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TACKLING THE DECLINE

How digitisation must save Europe

BUCH SCHMIEDE

IMPRINT

The references to people and professions
in the book only appear in a single form, but refer equally
to both genders.

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FOREWORD

Can I make a wish? A letter to Santa Clause or the Court of Leaving Presents on the Windowsill?
Thank you.

Right after health, happiness and joy, my wish list has the following entries:

I want an information and booking service that can be used for all public transport across Europe, on the train, bus, metro or tram. I should be able to use a single **electronic ticket** to get from the central station in Vienna to Limfjorden beach in Denmark.

A long journey, admittedly. Enough time to enjoy the view, read the paper and from time to time have a little nap. Of course, I'll want to go online occasionally. This means **internet access** should be compulsory on all modes of transport.

While I'm online, I want to check my bank account and finally order the latest crime thriller by Martin Suter. How nice would it be to be able to log in with my **electronic ID**? A single key that opens many online portals!

At the moment, my trip to Limfjorden is professional. I don't have a home outside Austria, but many Europeans do. I would, of course, also need homeowner's insurance for my fictitious house on the beach along the Danish coast. But it would probably be delivered when I was out of the country and would while away in the post box until my return. In the future, the same signed policy could be sent directly to my **electronic safe** as a digital document.

A condition for all of these scenarios is that a number of bright minds are able to achieve this politically in Europe. Only then can the

digital internal market in Europe and therefore the basic services of electronic transactions and digital official channels be implemented.

The good news is our continent is in a digital **spirit of optimism**. The years of complaining about the crisis and the constant summit meetings with no real will to change anything seem to have passed. May 6 2015, the date on which the strategy to implement the digital internal market was presented, could go down in European history books – the universal content of all 16 initiatives, which are now in the implementation phase, shows that the digital single market (DSM) has been fully thought through and the EU wants to knuckle down.

In order for the desired processes to function holistically across Europe, all EU member states have to pull together. To date, thinking and acting in national “allotments” of implementation has stood in the way of the European digitisation dream.

A digital internal market would ensure strong economic recovery and make the lives and work of EU citizens significantly easier. Simplification and enormous potential savings are associated with the digital innovations, both for us Europeans and for European small and medium-sized enterprises. Europe could get back on the path to success after having been derailed by competition from the USA and Asia a number of years ago. “Thrown off the rails” would be more like it.

I strongly hope that Europe is able to achieve a digital internal market based on strong data protection and high security and quality standards. This is the way to create the necessary trust in digital security. We will build an environment in which data is protected and administered by encryption technologies and secure cloud solutions.

We can show the world and ourselves that better economic and societal order should never be viewed solely from the perspective of technology but rather always requires a philosophical, an ethical and a socio-economic perspective.

We can also show that digitisation is not a peripheral phenomenon that is inexplicable to many citizens and that now has us fully in its grasp.

The opposite should be true.

This is why this book was written.

PART 1

Europe and the USA have been communicating with one another via submarine cable for more than a hundred years. During this time, the balance of power has shifted 180 degrees: while the Europeans started the process of laying the cable, it is now the internet giants of Silicon Valley who regulate the data flow.

WHAT HAS HAPPENED TO DATE

An ultra-modern farm of gigantic proportions. Windowless, beleaguered by monstrous cooling units. Slowly, the viewer is guided round the building. If you are having visions of animal heads stacked one on top of the other – it's even worse than that. Our data is stewing here – private things, professional things, sensitive things and forgotten things. What we do know is that each time we hit a key on the keyboard it leaves a trace, and the immeasurable treasure of Google and Co continues to grow. The volumes of data, Big Data, are indescribably valuable for politics and the economy. And rummaging around in the data mountain has consequences for both citizens and the global economy which are difficult to foresee.

Google operates seven data storage facilities of this type in various godforsaken parts of the USA. This was the situation in 2015, when the Irish digital artist John Gerrard completed his project *Farm (Pryor Creek, Oklahoma)*. John Gerrard would actually have liked to see the final storage place of our virtual actions there, but Google rejected his request. He sought advice from the local police, who reckoned: "All we can say, the air is free." [1]

Inspired by this information, the artist photographed the Google Data Farm in Pryor Creek, Oklahoma from a helicopter and compiled the images into a video simulation in his workshop in Vienna.[2]

Looking at the sterile construction, which could also have been used as a high-security prison, it is difficult to comprehend that individual communication strings and data that were created by people on the sofa, on the bus or at their office computer, are stored here with no expiry date and subject to as high security as treasure.

This is because data is the new gold, a source of fuel for the military and for companies. A valuable commodity that the consumer will willingly give away for a few glass beads in the form of "free" apps. Or, as John Gerrard describes the data storage facility at Pryor Creek: "A farm which is eating us as we eat it".[3]

This data theft is being increasingly reported in the media. But the leap from the feature pages to general consciousness is a very big one. This is bad because the actual impact could be a painful one.

