Edition No. 23

Is everything different this time?

bergsicht

CHAPTER 1

Inequality at the WEF

There is more than a little *chutzpah* in play when bigwigs from the worlds of business and politics – having rocked up in the Swiss Alps in their private jets, government aircraft, helicopters and limousines – proceed to lament the global ramifications of "inequality". But such lip-service confessions of collective guilt are somehow part and parcel of Davos and the pseudo-religious celebration of globalism at the heart of its business model. The overall relevance of the Forum and the "One World" concept has taken some knocks of late, and while this is not yet reflected in the level of media interest or in the number or calibre of the delegates (most of Switzerland's Federal Council were once again in attendance this year), the number of anti-WEF demonstrators tells its own story: no more than 20 hardy souls felt compelled to wave their banners in the Alpine chill.

That there are points to be scored with the topic of inequality was demonstrated some two years ago by the French economics professor Thomas Piketty with his book *Capital in the 21st Century*; although his almost 700-page tome has been translated into more than 40 languages and has sold over 800,000 copies, this too should be put into context right away: the average reader doesn't make it past page 26. We know this thanks to Big Data drawn from Amazon Kindle readers. This said, and setting aside all our reservations about Piketty's writing style, critical approach, methodology and conclusions – which we addressed in detail for our readers in edition no. 7 of *bergsicht* (June 2014), and we have nothing to add or retract – the topicality of his subject matter is undeniable. How did inequality become such a mainspring of the *zeitgeist* that just two years later, even the WEF is incorporating the idea into its liturgical canon?

It can only partly be about the figures, as a good number of variables, such as the distribution of income within populations, have remained highly consistent in most countries. The Gini coefficient, a metric of (in-)equality in a country after state redistribution (which Piketty famously failed to consider in his findings), does not suggest there is any cause for alarm either. In aggregate, global prosperity has risen steeply over the last 50 years, and poverty has consequently fallen. This said – and here there is no contradicting Piketty – contrary to all expectations, which would tend to anticipate diminishing marginal returns on investment, return on capital seems to be rising faster than return on labour. This might be a cyclical phenomenon, a situation whereby – after the destruction of capital in the world wars (and the increased equality that this occasioned) – first labour and then capital profited disproportionately. There would certainly be reasons for this, such as the scarcity of qualified labour after a period of hostilities, for example.

But it was not cyclical considerations of this nature that turned Piketty's diagnosis of inequality into the writing on the wall for the *zeitgeist*. Instead, the notion of inequality – entirely outwith Piketty's intentions – has become inextricably tied up with the status anxiety of the broad middle classes. Faced with the loss of jobs to emerging economies and the replacement of human labour with automation and robotics, the "squeezed middle" are beginning to harbour serious concerns about their own wellbeing and their children's futures; as savers and pensioners, they are feeling the pinch of rock-bottom interest rates while all around them, upwardly mobile, capital-owning hipsters seem to be pocketing billions. Such misgivings – and the sense that neither the methods tried so far nor the hitherto tolerated leadership cadre (the "elite" – "Davos Man") are likely to come up with any effective remedy against them – go a long way towards explaining certain referendum and election results in 2016. There is thus some logic to the WEF taking inequality as its tagline – just before the axe falls, as it were, and status anxiety unseats yet more governments and crushes further obsolete structures.

We believe this status anxiety is absolutely justified. Not under the rubric of inequality – or only very indirectly – but in respect of continuing peaceful coexistence in the face of lost livelihoods, and upholding a sense of purpose for future human life more generally; technological progress has begun to assume traits that make previous strategies for subsistence seem inadequate.

Is everything different this time? It might well be. After all, what use is upskilling – an oft-trumpeted escape route – if technology can outclass us on literally every front, thanks to artificial intelligence? We have on our desk a pioneering article by Gideon Lewis-Kraus in the *New York Times Magazine* (14 December 2016) that describes how perfectly Google's new translation engine works. It is only a question of time, he suggests, before we have impeccable simultaneous translations, tailored to our individual language comprehension, for our negotiations with the Chinese, the Turks and the Finns. Language skills – who needs them any more? Language teachers – what's the point? Schools? Universities?

