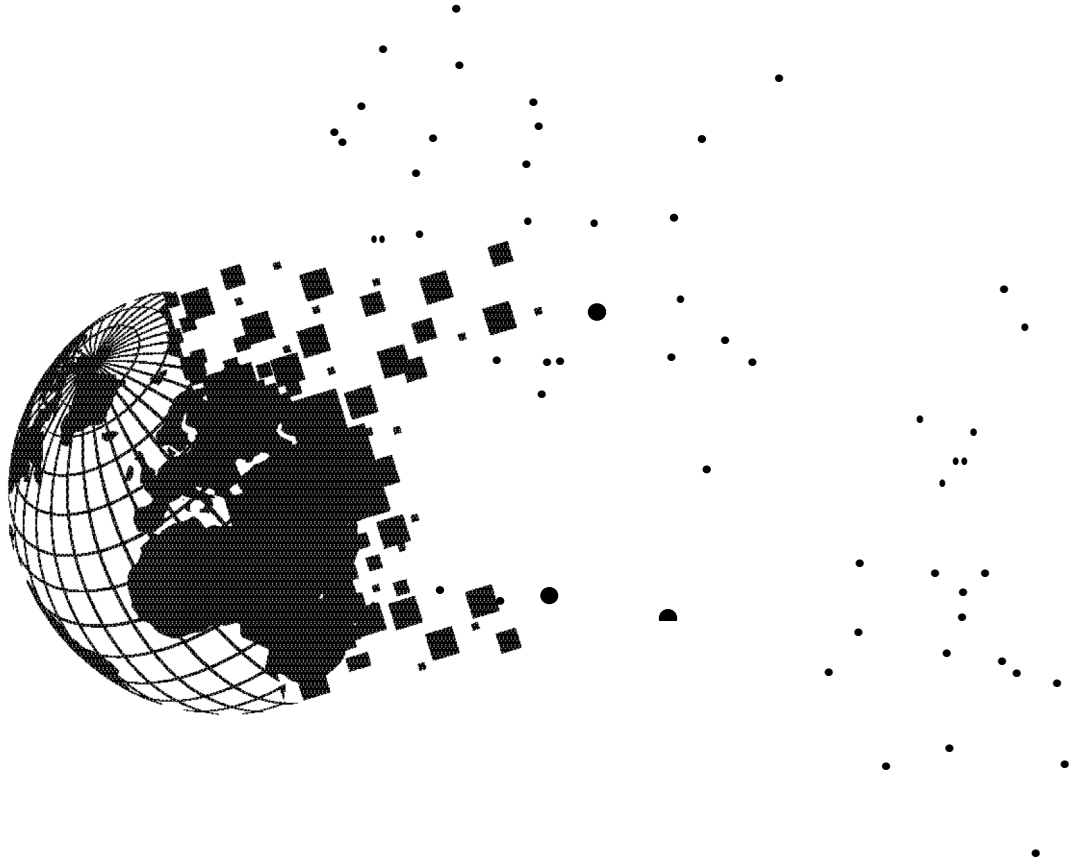


Dematerialization



The Redistribution of the World in Times of Digital Darwinism

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neuland see themselves as an architect of digital transformation and accompanies from developing strategies to the successful implementation.

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Foreword

Every era has its **battle cry**. Currently, it is the word of the total digitalization down to the dematerialization and the disruptive business models that destroy conventional ones. Let us begin with the total **digitalization** and the **dematerialization**: Sure, if you are reading this text on a smartphone, then you are carrying an entire trunk full of things around with you. With a smartphone, you can actually make phone calls, too. Yet, it is also a typewriter, a huge collection of boxes of slides (do you remember the many boxes full of dad's dusty holiday slides?), the corresponding slide projector, a 25-volume lexicon, an entire library, a camera, a record player, a cassette recorder, a dictation machine, a Deutsche Bahn railway guide... enough. The trunk is full. Your smartphone is all of that and probably much more.

Dematerialization cannot be put into better pictures than that.