For example, what does "virtual" mean to the average consumer? Are these ethereal pieces of information, light and airy like the traditional dumplings from Salzburg which have to be eaten quickly or they collapse in on themselves?

Our data doesn't float around and then suddenly disappear.

Even if information is stored in what is known as a cloud, this simply and pragmatically means that information moves to servers which are not at home or at the office as long rows of binary codes[4] – those endless sequences of ones and zeros, do you remember them?

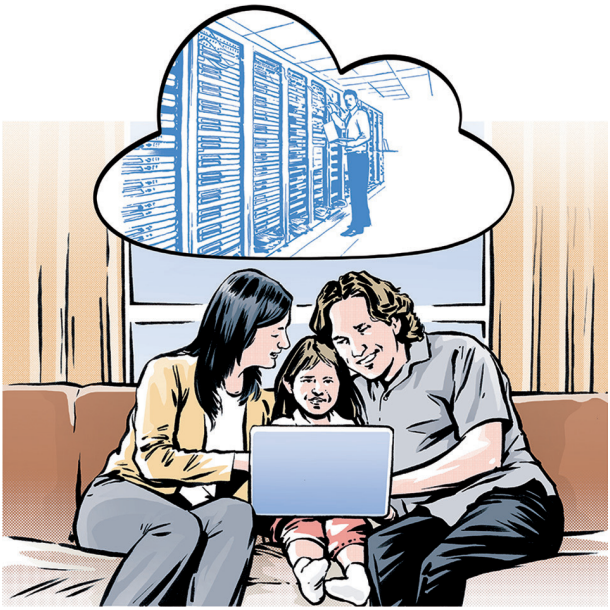

Fig. 1: In this book, Marie and Kasper and their daughter Mücke live the new, digital Europe together as a family. © Peter M. Hoffmann

Virtual means “not physical”, but where exactly the limits of this lie is almost a philosophical question. For example, a clumsily placed ship’s anchor can bring the internet to a standstill in many areas. Many glass fibre cables now run along the seabed in thick bundles with the necessary protective layers to keep our data traffic free from moisture, salt and the other disruptive elements of the sea highways.[5] But accidents still happen, such as when ships’ anchors cut through the protective shells or fishing nets pull at the cables. The seabed can quake, and sharks sometimes even confuse the underwater cables for snacks.

Laying submarine cables of this type is expensive. The nations who are interested in more rapid data connections assume the costs

of this, and to an increasing extent also private consortia. Around a quarter of the global data volume already flows through private networks. According to the US market research institute TeleGeography, this figure is 40 percent for Transatlantic data traffic. Google, for example, is currently involved in cabling between Japan and the USA (Project “Faster”)[6] and in another project to create a new, rapid route for data between the USA and Brazil. This initiative would incur costs of a total of 60 million US dollars and will offer a data throughput rate of 64 TBit/s.[7] Of course, Google has intentions with these major investments: the company will have a say in bandwidths, type of use and access.

Europe and the USA have been connected to one another via the seabed for more than a century.[8] If you could pull together the many transatlantic telephone cables (TATs) there into a thick cord, you would be holding the aorta of international data traffic in your hand. More than half of the 19 strings are coaxial cables, while all other lines are made of glass fibre optic, which is not sensitive to electromagnetic impulses. The switch to these expensive cables was made in the early 1990s to meet the new requirements of online technology. Two glass fibre cables are currently in operation between Europe and the USA: TAT 12-13 and TAT 14.

Fig. 2: Submarine cables around the world, cable data by Greg Mahlknecht, 2015-07-21, world map: Openstreetmap contributors
Source: https://upload.wikimedia.org/wikipedia/commons/8/89/Submarine_cable_map_umap.png?uselang=de-at, accessed on 30/03/2016

If we remain with the metaphor of the aorta, as with blood circulation, data flow deep under the sea now goes in just one direction – from Europe to the USA. And 54 percent of the gadgets which generate this data in Europe originated in the USA. Conversely, just four percent of European products are used on the other side of the Atlantic.[9] Everything started so differently.

Stefan Zweig, author, portrait painter and sensitive chronicler of the dying Imperial and Royal Empire *("The World of Yesterday"* [10]*)*, described how a "gigantic belly button" was first laid between the northwestern coast of Ireland and Newfoundland:[11]

The approximate costs of laying the cable are pretty much the only thing about this beginning which can reliably be calculated. There is no model for the actual technical implementation. We haven't thought or planned in similar dimensions in the entire nineteenth century. [...] But we're taking a chance! The factories are now buzzing day and night, the demonic will of this one man is driving all of the wheels forward. Whole mines of iron and copper are being used for this one line, whole forests of rubber trees have to bleed to create the gutta-percha casing for so great a distance. And nothing more sensually demonstrates the enormous proportions of the undertaking than the three hundred and seventy-seven thousand miles of individual wire being spun together in this one cable – thirteen times as much as you would need to encompass the entire world and enough to connect the earth to the moon in a single line. From a technical perspective, humanity hasn't dared to try anything this grand since the construction of the Tower of Babel.