We shall tackle this topic in the current edition of *bergsicht*, first by placing the current developmental step change in its historical context and attempting to tease out its particular characteristics. We will then break out our microeconomic toolkit in order to arrive at some conclusions about probable developments in the near future. We shall close with a couple of socio-economic considerations, bearing in mind that status anxi- ety could easily degenerate into panic-like paroxysms – a risk that should clearly be circumvented as far as possible.

CHAPTER 2

From anti-globalisation to anti-technologisation

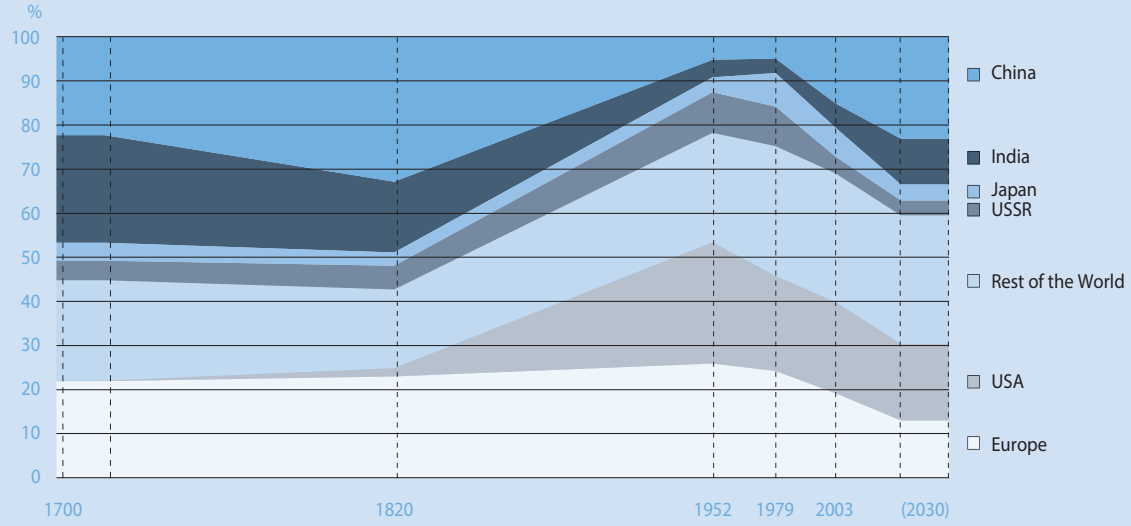
According to an American study (Hicks and Devaraj, 2015), a mere 14% of the positions lost in the USA between 1997 and 2007 were the result of relocating production to low-wage countries, while 86% of the job cuts were attributable to automation. Real-world replacement of these defunct jobs is taking on increasingly disappointing proportions; another study (Oxford Martin School, 2016) has found that as little as 0.5% of all US employees work in a field that was created after the turn of the millennium, although 8% are involved in sectors that have existed since 1980. Against this backdrop, globalisation would appear to be far less harmful than technologisation – a fact that seems lost on the new US president, who continues to bang the protectionist drum regardless.

Paradoxically, the "reshoring" of American businesses he envisages – that is to say, the repatriation of economic activity – may end up boosting automation, as manufacturers have little choice but to substitute expensive human labour with machines if they are to have any chance of competing with global market prices. (McDonald's famously introduced hamburgers served by robots when the Obama administration upped the minimum wage.) According to *The Economist* (14 January 2017), Adidas is planning to restart production in Germany – in the consumer's back yard, as it were. However, these new German trainers will be manufactured by 3D printers, with no human input at all. Reshoring is associated with additional investment, which will yield its return (r), while labour (l) will come away empty-handed, as it has become entirely superfluous. So, without ever making it a topic of his book, Piketty was, *in extremis*, right.