We all use it – but many of us have not yet realized what is happening. Many German middle class people still feel safe. Dead safe even, unfortunately in the true sense of the word. They believe in **THEIR niche** where they are mostly a hidden champion, unassailable because of their performance and specialization. I hope it stays that way, but I am afraid it won't. After all, large numbers of the applications cover more and more areas of the manufacturing industry, make equipment and their manufacturers superfluous. It is not that we no longer take photos – but we do take them more frequently with our smartphone, which has long been able to display a technical quality of the photos, which was the common standard for pros merely a few years ago.

We no longer use the equipment – but what it can do, the variety of usage: the textbook, the literature, the music. The change is creeping up on us – but is as fast as lightning nevertheless. The more practical is asserting itself. I myself love my Leica. The way it looks, the feeling of perfection it conveys to me, how heavy it is in my hands, the loud sound of the release. But, at the same time, it has become too cumbersome. And that is how more and more people are feeling with increasingly more goods and services. Yes, it is wonderful, to browse the newspaper with a cup of coffee in the morning. The rustling! Even the smell of the printed-paper is immensely fascinating. Period. Unfortunately, I am usually out somewhere when I do have the time to read a newspaper. Stupidly, it fills up my mailbox at home and after a few days, it is a signal for burglars: thumbs up, there's nobody at home. So, the newspaper will disappear – but we will continue to read, become informed, continue to follow our favorite authors. Just differently. Dematerialized. And we can respond to it immediately. New media are not only "digital". They are responsive. This gives them a new quality. That will change our notion of the right product.

Let us not deceive ourselves:

Much of what we live and manage is a mere habit, it is habitual. But our children are unprejudiced in these things. Like us, they use the new first. For them, the NEW is habitual! Not the old!

I cannot start to imagine what that means for the respective business model. All I know is: with the **3D printer**, many metalworking companies will lose their footing, because I can now easily print out the work piece all by myself that was once manufactured with great skill and effort. On the spot. No cutting, drilling, milling, shaping and reshaping – it tumbles out of the machine and in a way the old turner would never have managed. Are we well prepared for that? Or is it not only a danger but even a chance?

The **processes are becoming disruptive**. This word is frequently translated as the "destruction of business models". Actually, it only means: business is no longer running continuously – but in leaps. It is no longer a case of a couple of percent more or less growth. It is about all – or nothing. Now. The electric car is not a gasoline car with a somewhat different engine. It is something completely different. Or will people not be buying cars (= goods) anymore in the future but only transportation (= services)? Just because a car falls

from the skies via an app? That changes the structure of the markets. It is no longer the manufacturer that is important but those in contact with the customer. It no longer has to be the car factory.

This is where the **challenge** lies. For the entire economy.

I ask myself: and what does ole **Ludwig Erhard** have to do with any of this? If you take a close look: he was a **master of change**. He made significant contribution towards the formation of a new currency, which set an example with its solidarity and thus established the confidence that any economic activity needs. He got rid of the price controls and funding courses, rations and food stamps, overnight. Many were convinced: that is a no-go. Everyone will starve. Everything got better.

Because Erhard did not occupy himself with something that disappears. That is simple. It is easy to imagine which companies and which jobs will presumably disappear. His imagination was thus occupied with what could be. That is hard to imagine. It is mostly fantasy. Somebody with visions should go to the doctor, one of his successors in the office of the Federal Chancellor, Helmut Schmidt, once said. Obviously –being on the move without visions is like going on vacation with no idea of the destination. That can't go well and didn't go well in Schmidt's day – unemployment and exploding national debt inherently result when there is a lack of visions.

Yet visions need more: **Confidence in the inventive talent and the creativity of people**. This can't be presented by a ministry that only encourages what is known and visible. The new is created in the heads of creative people who believe in their own future. They draft the **map of the future**.

150 years ago, one could not imagine that 80% of the population would find their livelihood outside agriculture. Smartphone dealers or app developers – try explaining that to a romanticist such as Joseph Eichendorff. Impossible. The fact that, after the wave of automation in Germany in the 70s, there is a shortage of labor again today – no trade unionist would ever have believed that. This is the reason why the beginnings of data processing in Germany and Europe have been fought by trade unions since the 70s until the then very successful businesses of the Old Continent were literally overrun by the Googles and Apples. Back then, the 35-hour week was introduced because work was running out. Unfortunately, it didn't run out. It simply changed. And now, the debate is beginning to repeat itself, with a **scary denial mode of unavoidable transformation**. By the way, Queen Elisabeth I of England refused to allow the first modern weaving loom. She was scared of the weavers' anger. The machine still won through, triggered the Industrial Revolution, and turned England into a world power. However, only because England, in contrast to other states at that time, was not in the hands of a feudal oligarchy but because England allowed new inventions. In defiance of Elisabeth. The spirit of inventing prevailed – and what about Germany? We know what we don't want. But allowing the new means: going down a route for which there is no map yet. And it demands courage – angst inhibits.

