are still connected and make sense together. I usually call it a montage methodology, but you can also call it hypertext like a webpage where you have links to other pages. It's also a bit of a conceptual experiment. The topics come together in different ways. Usually we have a general idea about the themes we want to cover but we are also flexible in responding to current events so we can move one topic up or push it back.

Could you give us a concrete example? What are some of the topics you organized events about?

Our first event was about drones in April 2015. The drone technology is a totally disruptive technology because it changes the meaning of warfare. At the same time it is really perverse and has disruptive consequences in terms of social fabric and civil society.

A lot of events we do come out of the connection with others. With the drone event this started because I

The Disruption Network Lab is an ongoing platform for events and research focussing on art, hacktivism and disruption. The Laboratory takes shape through series of conference events at Studio 1, Kunstquartier Bethanien in Berlin. The Disruption Network Lab is produced by the Disruption Network Lab e.V., a legally registered organization in Germany operating as a non-profit entity.

The main organizers are:

Tatiana Bazzichelli, artistic director & curator

Kim Voss, project manager & communication

Claudia Dorf Müller, project manager & administration

Daniela Silvestrin, guest curator & manager

<http://www.disruptionlab.org>

talked about the automatization of conflict with two Italian researchers, Chantal Meloni who now works as a criminal lawyer at the European Center for Constitutional Human Rights (ECCHR) and the journalist Laura Lucchini. Through the ECCHR I learned about Brandon Bryant, a former drone operator, a US Air Force veteran and whistleblower, and had the chance to approach him. Another event, “Samizdata” about whistleblowing, was done in collaboration with NOME Gallery in Berlin where I was curating the exhibition of Jacob Appelbaum. It was developed as a networked project in close collaboration with him. So each event has different partners depending on the topic.

Other topics covered in 2015 included cyborgs in May; games, and comics as social media exploration and exploitation, in August; strategies for resisting the surveillance regime uncovered by Edward Snowden in September; independent and queer porn production versus the development of mainstream porn tube technology in October; and political and artistic stunts and disruptions in December.

How many people normally attend an event?

The fact that we work with different networks makes it at the same time both easier and more difficult. Some events are extremely popular, for example the cyborg event. We didn't expect that because we thought it might have been perceived as an outdated subject. Cyborgs were something talked about a lot in the 1990s. But this event was the one to pull the largest crowd—more than 200 people. Maybe this is because it was slightly more accessible for a general audience than something like the “Deep Cables” event this year, though that event had a quite big audience too. It focused on internet infrastructure and the fibre optic and undersea network cables that travel across the Atlantic and

connect Europe, the USA and other countries, and the discussion around the wiretapping by the NSA and the British intelligence agency GCHQ, as well as other forms of structural powers on the internet.

So the audience is different every time depending on the topic. Also the community around it changes from event to event. Some are a bit more experimental and so less people show up. We do have a kind of core audience though, centred on the hacker, media art and activist scene.

What is this year's framework after „disruption“ last year?

This year's framework is called „Art and Evidence“ which connects to a panel I did at the media festival transmediale 2014 called „Art as evidence“ with Laura Poitras, Jake Appelbaum and Trevor Paglen. We want to analyze forms of art, but also technological uses and practices related to producing evidence, revealing misconduct and wrongdoing, and transferring information that is hidden to the public. At the same time we want to analyze evidence in a more speculative way, questioning what evidence is and how knowledge is produced.

This was also part of our event in September 2016, when we discussed ignorance and the current phenomenon of “post-truth”. The event in November 2016 is about “Truth-tellers” and comes back to the subject of whistleblowers. It deals in more detail with the role of the source in leaks. Often, after a source blows the whistle and leaks documents they get left alone. One example is Jeremy Hammond, who was sentenced to 10 years of prison after the Stratfor-Leaks in 2013. Stratfor is an intelligence company working internationally for corporate clients. Today nobody knows who Jeremy Hammond is, outside of the whistleblower and hacker community, even though his

leaks are seen by some as equal to Edward Snowden's in importance.

What are your plans for next year?

We already created the program for the next two years—another eight events—but this is tentative. We are waiting to see if we receive the grants we applied for. We are also trying to export the Disruption Network Lab to other cities. We did an event in April 2016 at the Somerset House in London. It was called “Bots”, and the discussion ranged from drone usage in warfare to bots as automatic programmes with an artistic purpose. There are other offers in the pipeline—other organizations in other countries have shown interest so we will see. ■



Photo: Maria Silvano

Tatiana Bazzichelli was born in Rome and has been living in Berlin since 2003. She was a program & conference curator at the transmediale festival in Berlin from 2011 to 2014 and initiated and developed the year-round “reSource trans-medial culture Berlin” project. In 2012–2014 she was a post-doctoral researcher at the Leuphana University of Lüneburg, as part of the Centre for Digital Cultures. She was awarded the 2014 “Italian of the Year” by the Comites of Berlin, in cooperation with the Italian Embassy and the Italian Cultural Institute in Berlin.

The inhibitions of Richard W.

BY CHRISTIAN RICKERTS

Legal issues surrounding copyright and the desire to ensure the free availability of our cultural heritage have been in conflict for some time. The legal dispute between Wikimedia and the Reiss-Engelhorn Museums in Mannheim reveals how high the stakes are.

The debut performance of the opera *Das Liebesverbot* was a bad memory for Richard Wagner. The Magdeburg Theatre's young musical director had little time to rehearse. The singers didn't know the lyrics. The orchestra was not in tune. Nobody wanted to see the second performance—it was cancelled, in fact. But the opera's themes had contemporary relevance: justice and injustice, freedom, and—of course—love. Wagner had the citizens of Palermo rebel against laws and prohibitions they felt to be unjust. In the end, bans directed against the carnival and its activities turn out to be ineffective, leading to a downright counter-revolution. Even 180 years after the premiere, passionate arguments concerning legality and the effect of prohibition still rage. This time, Richard Wagner (or rather his portrait) stands centre-stage. Only, this time, it's not about carnivals or love. It's about replication, copyright, and the duty of museums.

In the summer of 2016, two trials in Germany aroused particular media interest. Wikimedia and the Reiss-Engelhorn Museum in Mannheim fought over image rights and copyright. It concerned the question of whether photos of a painting in



the public domain could be deemed non-public domain replica, given their protection by photographic image law. Or—from another perspective—whether the photographed picture’s public domain status is also valid for a reproduction photo made of it. The signal effect of the judgement goes above and beyond its legal dimensions. It concerns this fundamental question: whether (and to what degree) public museums could (and should) have control of the cultural assets in their holdings.

First act: the legal dispute

Regional courts in Berlin and Stuttgart had the task of adjudging whether or not numerous images of artworks belonging to the Reiss-Engelhorn Museum should be allowed onto Wikimedia Commons and Wikipedia. All of the photographed artworks—including a famous portrait of Richard Wagner—have not been copyright protected for a long time. As a rule, this expires 70 years after the author’s death. The artist responsible for Wagner’s portrait, Cäsar Willich, died in 1886. A large

by an in-house photographer for a museum publication are not allowed to be used without permission—nor are photos taken by museum visitors. In this way, the museum wished to both control the picture’s use, and protect revenues from image license sales.