The fact is, there is a megatrend – probably now also politically underpinned – towards returning economic activity from distant lands to locations ostensibly closer to consumers. In the Oxford study quoted above there is a graphic that we would hate to deprive our readers of, although care must be taken to elicit its true meaning. The notion that the centre of gravity is now shifting towards the West would be completely misguided. And why? Because consumers will be ever more evenly distributed around the world, and manufacturing in their vicinity will become coterminous not with making western firms great again in the West, but with stimulating production in China and similar destinations.

Extrapolated to its logical conclusion, the reshoring megatrend would culminate in a 3D printer being installed in the house of every single consumer. This device would be capable of spitting

Share of global GDP by region (in percent) from 1700 to 2030



Source: The Maddison Project (2013)

out just about everything, from Adidas trainers to ties to spaghetti and steak. It sometimes makes sense to picture the absurd – or "unthink- able" – as only this will reveal the underlying problems with the desired clarity. The key message is that reshoring and jobs have nothing to do with one another. Understood as relocating the site of production to the vicinity of the consumer, reshoring will not make America or Europe greater, but will instead result only in greater automation in the West and more labour in the East, as long as it remains relatively cheap there.

The example of the domestic 3D printer touches on the socio-political dimension of the problem as a whole (which we intend to revisit at the end of this *bergsicht*), viz. who is supposed to finance the output of this magical "cornucopia machine" if the consumer has no income because no more labour is required. Suffice it to say at this point that, if a scenario even remotely similar to this were to unfold, we would be in for some major mishaps: rage against globalisation could morph into rage against technologisation, for instance. It would not be the first time in history that Luddites have reared their heads. Silicon Valley and companies like Google and Amazon still enjoy considerable popularity, but this is under threat; the socio-political externalities that this portion of the economy entails (imminent status disruption) are extreme and fundamental, yet the intellectual contribution of tech sector representatives on how best to solve these far-reaching problems is non-existent or negligible. This is a dangerous constellation.

CHAPTER 3

Structural change at a gallop?

We know comparatively little about Man's most important developmental step change (that from hunting and gathering to agriculture), but one thing is certain: it must have happened very slowly and is likely to have occurred in stages. It was probably women – less involved in hunting because of their childcare duties – who mustered the requisite patience and long-term thinking to grow wheat, and hence also brought the advantages of settling in one place to the fore. That may have taken millennia, and much longer still for the irrigation systems required for large-scale, sustainable crop cultivation to be planned and constructed. This led to the creation of the first superordinated structures, major nations and empires, which consolidated the original tribal structures. Presumably, the drive to adapt to new circumstances was thus constrained for certain generations. Advances in productivity – carbohydrates that pop out of the ground more or less continuously are indeed more valuable than protein and fat that have to be hunted down at irregular intervals under highly hazardous conditions and are almost impossible to keep for any length of time – and the ensuing increase in prosperity went hand in hand with new occupational opportunities (in wheat-growing, animal husbandry and public administration, all based for the first time on the division of labour) opened up by technology. The loss in status of the hunter as a mobile, muscle-bound killing machine could be more than offset over time by these

somewhat more emollient professions; and there was always warfare as an outlet for any excess testosterone. In the interests of "balanced reporting", there is a decidedly different take on the history of the human race in the book *Sapiens. A Brief History of Humankind* by Yuval Noah Harari, who describes the switch to agriculture as history's biggest fraud and Man's greatest betrayal of himself.

