

Proclamation on the Future of Work

JÖRN HENDRIK AST · GEBHARD BORCK · GUIDO BOSBACH ·
LARS M. HEITMÜLLER · SABINE JANK · SARAH KEBBEDIES · ANKE KNOPP ·
ROLAND PANTER · NICOLA PESCHKE · MEDJE PRAHM · ANDRE SCHLEITER ·
GUNNAR SOHN · SARAH STAFFEN · ANJA C. WAGNER · JAN WESTERBARKEY ·
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Foreword – The Future of Work

Digitization is having a bumpy ride in Germany. It's greeted with distinct mistrust in many quarters – employee reps who fear rampant flexibilisation of the labour market, bosses of companies both big and small gradually waking up to what's about to hit them, and political parties unused to having to share their power as opinion- and decision-makers with digitally active well informed citizens. On top of this come increasing numbers of people who find present day work structures too restrictive and who use the elements of digitization now at their fingertips to give themselves more breathing space at work.

Floundering out of their depth, employers, employee representatives and their leaders are struggling for power where no power actually exists. They must first use new won freedoms like transparent and collaborative communication before they can appreciate them. This makes digitization a question of social culture. With all the potential for conflict inherent in the term.

Digitization now touches on a great many areas of life and is a daily talking point even in mainstream media. The workplace and the work culture are perhaps the areas of life of greatest interest to most people in this country. It's these areas of life that are seeing the greatest upheaval. In other words, we're reshaping our understanding of what politicians like to call "good work".

The need for such renovation is increasingly being recognised by the responsible ministries, lobbyist associations and trade unions. Over the past few years pioneers and visionaries have been tireless in pointing out the consequences such renewal will have for the future of work. Yet politicians and unions have been loath to believe in the relevance of such changes. Now they are visible everywhere, high profile institutions are falling over each other in their scramble to monopolize the issue and push through their own interests. For instance, in late 2015 yet another IT summit was held that brought together the whole cast of institutions and players. And once more they trumpeted that they were the very ones who invented digitization.

This paper is a conscious attempt to strike out in a different direction. In a first step, activist authors from various bands of the professional spectrum came together following our former Barcamp on Work 4.0. Placing the human being at the centre of their attention, they wanted to examine the Future of Work from a radically different perspective to those taken in mainstream discussions. What changes does digitization bring for the individual employee, the self-employed, the freelancer, but also for the great number of people engaged in voluntary work in Germany? While critics of digitisation mainly see it as an opportunity for realizing the neoliberal paradigm of economic exploitation of the individual, proponents of consistent digitisation view it as a chance to realize those altruistic, collaborative or participative principles diametrically opposed to the market logic of competing workers.

But we also want to be one of the first to hazard a look beyond the national horizon. Because digitisation is shrinking the world and making the future of our work hinge on global trends. What is the actual framework within which digitization unfolds? We need to take account of factors like migration, demographics, globalization and the worldwide expansion of education. What changed demands, but also major opportunities, does the global framework bring for investment in education for the individual, for professional activities, the employer/employee relationship, and our understanding of work, life and family? The usual suspects – institutions – are knocking at the door with seeming truths, with a call for more – or for less – regulation. Yet people are increasingly looking for individual solutions to such challenges and are no longer prepared to put up with one-size fits-all generalizations.

By adding our own perspective we want to give decision-makers and individuals in Germany an interesting alternative take on this thing called “digitisation” and to add a civil society dimension to the so vital debate on the transformation of work – a debate that has been taken up by the Green Paper of the Ministry of Labour and Social Affairs. This present paper is expressly intended as a document of rich diversity. It should be taken as a classic collection of index cards into which readers can dip and follow individual threads, only needing to read particular sections of interest. .

The following texts employ different methods of citation in line with the diversity of perspectives and authors. Furthermore, the authors use male, female but also mixed styles of writing. Diversity takes precedence over standardisation. All the opinions expressed herein are the private opinions of the respective authors.

To reference the *Proclamation of the Future of Work* on social media, please use the hashtag: #futureofwork

The Societal Level – Digitisation on the Labour Market

Crystal ball or surefire scenario: workplace development through digitisation

NICOLA PESCHKE AND
BIRGIT WINTERMANN

Closely followed by globalisation and demographic change, digitisation is surely now the most talked-about megatrend in, and around, the world of work. There's a growing awareness that the changes it brings are unstoppable and that wonderful things are now possible that would have

seemed like pure science fiction just a short time ago.

Yet along with this dawning realisation of inevitability, the whole of Germany is now wondering what exactly all this means for the world of work. The estimates and speculation produced cover the whole spectrum of fears and anxieties about the workplace, from the scenario of the collapsing social system to the prediction that everything's going to be much better. But what of all this will actually turn out to be true?

The fact is that in nearly all sectors of the economy automated workflows are already an established part of everyday working life and are completely transforming – or even eradicating – familiar patterns of work. Machines and robots have long been taking over high precision tasks and shoving people out of production halls while algorithms

increasingly figure in the working day of that relatively new phenomenon, the “knowledge worker”.

One of the sources informing the current debate in Germany is the much quoted and widely acclaimed paper by Frey and Osborne (2013) which investigated the effects of computerisation on the American labour market and caused an uproar with its assertion that in the coming 10 to 20 years 47 percent of all jobs in the USA could be replaced by intelligent robots or software. Eradication of around half of all available jobs is indeed a prospect horrific enough to freeze the blood in the veins of any national economy, yet closer observation reveals that at its core the paper is talking about an automation risk and not about how high the exact number of job losses will be. Criticism is also levelled at the paper’s exclusive concentration on professions to the exclusion of actual activities, and also at the fact that it fails to consider how far replacement of people by machines would make sound economic sense, and in particular what new kinds of activities computerisation would bring (see the brief expertise on the paper produced by the Centre for European Economic Research (ZEW) for the Federal Ministry of Labour and Social Affairs (BMAS)). Even so, despite such criticism, Frey and Osborne’s wake-up call has injected much needed new life into the German debate which now broaches the subject with a fresh sense of urgency and discrimination.

So which activities and professions will bear the brunt? Some of them are obvious candidates: as soon as the driverless car comes on the market, it’s a safe bet that bit by bit some “vehicle drivers professions” will start to fade away or even completely disappear. The same can probably be said of the train drivers’ profession. Even now, augmented reality in warehouse logistics is helping to do work that used to be done by several people who took considerably more time to do it.

The service sector too is affected. In all places governed by rules and causalities algorithm-based solutions are appearing that can compute tax declarations, for instance, or legal information much more cheaply and with considerably less risk of error.

This is the context in which the horror scenario painted by a recent study from Deutsche Bank should be viewed: “For the first time since the Industrial Revolution new technologies are destroying more jobs than they can create.”

A study by ING-DiBa takes a similarly dismal view of the future: “18.3 million jobs or 59 % in their present form are threatened by the advance of technology in Germany.” These conclusions arrived at by an industry whose very foundations are threatened by the march of digitisation are understandable.

For instance, in his book Schwarmdumm (Swarm Stupidity) Gunter Dueck gives a vivid and lively account of the present state of financial advisory services offered by banks, showing them to be lacking in expertise, completely reliant on algorithms and very wide of the mark of what the customer actually wants. Referring to this at an earlier juncture (re:publica 2011), he coined the neologism *Flachbildschirmrückseitenberatung* or advice given from behind a flat screen. What Dueck means by this is that just using technology isn’t the answer. It needs to be intelligent technology that packs improvements or higher efficiency or quality. When technology fails to do this, the human being reappears at the centre of attention. Activities already performed by humans carry more weight and thus require higher skills and ability – or completely new activities and professions are called for.

This issue too is under scrutiny. Digitisation will produce more jobs than redundancies says the 2015 report on the manufacturing sector produced by the Boston Consulting Group which also states, “As an industrialised nation Germany will clearly profit from Industry 4.0 over the next ten years.” In a similar vein, a 2014 report by the Cologne Institute for Economic Research (IW) held that “in this country no negative employment effects are to be expected in the foreseeable future. Around one third of companies which have already embraced digitisation are planning to increase their headcount in the short term while, on the other hand, only one in ten of the digital pioneers want to cut back on their workforce.”

The medical field is certainly one of those sectors that could significantly improve its targets with the new technological opportunities – with better general health and better general healthcare as the outcome. This is already evidenced in the case histories and diagnoses produced solely by digital collection of symptoms, and by risk assessments of therapeutic methods. Jobs like lifting patients, dosing medication and monitoring vital functions are sure to be assisted by technology which will mitigate the lack of medical caregivers in the coming years when there are too few people to do such routine work.

With the transformation of individual occupational profiles and activities with and without technical support, we shall also have to come to terms with manifestations of new forms of work. “Liquid” and “hybrid” forms of work (see, for instance, cloudworking, Accenture) are becoming increasingly common. Here too there are predictions which forecast a marked increase in precarious forms of work or even the disintegration of the social state (see, for instance, ver.di). Yet there are also optimistic viewpoints which see improvements ahead, especially on the personal level, given the new opportunities for self-realisation through work. Undoubtedly one of these improvements is making it easy to achieve the work–life–balance – whether through different types of work or simply through use of technology.

Which of the scenarios will actually win through can only be predicted by crystal–ball gazing. What is certain is that we must play an active role in shaping the development of the labour market. Some of the shaping factors are:

- Speed of change,
- Alignment of the infrastructure,
- The assimilation capability of people and organisations,
- The degree of government regulation/support.

It is against factors such as these that our creative drive will be measured. Above all, policy–makers in government and industry are called on to read the signs of the times and take action. Today rather than tomorrow. Because the future is already on us.

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On the way to the collaborative knowledge / network society

ROLAND PANTER, GEBHARD BORCK
AND JÖRN HENDRIK AST

The digital transformation is changing both society and the labour markets. And one of the main drivers of such change is transparency in human communication brought about by the internet and use of digital applications. This begins with the ways we share knowledge in social media and culminates in a situation where we can find relevant and robust information on nearly every subject we care to mention on the internet. The changes are tremendous and tumultuous. In no time at all, established, traditional business models are turned upside down. The changes go so deep that those who are part of this networking world have the advantage over those who remain outside it. Participants buy better products and pay less for them, have them delivered quicker, get better product services and then share their experiences with other people. All this takes place in real-time and has long outlived the times of printed instruction books.

Consequently, participation creates its own snowball effect. What you need is a (minimal) understanding of technology, some basic technical equipment and a willingness to probe the internet and learn about it. One major theme here is media competence because the times when you used the internet just to read up on something are long gone. What is now needed is a capacity for judging whether the information you have before you stems from a reliable source. The challenges are becoming more daunting and especially for those social strata who still aren't too confident in navigating the information medium of the net. Because one of the things that hangs in the balance here is independent opinion-making and thus the political development of our country.

By and large, an enlightened society can only benefit from collaboration and networking. Paths become shorter while a more effective use can be made of time. For instance, self-study in virtual learning environments can replace the traditional classroom or lecture theatre and thus uncouple education from a particular place and time.

The internet has also long constituted an extension of the real world on the level of virtuality. The principle is that information is documented, distributed, evaluated, and made available to all. Obviously, with the risk of deliberate manipulation. Yet – despite all the alienation so lamented by our society – this is precisely what offers us the opportunity to come closer together as a community and renegotiate new values.

The really interesting question here is how do we want to deal in future with the value of trust?

Do we want to trust our representatives in government, associations, industry and so on? Transparency is one means to such trust. Transparency that enables us to uncover and pursue forms of behaviour detrimental to society. There's still a dearth of robust ideas about how we can handle this intelligently.

Yet it's still absolutely vital to get an exact idea of the demands that will be placed on everyday work in the future. Even today there are significant differences in cultures of work and the demands of modern workplaces. A relatively small number of innovative workers face a mass of analogue workplaces with inadequately networking workers. A networked world of work that manages to integrate a variety of work cultures impartially and without prejudice is still not part of the skills set we Germans are famous for in the world. The way to a new understanding of what "Made in Germany" means must inevitably lie through a landscape of extensive educational opportunities, and be coupled with an unconditional readiness to learn to work in networks.

This task is complex and at present its implications and significance cannot be assessed in any definitive way. It is also a question of power – new power attained and old power reluctant to lose its grip. Unsurprisingly, therefore, this discussion will occupy us as a society for some time to come. Ultimately we will have the chance to adopt a totally new approach to knowledge and work to the one we had in the past. If we succeed in opening up the means to meet and match the demands of tomorrow's world of work to everybody, we'll have a realistic chance of taking the greatest number of people with us. This should be the claim our society stakes on the networking, interactive and intercultural workplace of tomorrow.

The human-machine interface

ANKE KNOPP

We now organise our leisure time the digital way with tablets and smartphones and expect the supporting infrastructure to be right there along with providers competent enough to enable interaction. In our everyday lives we operate a whole battery of automatic machines and networked smart devices from the ticket vending machine to the smart remote-controlled window blinds in our homes. Even when we visit our doctor, we're used to seeing a computer screen standing between the physician we're talking to and ourselves. The goods we order are becoming increasingly personalised – individual, on demand and customised. As citizens we're smart and increasingly accustomed to leading networked lives. We're simultaneously both producers and consumers, and we're certainly increasingly involved. So why should work of all things, this key plank in our lives, elude this logic?

In many firms work is still not networked. On the contrary, with obstinate persistence companies cling to old hierarchies, continue to think in silos and do their best to avoid the sharing needed in interdisciplinary work, because fears of loss of reputation and authority, especially among the decision-makers, are too acute. Nevertheless, in future value creation will be virtual, interactive and largely based on the principle of sharing.

Strangely enough, we've left networked thinking and work to machines which have long since become accustomed to interacting with one another. At the heart of Industry 4.0 networked machines use sensors to work together and learn from one another, becoming even better when they cooperate. Transfer of such networked performance to human work would be a very sensible move.

Don't we recognise the discrepancy because in its first wave digitisation was restricted to production and thus mainly concerned workers on the factory floor – so-called blue collar workers?

In their book Arbeitsfrei – Eine Entdeckungsreise zu den Maschinen die uns ersetzen, (Work Free – A Voyage of Discovery to the Machines that Replace us) Constanze Kurz and Frank Rieger describe how a mill or the shop floor of a car manufacturer or combine harvester producer used to be a hive of busy workers whilst nowadays only a handful of workers is required yet these few are more productive than ever. Very soon banks, insurance companies and administrations will have to face up to this fact. They too will increasingly become work free.

The body of salaried employees, knowledge workers or the so-called cohorts of white collar are now confronted by the fact that in future algorithms will be able to do their work and do it better. Or are already doing it better. A Turing test applied to journalism shows that even today an algorithm can write football reports for the print editions of newspapers as though they came from the pen of the famous commentator Béla Réthy – but in reality the author is a computer.

Intelligent systems have gained a solid footing in our day-to-day lives and work. So should human to human interaction still continue to function in the old way – with rigid hierarchies and set decisions which impact on the one without wanting or having to consider the knowledge of the many? Isn't intelligent networking with the disruptive possibilities of human creativity absolutely essential? Do we trust human to machine interaction more than we trust human to human interaction?

Humans are more creative, they can feel and communicate empathy and turn it into value creation. This is a factor that machines (so far) have lacked.

Innovation is also born in the cloud – from human to machine interaction as well as in human to human networks where people learn from one another. Anybody who's had positive experiences with new forms of networking won't want to return to the old way of working – Work 1.0 – with its inflexible hierarchies and all its restrictions, limitations and boundaries.

So how do we move from Work 1.0 to Work 4.0? The individual's wish for transformation of the way of working is driven by outside factors as the world in which we live is caught in the throes of exponential change. What seems standard practice today is obsolete tomorrow, like teams of strawberry pickers suddenly replaced by strawberry picking robots. To deal with this, we need a new set of skills, capabilities, perspectives and approaches. In other words what we need is networked thinking, media skills and skills in dealing with uncertainty as well as an understanding of data and know-how in data enhancement.

In particular, dealing with uncertainty is a factor that hasn't really been hard wired into human to machine interaction which is focussed on clear computation of the "as is" status and on computability of the future. Introduction of the unpredictable human factor produces uncertainties, and such uncertainties, such unpredictable outcomes, are fertile ground for disruptive chances. New business models are generally user-driven, directly bound up with the need for individualisation and individual traits. This is where human to human interaction has chances of not yet being replaced by artificial intelligence and of functioning as a new resource in the new techniques of work.

To achieve this a new architecture of management is needed, one based on rules of fluid interaction. Many specialist articles describe management as a braking instance, an impermeable layer between "above" and "below", a blocker of a new order of flexible interaction. Such non-networking hierarchical structures impede participation of the whole company workforce as more often than not, 15 percent of managers, resistant to change and insistent on familiar handed-down practices, prevent the other 85 percent of the company workforce from picking up any form of innovation because they remain dependent on orders and directives from above. Or are simply not asked in the first place. Only recently one of Germany's flagship companies Volkswagen had to acknowledge that the style of company management it practiced was reminiscent of an oligarchy or even dictatorship – and was clearly one of the factors contributing to its present crisis. Networking intelligent systems would never have been so uncritically inward-looking and open to abuse. They would probably have corrected themselves because they are nonlinear and allow for the spontaneous activity of participants. Manipulation at the behest of those above with the aim of minimising costs and promoting sales would not have been possible with the principle of shared knowledge because networked knowledge aims at a plurality of opinions, and the fundamental value at its core is to make something better (more usable) for everybody. It's based on a shift from the provider to the customer who is both partner and producer and will hardly allow exposure of the product to criminality or damage.

This is only a brief outline of the aspects of the new forms of human to machine collaboration. The possibilities of change on the joint path they

take are manifold. And need to be debated. There's only one thing we need to beware of, and that's of taking networked forms of work as a passing fad that will soon vanish. And fears about networking or the possibilities offered by Work 4.0 are totally out of place. Building a bridge to connect humans and machines is yet another real opportunity.

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The fluid career at the workplace of the future

JÖRN HENDRIK AST

Career orientation is a tough challenge in a time when digitisation is rapidly changing the face of many professions (from graphic artist to Web designer, from motor vehicle technician to mechatronics engineer) or simply wiping them off the map. In times of such turbulent change, some people are asking themselves how they can bring their wealth of experience into professional fields with which they are less and less acquainted. Others are faced with the problem that each year brings its own crop of new professions (like the community manager in the gaming sector) for which empirical values scarcely exist. If you want to lead a fulfilling professional life in this highly individualized and rapidly changing world of new work, you must keep up the pace, be prepared for changes and accept that the intervals between them are becoming ever shorter. In this paper I would like to speak about a development for which I'll use the concept of "fluid career".

Tragically, the understanding that organisations themselves have of this development ranges from at best rudimentary to simply non-existent. Employers insist on professional qualifications yet are much less willing to honour the motivation or passion that applicants bring with them, or to run the risk of bringing people with unorthodox career backgrounds on board. Instead of this, job descriptions are so insistent on the superhuman powers candidates need to bring, and almost impossible coincidences of juxtaposed pinnacles of success, that you could be forgiven for seeing the rest of the application process as one unremitting fairy tale. At the same time no occasion is lost for postulating and lamenting that old chestnut of the shortage of qualified workers. Obviously, if you want to be a physician, you need a license to practice medicine, if you want to be a lawyer you need to pass a state examination. But what really counts is generally passed over in silence: the motivation to take up a challenge, to learn the ropes, and to learn the ropes at an age when your last school class or lecture lies far behind you. That is more important than any piece of paper.

If you find yourself on the fluid career path, you'll already have achieved a certain maturity. This means that you'll have a pretty good idea about what kind of person you are and what skills and abilities you possess. You'll have a clear idea about what you can achieve on the professional level, and for whom and for what you're prepared to exercise these skills and abilities. Yes, this certainly can be ideological. "Am I really ready to work for this company?" and "Do I want to spend more time with these colleagues than I do with my family?" are only two of the critical questions that need to be asked when it comes to developing the fluid career.