Angst is a bad adviser. Going into hiding no longer works. The world of change has run over every Chinese wall and the digital hordes will run away with the victory. Unavoidable. It's all about bringing about change oneself, detaching oneself from the nice life of step-by-step change and causing breaks to be made, radical breaks, with absolutely none of the usual breaking maneuvers the Germans master so well in the meantime.

Imagination, ambition and confidence in the inventiveness of man – that is the actual recipe and if one creates the framework conditions on top of that, in which this can develop economically, then nothing stands in the way of success any more.

For this very reason, we should sometimes turn to **Ludwig Erhard**. He knows about the materialization of the **disruptive for the welfare of all**. On the way there, this literary work by **Kreutzer/ Land** provides important **orientation assistance**. Its extensive reading should be recommended to every source of funding in politics and the economy.

Roland Tichy

German journalist and member of the executive board of the der Ludwig-Erhard Trust.

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Management Summary

Dear Readers,

The **digital revolution** stops at no economic sector nor at any area of life. With this in mind, we find it even more astounding that no study has dedicated itself extensively to the question of which consequences are connected to the digital revolution and the subsequent **dematerialization of products, services and entire value-added chains**. No technological change of the past decades has cut into existing structures, processes as well as habits held dear as strongly and sustainably as precisely this dematerialization.

It is thus remarkable that neither politics nor wide fields of the economy have thought the consequences of this dematerialization through to the end, and the fact that they haven't although the first losers are visible to all. The **publishing sector** especially has been affected, above all trade publications and many daily newspapers. In times of when important and day-to-day information is increasingly available on online platforms for free, paper-printed business models are having increasing difficulties. And with Generation Z – those born after the year 2000 – a target group is growing in whose household increasingly fewer "paper products" such as newspapers, magazines and books can be found. How will these people behave when they become our target group with more buying power? Analog developments have been determined in the music industry for a long time.

How many branches does the ING DiBa have again? 720, 360 or 250? In words: "none"! This bank manages without any branches because all fields of services have been digitalized and a customer service center takes care of the customer dialog. A further thinning out of having branches is in the offing for all traditional banks. With that, of course, all regional investments in staff, office equipment and property in the **bank sector** will disappear – as well as all directly or indirectly associated services! And the next challenge is just around the corner, the **dematerialization of money**. In the future, we will be using fewer coins and notes to pay. This reduces the relevance of physical banks even further because we will no longer need to go to the cash machine!

One phenomenon is given a significance not to be underestimated in its reach: The Zero Marginal Cost Society (*Jeremy Rifkin*). In many production processes, digitalization and dematerialization leads to "0" marginal costs. The means nothing other than productivity quasi increasing into infinity if every additional unit can be produced without or at minimum cost. The associated effects can be easily illustrated using a letter as an example. To write an analog letter, besides paper and ink, an envelope and a stamp are required. To send it, a person is needed for a start or – in the event of a larger distribution – an appropriate machine to put them into envelopes. Subsequently, it is given to the Deutsche Post for example to deliver the letter via various levels of a logistics chain to the recipient. In contrast to that, an e-mail can be scaled with low costs. The marginal costs for writing e-mails as well as delivering them are equal to zero. The same phenomenon applies when money, credit cards and keys are turned into apps.