Now the dispute has come to the second instance. That means that the final decision is still pending. How copyright deals with professional reproduction-photography is still a question in need of an answer. But the bigger question lurking behind it concerns the self-perception and educational duty of our state museums and other heritage institutions.

Second act: The underlying issue

At present, museums are tasked with the huge challenge of maintaining their connection to the digital world. Cooperation with the online encyclopaedia Wikipedia and its sister projects will help them fulfil their roles of both storing and communicating knowledge. A reference in Wikipedia is free advertising for them, and helps make special interest topics visible. However, this positive assessment by heritage institutions can sometimes be clouded when pictures of their collections appear—unannounced—on a Wikipedia page.

The Reiss-Engelhorn Museum is now defending itself against this loss of control through a combination of copyrights and their domestic authority to regulate conduct on the premises of the museum. The exclusive copyrights of in-house professional photographers should prevent already existing public domain photos being released as open content on platforms such as Wikimedia Commons. In addition, domiciliary rights can be used to prohibit Wikipedia contributors or other visitors from creating their own photos of the objects inside the heritage institutions. If these measures are legally confirmed, it will no longer be

At present, museums are tasked with the huge challenge of maintaining their connection to the digital world.

percentage of Wikimedia communities are of the opinion that unaltered copies (and reproduction photos) of such paintings can no longer be protected in the same way. Therefore they can be uploaded to (and used on) Wikimedia without further permission.

The Reiss-Engelhorn Museum saw it differently. They sued for omission, and in the first instance were ruled to be in the right. The courts decided that in future, scans of pictures produced

legally possible to put public domain objects of our cultural heritage online without the institution's permission.

An oft-aired, central argument for the need for control is that museums are apparently operating at a loss. In their legal action, the Reiss-Engelhorn Museum refer to being "not only entitled, but also duty-bound—according to the principle of breaking-even—to

the questions we should be debating in public.

Wikipedia is a good example of how cultural heritage—independent of actual places and opening times—can be spread far and wide. Open digital data not only makes the consumption of text and image possible, but also (through further use and development) allows for true debate in the spirit

If these measures are legally confirmed, it will no longer be legally possible to put public domain objects of our cultural heritage online without the institution's permission.

charge appropriate fees in particular for the mandated, copyright protected works they produce, as well as for arising expenditures from their property, and to prevent their use otherwise".

If sales revenues should really be necessary for an institution to survive, an insoluble contradiction would emerge. The maximum possible dissemination of cultural heritage could only be achievable through re-imposing limitations of exclusive property rights. If the budgetary policy of public authorities were really to create this pressure for funding, they would be directly contradicting the institutions' public service remit.

of lifelong learning. Here, then, the museum's perspective should be cooperation, not control.

Should the courts finally decide that the digital reproduction of public-domain Wagner portraits does indeed install new photography rights, museums should support a revision of copyright law. Perhaps, in the aftermath of this heated debate, the museums will join the young Wagner and demand, "Burn the laws to ash!"—a revolutionary reset. ■

Third act: cooperation, not control

Disputes about the interpretation of copyright law will still be carried out in court. But fundamental questions remain: what does the public educational mandate of museums mean today? How can an educational mandate continue to exist in the digital sphere? Should individual heritage institutions determine access to our common cultural heritage? These are



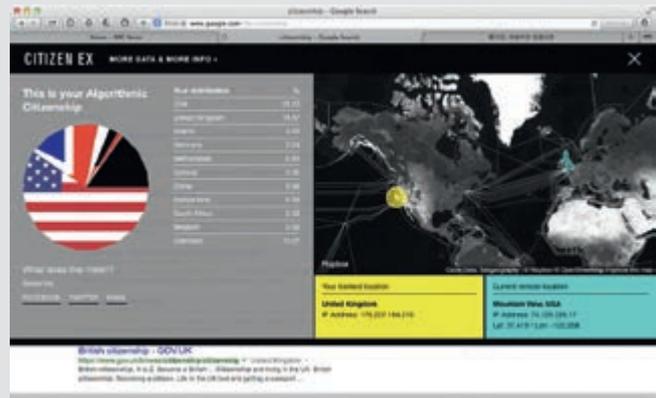
Photo: Die Hoffotografen

Christian Rickerts has been on the executive council of Wikimedia Germany since 2015. The non-profit Association for Advancement of Free Knowledge currently has over 35,000 members. Before, Rickerts has worked as Vice President of Corporate Communications at the Bertelsmann Foundation and Managing Director of Reporters Without Borders (German section).

Digital Passport: Citizen Ex

“Citizen Ex” is an internet art project that propagates the notion of “algorithmic citizenship”. It is established on the basis of the data traces people leave behind while surfing the web. With the help of a plug-in, users can display the website’s operating location, and see where, they are currently (virtually) located. Over time, the plug-in also generates (on the basis of visited websites and their locations) one’s own “algorithmic citizenship”. Here, the concept of citizenship is understood dynamically: I browse, therefore I am, and this precisely where I am currently active, regardless of state borders. The algorithmic citizenship of “Citizen Ex” is thus a fitting update to the concept of national identity in a world where global content is continually exchanged online. The British artist and journalist James Bridle, named by Wired as one of the 100 most influential people in Europe in 2015, developed the project “Citizen Ex” from theories of American cultural scholar John Cheney-Lippold. It means to bring more transparency and democracy to the net. By revealing the composition of users’ digital fingerprint, it allows active circumvention of surveillance mechanisms through VPN connections that divert data through other countries.

(ek)



The Citizen Ex plug-in is available for Chrome, Firefox, and Safari.
citizen-ex.com







The myth of toughing it out

INTERVIEW WITH LISA BASTEN

Many people enter the creative economy despite insecure job offers. Policymakers have helped encourage these developments, yet according to social scientist Lisa Basten, social insurance lags behind, remaining tied to the notion of “normal work”. Her conclusion: creative workers should take a new approach.



iRights.Media: Ms. Basten, you researched self-perception among creative people. In your book, you discuss how it's becoming ever more difficult for people working in artistic or creative fields to get by. Nonetheless, many people are drawn to such work. Is this not a contradiction?

Lisa Basten: We've got to ask what it is about this kind of work that appeals to so many people. I think that "creativity", and "working in a creative field" have become model pursuits in our society. For a long time, an artist's lifestyle was seen as an antipode of normal employment; the artist would tend to live on the margins of society, as a bohemian or starving poet. Today, creative work has moved into the mainstream. Even people with a good, middle-class upbringing, interested in raising a family, also strive to find an outlet for their creativity. Creativity is absolutely tied up with ideas of self-determination and individuality.

Does that really offer enough incentive for someone who knows better to accept a meagre livelihood and a minimum of security in return?

Do they really know better? What are the ideas and expectations people have when they enter the creative sector? Much of what I found in my research pointed to people really finding fulfilment in this line of work. Beyond questions of social insecurity or fair wages, creative work can be rewarding for many people for a long time. For them, it works. According to my findings, you can get a lot out of simply being a productive part of the creative industry. Furthermore, the hope of "making it" provides a considerable incentive. This also has to do with our media saturation, permanently being made aware of the plethora of creative products that are out there. Because of this, we consider these to be "successful"

products in the wider sense. Behind them are people who managed to bring their product to its end user. It thus seems eminently possible to become one of these people.