Other, later developmental steps and leaps also took place over relatively long – albeit ever decreasing – periods of time, such as the partial replacement and/or extension of human and animal brawn with machines powered by water or steam. Traditional manual workers, organised into guilds whose distinctly cartel-like structures only accelerated technical innovation, were swept aside by factory labour. Capital invested in machines and production facilities could, for the first time, generate a return and merchant banks turned into credit institutions. The trade-off between return on capital and return on labour had been set in motion and the first serious thought had been devoted to the subject (not just by Marx and Engels). And the Luddites we mentioned did of course exist, in English weaving towns and the Zürcher Oberland region alike; there were silk-hatted textile barons and cigar-smoking factory-owners, and in reaction to these the first stirrings of socialism. Nonetheless, increases in prosperity and significant improvements in the circumstances of large swathes of the population were soon becoming apparent. Retraining, where it was even required, was not typically a road to nowhere, but instead led to employment with higher pay. Switzerland, a poor agricultural nation capable only of exporting its brightest and best as soldiers or confectioners, was transformed into a small and successful advanced economy.

The world began to transition to telephony, electricity and the motor car from 1900; goods and services became more transportable and, thanks to energy that could be transmitted over long distances, economic centres could be formed and large manufacturing clusters with production lines established. Economies of scale and synergies became the leading economic drivers. Simple assembly-line workers were left in the dust, and the Depression of the 1930s, with its grave political aftermath, can certainly be interpreted as a consequence of this difficult period of adjustment and the genuine disadvantage it engendered. The gloomy prospects facing a significant proportion of the population were headed off with fiscal mega-schemes like US President Roosevelt's "New Deal" and Hitler's *autobahn*-building, as well as frantic rearmament programmes and the ensuing mobilisation of the military. While one might be tempted to dismiss this *tour d'horizon* of the economic and historical repercussions of such events as crass oversimplification, we believe one conclusion is unassailable: radical technological change, when effected over a short period of time, can trigger socio-political upheaval.

Thanks to the productivity gains it enabled, the triumphant march of the mainframe computer and computing-based processing centres through industrial facilities, service companies and administrative functions from the 1970s onwards essentially deferred the drive towards outsourcing to countries with cheap labour, especially since such strategies were subject to severe restrictions due to the bipolar geopolitics of the time. Pressure to adapt was felt only with the most basic, routine jobs, and thanks to the closed-shop protection of labour by the unions (which were still in existence and functioning), employees took precedence over capital in deriving benefit from productivity-fuelled growth; more widespread, socio-politically relevant adaptation problems failed to materialise. The crumbling of borders all round the world that followed the collapse of the Eastern Bloc and the ensuing wave of globalisation *did* however result in a first wave of de-industrialisation, thanks to comparatively high wages in the advanced economies, although this was glossed over in the USA and Europe with a monetary policy-induced real estate boom. But overall, time and various kinds of "supporting measures" rendered the crucial developmental leap of the mainframe computer and the computing-based processing centre socio-politically bearable for a certain period.

As far as status anxiety is concerned, things only started to get serious in 2010, not least as the financial crisis had stripped the USA of fiscal options and the real estate dream had in many places proved pie in the sky for large segments of the population. A further developmental step change then sets in, right in the middle of what is already an unenviable situation. "Supporting measures"? Deferred consequences? The artificial propping up of wages and obsolete structures? We strongly doubt whether the relative ease that obtained during the adoption of the mainframe computer and processing centres will still apply to the most recent developmental leap, and so we intend to analyse this in greater detail below. Where is this technological journey taking us, and at what speed?

CHAPTER 4

A cluster bomb?

Technological breakthroughs are never exclusively monocausal, admittedly. It was never just *the* steam engine or *the* transmission belt or *the* new foundry technology or *the* industrial manufacturability of ammonia or *the* electric bulb or *the* motor car; even in the past, it was more the case that a

critical mass of important – or indeed apparently trivial – innovations coincided. Yet it is safe to say that the overwhelming convergence of developmental paradigm shifts (or in slightly more martial terms, the cluster of lethal charges) we are witnessing today is quite unlike anything we have seen before. "Industry 4.0", as this cluster bomb has also been dubbed, is made up of at least six sub-elements, namely:

- **Smart Data**: This is all about making *intelligent use* of a haystack *of data* to locate the relevant needle. Smart data bridges the gap between bulk storage of as much data as possible and its targeted use. What might prove relevant in whichever situation is of negligible significance as the data is collected; what matters is its specific potential for use, which is assured through smart data. This might involve a holiday offer, for example, being push-messaged at exactly the right time to a highly stressed manager; just the right Zalando deal appearing before a shopper as she lingers in front of a particular store on Zurich's Bahnhofstrasse; or the preparation of a drone attack on an alleged or actual IS terrorist in Brussels' Molenbeek district – we refer readers to edition no. 4 of *bergsicht* ("Total Data") of 9 December 2013.

- **The sharing economy**: Extensive computing capacity at low cost, nigh-on free data storage, and communication options that are as reasonably priced as they are effective make it possible to run networks that, in turn, allow for a *far more efficient use* of decentralised *capital goods*; so far, it has been accommodation and automobiles in particular that have benefited from such increased use, via platforms such as Airbnb and Uber. (In the case of Uber, the exploitation of human capital is involved as well as the material asset of a car.) A platform recently introduced by the Swiss telecom provider Swisscom hooks up its skilled and knowledgeable subscribers, so-called "Swisscom Friends", with fellow customers who need support in the form of consulting services; human capital alone is involved in this instance. Yes, the sharing economy chips away at previously solid pillars of the function-sharing economy (labour here, capital over there) and eliminates previously secure jobs (telephone installer, for example), but it also creates new semi-professional categories somewhere between voluntary work and paid technical services. (The rate for a consultation from a Swisscom Friend is agreed between the two parties themselves, but the guide price is between CHF 30 and 50 per case.) There is plenty of scope for successful business models within the sharing economy: solar panels on roofs, gardens for summer parties, processing capacity on PCs and tablets, smartphone antenna services, restaurant serving staff, orchestral musicians, film actors, expensive equipment in hospitals, indeed entire surgical teams – and so on; we refer readers once again to "Rent Me!" (edition no. 9 of *bergsicht*, 9 October 2014).

- **Blockchain technology**: This makes it possible to establish definitive *property rights without* the aid of an intermediary *institution* or chain of institutions; order can be created at more or less no cost in legal vacuums and/or situations where the rule of law is shaky. Blockchain technology presents the first serious opportunity to deal with the global economy's worst cost trap, the essentially unproductive institution, as artificially imposed and sustained power relationships can be reduced to synallagmatic conditions of voluntary exchange. Smart contracts (self-executing legal agreements – think car rentals, for instance) are based on blockchain technology, as are the applications of the "Internet of Things" in the industrial sector, which are ultimately also bound up with the management of property rights. This topic was addressed in edition no. 17 of *bergsicht*, "Blockchain: Like a Hurricane?", published on 25 January 2016.

- **Self-driving trucks and cars**: Thanks to satellite location services, stringently accurate surveying of our planet by Google and other map providers, highly developed sensor technology and effective, high-speed processors in vehicles, it would be possible even now to replace people as drivers and enable *statistically safer motoring*. Better use could be made of existing traffic infrastructure with self-driving cars, and it might even prove sufficient for heavier traffic flow (although this is becoming less likely as a result of the sharing economy). The behaviour of algorithms in extreme traffic situations (a child is playing in the middle of a road that runs beside a gorge; the car has to choose between the certain death of the passengers or of the child) is still under serious discussion. A random generator that makes the decision might emerge as a generally accepted compromise here; after all, completely unpredictable human reflexes are not radically dissimilar to this. One thing is clear: once these technological floodgates are opened, self-driving trucks and cars will become *the* great job-killer of the next few years; in the USA alone, there are more than 3 million teamsters on the roads every day. We shall witness upheavals of a similar magnitude when **drones** become a generally accepted, everyday form of transport.