Due to this development, the **foundations of capitalism** and thus of our **economic system** are shaken. A key driver in competing for customers' favor and the achievement of profits was and is the pursuit of continuously cutting marginal costs. Yet, what happens when the marginal costs in certain industries become equal to zero? If this driver of competition disappears? And what happens if not only this driver of competition disappears, but also many millions of **jobs**, the loss of which representing the cause of the zero marginal costs? After all, if the marginal costs for every further product are "zero", no human working power will be needed for this either. Where should the (continuous) **economic growth** then come from for progress in productivity not to lead to large-scale job losses? If dematerialization causes millions and millions of German jobs and a high degree of value creation to become lost, where is growth then supposed to come from? Does that now mean the end of capitalism due to the fact that the additional production of many products and services means no additional people, who are involved in the production process, are needed? Or does the zero marginal cost phenomenon promote the ever increasing dynamic development of new business models because the costs of failing are falling dramatically?

But, all of that is only the humble beginning! Let's take a look at one step further. In the near future, we will no longer need an ignition key to open and start a car. An app will replace this! At the same time, this means that we will no longer need any machines to manufacture ignition keys. And no tool machines and materials to manufacture precisely those machines. And, of course, all of the associated jobs will also be lost. In contrast to that, we have the buzzword **Industry 4.0**. In essence, that is about the ever-increasing networking of the production companies within the value creation chain. That is not new, one could think. The main difference to the previous concept is, however, that in the course of Industry 4.0, a much farther-reaching dovetailing happens between performing partners that act separately from the other in legal and location terms. In the final completion phase, this would be an integrated value added chain of the mine, in which noble earths are extracted, down to the finished end product containing a chip whose manufacturing would not have been possible without these special metals. The key drivers behind such a development are, besides networking through the **Internet of Everything**, also the possibilities of Big Data (incl. their processing in real time) as well as the ever-increasing machine-to-machine communication. This Internet of Everything brings together people, processes, data and things in a previously unknown dimension. This makes the connections companies can control via networks more important.

This is naturally accompanied by completely new challenges for those who establish the infrastructure for the industrial companies affected. In other words: it is the **tool machine sector**, which is so important for Germany that is facing a quantum leap! And these profound changes will also have a sustainable effect, because entire value added chains will disappear. Not only on the competitiveness of our companies but also on the employment situation in the whole of Germany and every other affected country.

As this phenomenon of linking the value added chains of various companies goes beyond the classic production area, we speak more comprehensively of **Economy 4.0**. This embodies the ability for the potentials to achieve cost advantages as well as the development of further customer benefits by way of integrating various performing partners of all sectors of the economy. Behind Economy 4.0 is also the Internet, which doesn't actually only help classic industrial companies to connect, but also the performing partners of all sectors. One thing becomes possible: the **creation of a global machine!** And the shares in that are already being distributed.

In any case, the question is posed: how is society supposed to deal with all the "work-free people" in the next 10 to 20 years? The Oxford Study "The Future of Employment" by the authors Frey/Osborne, which we assessed, provides dramatic insights: using the USA as an example, it is shown that 47% of today's professions there can fall victim to digitalization in the next decades. And with that, the indirect effects on employment have not even be included. Yet if – as is still to be analyzed – 47% of all jobs are lost, these people will also no longer drive to work, will no longer need an office or a production site and – due to the loss of income – also consume significantly less. Consequently, due to the indirect effects on employment, other companies will have to cut back jobs.

What does that mean? Will work and income from work now have to be redistributed? Will "digital" companies have to pay **machine tax** or a **value creation toll** in the future? By this is meant a tax or toll the amount of which depends on the value creation of the company and would be paid in replacement of the social security contributions still paid today. Nowadays, the taxes for social security are levied as a percentage of a company's payroll. This type of calculation for financing social security, however, only burdens the factor work and with that, tends to hinder the creation of new jobs. In order to avoid this negative effect on the provision of jobs on the one hand, and on the other hand, to tax a company's digitalized value creation, which is not dependent on people, the value creation toll could be introduced.

However, the question remains about what happens to the people when all in all less work is done? Prior to the first industrial revolution, people still worked 80 hours a week. More than half of the people was occupied with feeding the other half. Gradually, the hours worked per week first sank to 40 and then to 38 to 35 hours. If in the future – as will be shown – robots not only take on more routine work but also increasingly master cognitive tasks (see the examples on *IBM* computer *Watson*) and also – for example by means of

intelligent care robots – immerse into the world of physical work, the work will inherently have to be redistributed. Does that mean working less for a full wage adjustment? Now concepts that have long been under discussion under the term “unconditional basic income” are suddenly gaining in relevance. What does this possible redistribution bring along with it?