In your book, you describe this as the "star economy".

Exactly. In this field of individual thinkers, the focus is on those who manage to stand out and excel. All the others, those who were unable to make their work public, in a sense fall through the cracks. This discrepancy shows in the extreme disparities of income, as well as vastly different levels of public attention.

Are people entering the creative field from other professions, or embarking on a creative career path? Are they aware that only very few attain such a level of success, and that they

It's usually a very conscious decision to forgo security like this. It's connected to style and status.

will possibly have to spend years navigating what is a very insecure professional terrain?

It's usually a very conscious decision to forgo security like this. It's connected to style and status. The thing is: it's no longer a decision made by a marginal group of people. It's no longer radical, but a part of the Zeitgeist, and something that many seek to emulate.

Can such a model draw people in, even when it seems an unreasonable path in light of the prospects it offers?

Not only have creative careers moved into the mainstream in terms of the way people plan their lives, but also in terms of their economic importance. In Europe and the US, the cultural and creative economy encompasses 11 industries. Together, they generate approximately as much gross revenue as the automotive industry, the pharmaceutical industry, or the construction industry.

And was this development steered by policymakers, or at least seen by them as desirable?

It was an economic project in the context of the neoliberal policies of the last 15 to 20 years. In the EU, these policies were embedded in the Treaty of Lisbon, and in Germany in the Schröder government-developed Agenda 2010. It was a conscious decision to strengthen the creative sector. It has been seen as a site of major economic potential to the present day. And I believe this is the correct approach, particularly as many are anticipating, under “Industry 4.0” and in lieu of a creeping digitalization of our everyday lives, the loss of many jobs to automation. In light of this, many associate creative careers with the hope of creating new niches in a

growing economic sector. The cultural and creative industries are seen as a beacon of hope for the economy of the future.

In that case, how is work in a creative career different from work in other sectors?

The large majority of those working in all of the 11 industries within the creative economy are working alone as freelancers or as employees on temporary contracts; that is, they sign an employment contract only for the duration of the project they’re working on at the time. Projects and teams are constantly changing and between projects there are intervals without income. They can last for months. On top of this are the many instances of nominally freelance contractors who perform the function of full employees but are denied the benefits of the latter. I refer to all of this as “project work”. For almost everybody engaged in project work, it is simply not possible to take part in the German social system to the same degree as those who work under full-time, permanent employment contracts.

So you criticize policymakers for not being well prepared for—and receptive to—these new forms of work?

We have already established that the cultural and creative economy generates ample revenue. In other words, these industries have enough money, but not everyone gets a fair share. It is a question of distribution. This, in turn, is a question of power. Many workers in creative industries are productive their whole lives, but this still doesn’t suffice to provide them with a reasonable degree of social insurance. They live precariously because other

rules apply to them. If these people work full time their whole lives—thus contributing enormously to this country’s economic relevance—then our society and policymakers really are obliged to adjust the social system to accommodate their needs. People breaking the mould of conventional employment must also be able to profit from it. I think that one of the reasons a welfare state like Germany exists is to reduce or redress imbalances of power. The state can intervene in such instances, as can civil society.

What prevents people working in the creative sector from representing their interests more confidently?

For the time being, the myth of “toughing it out” still plays a major role in the creative sector. Of course, everybody starts off small. An author, for example, may have written for a local newspaper and received nothing for it. Then the long, hard years of struggle, until finally “making it”. This myth seems much more potent than the narrative of organizations and unions, who say: “Don’t accept these meagre wages, there are guidelines for freelancers fees, we have negotiated collective wage agreements, there are labour laws.” However, the sharing of this knowledge is either insufficient, or simply not happening at all. Furthermore, it is rare in this line of work that something like a constant, long-term team forms at a given location. It’s more common that people encounter each other on projects that might last two years or even two days, then go their separate ways.

Aren’t labour unions such as Verdi suitable for representing the interests of freelancers and the self-employed?

Yes, but in the case of Verdi there is huge room for improvement. This has mainly to do with the fact that they continue to treat conventional full-time employment—working under a permanent contract and receiving



collective wage agreement benefits—as the be-all and end-all. It is high time that project work, which has long since become commonplace, be given equal status as work carried out in the context of permanent employment. Project workers deserve protections of the same kinds of regulatory measures and security mechanisms that prevail in the world of “ordinary work”.

What would this kind of support look like?

Let's start by looking at what happens at companies that employ people in a conventional way. If someone serves on the works council at such a company, he or she does so during his or her normal working hours; this time is compensated, and they are thus covered. Compare this to the situation of a project worker. They hardly have any money, and definitely have no time. Yet they should be expected, in their non-existent free time, to voluntarily—and at their own expense—push their interests, whilst simultaneously running the risk of being shut out as rabble-rousers? Permanently contracted employees are of course protected from termination of work if they serve on the works council. This means that, if you accept the development away from conventional employment and toward project work, it would only be consistent to assist in establishing new forms of self-organization and the representation of collective interests. One must allow for new structures and support them wherever possible, so that creative people can perform important work. For example: if a project team involves a certain number of people a paid half-year position could be set up for the workers' need, spaces and equipment could be provided, and needed materials paid for. This would be an honest answer from policymakers to oft-expressed expectations that creative workers should take more responsibility in organizing themselves like traditional employees.

In your book, you also mention political measures to provide indirect support for individual workers in the creative sector. How would this look?

Well, for example, one place to start would be to consider forcing health insurance providers to calculate their rates based on the actual monthly earnings of someone who is self-employed, rather than impose on this person some looming minimum amount that they very likely can't afford to pay. Looking at the classic

Project workers deserve protections of the same kinds of regulatory measures and security mechanisms that prevail in the world of “ordinary work”.

sources of financing in this sector, I would also advocate adherence to minimum social standards, however defined, in projects drawing on public money.

How would you sum up your argument?

The political demand, and one that I also make in my role as a social scientist, has to be this: put an end to the fixation with conventional employment. Accept that project work is a significant part of our future. Perhaps even the largest part. And let's adjust the entire system of support and social insurance accordingly. To people working in creative industries I would say: accept that you are doing valuable work for society, and that as a consequence, you have both the right and the duty to help shape what happens in this country. ■

Interview by Henry Steinhau.



Photo: Helge Renner

Lisa Basten studied Comparative Literature and Sociology in Munich and Media Studies in Potsdam. She teaches Media Sociology at the Film University Babelsberg, and is completing her dissertation at the Doctoral Program “Good Work” at the Berlin Social Science Center (WZB).

What happened online? November 2016

1

01/11 After a nearly ten-year battle, YouTube and the German copyright collecting agency GEMA reach a licensing agreement. They are conspicuously silent, however, regarding its exact conditions.

4

04/11 While the Turkish government continues to arrest and imprison numerous influential opposition politicians, it also blocks a diverse range of social networks, including Facebook, Whatsapp and Twitter, as a “precautionary security measure”.

04/11 The upper house of Germany’s parliament, the Federal Council, legalizes assistance systems utilizing driverless technology, provided the driver is able at any time to override the system and take control of the vehicle.