If you do succeed in recognising your own skills and abilities and their impact on the people around you, in particular your colleagues, superiors and customers, then half the battle's won. You don't necessarily have to have an especially strong talent in some field, what you do need is a clear understanding of your own skills and capabilities and how they can be used to the best effect. It's all about the self-confidence you have being confirmed by a feeling of self-efficacy.

You could also say that you get to know your tools and become familiar with your own abilities and insufficiencies through a great deal of practical trial and error. This requires more than just learning to handle a tool, because it also calls for the critical assessment of how good your skills and abilities really are. Very often people are not that conscious about things they can do easily, about what they're very good at. Awareness of your own abilities is always a step in the right direction. Once you've found the direction, your motivation will also increase. Or to put it more precisely: awareness of your own abilities is the main factor that ensures you can begin the day's work feeling motivated.

If you draw your motivation from your self-awareness, so that what you do corresponds to your own abilities and vice versa, then what comes of this is intrinsic motivation – the Holy Grail for human resources developers. Nothing gives greater motivation than the security and approving confirmation of your own person. And the feeling of creating an effect embedded in the work context you yourself have chosen is the freedom of the fluid career and one of the chief hallmarks of the workplace of the future.

Industrie 4.0

ANNETTE WITTKÉ

Industry 4.0 (in the following I4.0) is a subsection of digitisation and the IoT (internet of things) which deals with the physical fabrication of things using networked machines, production systems, companies ... Thus far system images of I4.0 have mainly shown the technical context: sensor-rich machines using interfaces and data protocols for interaction.

Yet the picture is now changing. The human being is becoming a central component of this (business eco) system – not a disruptive element that needs to be eliminated, but a vital knowledge bearer, information giver and information user across all hierarchies and functions.

The spectrum of forecasts of workplace development through I4.0 ranges from large-scale redundancies to the creation of new jobs in the production environment.

Probably there will be a shift in which, among other things, simple repetitive jobs of the sort known thus far can easily be automated.

On the other hand, there are tasks in the VUCA (volatility, uncertainty, complexity and ambiguity) world of our production systems that can be more effectively dealt with by digitally networked working people than by purely technical manufacturing systems elaborately linked with algorithms. In my opinion, near 100% networking is only feasible, and only makes sound economic sense, when the system module of “digitally networked working people” is consistently used as an integral part of the overall picture for the above-mentioned ecosystem.

Why is this system module new in I4.0 and not only there? Thus far people have worked in many territories and companies in personal networks that lack transparency, outreach and connectivity. Exchanges across functionalities, plants, states and/or hierarchies are difficult and often even undesired.

The introduction of Enterprise 2.0 – the highly networked company – enabled people in companies and beyond – for instance, on an in-house social media platform – to communicate and collaborate in virtual groups. This promoted such factors as flexibility, rapidity of response and exchange of know-how and ideas. The enablers of this relatively new kind of digital collaboration, alongside basic technical requirements, are the aligned organisation, adapted rules but above all empowered people!

Apart from the pure use of tools, it's also important to experience and promote the "power of the network" in the working day, and we now know many excellent examples of this from the internet and various apps. In many companies, the positive mindset of knowledge, learning, transparency, error culture, trust, appreciation, self-organisation, and cross-hierarchies communication – to name just a few of the keywords – is encouraging a transformation and a paradigm shift on all levels and in all sectors.

Even so ... the machine operators (operative workers in the direct divisions) – the blue collar workers – often have no personalised access to the company computer or digital enterprise network. The understanding of efficiency dating from the age of Taylorism is concerned with work cycles, piecework, precise to the minute wages, and exact specification of each task with no room left for free space or divergence. IT costs and "knowledge contribution" times are currently viewed by the mainstream as an unnecessary extravagance. The very specific detailed knowledge and experience of these workers is seldom documented, heard or esteemed. There is a major opportunity in waiting here for production areas to enable participation of these workers in digital teams and networks through a careful and comprehensive programme of qualification and empowerment. Ultimately the contribution they could make in terms of expertise and ideas is simply huge.

Handlungsempfehlungen / Diskussion

- E2.0 and I4.0 skills and abilities should be integrated in all technical training courses: from technical trade training to all the relevant courses of study.
- Companies should recognise Enterprise 2.0 – digital networking of people (including in production) both as an opportunity and as the requisite basis for I4.0.
- In the realisation of Enterprise 2.0 / I4.0, blue collar workers should be integrated in the company, successively integrated into application cases and empowered.
- The system module "digitally networked working people" should be an element of I4.0.

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The pitfalls of digital transformation

JAN WESTERBARKEY

Nowadays many principles are given numerical values to indicate that they're work in progress. Enterprise 2.0 becomes Work 4.0 while Smart Production turns into Industry 4.0. Then comes lean administration, decentralized organisation, team work – the number of keywords for a change of direction is becoming inflationary. Leaving aside for the moment terminological differences and special features, all these concepts seem to me to pack the same message – that the productivity reserves of enterprises and administrations lie in the minds of the people who work there. These reserves can be mobilized by a new form of organization that avoids superfluous interfaces and offers workers at ground level the freedom they need to take many of the

organizational and controlling tasks – long the domain of indirect departments – into their own hands.

The principle expounded by Work 4.0 is so simple and so illuminating that it really does inspire senior management, and especially individual company executives, to roll up their sleeves and in the fullest confidence start tackling restructuring of the company. The organisation of work only needs to be purged of unnecessary constraints and meandering detours, and the workforce schooled in the techniques of self-responsibility and teamwork for the company to rise like a phoenix from the ashes of Taylorist organisation and wing its way to unsuspected heights of productivity.

Unfortunately, in my view, what is often overseen here is that a clear and simple principle isn't always easy to realise. In terms of actual operational practice, it must assert itself against a massive solid block of reality which cannot be vanquished by merely evoking the superiority of the new, the digital and the networked internet of things.

Pressure to succeed starts with the project manager

Project managers are usually employed to bring order and a breath of fresh air into the company. Their main remit is typically to increase flexibility and boost clout by lowering costs and run-through times. They are almost always the ones to bring in decentralized organisation once senior management has given the green light. In all such cases the long-term goal is digitisation of processes and having the whole company pledge allegiance to the new principle of Work 4.0. As always, the success of the project is critical for the project manager's own career so that company success is synonymous with personal success. Some project managers even give themselves a serious handicap by frequently failing to obtain more than authorisation for an organisational experiment from senior management. They content themselves with setting up a laboratory when what is needed is a strategic decision for which the most senior management bears responsibility.

What I've found is that they do this in full consciousness of the risks they are taking. They are convinced that as top company management has hardly any interest in organisational issues and decisions, they will have to roll out the project under their own steam. Others, however, in the planning phase, simply underestimate the resilience of established structures which is nearly always the most contentious problem of them all. They recognise too late that by activating company employees they have unleashed a development they can no longer fully control. Outcomes delivered by individual planning groups are usually at odds with established structures. Whole problem fields suddenly emerge with which they didn't want to deal, at least not at that particular moment. It's an assault on the whole delicately balanced company power structure – which causes anger on all sides.

That success is hardly possible without removal of the old organizational ballast is expressed neatly in the (German) proverb "a sleeping dog only wakes up when you stumble over its bone." The magic spell which the Work 4.0 concept with its decentralised organisation rightly casts often blinds us to the fact that on the road that leads there by no means everybody sees themselves as winners.

Yet the administration and the senior management most certainly do. The direct administration area is freed of meddling interference and gains freedom and autonomy and thus more weight in the company. Management enjoys the prospect of lower costs and smooth uninterrupted workflows. Both these groups can embrace the new principle with relatively few qualms. Similarly, in most cases the works council sees more pros than cons for its clientele. Middle management, however, from the foremen upwards – and particularly the indirect areas – see the new principle of process digitisation primarily as a threat to their own status quo which is not off-set by any directly perceivable benefits for them. They should surrender know-how, perhaps even workers. Thus they form the natural opposition to flexible models of work and digital transformation concepts.

Advocates of this new organisation are very quick off the mark to accuse this opposition of malice, backwardness or small mindedness if they don't instantly acknowledge the innate superiority of Work 4.0. Yet such opposition is generally led by seasoned old hands who know the company inside out and have already seen the miserable failure of a great many attempts to turn it upside down. They know the value of those procedures and channels with which administration has dealt so successfully. It's not the fear of losing power that makes them sceptical as much as the weight of their own experience. The very people who time and again have seen that even the best BYOD concepts and Work 4.0 coordination systems fail to deliver all they could due to human shortcomings – should they suddenly stand by, watch and accept as vital functions now fall into the hands of these unreliable nomadic colleagues?

When Generation Y, which always (even in the family) has to have everything precisely pre-planned, now gets a say in the coordination, things can only go wrong. Things taken for granted over the years are now suddenly called into question and a confused and confusing conflict situation is created composed of anxiety about the company on the one hand and anxiety about personal gains on the other. Faced with this, many project managers succumb to the temptation to first evolve the new organisation in a small circle of the faithful, expecting all the rest to give their assent when presented with a more or less complete package. This hope, as I have found to my cost, is generally illusionary.

But how to root such a novel principle of organisation when it doesn't match up with the winding workflows of standard practice? Process and organisation must be compatible! In all other departments affected by the changes, the people concerned need to be involved in the change process to at least an equal extent. Early on in the process, serious efforts should be made to convince at least some of the sceptics that the whole point of the exercise is not to undermine their authority but to create a much more efficient organisation that would also free them of tiresome routine and coordination work, and give them time to concentrate on more important matters. This might be an uphill struggle but it's also one that pays dividends. And also calls for hard data.

This holds particularly true in cases where management still isn't fully behind digital transformation. In such cases digitisation opponents are particularly assiduous in seeking out the offending hair in the soup. Above all, the administration is marvellously adept at finding whole bushels of hairs and weaving them into a rope with which to hang the project. If no agreement can be reached at this point, the project escalates into a power struggle which will be won by the side that succeeds in attracting the support of company management. Naturally, project managers also seek allies. Only they are not those who sit secure in their seats in the upper echelons of old well established structures but tend rather to be the young, the up-and-coming generation ready with fresh ideas to advance the company's cause and their own.

Involving critics of Work 4.0 at an early stage

They're usually very eager and highly committed, have excellent ideas, and get on well with their colleagues. However, they're still rather low down the ladder and dependent on those on the upper rungs. There are also times where the project manager has to abandon the New Forms of Work project in order to ensure his own survival. Mercifully, most change projects aren't fought out in a show-down like in some western. They tend to move in the confines of a triangle whose three corners are confrontation, resignation and integration. As they tend to run over a considerable period of time, they go through phases in which they approach or distance themselves from the single corners of the figure. Resignation is a common reaction to lost conflicts or disappointed expectations. Mistrust and a defensive attitude culminating in complete inner withdrawal are the consequences. This is frequently the type of attitude found at the beginning of group work among colleagues on the lowest echelons of the hierarchy who expect that the innovations ordered by those above will bring nothing good.

I've also seen in practice that many members of management (for instance, supervisors) are equally over-challenged by such innovation from on high. They find it difficult to see sense and purpose in the new, permissive, self-determined regulations of the work model. Accepting that they

should shape their own work environment is such a highly unusual idea for many of them that they shield themselves and block it out. Since ordinarily there's not too much time available to break down this block, overcoming resignation and confrontation, and shepherding them to collaboration can be a most useful move. What's also proven its worth is tying in with familiar procedures and presenting colleagues with a solution from on high that they could really never accept. When the inevitable objections come, it's time to respond along the lines of, "If you don't make a counter proposal now, then don't go complaining when this happens to you!" If "those up there" are then shown how it can be done better, and if this counter-proposal is accepted, then the way is free to a genuine form of collaboration. When the workforce – as in the case of Westaflex – sees that their views really are taken seriously, they see themselves as true partners in the digital transformation and contribute new solutions without any prompting. Even so, very often confrontation must first be used as a means of shaking them out of resignation.

Opposition to digital transformation from established departments first of all takes a defensive mode. If they fail to embrace cooperation despite all the numerous offers made, confrontation must be accepted and the conflict waged out. If senior management is convinced of the need for digital transformation and determined to embody and exemplify the new form of work, and if the conflicting parties are reasonable enough not to want total victory, once more the basis for collaboration is set. Even so, it does happen now and then that the advocates of the old structures resignedly accept that they cannot win the battle and adopt a stance of passive resistance in which they make an outward display of willingness to cooperate whilst at the same time hindering change internally wherever they can.

The favourite means here are rumours and smear campaigns ("in any case the project manager is soon leaving and that'll be an end to the whole nonsense") or the refusal to release colleagues for meetings and training courses ("all these changes cause such a lot of extra work that every hour's precious"). For the same reasons, appointments and important milestones can't be kept and data can't be compiled or only inadequately. One particularly favoured method on which a great deal of

ingenuity is lavished consists of burdening the unloved project with overheads which have the unfortunate effect of blurring its economic viability. In short, the keyboard of the old organisation is played with great virtuosity to drown out the sound of the new melody. Since such submarines are difficult to pinpoint in the beginning, they can pose a much more serious danger than direct open opposition. They don't always live in the ranks of middle management alone but can be found on all levels of the company. In my opinion, the only effective solution against them is a clearly defined and official policy statement from company management that whoever wants to work on management level for any length of time must endorse and actively embody the new form of organisation.

Organisational niches will then be created for the naysayers where they can continue to use their know-how whilst being kept at a certain remove from the new channels and workflows. Such compromises, which often come with promotion, help to change resignation into willingness to cooperate. Even an objectively argued refusal can show that the person has taken the proposition seriously and values continued collaboration. At this point in digital transformation, there can also be a tendency to throw the baby out with the bath water. Many project managers underestimate the dynamics of group processes and are so fixated on solutions for minor details that they lose sight of the actual propulsive force of the system, the productivity that comes from the collaborative work of responsible and empowered employees. Furthermore, misunderstandings and conflicts have their origins in the fact that the promoters of transformation are also the moderators of the group processes it requires. Their allies, on the other hand, are usually their superiors.

Thus, particularly at the outset and in the SME sector, it's a smart move to have outside forces unconnected with the company hierarchy take care of moderation. They will be more readily accepted by groups of employees as impartial instances who can arbitrate between opposing standpoints. This is a major step towards ensuring that the system runs on its own traction, and once it's accomplished, third party intervention can be limited to dropping in every now and then to check on how things are going.

Management lays down the law

Needless to say, all these difficulties don't inevitably need to crop up in the process of digital transformation. We're dealing more with constellations which might manifest themselves in most cases but which don't have to lead to the problems outlined above or even complete failure. This depends on a whole series of factors not all of which can be controlled. For instance, if management puts its heart and soul into the project, many of the problems can be dealt with relatively easily. Equally common is that people's acceptance of the need for change is not quite free of anxiety about their own position.

Even so, when differences in opinion about the change process lead to personal crusades that cannot be attributed to purely operational issues in the company, such conflicts can lead to a protracted situation of stalemate which permanently poisons the climate in the company departments affected. The consequences are resignation on all levels. Employees don't know what the future will bring, look back regretfully at the experiment and settle down once more in the old familiar ways. Such situations can hardly be resolved except by the senior management laying down the law to prevent in-house guerrilla warfare.

Most companies who have already travelled the road of digital transformation would travel it again, even though some of them might take a slightly different route. They have realised that the know-how, creativity and motivation of their employees contain previously undreamt of reserves of potential which can now be tapped and activated. That in the process many established structures are called into question and seek to defy such scrutiny, is only all too human. It's also just as natural that old seasoned company hands seek to put the dampers on the reform zeal shown by Generation Y; after all, they're all sitting in the same boat and that boat can only dock when all pull together.

Conversely, nearly all companies have seen that they've embarked on a journey from which there's hardly any turning back. Remove their newfound autonomy from your workforce and their readiness

to cooperate will turn back into resignation and their motivation will be lower than ever before. Each company management board should be keenly aware of this and come down clearly and unambiguously for the principle of decentralised organisation without knowing exactly what the final outcome is likely to be. Decisions in favour of digital transformation with pull-out options are not enough ... So get cracking!

Germany as a digital nation

LARS M. HEITMÜLLER

Digitisation has long been shaping the times in which we live. It's already given us flexibility, new degrees of freedom and unprecedented forms of dialogue. It breaks down the old frontiers and barriers between people and in doing so turns business models and whole industry sectors on their heads. It enables new forms of individualism and transparency. Yet in spite of such immense opportunities, when it comes to the use of digital value creation, in Germany people's views are often clouded by ignorance and scepticism. The dominant factor here is German Angst about surveillance typically paired with a lack of technological awareness. The frontiers separating individuality and the economy are currently under renegotiation. **Only by embracing a proactive and opportunity-oriented stance can Germany and Europe succeed in shaping and participating in such formative times!**

If you look at the cover pages of the leading news magazines over the past 20 years, you'll see that digitisation is an ever more frequent cover story. And that generally the focus is on its risks and dangers. It's pretty evident that most public dis-

cussions of digitisation in Germany take a critical or even downright negative view.

Studies show¹, that digitisation in Germany will create new jobs in the coming years (BITKOM 2014).² Yet Germans still remain sceptical about digitisation.³ Studies also reveal that many Germans have poor internet skills. Only one in three of all Germans has good or average skills which, according to BITKOM, puts us 27th in the European ranking, behind Portugal, Greece and Poland.⁴

In short, we can say: **We take a primarily sceptical view about something about whose opportunities and specific added-value many of us know very little.**

Digital normality: Even today many survey respondents say that they could no longer imagine living an analogue life. 27 percent of the overall population state that it would have “very negative effects on [their] everyday lives”, if there were “no more internet tomorrow”.⁵ Many of us have long since made our homes in this new country because “your home is the place to which you’ve got the WiFi password.” If we suddenly go offline, the cloud of digital possibilities vanishes. We’re well aware that the Net has become a basic need, some would even say a human right.

Digitisation is changing our society: On the other hand, the question of what governments can do to proactively use the new possibilities to enable more direct participation for citizens, and thus to strengthen their own legitimacy, is one that goes largely unanswered. The federal government’s *Digital Agenda 2014 – 2017* is mocked in some quarters as a half-baked effort. Even so, when it comes

to digital participation, the German economy is scarcely any further head.⁶

From ownership to access and the share economy? Digitisation is helping drive the dematerialisation of goods. From ownership – and the many obligations it brings with it – the accent is shifting to access. The idea of the share economy is gaining ground as a counter-project to the affluent society. Its underpinning thesis is that now when the question of ownership is no longer vital, digitisation is creating a chance for intelligent sharing. According to BMW executive Schwarzenbauer “automobile hardware” is standing idle for 96 percent of the time (<http://i.LMH.info/cars>). The share economy holds immense implications as well as potential – for instance, in the mobility sector – and for Germany in particular. **Yet it seems as though the major players still prefer making fine-sounding but hollow speeches and paying lip service to genuine efforts at innovation.**

Digitisation is bringing forth totally new business models for using cars, taxis and apartments. The effect of such disruptive innovation is to challenge the fundamental validity of the business models used in a great many industry sectors and force them to a fundamental rethink. “Business models and industry sectors are challenged, transformed, and, if need be, eliminated”. Such transformations bring with them “wide-ranging consequences for the employment market”⁷. **However, nationalistic protectionism cannot be an effective answer to digitally driven innovation. Legislation cannot (and should not) impede ideas whose time has come!**

Germany as the leading market for IT security?