These developments are being intensified by another big trend described by the term **Sharing Economy**. It describes in few words the common use of items and replaces personal property in increasingly more areas (cf. fundamentally Benkler, 2006). The tongue-in-cheek motto here is: What´s mine is yours! A good example of this is cars. Approximately 43 million cars are on the streets of Germany. Just under 29 million people use their car every day to drive to work or to go shopping. On average, every German uses their car about 60 minutes a day. A car is used for slightly more than 4% of the day; 96% of the time, the car is “immobile” and eats up resources (e.g. parking space and money through depreciation).

With **Car-Sharing**, a particularly visible business model of the Sharing Economy, the daily use of the vehicle can be increased significantly. Let us act on the hypothesis that a maximum of 30% of the cars registered are still needed if car sharing asserts itself across the board and “owning a car” – not only among youths – loses its significance as a status symbol. The remaining 70% of the vehicles can simply be disregarded. But, if 70% fewer cars were built, then many millions of jobs that directly or indirectly contribute towards value creation would be in danger. And that would only be Germany. Even here, the cards are being reshuffled and distributed!

At the same time, another trend is surfacing: **Everything is becoming smarter**. The term “smart” describes on the one hand the greater intelligence involved in new solutions. On the other hand, the word “smart” as a prefix, describes all objects that are connected to the Internet. This includes not only smartphones, but also smart TVs, smart factories, smart cities, and smart homes. Smart homes, for example, try to detect the occupants’ habits to adjust the heating, for example, to them. At the same time, a smart refrigerator could inform us which groceries are close to passing their best by date and which need filling up. If we also even used smart devices for our health and thus live a more healthy life, become sick less frequently and need fewer doctors, we would also optimize this area. Such developments can significantly improve the consumption of resources.

These accomplishments are accompanied by a variety of positive and negative effects. With his novel “1984”, *George Orwell* anticipated the negative sides of a fully networked and digital state back in 1949 (!). However, most of us are thrilled about the navigation system on our smartphone showing us where we are and the best way to get to our destination. At the same time, by doing so, we are permanently communicating our location. In addition, every Internet-based communication and every *Google* search leaves tracks behind, which we cannot influence or only with great effort. In this way, the **Digital Shadow** is created fully automatically! We may not have anything bad in mind and are thus not afraid of the “thought police” from *Georg Orwell’s* work. Equally, due to the NSA revelations by Edward Snowden, we have to ascertain the extent to which the all-collecting, all-knowledgeable and all-evaluating “Big Brother” has already become reality. You can get on the no-fly list of the USA even without ever having anything bad in mind. One false contact in the social network or a suspicious profile can be sufficient. Yet, even if you don’t fall through the cracks, harmless behavior of today may possibly be suspicious tomorrow. With his novel “*The Circle*”, which he presented in 2013, *Dave Eggers* thought out the future development of *Facebook* and co. to the end with this in mind, to wake us all up. If “*The Circle*” does actually close and there is no way of escaping anymore...

At the same time, we allow selected providers increasingly more insight into our daily activities. If you drive carefully, you can collect points with the **Telematic Box** of the *Sparkassendirektversicherung* to obtain benefits in the insurance premium. If you provide transparency over your – more or less – health-conscious lifestyle, you can earn bonus points or discounts at health insurance companies such as *Generali* or *Barmer GEK*. In return, your lifestyle is monitored digitally! The key is: the more an insurance company knows about your respective state of fitness and possible disorders, the more the scales are differentiated at private insurance companies.

In favor of the (still) healthy – at burden of the ill? In the USA, a device called Scanadu is already in use. It measures temperatur³, blood pressure, the oxygen content of the blood, breathing rate and can conduct a kind of ECG. All of these data are then sent by smartphone... (cf. Nienhaus, 2015a, p. 24f.)

All in all, society needs to find an answer to the social, political and economic consequences of dematerialization and the redistribution of the world in the era of digital Darwinism. Particularly in view of these various effects of digitalization and dematerialization, there is still no comprehensive survey today. Articles frequently only deal with superficial and thus largely obvious effects of increasing digitalization. The **gap in research** left behind because of this will be closed by this book. After all, only if an awareness for the profound changes emerges across the board in the economy and politics, then not only a "Digital Agenda" is created for Germany but it is also filled with life in the sense that stands well for the history of the (still) leading industrial nation! And for survival at the highest level, it is absolutely imperative!