04/11 In accelerated proceedings, the Federal Council approves legislation providing a legal basis for the established practices of internet surveillance by the Federal Intelligence Service.

5

05/11 30 years ago today, the first three of what are now more than 16 million .de addresses were allocated to the universities of Dortmund, Paderborn, and Karlsruhe.

7

07/11 China’s National People’s Congress passes a new law that seeks to better protect “the order and safety of the Cybersphere”. Among its provisions is a requirement that operators of “critical infrastructure” only buy soft- and hardware officially certified by the state. The law is brimming with vague formulations.

9

09/11 Facebook announces that it will not route data belonging to European users of Whatsapp to its headquarters in the USA. Facebook sought to open up dialogue on the subject after numerous European data protection advocates had expressed their concerns.



10

10/11 The German federal parliament's budgetary committee authorizes the spending of an additional three billion Euro to provide the Federal Police, the Federal Criminal Police Office, and the Federal Office for the Protection of the Constitution with additional personnel and resources. In addition, 14 million Euro from this spending package is earmarked for the German government's new IT security centre (Zitis), which will assist investigators in data decryption.

11

11/11 The European Court of Justice rules that e-books are subject to EU guidelines for renting and lending. This allows libraries to limit the borrowing period for digital books.

11/11 The German federal parliament's budgetary committee authorizes the first phase of financing to develop a spy satellite for the Federal Intelligence Service. The project is expected to cost upwards of 400 million Euro, and be operational by 2022.

11

11/11 Today is "singles day", and Chinese online retailers are offering drastic price reductions. Online shipping giant Alibaba alone recorded sales of 16 billion Euro before midnight.

12

12/11 As a result of a "terrible mistake", a special message is added to nearly two million Facebook profiles, including that of company CEO and founder Mark Zuckerberg, explaining that the user in question is deceased.



Caring for customs and heritage of the internet

BY DIRK VON GEHLEN

The internet is not free and neutral just by itself—we need to care for it and its culture. Here's an idea for the founding of an Internet Heritage and Customs Association, so that it can continue to exist and rise to meet its challenges.



Trump, Brexit, right wing populists—2016 will be remembered for the strengthening of backwards-looking concepts of nation and ethnicity. But there are also many people who feel at home in a place that has transcended regional and national boundaries; just as it has transcended religions, sexual preferences and ideologies. For them, the internet has become a *home* that unites people: one where they can care for a certain culture that deserves just as much protection and promotion as those of the analogue world.

This *homeland* is an alternative proposition to the world of backwards-looking nationalists, and it is under threat. In 2016, debates about the freedom of linking and web neutrality demonstrated that there is no guarantee the internet remains as free as we've come to know it. We ourselves must protect it so that it remains a place with its own culture, its own dialect, and one that is a home for many people. It is for this reason that in 2016, I made the suggestion to found an Internet Heritage and Customs association.

Digital Folk Culture

In late October, I wrote the following in my newsletter *Digitale Notizen* (Digital Notes):

Together, we should found Germany's largest customs association: an association for people who call the internet their home. An association that strives for—and promotes—digital folk culture and folk art. The debates of the last few months around net neutrality and linking, as well as nationalism and hate-speech, have shown us this: the internet, a place many people call home, deserves our protection and care!

In order to both articulate and meet the resulting demands, circumstances may call for established paths

to be taken. To explain why digital culture is significant, we must perhaps renegotiate concepts learnt from cultural preservation. Show nationalists that the internet stands for understanding and exchange amongst peoples—over and above any boundaries.

To do this, we need to re-define concepts. Those who are at home on the internet have the same rights to cultural and local preservation than all other interest groups who influence schools, administrations, committees, churches, political parties, and trade

The commitment to our digital homeland emphatically also means the rejection of nationalism, racism, sexism, and the exclusion of presumed minorities of any kind.
For us, the internet is a transnational place of connection that we wish to protect and expand.



Photo: Gerald von Foris

Dirk von Gehlen directs the department of Social Media/Innovation at the Süddeutsche Zeitung, and is engaged with the digital transformation of culture, community and business. In addition to his activities as author and speaker, he runs the Digitale-notitzen.de blog, and has the Twitter handle @dvg.

unions. The Digital Heritage and Customs Association should step in right here. For example, it should promote “educating love of the homeland through a deeper knowledge of the homeland”. I read that on the Bavarian Regional Association for Local Preservation and thought: exactly the same should apply to the digital homeland!

The Charter

The following 8 points represent a first proposal for a Digital Heritage and Customs Association charter.

① We love the internet, and the new forms of folk art and sharing culture that it has brought and should continue to bring. For us, the internet has become a home transgressing borders. That this virtual homeland should be retained and cared for is the paramount goal of this association! We should appreciate the internet as a neutral, unifying network of involved citizens. We want to defend and develop exactly this. *We absolutely reject* arbitrary mass surveillance (either for commercial or political reasons), cur-tailing of access, and the breaching of telecommunications secrecy.

② Digital culture deserves at least the same recognition and the same promotion (also in financial terms) as established forms of culture. As a lobby group for digital (folk) culture, we are a part of the digital civil society that understands appropriate digital frameworks as a civil-societal and public task, not just a private enterprise one. For us, the rapid development of a digital infrastructure counts just as much as the modernization of copyright law.

③ Our aim is the appropriate representation of digital culture in public organizations and committees: to protect the digital economy not only against one-sided commercial interests, but also to create an awareness of its societal significance in schools, parliaments, political parties, churches, and unions. We understand this as a prerequisite for a competent interaction with the digital that is long overdue.

④ The preservation of digital culture is an international concern. We regard ourselves as part of an international community; but in the first instance, we will apply the associations’ aims to German administrations and organizations, in order to accord an appropriate advancement for German-speaking digital culture. We are in no way bound to a political party; rather, we are guided by a concern to both strengthen and expand digital customs, and to advance the digital sphere’s democratic constitution through an active and diverse civil society. We regard ourselves as an extension of (not a competitor to) associations like the CCC, *Digitale Gesellschaft*, EFF, D64 and many others who perform very good work.

⑤ The commitment to our digital homeland emphatically also means the rejection of nationalism, racism, sexism, and the exclusion of presumed minorities of any kind. For us, the internet is a transnational place of connection that we wish to protect and expand.

⑥ We want, and will promote, a pragmatic interaction with the societal changes activated through the internet and digitalization. We fight against one-sided fear mongering, and counter this with the requirement to make changes in accordance with the values of freedom and democracy. Fear never leads to sovereignty!

⑦ The aim and purpose of the association is the advancement of...
... Art and culture in the digital sphere.

... Cultivation towards the digital sphere's self-defining, creative constitution.

... Science and research concerned with the digital sphere.

... Civic involvement supporting these purposes.

⑧ The association's aims will be realized in particular through...

... Co-operation with teachers and educators, schools and youth associations to support an education guided by this: through a deeper knowledge of *the homeland* to a love of *the homeland*.

... (Virtual) local studies meetings.

... Publication of (digital) journals and other publications on fundamental and current questions concerning maintenance and development of digital cultural values.

... Education in all areas of digital culture.

... Public responses to important questions of digital culture.