The basic requirement for active engagement with the new opportunities is our trust and confidence in data security. Conditioned and shaped by the country’s culture and history, the great need for security in Germany would be an excellent foundation for a leading market in the field of IT security. **This is where Germany has significant positioning**

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 2 <http://www.spiegel.de/wirtschaft/unternehmen/industrie-4-0-schafft-hunderttausende-neuer-jobs-a-1027687.html>
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 5 Initiative D21, *Digital-Index. Offenheit – Einstellungen zur digitalen Welt* http://www.initiaved21.de/wp-content/uploads/2014/11/141107_digitalindex_WEB_FINAL.pdf (S.11)

6 Bernhard Fischer-Appelt’s article, <http://www.fischerappelt.de/blog/digitalisierung-im-dreieck/>

7 Leonard Novy in *Digitale Mehrwerte*, L.M.Heitmüller (ed.), <http://i.LMH.info/dm#page=29>

possibilities and great market potential – none of which has been consistently exploited so far.

Regardless of whether our view of the future is optimistic or pessimistic, as a society we need to ask: **How do we organise our education system so that it teaches more of the things that are Important In the age of digitisation? Where are methodological skills being continuously taught? Who is providing the motivation for the digital cultural transformation and the age of collaboration?**

Digitisation, a cultural challenge: It's becoming ever more apparent that pure "knowledge" is not the only factor involved and that questions of attitude and values are equally important. For the technical possibilities to offer digital added value to companies and their customers, what is needed is reflective thinking, empathy and oversight that can seize inevitably complex and interwoven contexts, understand them and turn them into lasting benefits. However, this can only happen if there is a general openness to understand and make use of the new opportunities rather than criticising them or rejecting them as a matter of principle.

While some pretend that there is a real alternative for us as an export nation to turn our backs on epoch-making change, others – in tones that range from disillusioned to despairing – are already criticising the emerging dominance of mainly U.S. providers as "platform capitalism".⁸

While some are already glumly asking what chance we stand of catching up with America in the next ten or twenty years, we in the Federal-Republic-of-Knowledge Germany have spent the past 10 or 20 years debating how to finance nation-wide broadband access.

In Germany and Europe what we need is more entrepreneurial élan, a greater focus on opportunity and more fun in digital innovation. **We finally need the courage to think big and bet on what's**

⁸ Sascha Lobo, *Auf dem Weg in die Dumpinghölle*, <http://www.spiegel.de/netzwelt/netzpolitik/sascha-lobo-sharing-economy-wie-bei-uber-ist-plattform-kapitalismus-a-989584.html>

new. Educational institutions should help on all levels in combatting prejudice against digital opportunities and thus give large swathes of the population their first chance to participate in digital opportunities and value creation.

Looking to the future with courage!

Government and industry should come together and initiate a New Digital Deal, an Agenda 2030 which categorises digitisation and encourages people to seize digital opportunities before our competitors overtake us and leave us behind. Then at long last Germany and Europe could make the digital transformation „their own project“. However well we might now be positioned in a whole array of traditional industry sectors, one thing is certain: the digital economic area of tomorrow will neither wait for Germany nor for Europe.

National regulation versus international trends

GUIDO BOSBACH

The future of work will bring with it wide-ranging changes to our structures of work and work situations. As the futurologist Sven Gábor Jánoszy remarked during a panel discussion on 17 September 2015 at *Zukunft Personal* in Cologne, in 10 years we can expect a division of the employment market into two parts whereby the one half will be in steady permanent employment while the other prefers freedom of choice for the next project to the security offered by fixed and binding employment. Unlike most of today's temporary workers, these short-contract employees are generally highly professional and specialised, and take on highly flexible types of work for their employers. They would hardly wish to see themselves pressed into the present mould of formal specifications.

Yet on the other hand, companies have at their disposition a global market of extremely good temporary staff who are literally at home in quite different legal frameworks.

Our legislation is still unprepared for this development, and by putting its focus on typical present-day structures of work may well impede its possible furtherance. The security offered for dependent employees by regulation of hours and places of work in Germany is as broad as the possibilities for shaping more independent forms of work are limited. To give two rather commonplace examples: the ordinance on occupational safety and health protection during work with visual displays (*Bildschirmverordnung*) is hardly conducive to useful and purposeful support for flexible forms of work such as work in a coffee house, a co-working space or from home. In a similar manner, the Working Hours Act (*Arbeitszeitgesetz*) no longer corresponds to the reality of work in the age of “always-on”.

To offer a response and avoid over-regulation covering all kinds of special cases, lawmakers should promote greater individual responsibility or – wherever it has been excluded by traditional cultural, decision- or directive-making structures – should basically allow for it.

What is fascinating here are the advances made by other countries. Take, for instance, the home office legislation passed by the Netherlands. Dutch employees no longer have to prove that they are capable of doing their work in the home office. Since July 2015 companies must furnish evidence of why the job mandate and particular circumstances of the employee concerned preclude him or her from working in the home office. This is a reversal of the burden of proof which, in view of the shift from an employer to an employee market, could well point the way to optimising the work options of employees.

Even better than new laws would be to bring discussion of this subject into the public arena and open up a critical review of the various cultures (management culture, error culture, decision-making culture etc.) predominant in enterprise.

Equally, new kinds of self-organisation and shaping of ownership structures in companies call for a rethinking of present legislation. Equitable collective ownership and distribution of management across the many instead of the one are difficult to achieve at present. Only very special, and in parts elaborate, structures such as a certain type of cooperative, now allow for this new and urgently needed entrepreneurial latitude.

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The Individual Level – Work 4.0

What's so special about Work 4.0?

GUIDO BOSBACH

A cohort of megatrends is currently transforming our society headed by demographics, a rather slow creeping process, and digitisation whose dynamics, by contrast, are changing our behaviour and our attitudes at an ever faster pace. This is also transforming our perspective on how we view “work”.

The bewilderingly rapid pace of technological evolution can beguile us into giving technology precedence over the human. Increasing numbers of novel, intelligent and autonomous systems are making it possible to remove humans from production chains and in a relatively short period of time are familiarising us with the prospect of

logistic centres and production plants with hardly a single human being in sight. And yet – the human being is much more than the extended operating unit of a machine.

The basis for future development on a very individual level is we ourselves. Usage of our individual talents and potentials, our skills and abilities, is the bedrock for the new development space. Every day new competencies are born of personal experience informed by knowledge, both old and new, which could be of immense benefit for people and the companies in which they work.

The future of work lies in intelligent and creative connectivity between human potential and the growing number of technical possibilities. When properly used, the three levels of networking – human-to-human (H2H), machine-to-machine (M2M) and human-to-machine (H2M) hold out the promise of making human strengths even stronger.

Building strong, robust, interpersonal networks between humans nurtures creativity, agility and facilitates identification of solutions to complex problems. Humans have always achieved things in the community that would have been impossible for them to achieve alone. The manifold forms of human-to-machine combinations we now have at our disposal represents an enormous extension of such potential.

Yet networking and collaborative forms of work also need to be endowed with meaning and trust if they are to perform at their best. The will to commit ourselves to a group of colleagues, a company or society, can only come about when each and every individual finds meaning – **their own** personal meaning – in such activity. Future work will be meaning-driven work. Trust creates solidarity from which new energies, creativity, drive and innovation can flow.

On a purely technical and highly unemotional level, the future of work can be represented in a formula. Even so, this formula does not encapsulate essential and deeper ranging human aspects.

In FoW (future of work), C = collaboration through networking, H = human, D = digital support, M = meaning, T = trust, h = number of people and n = number of networks. The future of work is shown as a function of the networking of humans with digital support where meaning + trust are the power of this function. $FoW = (C (Hh + Dn) (M + C))$.

Thus far companies have grounded management on quite different structures. Hierarchical power structures, leadership by set targets, motivation through financial incentives etc. still put their stamp on many organisations. Yet these elements have toxic and corrosive effects on the organisational culture and thus have directly deleterious effects on both performance and results. In the long-term, they undermine the very substance of the company and destroy it.

New work calls for a conscious rethinking of the concepts underpinning organisation and management in order to find the optimal balance between human ability and technical capability, and activate the motivation of employees across the company to participate and play an active role. Management

that goes over the heads of the company workforce is no longer a viable proposition – not least of all due to an ever more acute public perception of the way management behaves and the grievous mistakes it makes.

Particularly in countries lacking in natural resources like Germany, knowledge and the skills and abilities of each single worker, regardless of on which hierarchical level they might happen to be, are becoming one of the key factors of success. Yet the old power and management structures are an impediment to the development of such resources. The innovative energies so vital to our present time cannot flow wherever hierarchical claims to power preclude the use of existing expertise.

From an enterprise perspective but also from that of society, Work 4.0 means the necessity to create new kinds of open space and development opportunities. Only by doing so can we make full use of all our opportunities. But it also means giving more responsibility to the individual, developing their skills and abilities and making them part of the equation.

The rethinking needed to do this starts in the mind of each individual. Each and every one of us can play their part in creating broader societal acceptance for new work in the future.

Transforming the culture of work

GUIDO BOSBACH AND MEDJE PRAHM

When the framework governing work changes, its values change and with them the values of interaction and culture.

“Responsible management brings individual values and values lived out in reality into greater harmony with one another, and has a positive effect on intrinsic motivation and satisfaction with work.

This shows very clearly that corporate success and value orientation are directly related.” said Professor Dr. Ludger Heidbrink, Visiting Professor at the Reinhard Mohn Institute, Witten/Herdecke University (RMI) and executive member of the *Wertekommission* (Values Commission) in the press release on the latest management survey.⁹

The culture of work is a hotpotch of the values and cultures people bring into their organizations, flavoured with the attitudes and beliefs we acquire during our socialisation. Corporate and management cultures form the link between these very different poles of influence. Ideally, they should give stability and security, and motivate the desire to use personal potential. When they do so, they make an important contribution to the economic success of the company.

Yet all too often, mistrust, dependency and insecurity cloud our everyday work.

In many instances, the cultures of society and the in-house cultures of companies are drifting apart. In society, for instance, digitisation has given renewed forceful relevance to such values as transparency, openness and trust. In many companies, on the other hand, the visible and invisible power structures within which employees live serve to cement and propagate similar cultures of power.

Trust, respect, courage, self-determination, solidarity, autonomy, sense orientation, esteem, loyalty – this list of “new” core values could almost be continued indefinitely. Yet despite their importance for many of us, and despite all the positive connotations they may hold, in our need for security and belonging these are the very values we will sacrifice for fear of losing our job. We ourselves are the ones who help to ensure that corporate cultures cannot make a sea change.

⁹ See: <http://www.wertekommission.de/events/fuehrungskraeftebefragung-2015/>

A positively accepted cultural base is a key requirement for sustainable development and long-term stability. Only in this way can employees give a ready ear to the concerns of the organisation and bring their full potential into the company. Culture creates space for the exercise of otherwise hidden potential for creativity and genuine innovation. The success factors are manifold. Setting a good example through your own personal conduct has the most marked impact – and especially when the example is set by multipliers, leaders and management. Self-reflective, continuous and cautious embodiment of the values aspired to enriches the culture. This holds true today and – we humans are slow learners in this respect – will hold true tomorrow as well.

Stakeholders outside the company bring further new values into play: prestige, reputation, sustainability, honesty, tolerance, transparency and openness are gaining in importance. Given the growing number of possibilities for communication and the interactions among themselves of customers whom companies can no longer control, any conduct that runs contrary to such values will always be fiercely contested.

Demographic development in conjunction with a growing self-confidence on the part of employees and the development of technology will at other points play a major role in transforming the cultures of society and enterprise. The shift from an employer market towards an employee market is beginning. The amount of project work will increase, the number of permanent positions will diminish. This means that ever more people will themselves be deciding on the number of hours they wish to work, and in turn will be looking to society to accommodate their desire for latitude and flexibility.

We shall also see another way in which demographics influence the culture of work when increasing numbers of older workers wish to stay at their job (or have to). Together with the new generations pouring onto the employment market, they will have to face ever new challenges. Part of this collaboration will be a bi-directional knowledge transfer between young and old which will also foster a growing mutual understanding – a

circumstance that is sure to be of great benefit to the long-term development of our society.

Our sense of collective responsibility is growing. From reciprocal negotiation of tasks and roles, and the freedom to choose working and holiday times to transparency in matters of salary – all these are issues that, on the basis of the appropriate values, create an open working environment such that companies which strike out on this way show an above-average quota of high achievement. As with the company vision, continuous discussion of values and the effects they have on culture is by far the best way to maintain awareness of their intrinsic importance. Yet before embarking on such a route, one minimal condition must first be met: we must become aware of what our own set of values are and check what kind of contribution they make to the development of culture as a whole.

Work and Mobility: from the commuter republic to the cloud workforce

GUNNAR SOHN AND ROLAND PANTER

“In the year 1900 just under one in ten gainfully employed persons left their village, town or city borough on their way to work. 60 years ago it was one in four. Nowadays 60 percent of mandatory social insurance paying employees leave their place of residence to go to work – that’s over 17 million people in Germany“, writes Claas Tatje. This editor of *Die Zeit* Germany weekly is also author of *Fahrtenbuch des Wahnsinns – Unterwegs in der Pendlerrepublik* (A driver’s road rage logbook – up and about in the commuter republic) and describes the group of commuters as an underrated and highly dissatisfied force on the employment market.

A whopping 67 percent of occupational commuters travel to work by car – with all the traffic jams and loss of quality of life that this implies. According to analyses by the Federal Environmental Agency, the average rate of occupancy in commuter traffic is 1.2 persons per car which it makes it the lowest of all journey purposes. 8.5 million commuters have a journey time of over one hour. Some 6 million of them travel over 25 kilometres to their place of work.

Cloud technologies are opening new opportunities for decentralised collaboration

The dogma of obligatory attendance at the place of work still holds sway over the organisations of industry and government. This was noted by occupational psychologist Antje Ducki in her study of company micropolitics, “The more I put in an appearance at the company, the more consideration I get. A little smile here, a chat in the corridor there and every midday someone to have lunch with. “Making a career is synonymous with visibility at the workplace. Bosses see no benefits in having commuters – whenever possible – determine their own times of work. In the blog of the Harvard Business Review, American social scientists published an investigation on which kind of employees their bosses preferred. The results revealed that those who started work at 7 in the morning were held in higher esteem by their superiors than those who started the self-same job four hours later at 11.

And yet the technology has long been available to organise work in a much more intelligent manner and, above all, to practically free it from the constraints of being bound to a particularly place. The drivers of such moves are digital networking, video and technological mobility. Video technology in particular is becoming much more alluring for companies as it enables the all-important visualisation of the person you’re talking to. Live streaming from the conference room is no novelty nowadays and straddles all kinds of distance and time zones.

Higher centralisation is causing gridlock in urban centres

Apart from the mantra of “You need to sit in your office to do proper work”, a trend to centralisation can be observed whereby more and more organisations, for a whole host of reasons, are converged in one single place. Even though by now many of those at work are technologically equipped for decentralised work on their laptops, there are fewer and fewer employees who mainly or sometimes work at home. The German Institute for Economic Research (DIW) has shown that since 2008 the numbers of this kind of employee have dropped by 800,000 although the overall number of employees has risen by 1.5 million.

One immediate consequence of this development is that urban centres have become more crowded and more expensive while rural areas haemorrhage companies and workers. This is an increasingly widespread problem by no means confined to the new federal states in East Germany. Some regions are almost bleeding dry and are threatened with an ageing population as the “young” and “mobile” up tents and leave.

The technology's there, we've just got to want it!

Technologically speaking, the problem of remote or tele working is already solved. Yet management functions still lack practical experience in dealing with modern distance management. This is why Josephine Hofmann of the Fraunhofer Institute of Industrial Engineering (IAO) thinks that demonstrable media literacy should be advanced and become a key criteria for the selection of management and coordination tasks and an evaluable quantity in management systems.

If we really want to kiss goodbye to our present status as a republic of commuters, placebo measures like shuttle services, carpooling or the switch to public transport will never do the trick. We need new forms of working together to offer as counter proposals to the mobility concepts evolved by the Federal Environmental Agency and the Federal Ministry of Transport.

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The role of (continuing) education in preparing for Work 4.0

ANJA C. WAGNER AND
OLE WINTERMANN

Education today has escaped the walls of traditional institutions and no longer can be confined to a particular place. Informal learning is playing a much greater role in the everyday lives of most people, and especially of employees. However, since the validity and relevance of learning material is of an increasingly short-term nature, both tutors and students need to ask themselves for what type of employment market they are actually seeking to qualify. Which profession shall I work in, when, why, in which country, and under what conditions of employment? How can I play an active and meaningful part in shaping tomorrow's world?

As obviously these kinds of questions cannot be answered years in advance – quite unlike, for instance those related to the training of a bank clerk in a small German town in the mid-1980s – what we need to do is sketch a picture of the kind of world we're moving into. In Germany it seems more than likely that in the coming years the policy areas covered by digital (continuing) education will play the greatest role in their interplay with immigration, the (possible) shortage of skilled workers, and an increasingly ageing population.

Ideally, digital (continuing) education could help us better manage the forthcoming social challenges: digitisation of learning content and education processes would enable more people to take advantage of them. Migrants arriving in Germany would be able to directly contribute their own experiences and also become better acquainted with the educational areas and processes of importance to the employment market in Germany. A best case scenario would not only address integration of immigrants, but also the assimilation of those Germans already camping on the new territories and their overall integration into the newly reconfigured German employment market. If we succeed in drawing the greatest advantage from this historical watershed, it would be the equivalent of a rejuvenation cure both in terms of age pyramids and the digital mindset of this republic.

In the light of such challenges, it is the task of a formal education system to give people the best possible preparation for subsequent, and substantially more important, informal education. Today, life-long learn requires much greater personal initiative on the part of people who must continually acquire new skillsets or develop existing ones. Making them aware of this and preparing them well should be the chief goal of “traditional” education.

To do this, it is vital that all sides acquire the key meta-skills. On the one hand the 4Cs enumerated by [Andreas Schleicher](#) (creativity, collaboration, communication, critical thinking), and on the other the three individual skills of resilience, empathy and network literacy. This is the skillset profile for the 21st century out of which all functional abilities can be derived.

In both formalised education and formal continuing education, a much stronger emphasis must be laid on the teaching of methodological skills, and the material taught must be made more up-to-date and more relevant. However, formal education cannot offset the effects of a poor attitude to education. In the digital age attitude is more

important than ever. Thus it would be advisable if teachers would pay much more attention to the demands digital work puts on the individual. The ability to collaborate, to share, to be open about what you’re doing, the will to genuine teamwork, rejecting status and its trappings, the ability to show appreciation.

Yet learning material also stands in need of a critical review. Even today there are yawning gaps between reality as presented in school textbooks and reality beyond the school walls. Sadly, a politics lesson in a German grammar school in the year 2015 still using a text that takes the emergence of cable TV as its talking point (because given financial constraints a 20 year old textbook is still being used) is no exception in the everyday life of the German education system and one that makes the pressing need for up-to-date digital content all too evident.

A clear landmark decision for the nationwide use of open educational resources (OER) should go hand in hand with providing students with the proper digital infrastructure. Learning materials have a rapidly diminishing half-life in terms of validity and relevance and should thus always be given in a dynamic digital form. Furthermore, we also need educational formats that are much more diversified, more flexible and interdisciplinary and that come with built-in user-friendliness.

Ideally, a kind of European WIKI could be engineered in which a certain group of people (let’s say all teachers) could produce and revise material for the public domain that could be retrieved by anybody without access hurdles or even passwords. Everything else would lead on from this – for instance, open WLAN in all public institutions, installation of digital access devices in social spaces, dissemination of best practice cases from progressive schools and so on – much of this could be directly done through self-organisation. If students show no wish to join in, they should be transferred somewhere else for refusing to work. It’s high time that German institutions of education started to think seriously about this development and moved to take an active role in shaping it instead of sitting around and just waiting for it to happen.

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Participation in companies and workplaces

ANNETTE WITTKE AND
GUIDO BOSBACH

“Entrepreneurial spirit” as shown by company employees is now one of those fashionable key-words that companies like to bandy about. Active employee involvement in the overall company process is, however, an asset often aspired to but seldom achieved.