Those who are not open to this dematerialization, those who do not adapt their business model and range of products/services early enough and comprehensively to the new challenges, will fall victim to digital Darwinism. In a nutshell, the selection process of business processes, companies and entire industrial branches that have proven to be economically unviable in the digital era caused by digitalization and dematerialization is closely related to this. The redistribution of the world is in the offing!

The **Strategic Window of Opportunity** for this is – still - wide open. There are several reasons for this:

- The train leaving for digitalization and dematerialization has left and is increasing in speed. It is still not too late to get onboard.
- Now is the time to occupy new fields of business and recreate existing fields of business.
- The necessity to do this is intensified by the fact that established business models are reaching their limits in increasingly more countries.
- It is only now that there are signs of a lack of specialists on many markets.
- If this escalates further, there will be a lack of staff to create the frequently technologically support change.
- Many companies are still hesitant about which fields should be invested in. And this despite extremely low interest rates in many countries. With that, the answer is quite simple: in the digital transformation of their own business models or the entire company!

This book was written to sensitize politics and the economy to the necessity of digital transformation and to elaborate robust steps on the way to digital transformation. It systematically sheds light on the – intended and unintended – effects of digitalization and the associated dematerialization. And the key drivers that are behind it:

- Exponential developments in technologies and systems
- Digitalization of increasingly extensive areas of value creation
- Combinatorics of various lines of development that lead to quantum leaps in solutions and concepts

At the same time, we are consequently thinking further about which implications accompany digitalization to be observed today for the economy – as well as for employment –and illustrate key fields of action.

We wish you fascinating, suspense-packed and inspiring reading that encourages to give the new possibilities an intense look in the eye and to create them for the good of the economy and society.

Ralf T. Kreutzer, Königswinter – Berlin
Karl H. Land, Cologne

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He is regarded as a visionary and advises companies in issues of digital transformation with main focus on business models, e-commerce, cloud, mobility, IoT, Big Data and maintains established relationships with leading companies and start-ups in Europe and Silicon Valley. Karl-Heinz Land has more than 25 years experience in management positions at, among others Oracle, BusinessObjects, MicroStrategy, GrandCentrix and VoiceObjects, has formed several start-ups himself, is an investor as well as a member of the supervisory board for companies of the Old and New Economy.

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***Whatever you can do or
imagine you can, do it.***

***Boldness has genius, magic and power in it.
Start now.***

Johann Wolfgang von Goethe

***The potential of technology is limited
only by our imagination, and our will.***

Marc Herrema

Core Statements on Dematerialization in Times of Digital Darwinism

- * Digitalization and dematerialization: everything that can be digitalized will be digitalized; physical products will be replaced by digital solutions.
- * Every company is affected by digital transformation — or “every business is a digital business”.
- * Automation: everything that can be automated will be automated.
- * Digital Darwinism always begins when technologies and society change faster than the companies’ ability to adapt to these changes.
- * New software platforms that have access to precious raw material “data” dominate markets.
- * In the value-adding connection of existing and new technologies lies the greatest innovation potential of the near future.
- * Digitalization, exponentiality and combinatorics – in the sense of the combination and recombination of ideas and previous innovations – represent the key drives of the digital revolution and force innovation processes to an extent previously unknown.
- * By the wide use of sensors, the Internet of Everything demands the development of a Sensor Economy; the digital data sets emerging from this facilitate the application of increasingly intelligent systems.
- * Consumers become producers in the Sharing Economy and thus prosumers: thanks to intelligently networked platforms, more and more consumers are able to take an active part in value creation.
- * Digitalization and dematerialization lead to zero marginal costs in production in many areas.
- * In contrast to the first to third industrial revolutions, thanks to the dematerialization and digitalization, not only manual but also cognitive work processes are automated to an increasing extent and, with that, jobs are destroyed. The dematerialization of entire value creation processes perspectivevly endangers a large number of jobs. Consequently, in the ongoing process of constructive destruction, so many new jobs will not necessarily be created to compensate for the loss of work accompanying the fourth industrial revolution.
- * In the wake of the dematerialization of entire value creating processes, many of today’s jobs will become superfluous.
- * Only creative and social fields of responsibility that require empathetic human interaction will be less affected by the loss of jobs.
- * As productivity continues to increase due to the progressive automation, in the future, we will all have to or be allowed to work less in order to be able to employ all those willing to work.
- * The political consequences may be new reforms that deal with the taxation of machines, a possible basic income and alternative employment possibilities for the non-employed (e.g. the cultural, environmental or educational sector).
- * At the same time, we will have to learn our entire life because the half-life of knowledge is decreasing dramatically.
- * Our economic and social system as a whole will be shaken to the foundations and challenged by the redistribution of the world.