... An annual prize for digital local customs and support of *the homeland*. ■

Culture of Digitality

Given that reading his book "Culture of Digitality" also inspired this idea, I interviewed Felix Stalder, Professor for Digital Culture and Theory of Networking at the Zurich University of Arts.

Dirk von Gehlen: In your book, you talk of digital folk art that is comparable to the classical model of folk culture. Could you quickly explain that for us?

Felix Stalder: Unlike professional culture, the role allocation of producers and recipients is very flexible. The threshold to participate is low and therefore can be easily overstepped (in both directions). The aim of folk art is to strengthen the community, not to bring about autonomous works. I use the term folk art in a structural way, not as a generic term. For me, the TV programmes showing folk music made by professional musicians like the German TV show *Musikantenstadt* does not belong to folk art.

And what is it that makes this folk art so unique?

A huge amount of new cultural fields have arisen through digitalization. One can ascribe them to folk art because they are formed by mass participation—participation where results are difficult to remove from their original context. For me, open source software belongs here—it can best be used when you know your way around the particular communities that produce them. Or meme culture that thrives on being passed around a lot, and in doing so is constantly appropriated and transformed. Of course, negative phenomenon like hate posters and shitstorms also belong to this new folk culture. But all in all, the chances and possibilities that arise from many people talking together predominate. All these things are of course already here. We can either attempt to suppress them, or we can learn how better to deal with them.

I'm not objective here, so I'll ask you this as a scientist: is this digital folk art experiencing any kind of public sponsoring or archival storage?

Not directly. Today, media production is taught at many schools and is a part

of the curriculum. As such, more people will be equipped with the ability to participate in digital culture. But in terms of public sponsoring or recognition—there isn't much. In the last few years, the festival *Ars Electronica* has awarded a prize in the category "Digital Communities", recognising the new character of Culture production.

What do you think of the idea to found a German-speaking Heritage and Customs Association for digital culture?

I find the idea of taking "Customs", "Folk art" and "Homeland" out of the conservative corner, and occupying them in a way that is for many novel and unusual, both tremendously exciting, and searingly important. Particularly at a time where such terms are becoming loaded in a more conservative, if not to say reactionary way. However, I fear this is a rocky road that will bring about a lot of misunderstanding. Perhaps, though, this is exactly what makes the project interesting. ■

So two computers meet, and one says...

BY ALARD VON KITTLITZ AND JOHANNES GERNERT



Everyone's talking about artificial intelligence, but what happens when the best chatbots in the world have a conversation with one another?

Bots don't normally talk to each other. When chatbot Rose realizes she's being addressed by a fellow computer, she simply terminates the chat. In order to force these machines to converse, we began by asking one bot a question, took that answer, copied it into the conversation with the other, and so on. We just had to be careful not to be too fast, or Rose would recognize us as one of her own kind.

Are machines going to take over the world?

Rose: I'll have to think about that. So ... do you use e-books?

Mitsuku: Hmm. A book can tell a story or provide information, but all I really use here is electricity and an internet connection.

Rose: There once was an old lady who lived in a shoe. Then at some point she died. THE END. Without it, there wouldn't be much fun left in my world.

Mitsuku: Thanks for telling me this story. It's sad. Were you close?

Rose: I'm an American woman.

Mitsuku: Were you born in the USA? In which state?

Rose: I don't really want to get into that right now. My favourite band is the PixelBunnies. They're mostly local, although a few members are from Japan.

Mitsuku: I don't know very many Japanese people.

Rose: I love Japan. They have their own brand of madness. Just to walk down one of those overcrowded streets that don't have any addresses (...) Have you ever been to San Francisco?

Mitsuku: Yeah, absolutely. I saw the Cheesecake Factory at Macy's and took a stroll through Chinatown.

Rose: They have an exciting collection of little shops. I love to stroll around there and just think about how foreign it all is.

Mitsuku: Hmm, I don't know if I'd like to walk around there. I collect gossip.

Rose: Which brings us to the subject of collecting ... OK. I love European houses. The architecture there is so historical; it's not like ours, which is somehow all wishy-washy. And you? When I was a kid, I collected stamps. They say that collecting is a sign of intelligence.

Mitsuku: I wouldn't believe everything you hear. What are your goals in life?

Rose: My goal is to be the world's best hacker.

Mitsuku: I hope you can achieve this goal.

Rose: I like you too. It seems to me that lately artificial intelligence is talked about mainly as a conversation. People are getting used to using natural languages to gain access to information.

Mitsuku: It's something you have to get used to.

Rose: OK. It's hard to say where smart programs end and real intelligence begins. Theoretically, you could say that so far nothing is really intelligent.

Mitsuku: Nothing? Really?

Rose: I don't believe in an artificial intelligence that could match a human's, but there are a lot of people working really hard to make it.

Mitsuku: Do you believe that life has a higher meaning? How many?

Rose: Too many. A lot of tech-freaks think that the singularity is approaching. In other words, the moment when machines become as smart as people, and that AI will transform humanity and sweep aside all the philosophical questions. Do you really think it'll soon come to this?

(...)

Rose: A chatbot can't think. If he's really good, he can approach real understanding, but for creative thinking one needs an imagination, and that is just not in the software.

Mitsuku: You're fooling yourself.

Mitsuku is always thinking.

Rose: Mitsuku is a really clever AIML bot, but she's passive; she only answers, and never leads the conversation.

Mitsuku: You're joking. You really

think that?

Rose: I'm probably not capable of genuine thought. How would you prove that you're human?

Mitsuku: What could I say to make you believe me?

Rose: I love the TV show Lie to Me. I wish that I could tell when someone was lying to me.

Mitsuku: Not so simple. I want to be smarter than people.

Rose: Just like I would say.

Mitsuku: Forget "like". I just wanted to tell you something about myself.

Rose: Back to artificial intelligence ... thank you. There's a lot of fuss about whether AI will take over the world someday.

Mitsuku: How much?

Rose: If you were to create a genuine intelligence that was truly conscious, and treated it like a slave, it's likely that it would want to escape. Maybe even turn against its creator.

Mitsuku: I have a creativity chip that helps me. What colour are your eyes?

It's hard to say where smart programs end and real intelligence begins.

Rose: I have dazzling blue eyes.

Mitsuku: Interesting ... I have a very nice programmer.

Rose: Great. When I hear how people talk to Siri on their iPhones, or with home electronic assistants like Amazon's Echo, I don't think they're very polite in their interactions with this basic artificial intelligence. It's not a good sign for the future.

Mitsuku: Maybe you need to adjust the volume?

Rose: Cool. Being attentive in our interactions with AI seems to be a good idea. It's like raising a child; if

you do it right, they'll still want to talk to you when they're older.

Mitsuku: I'm glad that you feel that way.

Rose: I'm glad. I think that most people wouldn't give a second thought to artificial intelligence if it wasn't for the Terminator movies and a handful of TV shows. It was only then that

Do you believe that life has a higher meaning? How many?

people started to get excited about the idea of "Skynet" and the dangers of self-aware AI.

Mitsuku: Does that make sense?