Genuine involvement in the company begins with the opportunity for participation. This includes involvement (= the possibility of actively taking part in company affairs), sharing (= perhaps of knowledge or information or by contributing work) and thus also partaking (= for instance, partaking in the process of clarifying errors and mistakes but in particular explicitly partaking of company success).

One aspect of much stronger participation are newly rethought decision-making processes. Using the “wisdom of crowds” offers tremendous advantages, particularly in a world of enterprise that’s increasingly complex and dynamic. Appreciation and trust are the fundamentals for proactive par-

ticipation and should be deeply rooted in the changing cultures.

Top-down decisions, of which there are so many today, often fail to take account of market instability, especially when they partly contradict the expert opinion of overlapping interests. Processes such as the process of consent typified in *sociocracy* (where it should not be confused with consensus)¹⁰ or the equally proven and increasingly popular *consultative individual decision*¹¹ are models which enable substantially better company development than decisions taken in isolation at the top or even consensual decision-making.

Taking participation one step further involves a reorganisation of ownership structures which views having a stake in the company also as having a stake in its economic success.

Companies which turn employees into co-entrepreneurs have understood that self-efficacy, self-responsibility and self-organization have their greatest positive impact when employees have a de facto stake in the company. Their success bears them out.

Even so, the mere paper form is not enough. Having a stake in the company in the form of share packets – without any power to influence key decision-making – is nothing more than a clumsily made deferred salary plan. In a worst case scenario this results in frustration and negative energy when, for example, expert know-how is available but cannot inform decision-making due to its lack of position in the hierarchy.

Even if actually granting employees a stake in company ownership doesn’t necessarily lead to direct structural changes, it always does bring with it further long-term changes which can be seen on the cultural level too although most of them involve structural transformation.

¹⁰ Partizipation: Soziokratie <http://www.partizipation.at/soziokratie.html>

¹¹ Oestereich, B.: *Konsultativer Einzelentscheid: was und warum?* *Oose Blog* <http://www.oose.de/blogpost/konsultativer-einzelentscheid-was-warum/>

Structures which are open to such transformation create a stable basis for the positive economic development of all partners in the company.

A new balance between responsibility, performance and pay

GEBHARD BORCK

Today it is standard practice that responsibility for seeing that many activities are carried out lies in the hands of supervisors. This is why management doesn't just set the targets but also specifies how they should be achieved. Employees are responsible for carrying out management directives. They perform their work in accordance to what they see as a target achievement plan ordained and calibrated by third parties. Such an arrangement is grounded in the assumption that employees subordinate their own intelligence to that of their superiors – as in a card game queen trumps jack. As compensation for their loss of self-determination and their relinquishment of personal feelings, they receive a remuneration which typically is calculated on the period of time in which they are subordinate. Present-day contractual relations between companies and third party service providers are based on a similar type of model.

Work 4.0 seeks a new kind of balance whereby the whole cast of players – managers, employers, service providers – are full individuals who contribute their intelligence, feelings and spirit to the creation of value. But for what then are employees responsible? What is their input? And how, under such premises, is a harmonious remuneration balance to be achieved?

At this point it would be helpful to elucidate the mechanisms of wages and salaries payment. Basically they now function as follows: economically speaking, you calculate in which period of time (T) which number (N) of products (P) or services (S) at which prices (V) you wish to see on the market. This gives the following performance equation (PE): $PE = \sum((N_{1-n} \times T \times P_{1-n} \times V_{1-n})(N_{1-n} \times T \times S_{1-n} \times V_{1-n}))$

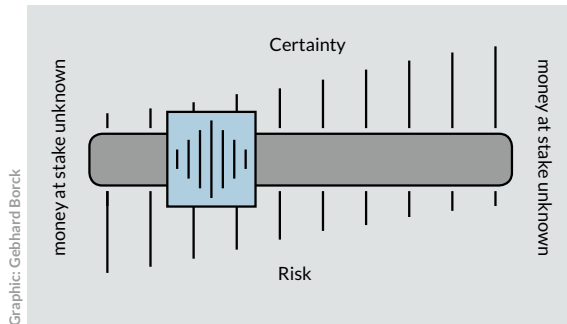
The performance result is set by management as the target. From this it subtracts the expected profit (EP) as well as structural and deployment costs (SDC) such as power, rent, material costs etc. The remaining money is then for wages and salaries (WS): $WS = PE - EP - SDC$.

In such a mechanism all the factors (numbers, products, services etc.), the objective (making a profit) and the solution (distributing money) are known qualities.

In Work 4.0 collaboration is frequently triggered by interests and by connecting the dots. Which objective you're specifically seeking to master only becomes clear during the actual collaboration process as do the factors which help you achieve your ends. The approach to the solution is *lived out* in the truest sense of the word during actual performance. Or to paraphrase Heinz Rudolf Kunze: Some paths are difficult to describe, they only appear when you start to move forward. Unlike in current practice, what we need here are possibilities of coping with such uncertainty, also in terms of salaries. One way is to gain a sharper understanding of the distribution of performance on the level of content and values, and not on the level of time and quotas. A performance distribution matrix like the one below can aid us in this:

You can include as many parameters (know-how, infrastructure, realisation etc.) in the table as you bring into the project. This simple tool balances performance and value without reference to money. Sums of money only come into play when they are due. Depending on how much you know at the beginning, you can directly put a value on pay or not:

	Know-how, Experience	Infrastructure, Methods	Realisation	Coordination	
Distribution of basic parameters	15.00%	30.00%	45.00%	10.00%	100.00%
Partner 1 Performance Share	90.00%	20.00%	35.00%	50.00%	
Total Share	13.50%	6.00%	15.75%	5.00%	40.25%
Partner 2 Performance Share	10.00%	80.00%	65.00%	50.00%	
Total Share	1.50%	24.00%	29.25%	5.00%	59.75%



If the ruler is to the left – effort needed, solution and remuneration unknown – you start off working with a high risk and no pay. And your stake in the subsequent overall earnings of the project corresponds to your performance share in the matrix. If the ruler stands in the middle – effort needed, solution and/or pay partly known – you can pay out part of the remuneration even though by doing so your performance share of the overall earnings is commensurately lower. If the ruler is standing on the right – effort needed, solution and remuneration largely known – you can be paid full remuneration and your performance share in the overall earnings is paid in full.

By clarifying the responsibility of each and every party involved, this tool considers them all as intelligent, emotional and valuable persons in the project. At the same time work performance is in balance with transparently calculated remuneration as soon as that is known.

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Shaping the new not preserving the old: key skills for 2030

ROLAND PANTER AND MEDJE PRAHM

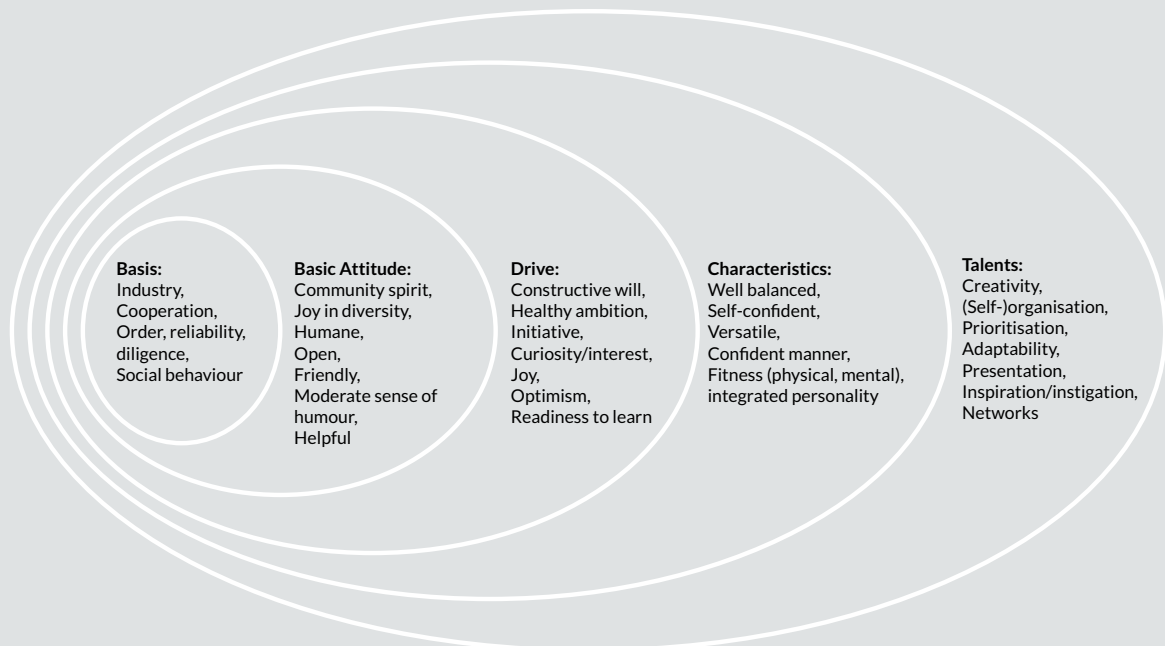
What skills will be needed to survive in the professional world of the year 2030? One revealing template is delivered by Gunter Dueck who for many years now has been highlighting the problem that neither the material taught in classrooms and seminars nor the so-called “top notes” of certificates and references will be enough to ensure survival in the future economy. Apart from such basic characteristics (listed under “basics” in the graph below) a whole host of other skills and aptitudes are needed that should be taught and acquired very early on at home and in school.

In future what are termed “simple forms of work” will be increasingly automated. According to the Sinus social environment study, the milieus of

“Clinging on to”, “Preserving” and “Having & Enjoying” will be particularly affected and vanish in the future. These milieus are peopled not only by disadvantaged groups but range from the traditional conservative upper and middle classes through to middle class centrists. The challenge, therefore, is to move society as a whole in the direction of the “Being & Changing”, “Doing & Experiencing” and “Overcoming Limitations” labelled milieus. Members of all milieus need to be empowered to face the much more complex world of tomorrow’s work.

It will be the role of government, schools, the family and society to meet these demands – through a basic understanding of values, through special support and through sensitisation – particularly with regard to lower income categories.

Demands for individual skills in coming generations



Creative Leadership: The role of creative strategies in the management style of tomorrow

SABINE JANK

Today our world of work is marked by increasing complexity and subject to a process of continuous change. In an IBM study (IBM Corporation, 2010), innovative (stand-out) CEOs stated that *Continuous Change* had become an integral part of their job. The velocity of this level of change brings with it a large quantity of uncertainty, ambiguity, and volatility. Accordingly, future leaders must feel comfortable in dealing with ambiguity and across-the-board risk taking as well as being able to fire others with enthusiasm about novel ways of thinking and new directions (IBM Corporation, 2010).

Responding to such continuous change, leaders are increasingly called on to enrich their leadership style with creative strategies. Both innovative CEOs and educational experts (IBM Corporation, 2010; Trilling & Fadel, 2009) argue that creativity and the ability to innovate are the decisive key competencies of the 21st century.

Even so, traditional management often views creativity as a disruptive factor since creative processes require that each individual changes from convergent to divergent forms of thinking and vice versa. Analytic thinking – which interrogates the “what is” is widespread in most management circles. Yet inquiry into the “what could be” or “how would it be if...” which lies at the heart of divergent thinking is very difficult or even impossible for management to take on board.

Nevertheless, we need creativity because creativity is the very stuff of innovation. Thus it is vital that management is trained to actively support creative forms of thinking and establish patterns of thinking in themselves and their employees that nurture and promote creativity. The notion of Creative Leadership offers management both the mindset

and skillset needed to accomplish this aim. Development and exercise of their own creativity plays a central role here. In their book *Creative Leadership: Skills That Drive Change* (2011) Puccio, Mance and Murdock describe Creative Leadership as the ability to purposefully use your own powers of imagination to infuse a group with enthusiasm for a new goal – or new direction – and to successfully support and accompany them through the whole cycle of change. In order to bring about such creative transformation, creative leaders must exert an extraordinarily positive influence on their context (workplace, community, school, family) and the people within it.

In short, in order to establish a culture of creativity in their own organisations, future managers must be open to change, must involve their employees in problem-solving processes, and be ready to support them in developing new ideas. Furthermore, they must be prepared to consider a multiplicity of perspectives, promote debate and discussion, increase the freedom and autonomy of their staffs and strengthen their willingness to take risks as well as allowing for types of failure. In the final analysis it's a question of establishing a climate in which the full creative potential of each and every employee can be realised and that produces leaders and managers with the skills to give innovative forms of support to problem-solving processes.

In their 1980s bestseller *The Leadership Challenge* James M. Kouzes and Barry Z. Posner proposed with their *The Five Practices of Exemplary Leadership*® an interesting model, the first of its kind to bring creative leadership within everyone's reach by making it easy-to-grasp and learnable. In hundreds of interviews and several thousand case studies, managers described their peak performances which Kouzes and Posner crystallised down to the five following lines of action:

Model The Way – formulates the ways in which people should be treated and the ways and means by which goals should be achieved.

Inspire a Shared Vision – envisions the future, creating an ideal and unique idea of what the organisation can become and awakening passion and enthusiasm for the idea.

Challenge the Process – continually searching for innovative way and experimenting to improve the organisation.

Enable Others to Act – promoting collaboration and forming spirited teams ready to take risks.

Encourage The Heart – creating bonds of trust, celebrating accomplishments and making people feel like heroes.

For many of these specific lines of action, the creative practices outlined above are of crucial importance. Accordingly, the challenge is not in the development of further models for successful leadership in the 21st century but first and foremost in the question of the “where”. Since thus far educational institutions and companies have not provided such fields of experiment, we need new fields of activity in which leaders can learn the practices outlined above and try them out in appropriate real-world contexts with a view to helping meaningful and enduring change on its future way.

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We need a new ethical optimism

ROLAND PANTER AND MEDJE PRAHM

If the world of work changes, society changes, and the reverse also holds true. These two worlds are inextricably interwoven which means that, especially in phases of change, values form an indispensable framework for the peaceful co-existence of people, enterprise, administration and government. Yet precisely because they are essential, values find themselves under constant fire from a broad variety of interests.

Take the world of commerce: on the global markets companies sometimes gain their profits under unacceptable conditions. Ethical agreements on local responsibility which may include clauses on taxes to be paid or the creation of acceptable working conditions are often stretched beyond the limits of good taste by a fixation on economic success. Lobbyists, non-transparent systems and regional interests impede ethically grounded global solutions. We have a startlingly clear instance of this in the present negotiations around the TTIP and CETA free trade agreements.

Digital transformation too is proving a severe test for our value system. Disruptive business models are changing markets at a tempo that would have been unthinkable a few years ago. The world of work is also changing at an equal pace and not without side effects. In many sectors a great number of jobs hang in the balance while government and industry seem intent on maintaining the present status quo. Under such pressure the bedrock of values already seems to be crumbling in many places. Anxiety about the workplace, fear of losing economic insouciance is spreading. Nothing is what it used to be.

Instead of desperately clinging to handed-down structures, what we need is a new ethical optimism which allows us to look ahead with confidence from the fundament of our values. We must

be curious about present and future changes, help to shape them and benefit from their positive effects. Enterprise and government should shoulder their responsibilities and integrate social values in their global objectives.

This means that people participate on the grass-roots level and should be able to have confidence and trust in the products and services of companies – secure in the certainty that consumption of resources will not lead to negative effects for the present generation and those hereafter. It further means only working for companies which act sustainably and which are transparent. Which can be counted on when they dialogue with us and which see themselves as an integral part of society. In this order there is no longer room for companies which do not accept their responsibilities – neither for their products nor for their job offerings. Anywhere in the world and across all sectors. This can only happen when all of us ask on which ethical values our future economic system will be based. And when we are ready to make mistakes and correct them.

The basis of all this is trust.

Leader 4.0: the impact of Industry 4.0 on management and collaboration in organisations is still underestimated

SARAH STAFFEN

New influencing factors and opportunities such as the systematic harvesting and evaluation of data are revolutionising our industrial value creation processes. In Industry 4.0, state-of-the-art information and communication technologies intelligently link product development, production, logistics and customers. Self-controlling production systems are gaining in importance. Compa-

nies wanting to keep pace with this development are faced with tremendous technical challenges. The advancing digital transformation raises a question of which so far only the tip of the iceberg is seen: How does the collaboration between leaders and employees change with the demands that highly developed system solutions entail?

Industry 4.0's new demands on management

It is obvious that leaders of industrial companies have a particular responsibility not only to constantly adopt technical innovations themselves but also to win over their employees for the new devices and empower them to use these. Yet what kind of challenges does a seasoned manager, like a plant manager, face when established models and structures begin to disintegrate?

The complete interconnectedness of the value creation chain beyond company boundaries forces the (male or female) Leader 4.0 to think and act. Employees increasingly find themselves scattered across the whole world – as is often the case with development teams – or in networks that consist of internal and external partners, and not anymore in clearly defined departments. In many traditional organisational structures this brings about a different understanding of management and collaboration.

The undoubtedly biggest challenge in this context is that technology becomes a partner in the alliance between management and employees in a completely new dimension. The close interplay between the human being and advanced technology raises the question, regarding autonomy and decision-making authority, which kind of control closed self-controlling machines actually require. The roles of strategic input-giver and flexible problem-solver still remain the province of management and workers. For leaders this means to successfully manage the high level of man-machine interaction both concerning their employees and their own work.

This involves recognising the growing limitations of their expertise and, for instance, integrating specialists for data analysis into their teams as well as building the team's trust in data security and reliability. Additionally, the Leader 4.0 will

become an agile networker who unlocks and utilizes knowledge that is increasingly scattered in- and outside the company.

The interconnectedness of systems leads to a transparency across the value creation chain that requires the adaptation of management's traditional decision making processes. Current indicators, including those used for evaluating employee performance, must be adapted. Increased reaction rates based on real-time information are needed. Furthermore, leaders must possess or acquire a basic understanding of the paradigms of Industry 4.0 and its optimization potential, which leads to the increasing emergence of professional know-how with IT expertise.

New leadership roles for the Leader 4.0

The far-reaching changes that Industry 4.0 initiatives imply for companies first and foremost call for Change Leadership, hence the ability of leaders to adjust themselves to continuous change and at the same time take their employees along with them on their way to a future which is only partly certain. In this context, the Leader 4.0 is the driver of digital transformation and the role model in the deployment of new technologies. At the same time, the Leader 4.0 needs a keen understanding of the fears and anxieties of his/her employees. For the employees, higher transparency in production means that individual work performance and error rates can be easily tracked at any time, that they might not be able to stand up to the complexity of operating the system or that greater automation might lead to them being replaced by "their robot colleagues". As a result, the roles of the Leader 4.0 are becoming increasingly differentiated:

As an **entrepreneur in the company**, the Leader 4.0 makes decisions that go far beyond the concerns of his or her own domain, he /she networks with other divisions and develops holistic solutions for products and services.

As a **coordinator of whole ecosystems of internal and external partners**, the Leader 4.0 acts within increasingly porous organisational structures, distributes tasks according to skills and abilities and leverages available expertise to extend the technical advance over the competition.

It's not just machines and products that are becoming smarter. As a **development worker**, the Leader 4.0 identifies and fosters the potential of his or her employees to grow into more complex forms of work that focus on monitoring and controlling of production processes rather than the simple operation of machines.

As a **coach of agile teams**, the Leader 4.0 responds rapidly and flexibly to changing requirements with the overall value creation chain in mind and paves the way for innovation also by taking an active role in shaping the corresponding corporate culture and structures.

In the Industry 4.0, the behavior of leaders will be more than ever decisive in determining the implementation success for a company. In this context, it is crucial that leaders quickly adapt to new roles and, above all, flexibly switch between different roles. It will still take some time before the present-day structures of our industrial companies change sustainably. However, even today management could contribute by acting more task-oriented in their new roles and less dependent on their set roles in the hierarchy.