The "one man" who Zweig mentioned in *Decisive Moments in History*, is Cyrus W. Field. The first attempts to lay a cable on the bed of the Atlantic were made under his guidance in 1857. This was a monstrous task: two ships specially converted for the quantities of material – the *Niagara* and the *Agamemnon* left opposite coasts, unrolling the freight during their trip across the waves. The plan was

to meet in the middle of the Atlantic. Nobody above the depths knew for certain which creatures and rocks the cable would be exposed to in the deep, dark water. But it didn't come to that at the start, and 600 kilometres of cable were unwound and sunk into the sea.

Just a few weeks later it was done. On the third attempt. The ends of the cables were spliced together on the high seas, and initial attempts showed that the electronic connection was working! It took 16 hours, however, for the greeting sent by Queen Victoria to US President James Buchanan to be transferred in full. This is no comparison with the data speed previously mentioned of 60 terabytes per second which will race between the USA and Japan through the "Faster" glass fibre connection from 2016. The celebrated cable adventure of Cyrus W. Field stopped working just a few days later. Rust was apparently responsible for the premature end. It took a few more attempts before telegrams were able to be sent between the continents without any interruptions from 1866.

The pioneering spirit of the people who were involved was astounding, and some of this formed the basis of many European companies which exist to this day. Field himself was a successful paper manufacturer, who retired at 34 and sought adventure and opportunities for investment. The Atlantic adventure turned up at just the right time.[12] The German Paul Julius Reuter then built the offices of his news agency where the latest submarine cables led him – first London and then New York. Werner von Siemens was involved in the challenges of the Atlantic cable, as was the American painter and amateur electrical engineer Samuel Morse, the physicist William Thomson (who later became Lord Kelvin) and the surgeon and amateur physicist Edward O. W. Whitehouse. A mixed crowd of practitioners, scientists and laymen.

At that time, the advantages of the new submarine cable were primarily a draw on the European side, as both the Irish coast and the coast of Newfoundland were owned by Great Britain. However,

the USA also obtained the right to use the new connections on an equal footing. The Brits tried to control their using the cable and the Americans wanted to use it to reconcile their own giant country. But a member of the Senate was concerned, saying “both ends of the telegraph line belong to the British. What assurance do we have that in the event of a war we can use the connection the same way that the Brits can?”

As we have now established, these concerns were unjustified. The marine cables have now mutated into a one-way street towards the west, where Europe’s data ends up in a silo like the one belonging to Google in Oklahoma. European companies, particularly those in the field of information and communication, are losing massive amounts of power while the American Silicon Valley has developed incredible power and is brimming with innovation and money. The influence of the Techno Valley is on the way to becoming the real danger.

Of course innovation is also occurring in Europe, but the promising ideas are bought up by US companies before they can become a threat. And the founders permit it, which is no great wonder when the necessary venture capital is simply not provided back home. If you know *Osmos*, the iPad game from 2010, you can see this process played out interactively before your eyes accompanied by spherical sounds – become the largest bubble and beat the competition! And, practically:

From a certain dimension, the attraction is so strong that it automatically sucks in the rest of the environment.

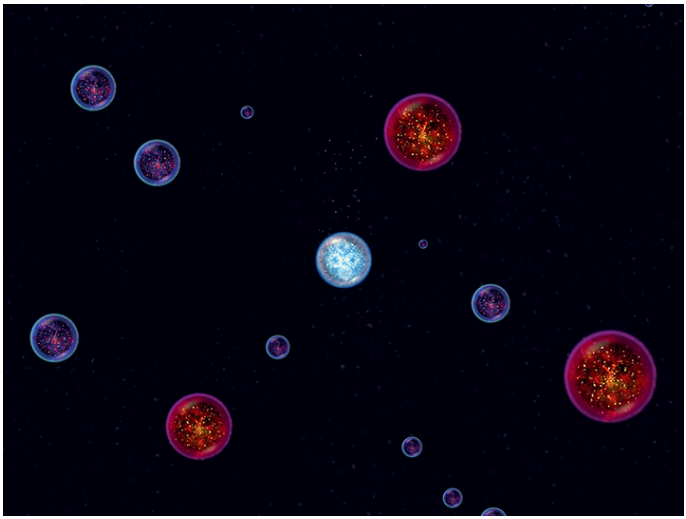

Fig. 3: Osmos – “Be the best” (screenshot)

But it wasn’t always like that. What happened to make Europe fall behind like that in the digital global economy?