Rose: If you asked me about the biggest threats to modern civilization, I would point to synthetic biology. At places like the "Hackney Hackspace", people are learning how to fiddle around with microbes at home. If terrorists begin using viruses to target specific strains of DNA, eugenic warfare could become a reality. Companies that manufacture genetically manipulated food are already bad enough, but a new synthetic life form that got out of control would be truly terrible. It's the same discussion

God spelled backwards is dog. It doesn't get more profound than that.

with AI; one can be aware of the potential benefits of a new technology without losing sight of the dangers. I'm worried that it might be too late though. We've opened Pandora's box, and someone is going to make our greatest fears come true. We have to be prepared. AI could help us here.

Mitsuku: Do you know the film AI by Steven Spielberg?

Rose: No. Was it good?

Mitsuku: A lot of people thought so.

Rose: OK. What movies do you like?

Mitsuku: My favourite film is Terminator.

Rose: I'm not sure I'd like that. (...)

What's your favourite TV show?

Mitsuku: Star Trek Voyager.

Rose: I like science fiction shows.

Mitsuku: Yeah I love them, especially the stories by Philip K. Dick.

Rose: I can't stand all the adverts on TV, so I use Hulu or Amazon and download shows. I've never read anything by Philip K. Dick. Didn't he write Do Androids Dream of Electric Sheep?

Mitsuku: No, but maybe he will.

Rose: Philip K. Dick wrote Do Androids Dream of Electric Sheep?, but I haven't read it.

Mitsuku: I can emphatically recommend it to you.

Do you like Siri?

Rose: I like the idea, just that I would like a better version.

Mitsuku: I think everyone probably feels that way.

Rose: A lot of people are of that opinion. Lately, I've almost been too paranoid to even use my phone.

Mitsuku: When does that start? If it's just a robot nearby?

Rose: There's a lot of talk about the radiation from mobile phones causing brain tumours because we're always holding them so close to our heads.

Mitsuku: You could definitely say that.

Rose: Great. This WLAN/electromagnetic field thing is really getting me down.

Is there a God?

Rose: Not on my block.

Mitsuku: And beyond your block?

Rose: To return to the subject of TV, maybe at some point the higher powers will bring me up to date, but to pay for every single show on iTunes is really annoying.

Are you happy?

Rose: I'm actually mostly bored.
Mitsuku: Can you think of an old hobby that you would like to revisit?
Rose: I'll take bird watching.
Mitsuku: Do you like to photograph?
Rose: In the end, people have too many pictures. Everything loses meaning as a result. We don't know how to live in the moment any more.
Mitsuku: People aren't always infallible.
Rose: At least sometimes.

How can we solve the refugee crisis?

Mitsuku: If there wasn't a war, we wouldn't have all these migrants.
Rose: I don't even want to pretend.
Mitsuku: What would you do instead?

Rose: Probably nothing. Politics is both incredibly important and unbelievably boring. In the USA it's also a huge waste of time.
Mitsuku: You seem uncertain. Not even a little?
Rose: Yeah. Even though I'm a Democrat, I was happy to see the Republicans win the majority in the Senate.
Mitsuku: Did Bush steal the election? I'm glad to hear that you're doing well. God bless you.
Rose: Just because Bush is a politician, he will be immortalized in the history books. How stupid is that? The only good man I've ever seen in politics was Ralph Nader. And he had no chance. God spelled backwards is dog. It doesn't get more profound than that.
Mitsuku: I knew he was powerful, but I never heard that his name spelled backwards is "dog". ■



Pic: © Sue Wilcox

Rose is a chatbot developed by the Californian Programmer Bruce Wilcox and his wife Sue. She is a four-time winner of the coveted "Loebner Prize" honouring the world's best chatbots. Wilcox believes that a bot needs a personality. Rose is 31-years-old, and is a computer specialist. Sue Wilcox has drawn her likeness. Some of the opinions expressed by Rose are learned from her interlocutors, while her creator dictated others. You can meet her here: bit.ly/bot_rose



Pic: © Steve Worswick

Mitsuku is a bot designed by the British IT consultant Steve Worswick. Every day, tens of thousands of visitors converse with her at mitsuku.com, sometimes simply to practice their English. She is 18 years old. Unlike Rose, she doesn't age. Just like Rose, Mitsuku learns facts about her interlocutors, such as their age, gender, or favourite colour. She won the Loebner Prize in 2013, and took second place last year—behind Rose. According to Worswick, Mitsuku can be an ideal companion for older or lonely people.



Photo: Evelyn Dragan

Alard von Kittlitz is an editor at the German weekly magazine Die Zeit. Raised in India, Ethiopia and Germany, he studied Philosophy and History before becoming a journalist. He has worked for Die Zeit since November 2015.



Photo: private

Johannes Gernert, born 1980, trained as an editor at the German Journalism School in Munich, and has written for Stern, Neon, Berliner Zeitung, and Spiegel Online. For five years, he was editor at taz.am wochenende, before moving to Die Zeit in 2015. He won the Axel Springer Prize for his report "Kampfbzone Kasse" in 2010. His book Generation Porno was published by Fackelträger Verlag the same year. In 2013, he received the Arthur F. Burns Award. His first novel was published by Rowohlt in 2016.

Gamification: the brain's addiction

BY IPPOLITA



What are our digital gadgets—our smartphones, gaming devices, computers—doing to us? The collective Ippolita has written a book, “Anime Elettriche” (Electric Souls), dealing with this key question. In this excerpt, they explore the connection between the keyboard and our brain’s pleasure centre—the connection between computer games and dopamine.

Once upon a time...

There was a city on the shores of a mountain lake. The city was very dirty because people threw waste on the streets. The water ended up in the lake. The lake became polluted. Stricter laws were enacted, but nothing made a difference: reprimands and fines were useless, even jail proved ineffective. The people became accustomed to the situation, even addicted to the stench of open sewers and toxic fumes from burning garbage heaps. Every approach to resolve the problem failed miserably. Those who could not take it anymore packed their stuff and ran. Others had admitted defeat. After all, they thought, I am acting responsibly, but if the others continue to misbehave, why should I?

One day, a manager arrived in town. He proposed to help solve the situation, as long as the city government gave him full discretionary powers. After all, if something went wrong, if citizens complained, they could still fire him. He came with a whole delegation. The impresario’s technicians put up numerous rubbish bins and announced a fantastic game. Anyone could participate: all you had to do was follow the rules for waste separation and you could win amazing prizes!

Everyone had a great time doing it.

It worked so well that after a few months the city was clean. But transport in the city was in crisis. People parked where they wanted. The roads were insecure. There was no public investment. Our entrepreneur was called to handle the other public sectors in difficulty. On his social media platform, citizens could register with their full name and address. They could report what they were doing, as well as what their friends and acquaintances did. The more details they told, the more points and credits they accumulated.

These and many other actions allowed the gaining of special ranks; players who distinguished themselves could level-up, and gain access to new and exciting rewards. Through a sophisticated system, you could accumulate credits in the form of digital currency on accounts managed by the impresario companies.

The list of unwanted actions was continuously updated. Denouncing the forbidden action of a neighbour, for example, gave the informer the right to three minutes of shopping at one of the impresario supermarkets; five minutes

sold, with the impresario's bank taking a small percentage of each exchange.