- **Robotics**: Machines that are similar to humans and equipped with their own decision-making capabilities will be used to take care of certain tasks – jobs we are no longer able or willing to do. If we see the acceptance or rejection of coins and notes as evidence of a certain decision-making ability, the SBB's ticket machines would be examples of very simple robots; an industrial processing centre is a far more sophisticated robot in many of its features. The **Internet of Things**, i.e. the clear and retrievable allocation of information to objects such as tools and machinery components, will open up a wealth of new possibilities – when it comes to monitoring and controlling in processing centres, for example – and similar developments will take place beyond the world of industry: there is no reason why a robot should perform a surgical operation any worse than a processing centre can mill a complicated object to spec. In the future, we can expect to see robo-bank advisors, robo-tax consultants, robo-nurses and robo-doctors – and they will be better than many of their human counterparts. They will never be ill, never need breaks or holidays, and they won't be unionised.

- All this is based on **artificial intelligence**, a further developmental step towards synthetic reasoning – generally overlooked hitherto – that turns computers into learning entities. This capacity is best illustrated by the continuing inability of navigation systems to acquire learning situationally. How many times have we been frustrated that our satnav is once again suggesting the same old sub-optimal route, even after we have shown it the sneaky shortcut numerous times? A navigation unit equipped with artificial intelligence will remember the alternative route. *Trial and error*, one of humankind's outstanding abilities, will thus *pass into the hands of machines*, too.

This purely phenomenological list is by no means exhaustive, but it demonstrates one thing beyond doubt: this new developmental leap will turn absolutely everything on its head, penetrating deep into every nook and cranny of society and the economy, and leaving an indelible mark on every profession. It is no longer "merely" a question of replacing or extending human muscle power or buttressing Man's mental faculties (in doing sums or drawing, for example) – it is now about *competing with humans* in their *physical and intellectual totality*. A humbling prospect. And the fact that all this will be upon us very soon indeed is more serious still. This edition of *bergsicht* is entitled "Is everything different this time?", and our provisional answer has to be "yes" – the clustered explosive power of these innovations is completely unprecedented, and the velocity of their arrival breathtaking and unstoppable. We venture to predict that all this cannot happen without substantial disruption.

CHAPTER 5

Industry 4.0, from a microeconomic perspective

There is a good deal more required for this analytical work than a cluster bomb metaphor and a list of its sub-elements. In the following, we shall attempt to apply the microeconomic tools at our disposal and thus draw further inferences (beyond merely establishing that this developmental leap cannot occur without ruffling a few feathers; that would be rather thin gruel as conclusions go).

All microeconomic analysis is founded on the *theory of property rights*, which describes the relationship of people to objects and how society deals with this person/object association. The theory of property states that (i) the relationship between people and objects is precarious, i.e. that it is characterised by scarcity, and thus involves costs, and (ii), that social interaction with property incurs information and transaction costs. Reducing the costs associated with defining property and shrinking information and transaction costs are among the most important drivers of any economic activity and underlie the creation of institutions like the land registry, (central) banks, stock exchanges and the like. Simultaneously, they are the source of the greatest efficiency losses – of resource wastage in the microeconomic sense. Industry 4.0 makes a full-frontal attack on this sphere by dramatically improving allocation options with blockchain technology and platform-based intelligent networking. While merely a portion of retail and intermediary trade went to rack and ruin as a result of the internet, institutions that most of us take for granted – but which, when all's said and done, are also middlemen – are now under siege.

According to another major thesis within microeconomics, the *theory of the firm*, the level of information and transaction costs is critically important in determining the extent to which (production) activities are either coordinated and controlled within companies or are managed by an array of independent, external entities. The lower the information and transaction costs, the stronger the case for producing outside the company becomes, and the logical conclusion is a string of "Me Inc." sole traders, as rehearsed by Airbnb and Uber and now emulated by Swisscom with its freelance "Friends". We are on the threshold of a

sweeping trend in which intelligently managed platforms will take over the task of coordinating and directing processes while "one-man band" companies and other kinds of small firms will supply the material assets and human capital. The goalposts will thus be moved on the corporate playing field, and it is far from certain that the dividend-rich monoliths so beloved of investors will survive this transformation. But this is not all: drastically reduced information and transaction costs will significantly – and directly – improve the utilisation of capital goods, as instanced by Uber with cars. This development will sooner or later affect car manufacturing especially as the *zeitgeist*, the sharing economy and the predilections of the youth are all pointing towards private car ownership becoming obsolete.