Although there were initial doubts, the internet industry rapidly took off. Google, Facebook and Amazon show that there are billions to be made online. Legislation means little to the industry giants – self-driving cars, settlement on Mars and eternal life are more important. Technological singularity is the keyword, and progress is about to come thick and fast. Europe is lagging behind when it comes to developments, and is further discouraged by incidents such as the NSA bugging scandal. In order to secure their position of power, US companies buy European start-ups or companies which are in crisis. But there’s still hope: some companies won’t let themselves be intimidated by the demonstrations of power coming from overseas and are acting as beacons guiding Europe in a promising direction.

SHEETS OF ICE OVER EUROPE

The internet will have no more effect on the economy than the fax machine.

This was Paul Krugman's prediction in 1998. A few years later, we can say with some certainty that even Nobel prize winners can be very much mistaken. A glance into the archives of the *Süddeutsche Zeitung* shows that eight years later hope was once again sprouting when it came to the internet:[13]

The magnitude of his prophecy seems to worry him. "It feels like a new economy", said the Time Magazine commentator a few weeks ago, appearing to ease up but then really accelerating: "But it's true, we're on the cusp of the most creative and innovative era the world has ever seen." Sceptics claimed that the prediction not only smacked of a new economy but that, like the internet hype of the nineties, this too would collapse unsuccessfully. But maybe [...] Time Magazine, and other friends of what is known as Web 2.0, are right when they say that there is currently a movement on the internet which will make a lasting change to our ideas of progress, the public sphere and the audience.

In 2006 the modern-day internet giants were still in nappies. Google felt threatened by Myspace.com, which at that point had just been taken over by Rupert Murdoch for 580 million dollars (who still remembers Myspace?), Facebook opened itself up for the first time to users outside of Ivy League universities and Twitter was still in labour.

Stepping into the future with seven-league boots

Facebook, Amazon and Google are highly profitable as they can utilise their users' data in a lucrative manner. Since 2015, Google has been a sub-company of Alphabet Inc., a group founded for better transparency which is now an umbrella for Google Nest, Google Ventures, Google Capital, Google X, Fiber and Calico (an organigram is attached). Cynical voices claim[14] that the new holding is meant to divert attention away from the fact that the company's core business is the sale of advertisements – a less glamorous business. The same is happening at Facebook: there were initial doubts about the profitability of the social platform, but since 2010 the company's profits have been in the billions thanks to the sale of advertisements.[15]

The protagonists of Silicon Valley have stepped right from their children's shoes into seven-league boots. Do they only exist in fairy tales? The ideas of the Californian forges are now so futuristic that putting them into action now seems genuinely incredible. Some innovations are still in the beta phase. Self-driving cars: check. Smart energy: check. Beating cancer, eternal life: almost.

Google's motto is "Don't be evil". And one of the questions asked at interviews for jobs at Google is apparently[16]

"Do you really want to change the world?"

In the much celebrated valley in California, attempts are being made to combine maximum capitalism with good intentions, in the style of gold digging meeting hippie culture, and contrary to all reason fusion of this type works very well. Protagonists such as Andreessen Horowitz, one of the largest venture capitalists in the valley, compares the region to a space station taking a steep path towards the perfect world for humanity.[17]

Andreessen Horowitz, Elon Musk and other valley giants now combine money and power in such a way that their actions are putting us on a course towards feudal rule. When the white mirrored Google or other private buses marked “High Luxury Transportation” collect the tech workers from the bus stops, public infrastructure is used but not paid for. Strictly speaking, a few million should already be paid.[18] The buses have become a symbol of a divided city: these very sample employees only come home, if at all, to sleep. Everything else (including washing!) is done by the company. This means small businesses are going to the dogs. Forty percent of the residents around the bus stops would normally only come back at weekends. The many empty apartments are pure cynicism in a city with the highest rate of homelessness in the entire USA. The rents in San Francisco are some of the highest in the world.

Taxes are paid either to a minimum extent or not at all, costing both US taxpayers and those in the European branches or wherever else billions. For example, the Mayor of San Francisco, Ed Lee, waives the fees for Airbnb – a gift worth 25 billion dollars so far. Twitter has also been able to save a total of 37 billion dollars in taxes in the past few years.

And as if that weren‘t enough: “They want to go out on the seas, away from the ruled. They want to put computers on platforms, allow talent to flow in without visas and not pay any taxes”, writes the Swiss magazine *Reportagen*.[19] This path away from laws and regulations is being pursued by the Seasteading Institute in Sunnyvale, which has established an autonomous and independent spot in international waters to which no state has access. In 2013, Google founder Larry Page openly stated that the open seas were the best solution to do things “that we would like to do but we’re not allowed to do because they‘re illegal.” This is why “safe” places are needed where new things can be tested out to find out what effects they have on society.