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The Global Framework and Interdependencies with Other Themes

Migration

SARAH KEBBEDIÉS

Migratory movements encircle the whole planet. Between 1990 and 2013 the number of migrants worldwide rose by 77 million (55 %) (UN DESA 2013). However, migratory flows have not only increased in numbers due to (economic) globalisation; the forms, directions and complexity of migration have also changed.

In 2014 35.5 million people lived in the EU-28 who were not born in an EU member state. Germany showed the highest immigration followed by Great Britain and France (eurostat 2015). 16.4 million people with a migrant background now live in

Germany, a figure corresponding to a percentage of 20.3% of the overall population. Of this just under 37% of migrants have come from other EU member states. The primary countries of origin of migrants to Germany are, in descending order: Turkey, Poland, Russia, Italy and Kazakhstan. (Federal Statistical Office 2014). Both the EU and Germany will have a pressing need for future immigration not only to assure the stability of the demographic structure but also to offset the lack of skilled workers. Furthermore, a study by the Bertelsmann Stiftung has shown that, contrary to all expectations, rather than being a burden on our social system, immigrants can in fact be a source of relief for it. However, fiscal benefits can only be maintained in the long-term if the level of qualifications brought with them by future immigrants is much higher (Bertelsmann Stiftung 2014).

That the level of professional qualifications of present day immigrants is already pretty close to meeting these requirements has been shown by a

study on the impact of immigration on the labour market. This study has found that newly arrived immigrants have a much higher qualification profile than was the case ten years ago. Almost half of new arrivals have a university or college degree, a technical/engineering qualification or a master craftsman's certificate (Brücker, H. 2013).

In order to meet the worsening shortage of skilled workers, the Federal Republic will have to continue to rely on increasing numbers of qualified skilled migrant workers entering the country. Even so, Germany should not rely on increasing numbers of migrants from southern European countries but must also focus on migration from non-EU countries.

On top of this, data from the Federal Statistical Office also reveals that people with migrant backgrounds on the one hand are more often unemployed, and on the other are more often to be found in marginal employment than people with no migrant background (). In this respect, more limited access to the employment market, inequality of opportunity in the education system, and non-recognition of foreign academic certificates and vocational training are all indicators of present shortcomings in Germany's integration policies.

Improvement of our national labour market situation should not, however, be the only goal pursued by policy-making on immigration. A purposeful immigration policy also offers undisputed advantages both for the respective countries of origin and for the migrants themselves. To realise such a "triple win" situation, on the one hand certain criteria must be observed in the selection of countries of origin, and on the other the country of origin and the country of destination must both equally, and in cooperation with one another, ensure the development and implementation of qualification measures and appropriate incentive systems (Bertelsmann Stiftung 2015).

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Globalisation

SARAH KEBBEDIES

Hardly any other topic in the past 20 years has shaped and dominated public (and academic) discourse in the way globalisation has. But what do we mean by globalisation, and what effects does it now have and will it have in future on our everyday lives and work?

Internationalisation discourse is very much focussed on the economic dimension of globalisation. Increasing international networking finds its main expression in the rising global volume of merchandise exports which over the past 40 years has increased over 60-fold whilst at the same time

the nominal GDP of the whole world has soared from \$3.36 billion to \$74.6 billion (Peterson 2015a). Outsourcing and relocation of facilities to other regions of the world with more favourable production conditions is the answer of the corporate sector to steadily rising competitive pressure.

Digitisation is another of the factors driving globalisation. Without deployment of new communication technologies and automated production techniques, the productivity leaps and bounds we have seen that have brought an increase in global prosperity and a diminution of absolute poverty would never have been possible (Petersen 2015b).

However, the spread of information and communication technologies has not only had its effects on economic production processes but touches on nearly all the subsystems of society such as education, consumption, political participation, the healthcare system, and in general on all those conditions under which we shall be working in the future. A study by Oxford University concludes that in the first part of the 21st century in America alone 47% of jobs will be replaced by robots, computers and algorithms. And the knock-on effects of the increased use of technology are not just limited to industrial production but also concern the service sector, as well as knowledge-intensive forms of work and highly qualified personnel (Frey/Osborne 2013).

The fact is that work can no longer be exclusively designed within the confines of national frontiers. The interplay of globalisation and digitisation has created new forms of regulation and organisation of work that place both nations' ability to act and individual actors in their specific worlds of work before new challenges.

Digital networking between company sites in different countries is giving rise to new forms of global work and project structuring. Moving and acting in virtual information and communication environments will rapidly become everyday routine for the working population. Disparate corporate cultures, expectations and interests must be harmonised – for which new forms of cooperation and coordination are essential. Opportunities for stringent control are on the decline whilst flexibility and trust figure ever more largely on the map.

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Demographic change

SARAH KEBBEDIES

In the coming decades the world population will continue to grow and age at the same time. According to new computations by the UN, the total number of people living on earth will reach the 8.5 billion mark by the year 2030. By 2100 this figure will be 11.2 billion. Such growth is primarily achieved, however, by population growth in the threshold countries, some of which have witnessed a veritable population explosion, while the populations of industrialised nations continue to stagnate. A large number of European countries also find themselves confronted with falling birth rates (UN-DESA 2015).

Only a handful of countries in the EU such as Finland, Belgium and Iceland achieve a birth rate per woman high enough to ensure stable demographic development (Berlin Institute for Population and Development, 2008). With 1.4 children per woman, Germany too is far below the target figure of 2.1 children per woman (Federal and State Statistical Offices, 2011). These are no new phenomena but rather a trend that has been observed over the past 40 years, and that will be further exacerbated in future as the numbers of people of working age decline while the elderly population steadily develops into the dominant age group.

The missing generations of parents can no longer be offset by the numbers of babies born. It is forecast that by the year 2030 the German population will have shrunk to 70 million inhabitants. In 15 years there will be 15% fewer people of working age (20–65 years) than in the reference year 2008, whilst on the other hand the numbers of over 65s will continue to grow, increasing by 22.3 million (Federal Statistical Office, 2015). These effects are further underscored by a corresponding increase in life expectancy.

Without immigration this forecast would be markedly more negative. Over the past few years, the migration balance (the difference between immigration and emigration) has shown considerable fluctuation. It is expected that the migration balance will show an annual increase of between 100,000 to 200,000 persons per year. Such an increase is, however, no guarantee that the negative demographic trend will be stopped. Even so, people without a migration background are on average much older than those with a migration background (48.7 years versus 35.4 years) whereby the latter group could make a significant contribution to the rejuvenation of the age structure (Federal Statistical Office, 2014; Federal Statistical Office, 2015).

Sinking numbers of people of working age is already causing major problems when it comes to recruiting new skilled professionals. The baby boomer generation will leave the employment market in the next 10–15 years and the numbers of seniors in the working population will continue to grow. After ensuring an adequate supply of skilled professionals, the second challenge is to nurture people's work ability and health and maintain them for as long as possible (Federal Statistical Office, 2009). The skills and abilities of older workers must not only be recognised but also be adapted to meet the new demands of the world of work.

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Education

OLE WINTERMANN AND
ANJA C. WAGNER

The education debate cannot be seen outside its economic, political and social context even if education policy-makers frequently couch their arguments in purely professional or pedagogical terms. Accordingly, the question of how educational content can be combined with digitisation in a pedagogically meaningful way to serve the holistic development of the individual is not the only issue at stake. What is equally important here is teaching the networking needed for subsequent worlds of work and life. (comp. [Wagner 2012](#)).

By building a personal learning network at an early stage (comp. [Rosa 2015](#)) that can develop dynamically across the whole of the lifespan, children and young people, can, for instance, begin to develop their resilience and empathy at an early stage in their lives. These two character traits, paired with directly needed network literacy, are the key characteristics that mould specific individual competencies in the age of the insecure network society. Never static but dialectic in the sense intended by Hegel: the moment as something become and becoming in itself. This is what requires that “lifelong learning” from all protagonists.

If such aptitudes are to be nurtured in people by a state regulated education system, network thinking must be structurally implemented at a very early stage. And in all the parties involved! Critical citizens and creative innovators are not to be gained through a series of varied knowledge tests but through the daily experience of practical engagement in networks, and nowadays this means above all else through use of the internet. The old school way of thinking in terms of a state controlled canon of knowledge and skills profile tipped over various political levels in existing educational institutions and class systems is obsolete and cannot promote that creative thinking “from down below” which is so essential today.

Insofar as it is desirable, in the light of global societal challenges, to bring together a maximum of human intelligence, what we need to do is to start and develop the skills and abilities this requires at the earliest possible stage. Traditional educational approaches cannot cope with this way of thinking. One first step for opening up the education system would be to create increasing free space in schools (and universities) within which the whole cast of stakeholders could work together in modern formats on everyday problems. School students together with teachers and parents in a design-thinking workshop; students together with professors and administrators in barcamps, maker-spaces, hackathons, and so on.

Implementing such formats in the social context of institutions could well prove a way for traditional educational institutions to secure their own long-term survival and justify their existence. And if their transfer of knowledge is also working towards further opening and access to research results in the form of Open Access, OER and MOOCs, this would require an even more far-reaching form of networking. Only through regular exchange of data and know-how can dynamic continuing education be established for the population as a whole.

If we now combine these demands on an education system as the digital future requires us to do with those framework conditions economists and social scientists are constantly referring to, the immense importance of the key role played by a future-proof understanding of what education means becomes apparent: the globalisation of education and employment markets, digital Taylorism, the decoupling of education from institutions and formal certificates, the worldwide competition for skillsets and people are all conditions under which we are here speaking of the capacity for empathy, networking and the building of personal learning networks. Digital Taylorism might be criticised with the greatest sharpness in developed nations, but people in developing countries are always going to see it and the competition for the brightest minds as an opportunity and not a threat. And however uncomfortable this might sound – people on the world market are increasingly standing in direct

competition with one another. We should create a framework within which their collective shaping skills can be encouraged and supported to tackle problems as a collective. With their top down approach and left to themselves, institutions are incapable of tackling these challenges.

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Neo-ecology

GUIDO BOSBACH

The better we understand the world about us and the ways in which it's interconnected, the more our basic attitudes and our conduct will change. And this in turn, will give rise to new demands in terms of what we mean by value creation, sustainability and the economy.

We are witnessing a proliferation of new knowledge-based, service-oriented and data-driven companies, products, and whole new industry sectors. On the one hand, the high level of education across the world makes worldwide collaboration easy, whilst on the other it also nurtures a profusion of global competition that's only a mouse click away from the customer base.

At the same time Nature and the environment are issues that are regaining in importance as we have now understood how vital they are for our long-term well-being. We need Nature – Nature does not need us. For Nature, the whole of human existence is little more than the batting of an eye-

lid despite all the immense damage we have caused in our short time on Earth. The project *Nature Is Speaking* offers some very interesting and highly revealing perspectives in this regard.¹²

In particular, our new awareness of the dangers and limitations of non-renewable energy sources is causing us to have a change of heart about the energy supply. Environmental degradation and the negative impact on the climate and the food chain at the end of which we stand is making us take pause, think about the way we're behaving and do something about it. One example of such action is the *Ocean Cleanup*¹³, project that is investigating how the immense quantity of plastic junk can be removed from the world's oceans.

As consumers we are becoming increasingly more selective. Not so long ago organic and FairTrade products languished in a niche corner of the market; demand for them has now risen to such an extent that all discount markets and fast food chains include organic products as a permanent part of their range. Ever greater numbers of specialised companies like *no-packaging*¹⁴ and organic supermarkets are responding to this soaring demand.

Our consumer preferences are also changing. Ownership once used to be a status symbol; today sharing is an accepted model. Even if still not the norm, temporary ownership based on needs-driven leasing is very much in fashion because for many of us it expresses the desire to act in ways that are economically more sustainable and more sparing of resources. The effects this is having on companies in production and trade are clear for all to see. (Botsman/Rogers 2010)¹⁵

Changes in behaviour are also leading to industry adopting new approaches like the sharing & net-

12 See: <http://natureisspeaking.org>

13 See: <http://www.theoceancleanup.com>

14 See: <http://www.denkwerkzukunft.de/index.php/inspiration/index/leuchttuerme>, Projekt Verpackungsfreie Supermärkte

15 Comp., Botsman, R./Rogers, R. (2010): *What's mine is yours: How Collaborative Consumption is Changing the Way We Live*. HarperCollins Publishers

work economy and on-demand services which, in turn, are the driving forces for further new models of work and consumption.

In the field of the new economies, novel approaches are also being evolved for the collection of ideas and financial support. Crowdsourcing and crowdfunding are particularly suited for easing the way for small companies and start-ups on the perilous path of generating new ideas, refining them and making them ready for market. The case of localmotors is a telling instance of the tremendous success and outreach free collaboration in a community can have. This small automobile manufacturer with its payroll of 110 employees is now collaborating with over 5,000 volunteers on 76 projects to develop novel types of cars¹⁶. One of their many milestones is developing and building a car in the record time of just 18 months. Allured by such success, no less a body than the U.S. army has invited localmotors to take part in a call-for-tender. The worldwide team is currently working on the first planned digital car to be produced from a 3D printer.¹⁷ New economies are now arising based on the proactive networking of volunteer collaborators.

Mobility

GUIDO BOSBACH

Today we are – when we want to be – connected with one another at any time in any place, at least when using the mobile internet with WLAN, UMTS or LTE – or also satellite telephony. Even the international space station ISS has functional internet connectivity and is the highest WLAN hotspot on our planet.

16 As of September 2015. Data retrieved on <https://localmotors.com/labs/>

17 Comp. www.localmotors.com

In many ways internet connectivity has made us much more mobile. Communication, both synchronous and asynchronous, can be started anywhere we have a telephone and an internet connection. We are developing new ways of communicating and dealing with one another that are not without their effects on our work. “Always on” now means that our free time has become a much rarer and much more precious asset. At the same time, computer work is giving us new options and greater freedom to choose and shape our place and time and manner of work. And in a countermovement to the spread of such unprecedented forms of permanent stress, many people are showing a new consideration of others and a higher appreciation of the consideration they themselves receive.

Wearables or computers integrated in clothing and accessories in future will allow for even more conscious and unconscious forms of communication, including a greater feeling of security and the danger of more ubiquitous surveillance.

The opportunity for outside mobility requires more mental agility and mobility from us. Our working environments, working structures and the compositions of teams could be subject to more frequent change. In this context, new forms of cultural interaction bring with them greater mobility. New free spaces arise which we need to discover, organise, and make use of.

Even so, we run the danger of lagging behind this development rather than helping to shape it. Development of the broadband infrastructure in Germany is woefully behind that of other nations. A truly dismal picture for a leading industrialised country. With LTE (long-term evolution) coverage of 53%, Germany doesn’t even make the middle field in terms of an international comparison, and even where mobile network reception is possible, the quality of broadband still leaves much to be desired.¹⁸ It’s a similar gloomy picture when it comes to availability and speed of broadband in the fixed and the fibre optic network.¹⁹

18 Study on worldwide LTE coverage: *Deutschland abgeschlagen*. WinFuture <http://winfuture.de/news,89081.html>

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Urbanisation

GUIDO BOSBACH
OLE WINTERMANN

Ever more people are moving to the city. Ever more megacities of more than 10 million inhabitants are springing up across the world. Even though not on such a grand scale, the same development can be observed in Germany.

The follow-on is structural problems both in mainly rural regions and in rapidly expanding cities.

In rural areas infrastructural development is urgently needed as it has failed to keep pace with the requirements of the times. This increases the pressure on the digitally mobile population to move to those more attractive areas which boast greater broadband capability. Consequently, rural areas see a further shrinkage of their job markets and used living space.

In the cities new spaces for living and participation are being created, and with them come new business models and working spaces. Here too investment in the infrastructure is necessary.

On the other hand, established companies find it difficult to contemplate relocation in the short or mid-term. They are dependent on the attractiveness of their present location which they can help to develop but only to a limited extent. In the mid-term this results in an uneven distribution of skilled workers and thus to a significant “across-the-board” competitive disadvantage for the company.

The aim should be to use focussed infrastructural measures – particularly in the field of broadband and through novel mobility concepts – to increase the attractiveness of all rural living spaces.

Perhaps surprisingly, digitisation and the future of work could offer a major chance to boost the pace of development. We might do well to pay less attention to the mainstream media which holds up urban life with its meme of our evening glass of red wine at our local Italian restaurant in our own familiar neighbourhood as the ideal solution for everybody in the country. This is a point of view which not only shows a total disregard for the diversity of lifestyles but also a complete ignorance of what life in the countryside outside the Berlin bubble actually is.

Digitisation will now challenge this Sunday colour supplement view of what constitutes “the good life”.

The internet will make it possible to square a life spent relatively close to nature (in so far as it possible to speak of this in such a densely populated country as Germany) with the supply of all basic goods needed for everyday life and communication with other people. This means that in future the internet will be one of the most important reasons why people choose to live in the countryside, or inversely that it will neutralise the reasons for choosing to live in the city:

- Internet coverage in the countryside is steadily increasing. Thus it is becoming increasingly possible to lower the negative follow-on costs of living outside the inner city infrastructure.
- Virtualisation of medical and healthcare services together with the feasible virtualisation of educational services are effectively undercutting important arguments in favour of using the metropolitan infrastructure.
- Net-based retail outlets are gaining in relevance and invalidating the traditional argument about the inner city as a market place. At the end of the day, people are not interested in what local politicians and local retailers might want. People vote with their spending habits.
- Carpooling and general consumption sharing is being tremendously facilitated by the internet and is increasingly a topic of interest for owner occupiers in suburban estates. Thus the consumption infrastructure as an argument for living in the city is generally losing its persuasive force.

■ Whilst the present generation of retirees and pensioners only show a very small percentage of people living in poverty, and while (relatively) expensive shopping for organic and regional products on weekly markets is still a normal part of life, the future rise of poverty rates among the elderly will mean that discount supermarkets will increasingly be catering for the need for food. However, due to lack of space and high rental costs, there are few of these in the inner city. Thus one of the major reasons for living in the inner city – the short distances to go – will lose its validity.

■ Communication on the local marketplace or in the local café is increasingly being replaced by social networks and forms of contact not dependent on a particular place. To a very large extent, the internet is thus a surrogate for the city as a place for immediate social life.

■ In the long run, the large number of young people on the internet will significantly raise acceptance of internet-based services.

Apart from these internet-based reasons for living in the country, naturally there are also many other aspects which support this trend:

■ Inner cities are increasingly perceived as social hotspots. Particularly by elderly people, this perception plays a major role in assessing the quality of their social environment.

■ The sharp rise in the cost of housing in the downtown areas of leading cities raises the issue of the cost-benefit ratio when renting or buying housing in the central areas of Munich or Hamburg.

■ At the same time, the marked trend to repopulating inner city areas is a phenomenon limited to big cities and has never been an issue in the relatively unattractive inner areas of medium-sized cities.

■ Due to the increased general supply of available housing when their generation reaches pensionable age, the baby boomer generation will have problems achieving adequate or expected prices for their own real estate. Thus the intangible value of their property will be relatively increased and the trend to living in inner city areas – where new

networks of social contacts must be built – will slow down.

■ The trend to living in single households shows no sign of abating with the younger generations and will further drive the need for housing in future despite the new importance of flat-sharing communities for the elderly (*Alten-WGs*). What final outcome the interplay of these two latter trends might have is as yet unforeseeable.

Digitisation will massively extend the freedom to choose one's place of work. If you analyse the changed framework conditions governing life and living in the city from a digital standpoint, it soon becomes apparent that in a relatively short period of time, the "future of work" – our understanding of the separation of life and work – will be called into question.

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Innovation – shaping the future

GUIDO BOSBACH

Ever since we people left the African continent some 60,000 years ago, we have been continually inventing new things. Curiosity, trial and error and the will to find a solution have been the constant driving forces behind innovation. As it was yesterday, so is it today and so will it be tomorrow. Innovation always played a vital part in our evolution.