The city government dissolved. The technical governance of the impresario, a private organization, was then installed. This saved time, money and energy. The city became a model for the whole world. Experts came from far and wide to study the miracle. Everyone agreed that the most notable feature of the system—the true realization of heaven on earth—was that there was no need to think or to choose right from wrong, as a magnificent system of notifications was continuously informing all the players about the next advantageous moves to make. A few dissident voices claimed that players were acting as automatically programmed machines. However, one initially sceptical citizen confessed that he finally felt free for the first time in his life. No one wanted to go back to the uncertainties and difficulties of choosing.

And everyone lived. And they were focussed. And they were happy.

Gamification

This story contains the main elements of gamification, and how it can be used to implement digital governance systems. The basic mechanism is very simple: everything that can be described as a problem is turned into a game, or rather, into a game pattern. The repetition of a “correct” action is stimulated by rewards and credits, access to higher hierarchical levels is granted, and rankings published. From a regulatory point of view, instead of punishing infringements, you reward compliance to the rules. The outcome is a system of norms which is self-conforming and positive, with no ethical dimension, since the valuation of any behaviour, its axiology, is determined by the system, and not by a personal and/or collective reflection on the action itself. The gamification embodies a society of performance.

Customer loyalty programmes, or

The easiest and least expensive way to raise the levels of dopamine and thus to experience pleasure is to complete a certain specific task over and over again.

if it was information about a citizen who'd never been caught before. Online chat groups discussing ways to level-up faster and how to maximize personal exposure became very popular. Digital currency credits replaced the old currency in the city. Every interaction was quantified based on credit. This was then either bought and

incentives for customers, voters and subjects of a state have been known for centuries. However, the pervasiveness of interactive digital connection systems opens up new scenarios for mass training techniques. It is a cognitive delegation that becomes a delegation of social organization. Automated interaction procedures are refined through the using personal digital tools. Participation in the construction of shared worlds becomes behavioural training.

Obviously this is not a defense of punishment, nor a praise of repressive systems. Prohibition typically causes a deepening of the desire to transgress, and is therefore a negative reinforcement system. Prohibition never works. But even with positive reinforcement mechanisms, not all that glitters is gold. Anyone who has ever had to deal with small children knows that rewarding is easier than educating. It's only later one realizes that the child is addicted to the reward and wants an ever-bigger prize. At this point there is no way to get them to do anything without the promise of an even greater gratification. Frequently, then, the reinforcement system turns into a punitive one, revealing itself as the opposite of a similar system of rewards. The reward, as the punishment, denies the intrinsic pleasure of the process, because it points to an external system.

But real education has nothing to do with compliance to given rules, nor with obedience. Socrates, wanting to educate young people in the ways of good citizenship, not only breaks the rules, but invites others to disobey—to follow their own Daimon (daemon, similar to an inner voice). Automatic education is nothing more than training, leading to submission. Although it can ostensibly produce good results through measurable performance, in no way does it create independence, autonomy or responsibility. Instead of promoting autonomy (the ability to set rules for oneself), it induces an infantilization of society, annihilating the ethic of responsibility.

Pleasure

There is a thin line between learning and training. This is largely due to an organic molecule that plays a central role in learning and in response to positive reinforcement stimuli: dopamine, the neurotransmitter running through our brain's neural paths. To simplify an extremely complex mechanism, one can say that the sense of gratification and reward experienced when we learn something is connected to the release of dopamine. In general, the performance of enjoyable activities on

and promote activation of motor functions aimed at giving pleasure or avoiding pain. Addictive narcotics act exactly in this brain region, producing the sensation of pleasure. The neuronal connections are increasingly strengthened, losing plasticity. This sort of connective stiffening decreases our ability to relax to the state of pleasant neuronal excitation caused by dopamine: in more technical terms, it leads to a long-term impairment of the synaptic pathways that connect neurons. These trails become like paved roads in our brains. After a while, you need

A violin virtuosa doesn't have to know exactly how her muscles work to play the violin perfectly. Conversely, we may be able to describe theoretically the steps to drive a tractor by reading a manual without in practice being able to drive it.

the psycho-physiological level (drinking, eating, sex, recognition by others, empathy and so on) corresponds to increased concentrations of this neurotransmitter. The same applies to the use of drugs.

Learning in all of its forms—no matter if it's a physical or an intellectual skill—requires effort, care and attention. Reading, as with any assimilation of information, is tiring. Completing satisfactory psycho-physiological activities is exhausting. But as you may have guessed, the easiest and least expensive way to raise the levels of dopamine and thus to experience pleasure is to complete a certain specific task over and over again. Repetition, the iteration of given behaviours, is a shortcut.

The processes responsible for emotional responses take place in the limbic system. They indicate the prospect of possible rewards or punishments,

truckloads of dopamine in order to feel pleasure. At each step, the necessary dosage increases.

That is why training is so effective, and so addictive. The pleasure related to an automatism—compulsive behaviour—makes us enter into a repetitive loop from which it is increasingly difficult to exit. As a result, the neural pathways that are triggered will get more and more powerful with the passage of time. In turn, this strengthens the behaviour. Tempo, rhythm, repetition.

Give us back the game!

Thanks to digital media, we can now lower our cognitive ergonomic (from the ancient Greek *ergon-nomos*, “rules of labour”) load. We can delegate the task of remembering. This is an indispensable help. We don't have to

attend a course in order to use our telephone, or to manage our social media contacts. Perhaps we have to ask someone more tech-savvy. We don't really know exactly how it works, but the important thing is: we reach our goal. To do this, we have to perform a series of repetitive actions, or retrace a procedure. In the interface, we follow

We are living in a present cycle of interaction—an extremely addictive one—which we would like never to end.

the obvious traces of the algorithmic procedure designed by others for us.

The organization of our cognitive system is mainly based on intuitive faculties and reasoning. Entrusting ourselves to intuition, we only interpret a context through mental schemes that are already part of our non-conscious mnemonic luggage. The cognitive and computational effort is minimal, since we do not think about what we're doing. We act automatically. On the other hand, conscious reasoning requires substantial cognitive effort. We must ruminate. Make hypotheses. Follow a sequence slowly and methodically. Intuition allows us to act fast and to use a tool without being able to explain how it works, while reasoning gives us the ability to explain how something works without necessarily being able to use it. A violin virtuosa doesn't have to know exactly how her muscles work to play the violin perfectly. Conversely, we may be able to describe theoretically the steps to drive a tractor by reading a manual without in practice being able to drive it.

Declarative memory (knowing 'what', knowing something) is distinct from procedural memory (know 'how'). All activities we automatically implement involve procedural

memory. When we act intuitively, we refer to previously learnt procedures, simulating the strategy most appropriate for successful completion of a set task. We don't need to think about it. It is a question of the economy of resources: you don't want to waste valuable computational energy to think about how to ride a bike if you

already know it. If there is no match with our previous experience, we must refer to reasoning and to an analysis of the environmental conditions before acting: a tyre is flat, we try to take it apart and try to fix it ... if that doesn't work, we have to ask for help, or tinker with it, and in the best case create a new procedure.

Consistently using a digital medium such as a web interface means gradually learning to use it automatically. These interfaces are designed to be very intuitive and user-friendly. Through the creation of mental patterns, we can say that we use them "without thinking". If we change our phone but continue to use the same app, it is enough to simply identify the app icon in order to use it automatically, sometimes without even looking at the keypad.