Outlook into the future

You should yield to temptation. Who knows whether it will come back!

Oscar Wilde

The world will now be redistributed. The development towards Industry 4.0 or better **Economy 4.0** is unstoppable. And every single company will become a digital company, even if with a different intensity!

The greatest challenge is **time**. Its greatest enemy is idleness, which can be particularly encountered in medium-sized and large companies. But now, change must be responded to fast, for the frequently addressed **Strategic Window of Opportunity** is only open for a short time. This is why it is now a matter of **replacing idleness by momentum** – especially in the so-called established companies. Especially in the “established” companies, there are many resources available for the active participation in the change processes: besides qualified staff and financial means, it is in particular process and project knowhow to transfer creative ideas into long-term marketable, value-creating solutions. Convincing success factors! And in order to increase the own corporate creativity, innovators and their business ideas can be acquired by acquisitions. Moreover, think tanks can be tapped – in many areas much better – via networks and incorporated in the own further development. Permanently!

Especially German companies with their perfection, reliability and good standing in the world are well-positioned for the participation in Economy 4.0. The global market is open! The market is shouting for innovative, smart, value-adding solutions. This time, let us make sure that **Germany** not only becomes the **think tank of an integrated world** but that we also contribute a large **part of the digital added value in Germany**.

In order to achieve this, we need to extensively involve our technological knowhow. At the same time, we need to try to overcome the disadvantages we still exhibit in networks and platforms in comparison to the dominating US enterprises. We also need to need to consider the **setup of a digital single European market** beyond frontiers, so that we can also create designs dominant in Europe that are convincing on the global market. This is the only way to remain relevant in a world in which the share of Europe in global value creation and the global population is decreasing. A trend that we cannot stop!

We used to focus on quality — and we must do this today even more. But we now also have to focus even more on cooperative networks and the setup of value-adding platforms, in order to get a large share of the **redistribution of the world**. After all, the upcoming distribution will move the weights for the next 50 years massively and unretrievably.

Many US companies have successfully positioned themselves on the **first half of the chessboard** and established dominating market positions. Here, we think of *Apple, Facebook, Google, amazon* and co. In these cases, a focus on the B2C market could be determined. When crossing over to the **second half of the chessboard**, thrusts in technologies, especially in the B2B markets, will become noticeable. And this is exactly where German companies –the big corporations as well as the many hidden champions – have globally relevant solutions.

For:

- We excel in systematic thinking!
- We are masters of complexity!
- We have excellently trained engineers and businessmen!
- We are creative thinkers!
- We are able to do logistics!
- We are reliable and have an excellent reputation as a country in general and as corporate partners.
- The way in which we build cars and machinery today is the way we have to develop software today and tomorrow.

These are the talents we have to make the best of.

What needs to be done? **The redistribution of the world** is taking place now. Every company has a realistic chance of benefiting from this redistribution and securing their share. If they become active now. After all, the world isn't waiting for us. Fast followers will rather stand on the losers' side.

Becoming active now is not only a **corporate task** but also a **political economic challenge**. In order to secure welfare for all in the future — as esteemed and well-respected performing partners everywhere in the world.

We hope our thoughts have provided some stimulus for successfully mastering these tasks.

Please feel free to contact us for more detailed and inspiring dialog!