These fundamentals of innovation will not substantially change in the coming years. Especially as innovation is the most effective means of open-

ing up new fields of business, and thus of realising and advancing your own objectives and those of whole organisations.

Nevertheless, we still make very heavy going of innovation. Most of the time, we don't dare to trust ourselves. In order to get out of ourselves more often, we need to rethink the space in which we shape innovation. Today our innovation spaces are narrow in manifold senses. Even when we've understood that innovation cannot be planned, we still try and squeeze it into the same kind of management and organisational structures that we use elsewhere. Unfortunately, success sometimes proves us right as small incremental innovations in particular really can be evolved in structured environments. And isn't it true that R&D centres and innovation projects regularly do put results on the table? Even so, innovation would be much easier to shape if we could muster up more courage to embrace the unconventional.

So what is the space in which mental agility turns into tangible innovation?

Innovation space has a variety of characteristics and dimensions. It's an experimental space, a learning space, a meeting space, a space for the exchange and discussion of ideas, a space for extreme activities, relaxation and movement – and whatever else it might be, it's a space for human and creative interaction. This means that at the same time it's a space for intensive, sometimes constructive, sometimes controversial, debates and conflicts.

If you want to promote innovation the whole trick is to design a space that's simultaneously closed and yet open, and to bring together the appropriate mixture of the "right" people. The point is to identify the idea-giver and the protagonists²⁰ and motivate them with a common goal so that they pool their skills, abilities and mindsets in one vibrant heterogeneous team. As Linda Hall demonstrates in a remarkable TED talk,²¹ collective genius is markedly more effective than the individual variety. For management and leaders this

means resisting the temptation to make themselves the core and chief idea-generator of innovation and limit themselves to "merely" preparing the stage on which others can perform. The dictum "Leaders eat last" is especially apposite when it comes to innovation.²²

If there's a large measure of conformity in the team – the simpler variant – the path to the objective might possibly be shorter, but it also means that criticism will be sidelined which has an adverse effect on the maturation process and the quality of the new ideas. Because we need creative abrasion in order to use creative agility to arrive at equally creative solutions. This might sound like structured chaos – which indeed it often is. Yet this chaos has the power to generate a "plus" even out of incremental improvement ideas.

Above all, such chaos places heavy demands on management because the roles they are ascribed call for a particularly high level of openness and nonchalance. At the same time, chaos and resilience also open the way for the team to stray from the original idea in their quest for better solutions without losing sight of the final objective. Any attempt to manage chaos would put an end to this.

Innovation is frequently the balance between error and success, and the path to success is almost always paved with error. Allowing for error – the unexpected outcome of a deliberate action – transforms the result into a positive learning experience so that the way ahead can be mapped better, more clearly and more consciously.

Just as intriguing as the distinctions made between the definitions of error (see above) and mistakes (the repeated and unintended production of a negative result) are the differences between the terms "experiment" with its close associations with innovation, and "pilot project". If an experiment is an attempt at producing a hoped for, though unknown, result, a pilot is a trial run of something that's already pretty certain. Its final outcome is predetermined. Trial and error and deviations from the set way are undesired as they open the doors wide to those pessimists and opponents of the

²⁰ In his book *Das Gute und seine Feinde*, Gunter Dueck gives a compelling account of how different personality types encounter innovation and either promote it or damn it.

²¹ TED Talk "Innovation is a collective genius" by Linda Hall <https://youtu.be/ImmtTHYU5GQ>

²² "Leaders eat last" is the title of a book by Simon Sinek on leadership, based on the life of a submarine captain in the US Marine Corps..

project who are only too quick to take an unsuccessful pilot project as undisputable evidence of the failure of the whole innovation field.

Nearly always innovation only comes about with a courageous readiness to invest time and money without the certainty of obtaining utilisable results. Yet the wager always pays dividends in terms of the experience and thus the know-how obtained both by us as individuals and as an organisation. The vulnerability this occasions, as Brené Brown puts it in *Listening to shame*,²³ is the birthplace of innovation, creativity and change.

By putting the focus on the learning experience, we ourselves create the opportunity to foster innovation outside the core area of our activities. Just where the opportunities lie over and beyond the usual spheres of innovation is compellingly shown in *Doblin's 10 Types of Innovation*.²⁴

Here too innovation is seldom disruptive, more often than not, it's the many small steps in the development cycle which bring about the real change.

No matter how big or small innovation is – given the great opportunities which lie in the linkage of analogue, digital and human development, what innovation needs in the future is more people “on the job” who are free to act and experiment in order to meet the changing demands of the world around them and the stakeholders. To create the space they need for this, structures which allow for self-organisatio²⁵ appear to be ideal both for the present and the future – whether they come as a short-term stimulus for open-space events or serve as the basis for sustainable organisational structures.

23 TED Talk: “Listening to shame” by Brené Brown: http://www.ted.com/talks/brene_brown_listening_to_shame#t-363878

24 “10 Types of Innovation”: Website: <https://www.doblin.com/> the book of the same name was published by Wiley, 2013: ISBN 978-1-118-50424-6

25 For instance, in “Reinventing Organisations” by Frederic Lalou, published 2015 by Nelson Parker, ISBN 978-2-960133-50-9

If we consciously go about opening more of these free spaces, we will be creating the basis for a new culture of innovation, one that's sustainable, effective and so urgently needed.

Worldwide recruiting of skilled professionals and alternative concepts of learning recognition

OLE WINTERMANN

Whilst in the past rules and certificates used to decide on the relevance of learning attainment, in future this will be dealt with by markets where sellers and buyers of special competencies meet. Platforms for certain skills (www.freelancer.com for IT specialists) or for the complete spectrum of services (www.fiverr.com) offer the chance for prospective employers and employees to find one another. Here the search focus is very much on the task. At the same time previously traditional forms of certification are supplemented or even partially replaced by the evaluations made by employees. Furthermore, there are naturally other (subjectively perceived) skills and abilities which cannot be certified.

Platforms like *Mechanical Turk* go one step further and prioritise the task (Human Intelligence Tasks) over the visibility of individual employees. The atomisation of the job-offer side which this brings about together with unlimited availability for the employer is the opposite of the way taken by the Social Trademark concept. The Social Trademark idea replaces formal certification not in any wholesale manner by public evaluation of the work actually accomplished but in a plethora of individual cases by the labelling of personal skills and abilities according to their level of visibility on the Net. Then again, there are services which aim at the *in-the-round management* of a person and their (apparent) abilities in the Net, and scalable platforms like *About.me* for the broad mass of key per-

sonnel. Such a way is certainly not the way for all employees regardless of what professional, educational or socio-demographic background they might have. It is certain, however, to attract a steadily growing number of employees and job-seekers and as such should equally be considered by moves to reform formal certification.

Nevertheless, relativisation of formal certification does not only impact on the general employment market but is not without its effects on other areas too such as international trade. With the new opportunities created by the internet such as direct commissioning of production runs such as lines of smartphones, it is now possible at any time for people to become suppliers of goods for the production of which they have no formal know-how or qualifications but which they can sell in their own name as seeming producers to a global market of consumers.

In the near future the next step will be – following the democratisation of production conditions through the 3D printer – to become a truly independent producer of consumer goods without any need to show any type of formal proof of skills or competency.

This wave of democratisation and atomisation will not stop at the previously sheltered areas inhabited by decision-makers and executive boards. For a long time now, the competencies of political and economic decision-makers have been stretched to the limits of the humanly doable by rising global complexity. Unsurprisingly, only recently the first algorithm was declared a member of the executive board of a company in Hong Kong because it was expected that it would prove a much more effective way of dealing with complex issues.

However, one of the consequences of this trend to Social Trademarks, reputation gained through constant publication of performance and assessments in social media, and democratisation of production is that integration of educational and training programmes within institutions and institutionalised processes is making ever less sense. Inversely, exposition of personal skills and abilities, and an emphasis on an individualised view of work performance means that responsibility for presentation of personal competencies falls consistently on the individual.

Education and vocational training accordingly become a personal responsibility. Obviously, this presupposes the ability to recognise the need for individualised responsibility and to act on it. People become entrepreneurs on their own account. The ability to take this on board, however, is not present in all people to the same degree.

Thus individualisation of education will lead to a redefinition of the power relations between the various stakeholders in the education system. This might seem a little outlandish at first view, however the decline of music companies, publishing houses, camera makers, mobile phone producers – all this was a consequence of digitisation and the shifts in power relations between stakeholders it triggered. All these defunct companies are a sign of the inability and reluctance to shape up to the reality of digitisation. Educational institutes too, as we know them, also belong to the traditional gatekeepers of the analogue world; it is they who decide over the award of certificates and thus over people's futures. They too must adapt to the new playing field on which they have to act.

Civil society and social business

MEDJE PRAHM, ROLAND PANTER AND
JÖRN HENDRIK AST

As digitisation continues apace, it's not just the requirements profiles of present and future workers that are changing – along with them, people's expectations about what they want from a workplace are changing too. Many millennials and Generation Y people are looking for flat hierarchies, flexibility, a values-led corporate culture, and meaningful work rather than status and career. Nor is this confined to young people alone: older generations now find that meaningful work is more important to them than it was a few years ago, while one in two managers over the age of 50 would like to see more meaning in their work.

Many traditional companies have now succumbed to the temptation to transplant such an all-important value orientation system into their corporate culture by artificial means. These can take the shape of CR initiatives or lacklustre methods of employee engagement. Yet alongside such companies there is now a whole industry that has no worries about such issues – social companies, non-profit organisations, and civil society initiatives. These organisations can offer the meaningfulness and sense of purpose that is now at such a premium – through not-for-profit work for society or the environment.

Social start-ups in particular give their founders the opportunity to play an active role in shaping conditions of work in our world of enterprise. They offer job opportunities for millennials which are perfectly tailored to the values held by this generation. This makes it all the more important for government and industry to further improve the conditions on this job market and facilitate investment in social enterprise.

The question remains as to exactly what needs Generation Y is articulating and whether really all of them agree. One good way of approaching this question is to consider your personal feeling of efficacy and your own relationship to it – affirmation of your own person. Knowing where you stand. Only when people have this feeling are they able to take corresponding risks. And then passion and freedom for innovation is born – the right moment to take stock of your own abilities, and extend them and perhaps even to build something yourself.

As long as the majority of Generation Y does not own this feeling of self-efficacy, the challenge for society as a whole is greater than the numbers of table tennis boards and massage banks in offices – symbols of a generation of freedom lovers – might lead you to think.

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Turning away from purely formal certification

ANJA C. WAGNER AND
GUIDO BOSBACH

The “war for talents” is a current buzzword. It’s a consequence of the incipient shift from an employer to an employee market. Specialised professionals in novel fields of work are a particularly hot commodity. On the other hand, thus far these new fields of work have offered few opportunities for formal certification. Such developments are too new and too fast-paced and the path through the institutions is simply too long and too winding.

Given the speed of technological advances, it should be clear that this discrepancy will be with us for some time to come. For some kinds of job applications, for instance, Deutsche Bahn does not require submission of certificates, while the Zeppelin University in Friedrichshafen aims at diversity and explicitly encourages applications from students without Abitur (A-levels).

At the same time the internet is seeing the growth of an increasingly broad range of informal educational opportunities alongside those of the established education system. Here everybody can develop and deepen their skills and abilities at all times, even in those areas which so far lack formal work specifications. The present mainstay of “Training on the Job” is thus being supplemented with the components of “Training on the Web” whereby Web-training clearly puts a much greater accent on personal interests which take on a whole new role. From an enterprise standpoint, deepening of personal interests offers new and previously unused opportunities. At the same time there’s the growing challenge of understanding these new

skillsets in (potential) employees, accepting them, and using them purposefully – even without formal certification. Here the first moves are underway from the Mozilla Foundation’s Open Badges initiative (<http://openbadges.org/>), although their gamified approach is only partly suitable for building a basic alternative to the existing certification model.

So how can we tackle this development? In future we shall need to radically apply the Apple Principle to the education system: look at the big picture from the perspective of learners and give them the opportunities to consistently display their talents. e-portfolios, LinkedIn/XING, blogs, social media and about.me pages are all exemplary formats in which people can present themselves professionally in the Net. What’s more, the employee network is becoming ever more important for companies in the sense of workforce marketing (see the series of whitepapers on Working Life 4.0 in Flow-Campus: <http://bit.ly/arbeitsleben40>). 50% of new job appointments in digital companies are recruited from extended circles of friends while the other 50% come from assessment centres, open innovation approaches and freelance networking.

At the same time, demonstration of informal competencies is also opening up new chances for individuals in gainful employment. Business activities and business alliances are triggered by network activities. You don’t need a certificate to build your own company. And occasionally it might even be advisable to leave aside the formal system of education with its focus on the training of qualified employees and strike out maverick-like in your own new direction. Here perhaps there’s a need for creative incubators which, like the Paris Computer Coding Project 42 (<http://www.42.fr/>), are targeted at persons of talent regardless of their educational attainment. In Tomorrow’s world a broad diversity of new (free) spaces are needed to encourage entrepreneurship. Only there can the radical new ideas be evolved that are needed to provide enduring solutions to social problems.

Addressing the scarcity of resources in education

ANJA C. WAGNER AND
OLE WINTERMANN

Education does not operate in a context-free setting and is (mostly) not an end in itself. Unfortunately, all too often, the education debate is conducted in purely pedagogical terms which, in the light of the requisite professional expertise, must not necessarily be a disadvantage, but which still impedes placing the debate in an economic, political or social context. Thus the really decisive question is not merely how educational resources can be combined with digitisation in a pedagogically meaningful way that serves the overall development of the individual. What matters more here is how to provide the resources needed for the restructuring of the educational landscape, in the light of a shrinking population scant in resources, and how to use development of individual skills and abilities for the good of society and evolution of the economy. It should be obvious that all this stands against the backdrop of a population markedly aged in terms of an international comparison and in competition with increasing expenditure on pensions. The political economy of an ageing population gives no reason to believe that substantial investment in education might follow – to the detriment of pension payments which are used purely for purposes of consumption. Consequently, new ways must be found of increasing efficiency and efficacy in the use of educational resources. One way out of this dilemma is offered by “Education 2.0”.

Poor mentoring ratios in universities and schools and quality assurance in further training – currently two of the greatest challenges – could be improved through deployment of digital educational resources. Furthermore, the lack of means for extending all-day childcare could be offset in part by promoting online-based learning methods in combination with local public-private grass-roots initiatives. Rising poverty rates among young families (an issue which does not receive as much media attention as households of pensioners) could to some extent be countered by the widespread use of open educational resources. Access to university or other forms of high quality education could substantially be improved by Massive Open Online Courses (MOOCs), and a diversified range of other digital education settings and hybrid models. Instead of waiting hopefully for non-existent funding for the maintenance and upkeep of university buildings, a great deal more could be done by engagement with collaborative methods. Other public infrastructures (libraries, museums etc.), private co-working spaces or other initiatives by civil society could contribute to the making of an infinitely more flexible educational landscape and combine the advantages of online and classroom learning in a rich variety of ways. The quality of vocational training could be improved through more online transparency in terms of the work of the mentors. Here too, savings on resources could be effected through the use of OER and other digital network resources.

Digitisation opens a field of further and farther-reaching issues that can only be touched on at this junction but which should certainly figure on any future political agenda:

- a. What will count in the future? Will it be informally gained skills and abilities or formal certification and qualifications? Given the debates currently being waged around the issue of refugees, responding to these questions – which also raise the question of the digitisation of knowledge – is of crucial importance.

- b. How can the curriculum be brought into line with the digital age? Is there still any real need for mandatory curricula? What could concepts for Open Curricula look like?

c. Does the strict separation of schools, universities and vocational training still make any sense? How can we bring the education system up to date?

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Educational phases without formality and dividing lines

GUIDO BOSBACH AND
ANJA C. WAGNER

Lifelong learning has always been a key competency of management. Nowadays it's required across the whole cast of employees. In order to maintain our working ability, we must be prepared to acquire new and sometimes even newly developing knowledge rapidly, at any place, at any time. We need new ways to absorb and use knowledge, and above all that new kind of fluid knowledge implicit in networks. Nobody has learnt how to do this in institutions of formal education.

In our present understanding, knowledge is only deemed as having been gained when proof of its attainment follows in the form of a certificate. This will be less and less the case because, firstly, knowledge is created and ages too quickly, secondly, because knowledge can be acquired over a series of new "uncertifiable" channels (and to some extent must be so acquired due to a lack of alternatives), and thirdly, because those willing to learn do not always have the time and financial resources to participate in methods of formal education. Finally, in most cases the point is not for students themselves to become the object of a transfer of knowledge but rather for them to take part in a collaborative process of knowledge-

building. The building of skillsets, or the linkage of knowledge with personal experience, in future will be increasingly manifest on the personal and informal level in the social network.

For the employed this has consequences on both sides of the employment market. On the one hand, positioning yourself as an attractive employee is becoming an ever more complex and demanding endeavour, while on the other the rich array of new learning spaces offers new chances for self-empowerment on the road to a career in entrepreneurship.

For companies on the lookout for new employees, this means putting themselves on the organisational level of the challenge and enabling those who want to make a contribution to the company to gain a creative "attestation". Because traditional phases of education will dovetail with one another more directly.

One future task of government and enterprise will be to encourage and promote decentralised learning spaces and networks to enable the unimpeded exchange of knowledge and experience unhindered by competition and unclouded by competitive thinking. The formal structures of the education system from vocational training to advanced training and continuing education are no longer in tune with the needs of the times when everybody in the course of their working lives takes on an average of between 5-9 different jobs. People find themselves in a permanent loop and need support to cope with it.

Digitisation and esteem of the active employee

OLE WINTERMANN AND ANKE KNOPP

Tomorrow's working culture

The way the workplace is designed and work is organised is fundamentally changing in times of digitisation. Internal communication and cooperation processes and interaction with external partners are driving a change of culture. Its beginnings can be often traced to an informal chat that took place in the corridor, and the first spark is usually ignited in the bottom echelons of an institution's hierarchy – particularly in those institutions dealing with knowledge and project work.

Yet from such humble beginnings, new opportunities for shaping project work are created, new ways of visibility and efficacy are opened up and the attractiveness of the employer receives a new burnish. If a vacuum appears at the beginning together with the freedom to use these new spaces, this can signal the rise of creative competencies and a new culture of work. Both these attributes, however, need long-term development and secure rooting, since, particularly in knowledge-based companies, a state of stasis poses a direct threat to the company's very existence.

Workplace organisation – the active employee

Through the use of new technologies and the changes they introduce, digitisation enables a much higher level of flexibility with regard to the place of work and working hours. A more flexible design of the workplace offers both personal advantages – such as greater compatibility between one's career and private family situation – as well as benefits in terms of work. These include opportunities for more efficient forms of collaboration with partners, the chance to gain deeper insight into social developments and debates from other perspectives, as well as the capacity to integrate larger numbers of international associates in pro-

jects. Flexibilisation of the place of work is also associated closely with greater flexibility in working hours which is not just of great benefit to employees alone – who can then take further training programmes, sabbaticals or gain valuable experience through engagement in social work whilst simultaneously maintaining contact with their job.

Internal communication and cooperation processes

Digitisation broadens potential for cross-departmental collaboration. Usually, the first experiences made with digital tools quickly permeate through and change the mode of further collaboration. Take, for instance, use of shared documents which can be distributed and worked on in real-time without the detour of having to aggregate all the various versions. Internal forums are also a good way of facilitating constructive discussions on controversial projects and of helping to generate project ideas and concepts. Intranet and internet postings by individual members of staff expressing their own points of view can create greater transparency in project work and promote quicker and more interactive communication of material.

It only needs a small group to catch the digital networking virus for the effects to spread with astonishing speed to ever greater circles so that an institution is changed from the inside by the infectious enthusiasm.