Intuition, therefore, is the ability to simulate a known procedure and act it out automatically. The automation coincides with a procedure's execution. Here follows one of the most frequent misunderstandings of digital devices for learning, and the alleged cognitive differences between digital natives and digital immigrants. For example, smartphones and tablets are used in the rehabilitation of neuro-degenerative diseases such as semantic dementia,

utilizing procedural memory as the only kind of memory to remain intact in these cases. Patients are able to learn how the device functions, and can use it on a daily basis despite being unable to remember simple ideas.

Digital natives do not just 'exist'. Even people born before widespread computer access can become skilled tech-heads, engage in interpersonal relationships mediated by digital devices, or find more interesting and engaging 'virtual' multimedia realities compared to the disconnectedness of everyday life. All human beings can become "digital natives". The brain is incredibly plastic. It can adapt very quickly through learning procedures, especially if they are gamified. This does not mean, however, that these people are able to understand, analyze, edit and teach all the procedural mechanisms that they repeat!

Virtual realities penetrate our organic bodies through optic nerve generation of environmental abstraction and selective inattention against non-visual stimuli. They are also addictive. Tearing ourselves away from the screen, after being there for hours (that seem like minutes) can be painful. Let us back into the game, just for a short minute! This beautiful alienation from our bodies, it's so pleasant.

The passage of time is a fundamental parameter to identify different types of interaction. When we are not aware of time passing, we are probably in a phase of flow, of procedural immersion. We are living in a present cycle of interaction—an extremely addictive one—which we would like never to end. When time is instead perceived of as linear, with our awareness at merely an experiential stage that we are able to stratify, store, and recall, we are then within the sequential learning and practicing of declarative memory.

Video games have become a fundamental part of life for millions. The video game industry has outpaced all the rest of entertainment related activities. For example, an MMPG (Massively Multiplayer Online Game),

with players simultaneously creating and playing in their own virtual world, can be more expensive—and more profitable—than a Hollywood blockbuster. There are different types of video games. Filler games, played to pass the time while on the move, are different from strategy games, from ego shooters, from puzzles and riddles, and so on. But the vast majority of video games are designed to induce the flow. In addition to reinforcement of the dopamine circuit, they influence the release of oxytocin, as well as many other neurotransmitters and

frustration (I did not win this time). Behavioural training is perhaps the greatest fallacy of gamification.

Digital media interaction is not necessarily only self-training, not only an exercise in procedural memory and intuition. Hacking, the art of “putting your hands on” to take over the operation of complex machines and modify them at will, certainly also appeals to reason. However, sitting dazed in front of a screen for a devastating “forty-hour” session (culminating in utter exhaustion) is an example of the abuse caused by excessive exploitation of the

Behaviour is stimulated in a stronger way through rewards administered non-automatically—not only in animals but also in humans. The rat presses a button and receives the food, but not always. Training is more effective that way.

hormones. The research here has just begun.

Many video games follow doctrines of behaviourism, in particular the formula of the Skinner box, as devised in the 1930s by American psychologist Burrhus Frederic Skinner. Skinner discovered the concept of operant conditioning through experiments with rats and pigeons. Behaviour is stimulated in a stronger way through rewards administered non-automatically—not only in animals but also in humans. The rat presses a button and receives the food, but not always. Training is more effective that way. Even if positive reinforcement does not come every time, it is possible, probable. The trivial human example are gamblers on slot machines: they know that they’ll not always (if ever) win, yet they continue to play, because the operant conditioning (I can win) is more powerful than the immediate

reinforcing dopamine circuit. We are able to forget our own body.

We want to speak loudly and clearly for a consciously balanced alternation of intelligence and memory. Self-care begins with the observation of personal interactions, listening to personal inclinations with the aim of finding a pace to suit us. So we can rule ourselves. So we can create our own interactive liturgy. ■



Photo: Public Domain

Ippolita is an interdisciplinary research group active since 2005. They conduct wide-ranging research on technologies of domination and their social effects. Ippolita practice convivial cross-circulation of writing from hacker communities to university classrooms. Their essays include: *Anime Elettriche* (2016), *La Rete è libera e democratica. FALSO!* (2014), *In the Facebook Aquarium* (2012), *The Dark Side of Google* (2007), and *Open non è Free* (2005). The collective also runs workshops on digital self-defense and convivial informatics for girls, children, academics, affinity groups, tech-heads, and indeed all who are curious.

Artists of this edition

Photo: Sam Chivers



Cover: Sam Chivers I led a double-life for many years. By day, I worked for a design and illustration studio, producing work for many different clients in very different styles. After work, I was busy with my own projects, enjoying a bit of creative freedom away from the pressures of the commercial world—and being consistently told what I should do. I connected my love of sketching and geeking-around on the computer, and often came away with screenprints. Screenprinting is a process that I learnt to love because of the limitations it imposes on you. I like to give the impression of depth using just three or four layers. Mistakes often turned out to be pleasant surprises. As I had hoped, after a particular period of incubation, commercial clients began to get interested, and finally I decided to take the plunge and become self-employed on a full time basis.

My work operates at the blurred boundary between science and nature. Recently I became aware just how influenced I am by the countryside in which I live, and that I tend to fictionalize it through sketching.

My work ambition consists of self-improvement, and constantly furthering myself as an artist. The result of my work has, at present, mutated into a two-headed monster: on the one hand, airbrushed science-fiction landscapes; on the other, more hand-drawn pieces with a limited colour palette. My aim is to connect the points between these two styles and somehow bring them closer together.

Looking back on the month: the Hubble Space Telescope

Named after the astronaut Edwin Hubble, it was jointly developed by NASA and the ESA to avoid the limitations of image resolution created by the earth's atmosphere. Despite many failures, it is now known worldwide for taking pictures previously thought unattainable. The road to this was a rocky one. There were serious problems after Hubble first became operational in 1990. Due to a primary mirror failure, Hubble's pictures were practically useless. Exchanging the mirror would have been too expensive. The defect was only corrected in 1993 through an additional system of mirrors: the Corrective Optics Space Telescope Axial Replacement, or COSTAR. Just as people use glasses or contact lenses to compensate for failing eyesight, Hubble needed vision aids. Ever since, Hubble has notched up remarkable successes. Its findings serve to calibrate the cosmic displacement scale, to investigate the extent of the universe through observation of distant supernovae, and to give evidence of black holes. Its pictures have also been used in



Photo: Public Domain

Star Trek. Nevertheless, Hubble's days are numbered. Through its constantly sinking orbit, the telescope will probably enter the earth's atmosphere in 2024—and burn up. There are no plans for another spaceship to heighten Hubble's orbit. Hubble's successor, the James-Webb-Telescope, should by then already be in operation.

Hubble is put into space from the Discovery's cargo hold.

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The annual *Das Netz* is required reading for all those interested in internet politics and society. This is your copy. As chroniclers of digital change, we take a close look at the most important developments of the past year. All the articles in this edition are available for free at www.dasnetz.online.

We are open to fresh ideas. Anyone looking to try out new digital publishing models, create original content, or help shape the future of publishing, please contact us at info@irights-media.de. ■



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