Ralf T. Kreutzer Karl-Heinz Land

"Digitalization is the dominating challenge of the years to come for the German economy. Under the buzzword Industry 4.0, many companies are already busy in actively creating this future and making use of their chances in the digital world. The digital revolution is not only taking place within companies, it will also emanate wide areas of social life. It is to the credit of Ralf T. Kreutzer and Karl-Heinz Land with their book for pointing out these facets of digitalization - and thus, in the truest meaning of the word, wake up. Some of their assumptions may be somewhat pointed in their wording and one must not have to share every one of their prognoses, but everyone is well-advised to deal with the topics examined by both authors. After all, we will all get to feel the consequences of digitalization."

Arndt G. Kirchhoff

CEO of KIRCHHOFF Holding GmbH & Co

"The latest book from Kreutzer/Land shakes up, sensitizes for the unbelievable dynamics in which competition and communication are changing and how important it is to deal with the absolutely essential adaptations of one's own business model. With the numerous examples and the accurate descriptions, sufficient inspiration is given for one's own actions."

Dr. Wolfgang Merkle

Director Corporate Marketing Tchibo GmbH

"This book is considered an inspiring must read for anybody who wants to proactively confront the challenges of dematerialization and to proactively make use of the chances of the digital transformation for the sustainable development of the economy, society and the environment."

Prof. Dr. Manfred Kirchgeorg

SVI endowed chair for Marketing
HHL Leipzig Graduate School of Management

"Due to the possibilities of the Internet, the change in the economy and in society has accelerated and intensified to such an extent, has overturned mentalities and behavior to such an extent that the word revolution can be expressed without over-exaggeration. The "Internet of Things", "Sharing-Economy" or the "zero margin society" are only a few of the buzzwords that symbolize the progress of digital transformation. The traditional business models from all sectors are beginning to totter. Human knowledge, manifested in huge amounts of data, is being reproduced at an ever-increasing speed. The ever shorter intervals in innovations are permanently changing the demands on companies. The state and society, everything is changing for everyone, everywhere and all the time. It is the totalization of globalization. For the industrial location Germany, it is more important than ever to keep pace, in order to be able to benefit in the long term. The book "Dematerialization – the Redistribution of the World" is a good compass in these times of change."

Achim Berg

CEO Arvato Bertelsmann

"Digitality is not a technology but a principle! In their latest book, Kreutzer/Land show us the consequences of this statement most vividly. And it becomes obvious that it is high time to make this the basis of our corporate thinking and acting. A must read for all who wish to successfully create the future!"

Ricardo-Jos Vybiral

CEO Wunderman Germany & Austria

The Redistribution of the World in Times of Digital Darwinism

The challenges for companies operating today are enormous:

- A digitalization that encompasses more and more business models
- The penetration of dematerialization in further fields (after texts, images and music, now money, keys, complex service chains, etc.)
- More and more products are becoming apps (e.g. tickets, info services)
- The increasing power of social networks
- The increasing networking of objects ("Internet of Everything")
- The emergence of big data through the explosion of available data
- The diversified use of the Share Economy- as a replacement for purchasing products

The digital transformation and the associated dematerialization stop at no industry and no company. Every company needs to be digitally armed today!

New players with innovative business models are breaking into traditional industries and are forcing out established brands and companies.

What happens if many jobs are lost due to digitalization, dematerialization and the emergence of zero marginal costs offers? Jobs are also endangered if robots are used not only in industry but also in further fields of services. It is high time to deal with not only the challenges but also with convincing solutions!

In their book "Dematerialization – The Redistribution of the World in Times of Digital Darwinism", Professor Dr. Ralf T. Kreuzer and Karl-Heinz Land, question whether existing political, economic and social systems are really prepared for the dematerialization of entire value-added chains accompanying digital change. They provide important food for thought and illustrate scenarios of solutions.

A work that should not be missing at any workplace – in the economy and politics!

Finally! That's what one would like to shout out. Finally a book that doesn't just warn and admonish but displays with professionalism, clarity and excellent competence, what is absolutely essential and has to be put in motion in our company for it to be able to stay at the top, survive international competition and secure and expand our welfare.

After having learned at the beginning of 2015 that "up to 85 percent" of our company had still not dealt with this important issue, this book provides the decisive stimulus in a well-illustrated and reproducible way.

Dr. Walter Döring

Economic Minister retired,
CEO Akademie Deutscher Weltmarktführer