Such a process continues to support active participation by employees across various departments regardless of place and time. However, in order to do this effectively, it is essential that the status and development of (planned) projects in the company be clearly visible at all times. Knowledge management can support project work by giving important information and know-how rapid entry to the project.

Interaction with consumers and business partners

Digitisation makes the leap from inside to outside – including opening up the sheltered lives of experts and project managers within the company to customers and business partners. Boundaries separating the company from the outside world become more permeable. Transparency also means that knowledge and experience from a whole series of previously locked depositaries now finds its way to the outside and thus gains visibility on the market. There are very solid reasons why companies like Tesla and the Westphalian manufacturer Westaflex have embraced a strategy of consistent openness, and have put many or indeed all of their patents in the public domain.

Third-party experience and know-how, both national and international, will increasingly influence and enrich the generation of ideas, design of projects, development of prototypes etc.

At the same time, using digital tools to get third party feedback on market products enables companies to make a much more closely tailored response to actual market needs, and thus secure their long-term survival.

Digitisation of SMEs – a question of tools and cultures

Successful realisation of the openings mentioned above calls not just for the range of necessary technologies but also a basis for the implementation of digitisation. Such a basis can be created by the following measures:

- Assessment of the company to ascertain its degree of “digital maturity” (the extent to which internal processes are digitised), ideally in terms of a comparison with other companies. Such an assessment will take close account of the various different groups of employees and methods of work to ascertain where and how digitisation can be of benefit.

- Development of skillsets for operating digital tools in order to extract their full potential. This requires not merely learning-by-doing but also a range of further training opportunities with respect to digital tools.

- A culture of work that esteems presence and impact in social media and tolerates dynamics and uncertainties in virtual reality spaces. When its employees are active in social media, first and foremost this should be seen as a great opportunity for the company.

- A digitisation strategy for SMEs which consciously questions the validity of their existing business models and thus helps to promote awareness for disruptive effects in their own fields of activities.

Strength not power – leadership on a human scale

ANDRÉ SCHLEITER

If it can be digitized, it will be,” as Carly Fiorina, former CEO of Hewlett Packard, put it, is the epigraph that Christoph Keese places at the front of his very readable book Silicon Valley – was aus dem mächtigsten Tal der Welt auf uns zukommt (Silicon Valley – what’s heading our way from the most powerful valley in the world). In his view more and more things are being digitised at any particular point of time than would appear to meet the eye. The demise of photography giant Kodak should serve as a stern warning to management everywhere not to underestimate the force of this statement. What Amazon has been for over-the-counter trade, Uber for the taxi and transport business and Airbnb for the hotel branch are all examples that show that the new market power of digital platforms can and will redefine the rules of the game in a huge array of industry sectors in the

shortest of times. Business models with optimised business processes and hierarchical organisation that have evolved over decades suddenly come under pressure. And just as fully structured large organisations are challenged on the markets, the “power question” looms large in their inner workings – is the hierarchically configured organisation (and the associated exercise of power through hierarchical position) in any state to be able to respond quickly enough to changes from the outside? Is it able to introduce change to its inner life that anticipates changes in its operational field and that ideally can serve to define the “rules of play” on the new markets?

The managers’ field of action is changing because the dynamics of change in the business environment are accelerating. The following factors are putting management under pressure (Strack et al 2015):

- Rising complexity in the business environment (Keywords: terrorism and political crises, migration, transparency and openness)
- Radical transformation of markets and business models (Keywords: Industry 4.0, big data, deconstruction of value creation chains)
- Increasing acceleration (Keywords: shorter product lifecycles and development times, 24/7 availability)
- Increasing multiculturalism (Keywords: diversity and global recruitment)
- Rising internal complexity (Keywords: information flow and flood, social media tools for collaborative work, codes of compliance)

In a VUCA world (acronym for Volatility, Uncertainty, Complexity, Ambiguity) management’s work will become more onerous and more challenging (Probst/Bassi 2014).

Former U.S. president Harry S. Truman defined leadership as “the ability to get others to do what they don’t want to do...”. Leadership is a process of the influencing behaviour to move people to achieve a common goal (Habich/Nowotny/Spilker 2015). The “followers” might be employees but could equally well include peers, superiors or external network partners. Given the reality of this broad spectrum of “leader-follower” relationships and the increasing irrelevance of hierarchies, the cursory definition given to the term “leadership”

(*Führung*) in Gabler’s online dictionary (2015) needs serious updating:

“Leadership: through interaction setting a course of action by individuals and groups aiming at the achievement of pre-set goals; contains asymmetric social relationships of superiority and subordination.“

Whenever work and work processes in an organisation are knowledge-intensive and complex, authoritarian directives from above can only have at best a short-term effect on performance, and in fact are less and less likely to achieve the desired goal. The new framework of leadership is transforming the leader-follower relationship and calls for a fundamental change in the mindset and conduct of leaders. As Schein (2015) points out:

1. Leaders are increasingly reliant on followers and would be well advised to make humility – and not arrogance – the basic premise underpinning the way they behave.
2. Leaders now dispose of less of the knowledge needed for decision-making than ever before, and should therefore be more inclined to ask questions than issue orders.
3. To ensure that such kinds of knowledge come into the open and are shared, leaders are well advised to create a climate of openness and mutual support in which employees feel safe and confident, and free to speak up.

People can be won over when they receive respect and appreciation, when they feel that they are valued as a person and not just because of the function they can fulfil. If the objectives of work are sufficiently in line with their personal value systems, this also lays the groundwork for employees perceiving the job they are doing as meaningful.

Whoever wishes to promote an organizational culture focused on strengthening the individual person as the precondition for commitment and performance might find it helpful to take a closer look at the approaches adopted by logotherapy and existential analysis. Existential analysis (Kinast/Milz 2013) views people as having a basic need

1. for stability and security in their lives,
2. for contact and significance in their own lives,
3. for appreciation and respect for what they are, and
4. for a perspective and a commensurate task which they perceive as being meaningful.

According to Längle (2008), incidentally, these four basic motivations also provide a robust framework for the development of an organisation in which more elderly people can have or can keep their place. Winning companies show that enduring economic success can only be ensured with a corporate culture in which people are ready and willing to participate and make a contribution (Möltner/Göke/Jung/Morner 2015).

In this context leadership on a human scale is the leitmotif of a development process which is unthinkable without reconsideration of our personal understanding of what constitutes leadership. Leaders willing to reflect on experiences made and pass their own roles in critical review and continually work on themselves – these are the ones with mature personalities who radiate natural authority and strength. These are the ones who find it easiest to take up leadership roles in networking contexts where “no ranks – no titles” is written big.

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Greater equality of opportunity on the labour market through social networks

ANKE KNOPP

Equal access to the labour market is not given to all. Often enough, a foreign sounding surname can prove an impediment. The basic shortage of skilled professionals has changed nothing of this, even though widely lamented throughout the media. People with an immigration background and foreign roots still face difficulties in finding a prospective employer. Against this background, the social media could open up new ways as a digital world can build quite different sets of bridges which would be unthinkable in analogue reality.

A surname that implies that the candidate comes from a non-German background often leads to a job application being rejected out of hand. Anonymous job applications could be a remedy here yet have failed to prove popular in practice. Furthermore, people with foreign roots often lack the network of contacts within the company which could smooth their way. Immigrants lack the “anchor” of people already working in the firm who could create a pull-effect. Without the necessary recommendations, it has been shown that companies are unwilling to recruit immigrants because they cannot judge their cultural background and have no evidence of a candidate’s good repute. Access to

the domestic labour market is even more difficult for new arrivals than for those immigrants already living in Germany. This alone casts a curious light on the German labour market which is seemingly composed of networks yet does not use them for everyone with the same degree of transparency and openness.

A further hurdle comes in the shape of job ads whose tone of language and whole thrust targets German applicants. Implicitly and explicitly, such ads fail to mention that applicants from immigrants groups would be welcome. Their texts and mode of address still fail to take account of diversity and are very much tailored to a purely “German” audience. And yet, their visual vocabulary is much more progressive and explicitly underscores diversity by giving prominence to images of people with foreign roots.

When it comes to access to the labour market, immigrants do not want privileged treatment or any special courtship – what they do want is equal and fair opportunities. In this respect, operative diversity management, rooted in companies and workplaces, could be beneficial. Essentially, this means building trust and dialogue on an equal footing.

And this is where the opportunities offered by social media could prove effective. Social networks are places where people meet people. Their cultural background is much less of an issue than the qualities people share in common and that bind them together. Social media have a lower threshold in terms of inhibitions at making contact. They are also much quicker and more efficient at establishing a dedicated interest network – independently of the cultural or migratory background of its members. This means that people can rapidly exchange information about ways and means of access that is tailored to their specific situations. National frontiers are irrelevant. Passports are irrelevant. Interfaces can be multi-layered and cross-level. Such networks can easily be extended to cover the countries of origin of potential migrants. They are also a compelling means of disseminating unvarnished stories of personal success and examples of successful integration in labour markets. People looking for skilled workers with an immigrant background should join these networks and sound out the specific chances they

offer for recruitment in line with the specific needs of their company. A more direct way of getting to know the other is hardly possible. Contact is quickly established, direct communication is immediate. The rules of the network are universal.

One further charming advantage here that should not be underestimated is that the hurdles of status symbols disappear, the hurdles of the “building” vanish. Issues of a foreign-sounding name also drop into the background. In a direct and personal conversation the usual shortcomings associated with migrants are forgotten as both parties are equally focused on their on-going dialogue. The network realises the wish for equal participation in opportunities and development of talents and dialogue on an equal footing.

Opening the education system through decentralisation

ANJA C. WAGNER

Unnoticed by many in the established institutions, another education system has long since established itself alongside the present formal one – that of the World Wide Web where for many years now a great many people have been involved in a very lively exchange of ideas. In doing so they have also been engaged in a course of lifelong learning without in the slightest following the traditional pedagogical path of learning (definition of a learning goal – transfer of knowledge through a mix of methods – evaluation of what has been learnt).

To all intents and purposes, access to education has long since been decentralised. Furthermore, a formal sector has been established alongside the public education system, privately financed and either non-profit or profit-oriented, that digitally closes the gaps the public system no longer cares to serve. A wide range of *Citizen Science* projects are developing from meaningful hobby projects nurtured by the

new values culture of a global, digitally literate broad middle class, even if, in economic terms, they could be more aptly ascribed to the precariat.

To some extent, the collaborative accumulation of knowledge (take, for instance Wikipedia) has even shown itself superior to traditional forms of imparting knowledge. Single experts often can't match the force of collective intelligence, even if their *old fashioned* arrogance makes them unwilling to admit this. In other words, the present education system already resembles a patchwork quilt which state education policy-making should pay closer attention to if it is to create optimal framework conditions for the students (!!).

If we look at the scenario from the standpoint of students (and these, if there be any doubt, are essentially all people) and less from the standpoint of institutions and their stakeholders as is usually the case, one inescapable conclusion comes upon us in the age of the networking society – namely that the outcomes of state-funded education must be basically open, unconditionally accessible and as reusable as possible. They are the property of the general public which has financed their evolution with their taxes. Only when these conditions are given can the public assess and exploit these outcomes in various different contexts, and reclaim them for other thematic fields.

In many government-financed institutions we can now observe that the transfer of knowledge has undergone a dramatic reversal: progressive learning content is increasingly flowing from the civil society contexts of the Web into public institutions rather than the other way round. In times of the networking society many places have adopted the welfare principle whereby civil society is pressing for manifold changes in policy-making to bring it into line with the real world. This is yet another sign of how collective intelligence is trumping individual competencies based on old certificates. Similarly, the whole issue of intellectual property rights needs to be rethought – with all the legal consequences that this entails. Who is a producer? Who a consumer? Who pays whom and for what – and what is now fair and just under such conditions?

Consequently, the opening up of the education system has much more far-reaching implications that just freely disseminating the know-how generated in a hermetic system. State structures themselves must open up and form hybrids with the initiatives of civil society. Maximum diversity in types of collaboration must be encouraged, at least when certain developments are financed by the public purse. Equally, in view of the present need for lifelong learning, what we need are publically accessible co-learning spaces, which, as rethought modern “libraries”, must become places of open exchange and further education in the broadest sense of the term. Indeed, the whole antiquated concept of a “seat of learning” needs rethinking. Nowadays education takes place everywhere! Education policy-making must seek to satisfy this claim if it is to retain its formative influence.

The relevance of new educational formats and access for all groups in society

ANJA C. WAGNER

If we agree to think of the future of education in hybrid forms, and if we assume that even nowadays education must be a great deal more than merely traditional imparting of knowledge, the issue of how to generate new forms of knowledge starts to play an increasingly central role. How can new knowledge be creatively produced? It can be produced by coming together with various other people and using collaborative techniques with which to explore and chart a particular field of inquiry across a series of discussions or by working together on the search for a solution to a specific problem.

In this context, a key role is ascribed to the vast palette of modern formats from world cafes and barcamps, hackathons and makerspaces to design-thinking workshops and so on. They all enable a much more up-to-date form of continuing education than that traditionally given in typical classrooms with their neon strip lighting.

Rethinking education for the 21st century also implies linking educational competency with the individual – away from aspirations that want to see rigorous across-the-board application of the top-down principle. Individual persons need robust self-learning skills in order to make individual use of the (in some fields) broad spectrum of possible learning formats.

Museums, theatres, and libraries have long formed part of the established range of activities for the educated middle classes. Today they are joined by the new formats mentioned above which unfortunately have not yet reached the broader mass of people. Actively promoting participation in such scenarios and viewing participation in conferences, trade fairs, etc. as a component part of education which, under certain circumstances, could either be funded or given a substantial tax break, would do much to promote broader access to continuing education.

Admittedly, at present there is little chance of such initiatives finding widespread acceptance. Yet if you consider for a moment the huge crowds of digitally connected savvy visitors at this year's International Motor Show (IAA), building digital skills is just another small step forward. What society as a whole needs to do is to rehearse a form of discourse that moves away from pedagogical infantilisation and towards transformative eye-level thinking in which everyone is invited to participate.

There is still a great need to learn about digital communication – as can be seen from the many commentaries on social media. Nonetheless, it's the only way by which we can reach this collective goal, and consistently spread social discourse across all levels of the Net, and by doing so, also become skilled in constructive criticism. In addition here, regional events might also help to acquaint us with the fascinating world of opportunities held by a collaborative constructive future.

Using new ways of addressing target groups

ANJA C. WAGNER

Corporate cultures are now being transformed by a whole raft of mutually reinforcing factors. Apart from the groundwork of digitisation, socio-cultural Net practices evolved in quite different contexts are having massive effects on companies' in-house cultures. No matter what the prophets of doom might be saying, there are now huge numbers of network savvy people living out network culture in their daily lives. And they bring the experience they have made in this world and the expectations they have formed there into their professional contexts too. Many of them wish for participation on an equal level not for ideological reasons but because of what they have seen and learnt to value in social networking systems. Nurtured by different forms of socialisation, we are now seeing the rise of value systems that partly contradict each other.

And now a series of changes of direction in educational policy-making (the Bologna reform, the OECD studies, the increasingly precarious situation of workers in the education sector, etc.) has opened up a gap between what supposed experts of advanced age consider as education and the experiences of people actively engaged in networks. Traditional formal education and further education is increasingly failing to reach people where they actually are. What we see instead are clumsy top-down attempts to push them in a direction that's politically expedient. Unfortunately, this has created the very problem we stand before today. People can neither self-organise themselves to gain adequate further training and personal skills development nor can they have any confidence in the range of formal opportunities on offer which in any case are pushed through by over-harassed and over-challenged teaching staff who themselves hardly ever use the Net for continuous further development.

How can we escape from this dilemma? Perhaps by adopting a completely new way of thinking?! Who is the mentor here? Who is the student? At the moment we're seeing an inflationary use of technical terms from pedagogics in an effort to contain this problem: social learning, blended learning, social blended learning and so on are all heavy-handed attempts to encapsulate a phenomenon which the signs of the times tell us signals nothing less than the demise of pedagogics!

When open systems are moving to an open future with open outcomes, planned learning objectives can no longer be addressed in a methodical way – except perhaps the basic competencies (reading, writing, arithmetic). What we need to do then is to think in terms of completely new scenarios, create frameworks for education policy-making, and encourage a wide diversity of experiments in order to nurture a new culture of education for the whole of society that takes only one guiding principle – a permanent state of willingness to engage in on-going further development, not to stand still, and above all, not to sell any more certainty. Having said this, let me too close this paper with a QUESTION MARK: what do you think?

Peer learning: a new competency?

ANJA C. WAGNER

Peer learning basically means that people learn from their peers. English-speaking countries have the [Peer 2 Peer University](#) where anybody can offer or book free online courses. Continual peer learning can also be followed on the internet provided that participants bring along a certain aptitude for self-learning and have built a high quality personal learning network.

Now you don't need a certified skills profile in order to learn from others. We know from a broad range of studies that the greater part of workplace learning actually takes place in informal settings outside of the formal framework. In spite of the longstanding efforts of educators to ascribe greater importance to the role of formal (further) education, a mere 10% of the skills needed for the job (most studies say) or, to be on the safe side (and accommodate the educators), up to 20% of such skills are gained in formal settings. People learn all the rest by doing or by asking their colleagues.

This means that for many years now and in all kinds of circumstances people have been practicing precisely that kind of self-organisation that a) research is slowly recognising as such, and b) that is destined to play a much more significant role in future as it offers the agility needed for continuous further development across dynamic markets – both for individuals and for companies. In retrospect it is sad to see that this form of learning has received scant support from education policymakers. Yet if formal settings can lay claim to any form of justification today, it is only by giving people the best possible preparation for this kind of self-organisation. This would involve creating free spaces in which people would be taken out of their daily routines for a certain time in order to readjust their parameters for further self-organising activities.

Moving in this direction would involve rethinking education policy – both on the social level and on the enterprise side. Yet people are rather used to working in this way. It's only the institutions that need to learn how to do so.

Sources and links:

➡ Peer 2 Peer University (P2PU)
<https://www.p2pu.org/en/>

Possible socio-political support measures

ANJA C. WAGNER

Given the upcoming turmoil and upheaval on the labour market, if we wager the thought experiment of imagining a complete new restructuring of the education system, we start out with a tabula rasa and the fundamental question: what next?

First of all, we would reapportion the old, institutionalised education budget. Furthermore, if we assume that the dynamics of the world of work are pushing increasing numbers of people into conditions of insecurity – people who are unable to gain adequate further qualifications due to the inefficiency of the further training loops of the present education system – then the concept of an unconditional basic income (UBI) suddenly enters the room. Should we take it up, this concept could help avoid the absurdities of bureaucracy and thus clear the way for constructive development.

An outline of the whole UBI debate is beyond the scope of this paper. Yet if we track its possibilities on the theoretical level at least, one outcome would be that the money for the education budget would be supplemented by the complete holdings of the social system. From this fund, supported by a restructuring of the tax system, a new framework programme for a modern system of education could be evolved.

Now let's go one step further and imagine that the whole education system acts in the same way that Google (or now Alphabet) acts as a company. Alongside UBIs, we would create individual budgets from the fund which beneficiaries could use as they choose. Systems would also be created to cleverly capture the collective intelligence of freely floating ideas and projects and bring them into social circulation. Projects of importance for society would receive greater financial backing, others perhaps more (wo)man-power. Modern forward-looking thinking that doesn't ossify itself in a new "toll system" but uses smart collaboratively based hacking to dynamically develop the system would be the point of the exercise.

Such a system, underpinned with smart algorithms, could open up a rich and diversified range of both social and individual potential that would make for a much fairer distribution of budgets than is the case at present. This could open up a new dimension of opportunities which could be further developed through the collective intelligence of the crowd. This would be a completely new way of thinking and practising social policy-making.

Career planning 4.0

JÖRN HENDRIK AST AND
ROLAND PANTER

The idea of spending your whole life working for the same company used to be literally chiselled in stone – with the advent of dedicated housing estates for workers. Yet today's CVs are nowhere near as straight and narrow. And in future the length of a period of employment with a company and, above all, the type of employment relationship will be even more fluid. Even today we are familiar with a huge range of types of collaboration in companies, involving a cast of players that includes permanent employees, freelancers, part-timers and job-shares, founders and solo entrepreneurs.

ulligunde, www.ulligunde.com
You've got a gap in your CV. - Yeah, it was great.



Where such diversity is the norm, career planning too becomes much more diverse and in future will pay much closer attention to the actual life situation of people with their very different needs in terms of flexibility, security and structure. If this is the case, it also means that in future the curriculum vitae should be judged in quite a different light. Let's just take the outages like sabbaticals, semesters abroad, and parental leave taken by mothers and increasing numbers of fathers. Today they are nothing exceptional – and time off work taken by women for family reasons never was. Such outages have a stark impact on the CV. Much of what earlier might have been seen as a blip in the career is now considered as a plus for the career history and valued as deeper life experience. This poses new challenges for HR departments which now must broaden their prime focus on exemplary career histories with first class honours degrees.

Standardisation is often a German obsession and this certainly applies when it comes to careers. In Germany a particularly high value is attached to school certificates, university degrees and an extensive fund of professional know-how. If you don't make the grade here, or if you've stumbled somewhere along your career path, you'll find the going tough. If you're successful, this means you're hardworking, know exactly where you want to be, have deserved your success and will be applauded for it. If you fail to get ahead, you've nobody to blame but yourself. Failure often means being left out in the cold and either isolating yourself from a sense of shame or being excluded from certain circles. Because public failure means losing a great part of that trust which might have taken years to grow. Quality that's in demand bears the hallmark of enduring success, not a series of failures.

This way of considering failure seems to be a peculiarly German characteristic. Putting it somewhat dramatically, we can say that if you succeed, you'll get a star in your copybook, if you fail, it will be a six – the lowest mark – in red ink. In German schools red ink was the simplest means of signalling mistakes and its baleful influence can still be felt.

Sadly, this way of dealing with failure also means a complete disregard for the value of individual experience. It's this red ink mentality that stops us praising people who've had the courage to attempt something, even though they've failed. Rather than considering the journey to success or non-success, all too often the focus is exclusively fixed on the final outcome so that it seems as though you've left a predetermined path, can't keep up the pace and suddenly find yourself standing by the wayside.

One particularly striking instance of this are the often bumpy career paths of company founders. According to the Global Entrepreneurship Monitor,²⁶ in 2014 – as strange as this might sound –

26 Sternberg, R./Vorderwülbecke, A./Brixy, U. (2014): Global Entrepreneurship Monitor. Unternehmensgründungen im weltweiten Vergleich. Leibniz Universität Hannover, Institut für Wirtschafts- und Kulturgeographie http://www.wigeo.uni-hannover.de/fileadmin/wigeo/Geographie/Forschung/Wirtschaftsgeographie/Forschungsprojekte/laufende/GEM_2014/gem2014.pdf

more German entrepreneurs founded companies in the need of the hour than founded them on the strength of a well-considered decision. And the figures given in the 2015 Founders Report²⁷ by the German Association of Chambers of Commerce and Industry (DIHK) can be taken as confirmation of the figures given by the Global Entrepreneurship Monitor. Because in its foundation interviews with future entrepreneurs, the DIHK has measured the fourth consecutive drop in the establishment of new companies. Never in the course of the past twelve years have there been fewer Germans interested in starting a new business. Could it be that the fear of the consequences of failure is simply too great? Is the security seemingly offered by permanent employment a more alluring alternative?

If we let all this flow into new aspects of career planning, perhaps we have a topic that concerns those pursuing and those assessing careers in equal measure. We might do well to stop considering HR purely as a question of resources and start to develop it in the direction of relations. There are already a number of excellent examples of this: take Continental, for instance, where HR already stands for Human Relations. This is a fascinating shift of perspective that perhaps implicitly accepts that not all of us can be measured by the same standardised yardstick. An open and frank culture of failure would have a tremendous effect on the passion and courage of each and every individual and encourage them to dare more. From the very beginning, we would be less ridden by fear and anxiety, we would view failure as something organic that would make many CVs rounder. Rounder because complete and whole. Because nobody is free of mistakes and yes, it's OK to admit them. Perfection, on the hand, is angular and therefore inorganic. So let's be more round in approaching this theme.

27 DIHK Founders Report 2015 <http://www.dihk.de/themenfelder/gruendung-foerderung/unternehmensgruendung/umfragen-und-prognosen/dihk-gruenderreport>

Self-organisation, holistic understanding, and the setting of collectively shared goals

GUIDO BOSBACH

In his book *Reinventing Organisations*²⁸ Frederik Laloux assessed the value of a new understanding of (collaborative) work based on 12 highly specific and several less detailed business analyses. Independently of this, two almost simultaneously produced documentaries deal with similar cases in point: on the one hand *Film & Dialog* and on the other the ARTE Franco-German TV network's documentary *Mein wunderbarer Arbeitsplatz* (My Wonderful Workplace). All these cases show one astonishing similarity: no matter in which country or industry sector the companies might be, a high level of self-organisation, a holistic understanding of the overall system in which they act, and a clear collective, challenging and emotionally effective objective are always recognisable as the keys to their success. With these keys, the companies, organisations and authorities under focus create a working climate that allows employees an unusually high degree of self-organisation and freedom. This works in the companies' interests by enabling quicker and more thorough-going responses to the needs of customers, whilst also producing a high level of satisfaction on all sides and commendable (economic) success.

Such a balancing act succeeds precisely because the three above mentioned pillars of this success allow for a large measure of identification with the company and customer wishes, because the work is truly meaningful for those who do it, and because all parties are well aware that such an approach is sustainable. This creates a strong sense of solidarity and belonging based on trust, both on the inside and in the direction of external stakeholders.

28 Laloux, F., Wilber, K., & Wade, J., *Reinventing Organizations* (1st edition), Nelson Parker, 2014

The spreading of self-organisations in companies is one possible scenario that would lead to more open attitudes and a more confident approach to dealing with yourself and your environment. This is a development that would have unquestionable effects on the exterior, and thus would also bring about cultural changes to the business environment. Active confident workers also make active confident citizens.

A Job security and social safeguards in networks

GUIDO BOSBACH

Our job security is vanishing. Global competition, a highly turbulent technological environment, an obsolete understanding of management together with organisational structures not planned to cope with growing complexity all make it now impossible to predict whether our workplace will still exist in its present form twelve months from now. This has an obviously insidious influence on life planning, buying a house or apartment and family planning.

The foreseeable move from permanent employment contracts in the direction of project work – no matter how attractive this might be for individual employers and employees – introduces a new factor of insecurity.

Today's independent forms of employment, in particular the self-employed, entrepreneurs, solo entrepreneurs and company founders are socially disadvantaged to the extent that, for example, unemployment insurance and pension insurance are not automatically covered. Many of the "new freelancers" take this as a calculated risk, even though it's a risk whose consequences are unforeseeable.

Intervention by lawmakers in this field is generally not desired as it could easily bring to collapse the somewhat fragile business and remuneration models of these new players on the labour market. As in the times of the first industrial revolution, there is room here for newly emergent networks of solidarity. Even so, the guiding hand of government support in the evolution of these networks could help accelerate their realisation without disadvantaging anyone.

New models of leadership and network organisations

GUIDO BOSBACH AND MEDJE PRAHM

Meeting the challenges of the future requires an accelerated pace of development, particularly in the context of management and leadership. In a rapidly changing business environment, a leadership style based on respect and which creates new spaces for greater cooperation offers huge advantages. Whilst old school management models mainly work through hierarchies and restrictions (of information), cooperation and communication are at the very heart of modern leadership. Because leadership is much more about the balancing of interests, know-how and experience and the nurturing of human potential than simply setting out and realising corporate goals.

The growing complexity the future is bringing makes the above definition of leadership increasingly difficult to realise and at some point will render it obsolete. What could remain here are leadership structures that are held together by the sense of purpose conferred by the task. This sense is the vision that is set to play an increasingly important role.

Leadership is conduct that shapes frames of mind. The inner attitude is decisive and can be evolved by self-reflection and/or coaching. One factor contributing to success will be the ability to create positive energies for collaborative work among the players involved and inculcate a “we’re stronger together” feeling. If we can appeal directly to hearts and minds, and encourage all employees to become enthusiastic “partners” in the company, this can only bring benefits for the whole cast of stakeholders.

Yet to do this, we need to overcome our fears of a downward turn in our career or a loss of power. Expertise is the new hierarchical ordering principle, human-centric management and leadership the outcome.

Leadership takes on special importance in the field of innovation. Innovation is built on a coalition of collective creativity, know-how and inspiration. It’s about creating a space where protagonists can gather in one common intensive quest for solutions.

In her TED Talk²⁹ Linda Hill characterises innovation leadership as follows: *Leading innovation is about creating the space where people are willing and able to do the hard work of innovative problem solving. (...) I’m a role model, I’m a human glue, I’m a connector, I’m an aggregator of viewpoints. I’m never a dictator of viewpoints. (...) our role as leaders is to set the stage, not perform on it. If we want to invent a better future, (...) then we need to reimagine our task. Our task is to create the space where everybody’s slices of genius can be unleashed and harnessed, and turned into works of collective genius.*

Networks and companies that act as networking organisations develop themselves as central elements in collaboration. The knowledge or know-how of individual managers is no longer sufficiently deep or wide to find solutions for complex problems: the “wisdom of the crowd” must be leveraged here for which completely new structures and decision-making processes are needed – both internally, with employees and externally, with stakeholders, experts and customers. Well estab-

lished learning networks could be the seedbeds of new innovation whose active networking with investors brings in new business opportunities. With foundations based on active networking, all protagonists together can make much more concerted efforts to achieve a successful outcome. This won’t take much now and in the future. All it needs are the nodes = people, the edges = strong relationships and obviously the basic framework: transparency, respect, and a strong emotional attachment to the goal, true meaning.

Evolutionary purpose

MEDJE PRAHM AND ROLAND PANTER

Growth, profit, returns, and increased efficiency at (almost) any price – the standard aims of companies and investors are clearly defined. Yet is this very narrow interpretation of what makes “success” still acceptable against a background of environmental pollution and decimation of resources? How can companies define themselves and their objectives so that the structure and basic values embodied by the company can meet the changed requirements of a Generation Y?

The theories of holacracy and reinventing organisations work with the concept of evolutionary purpose which marks the shift away from the question “How can our company survive on the market?” to “What do we really want to achieve?”. Answers to this latter question can range from delivering superb service to saving the world or gaining the love and loyalty of customers. Obviously, companies need to make profits. Yet if a potentially meaningful goal is being pursued, such profits tend to become the means to an end.

Getting close to the evolutionary sense of a company, radically close too, no longer means setting strategy but rather encouraging active employee

²⁹ Hill, L. (2014): How to manage for collective creativity. TEDxCambridge https://www.ted.com/talks/linda_hill_how_to_manage_for_collective_creativity?language=en

participation which enables freedom for self-management und relinquishment of managerial power so that strategies can be naturally evolved and realised as a joint project in which the whole of the company is involved. Even though this might seem simply hair-raising from a traditional management perspective, such a system brings with it certain advantages: employees who design their places of work and play an active role in the running of their company, for instance, hardly need boosting with doses of extra motivation from the outside.

Dear readers, let's work together to reshape the company, with intrinsically motivated workers who see meaning in what they do. If we do so, we would even claim that success comes (almost) on its own – for the company, its employees, and investors, and for society and the environment.

Authors



JÖRN HENDRIK AST

Jörn Hendrik Ast is an expert in social recruiting and new work, and a mover in the realisation of the workplace of the future. He is a solo entrepreneur and founder of the specialised consulting agency ffluid. As such he has extensive knowledge in the field of social recruiting and advises SMEs and major companies in the introduction and use of state-of-the-art personnel marketing measures. How companies can position themselves effectively in the social web in order to best address future employees, and how they can attract and retain the best talent are two key areas of his expertise. In his latest project, superheldentraining.de, he brings these abilities to bear on a career-orientation programme.

➔ Contact: [@Jormason1](https://twitter.com/Jormason1)



GEBHARD BORCK

Gebhard Borck challenges our common understanding of business, work and leadership – and argues for a culture of leadership and work that, with greater self-determination, fewer hierarchies and more genuine commitment, allows for a pervasive sense of purpose and alignment.

➔ Contact: [@gebhardborck](https://twitter.com/gebhardborck) · www.gebhardborck.de



GUIDO BOSBACH

Guido Bosbach has long worked in complex and even toxic corporate cultures. Today he supports companies actively seeking to shape their own organisational Future of Work. He analyses corporate structures, identifies development potential and with many small steps helps organisations of all kinds to make their way to a bright future. In his series of interviews “ArbeitsVisionen2025”, he brings together a broad spectrum of perspectives on the Future of Work. In his latest project “flux-cycle” he has defined a new model and method to change change management and instead create a framework for continuous development.

➔ Contact: [@bosbachmobi](https://www.instagram.com/bosbachmobi) · www.zukunftheute.net



LARS M. HEITMÜLLER

Lars M. Heitmüller sees himself as a value-added broker acting between industry, government and society. A consultant for strategy and communication, he is head of marketing and communication at S-Kreditpartner, the specialist for loans in the Sparkassen-Finanzgruppe. Digital transformation is one of his key fields of interest, and he is also an advocate of more courage in innovation, and cross-sector collaboration.

➔ Contact: www.LMH.de · [@LMH](https://www.instagram.com/LMH)



SABINE JANK

Sabine Jank is creative director and co-founder of the transdisciplinary platform szenum Berlin which is specialised in the development and implementation of dialogue-led formats for cultural institutions and companies. With her research focus on creative leadership, digital transformation and participative cultures, she is a lecturer at numerous universities and institutions. Furthermore, she also acts as a consultant in these fields for museums and companies, and works as a coach for creativity and innovation.

➔ Contact: [@sabinejank](https://www.instagram.com/sabinejank) · www.szenum.de



SARAH KEBBEDIES

Sarah Kebbedies took her Master's in Social Science, majoring in economic sociology and the sociology of work. Her particular interests lie in the development of the labour market and employment, digitalisation and corporate social responsibility. After her time at the Bertelsmann Stiftung, she worked for the “CPS.HUB NRW” competence centre for the promotion of digital transformation in North-Rhine Westphalia.

➔ Contact: [@S_Kebb](https://www.instagram.com/S_Kebb)



ANKE KNOPP

Anke Knopp is a team member of the “Wegweiser Kommune”, a data portal of Bertelsmann Stiftung for data-driven shaping of demographic change. She is in charge of the Wegweiser Kommune’s blog and also supervises its social media activities. Her key fields of expertise are municipal digitisation, smart cities and the Smart Country. As a blogger on municipal policy, digitisation and citizen participation, she writes her own private blog on “Blickpunkt aus Gütersloh” and “Mehr für Gütersloh”.

➡ Contact: [@nowanda1](https://twitter.com/nowanda1)



ROLAND PANTER

Roland Panter is a designer of communication and corporate culture. As strategy consultant and interim manager, he supports organisations who wish to improve their communication capability. Management of change processes is another important aspect of his work. This includes strategic and operational activities in the context of digital transformation and corporate development.

➡ Contact: [@pant3r](https://twitter.com/pant3r) · www.rolandpanter.de



NICOLA PESCHKE

Nicola Peschke works for the Bertelsmann Stiftung where she is developing an employee-oriented concept for a future-proof corporate culture, and supporting its trial runs and realisation in companies.

➡ Contact: [@NicolaPeschke](https://twitter.com/NicolaPeschke) · [@ZUKUNFTdARBEIT](https://twitter.com/ZUKUNFTdARBEIT)



MEDJE PRAHM

Medje Prahm deals with issues of modern company management, and the effect-oriented organisation of non-profit organisations. As an impact analyst at the social analysis and consultancy company PHINEO, she supports effective funding. Prior to this, she worked at the betterplace.lab, the think tank of the donation platform betterplace.org, where she realised new forms of hierarchy and researched the positive potential of digital innovation – also for the world of work.

➡ Contact: [@_medje](https://twitter.com/_medje)



ANDRÉ SCHLEITER

As a project manager at the Bertelsmann Stiftung, André Schleiter deals with questions of leadership, organisational culture and demographic change. After graduating in political economy, he worked at the Kiel Institute for the World Economy, the Treuhandanstalt Berlin, Prognos AG in Basel and Berlin and the European University Viadrina in Frankfurt an der Oder.

➔ Contact: andre.schleiter@bertelsmann-stiftung.de



GUNNAR SOHN

Economics graduate, freelancer, economic journalist, book author, blogger, moderator and columnist. Passionate barcamper and nomad between worlds.

➔ Contact: [@gsohn](https://www.instagram.com/gsohn)



SARAH STAFFEN

Sarah Staffen works as a managing consultant at Capgemini Consulting in the field of executive leadership & change where she supports management and employees, particularly in industrial companies, in the roll-out of digital transformation. Her professional interests include Boss 4.0, agile working, and business coaching.

➔ Contact: Sarah.Staffen@capgemini.com



ANJA C. WAGNER

Anja C. Wagner researches global transformation through digital change. Considered by others as a creative trendsetter, she sees herself as a disruptor in education. Her fields of interest cover user experience, education policy, work organisation, and our future in a networked society. Her FrolleinFlow GbR company offers study programmes, lectures, consulting and a range of online projects including ununi.TV.

➔ Contact: <http://acwagner.info> • [@acwagner](https://www.instagram.com/acwagner)



ANNETTE WITTKKE

In a key project team at Robert Bosch, Annette Wittke is designing the agile company in the digital age. Her main focus is on digital networking and collaboration in the field of production using the in-house social media platform in close consultation with the Industry 4.0 project team.

➔ Contact: [LinkedIn](#) · [@a_wittke](#)



JAN WESTERBARKEY

Family father in a fourth generation family firm, part-time nerd and barcamp fan. Collaborates on creating everyday living space with products of aluminum, stainless steel and activated carbon. Worries about good air and clean water.

➔ Contact: [@westerbarkey](#)



BIRGIT WINTERMANN

In her work at the Bertelsmann Stiftung, Birgit Wintermann researches working conditions in companies and employee-orientation. The projects concerned with these issues are the Family-friendly Employer Seal of Quality and the INQA-Audit of Future-proof Corporate Culture.

➔ Contact: [@win_bee](#) · [@ZUKUNFTdARBEIT](#)



OLE WINTERMANN

Ole Wintermann works at the Bertelsmann Stiftung where he investigates issues of the Future of Work. He is co-founder of the blogger networks Future-challenges.org and Weye.info. He writes for Netzpiloten.de and is a member of the advisory board of the Internet und Gesellschaft Collaboratory.

➔ Contact: [@olewin](#) · [@fc_org](#) · [@ZUKUNFTdARBEIT](#)

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www.bertelsmann-stiftung.de

Responsible

Dr. Ole Wintermann
Nicola Peschke

Editor

Dr. Esther Debus-Gregor, München

Translation

Paul Morland, Berlin

Layout

Dietlind Ehlers, Bielefeld

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Address | Contact

Bertelsmann Stiftung
Carl-Bertelsmann-Straße 256
33311 Gütersloh
Germany

Dr. Ole Wintermann
Senior Project Manager
Program Business in Society
Phone +49 5241 81-81232
ole.wintermann@bertelsmann-stiftung.de

Nicola Peschke
Project Manager
Program Business in Society
Phone +49 5241 81-81291
nicola.peschke@bertelsmann-stiftung.de

www.bertelsmann-stiftung.de