The economic and social fallout of this dramatic drop in information and transaction costs is yet to be properly thought through; the process evolving before us allows supply and demand to mesh far more rapidly and smoothly than ever before, which means that market mechanisms can establish themselves in places that were previously inaccessible. Accelerated by technology, the invisible hand will create avenues for perfect price discrimination and highly granular steering of supply and demand – which in some respects sails very close to notions of a planned economy.

Getting jobs done by machines rather than people – why in the world would we even want that? Microeconomics has but one, potentially rather unsatisfactory, answer: because people's preferences are clearly so inclined, and the upshot is a corresponding demand. Bespoke tailoring is certainly available, but we opt for off-the-peg clothing on the vast majority of occasions; there are still bakeries selling hand-crafted artisanal croissants and rolls, but most people reach for the mass-produced variety; there are currently still surgeons who operate by hand, and they will continue to exist, like master tailors, but the future belongs to more dependable robots. In all this demand driven by the *condition humaine*, is anyone bothered about the decline and fall of tailors, bakers and surgeons who don't have what it takes to do custom work? The microeconomic answer is "no" – microeconomics has but one, blanket response to changes of great socio-political and macroeconomic import, such as job losses or the extinction of whole professional classes: it's all a matter of externalities.

CHAPTER 6

Big Bang as a survival strategy

The history of human advancement nonetheless demonstrates that, while previous jobs and professions have become obsolete at least in part, or indeed have moved over into the realm of actual leisure activities (just think of hunting, for example, which was once necessary for survival), new and complementary occupations of unimagined dimensions have been created elsewhere. A valued American contact of ours, Prof. Horace W. Brock of the Strategic Economic Decisions think tank, recently explained to us how many people America's agricultural sector used to require for stooking up sheaves of wheat back in 1900: it ran into millions. This unhealthy and low-paid profession was eliminated once and for all by the tractor and all the peripheral apparatus invented for wheat cultivation. In 1900, however, there was still no such thing as a disc jockey; nowadays, there are hundreds of thousands of them in the USA, some of them highly paid people, not to mention all the service staff, technicians and the whole music industry working away in the background, and so on. Indeed, the disco business may well have outstripped binding up sheaves of wheat in terms of the employment it spawns – it certainly has in terms of value creation.

So what does this example teach us? *Increases in prosperity,* the result of a developmental leap forward, *alter preferences* and generate different and undreamt-of demand. The people working their fingers to the bone in the fields of the Midwest couldn't in their wildest dreams have imagined a discotheque, let alone that you could make a living from one; they would doubtless have considered the idea frivolous or even indecent. It is worth remembering that our view of work is also heavily freighted with moral preconceptions stemming from entrenched social models (you must earn your bread by the sweat of your brow, anything else is frippery, etc.). Leaving to one side for the moment that even disc jockeys have occasionally been known to work up a sweat, it is difficult to see why work should necessarily be associated with toil and tribulation, and thus have negative connotations. By the same token, it is difficult to see why preferences should be considered more or less serious as long as the externalities produced by exercising them do not harm other people. Microeconomic theory holds that it is axiomatically impossible to compare preferences; consequently, you ought not to be able to judge them morally either.

We have established that the developmental step-change of Industry 4.0 will turn pretty much everything on its head and more or less every line of work will feel a chill wind – indeed, whole professions will be wiped out, as once were the sheaf-binders of the USA before them. Relatively clean and comfortable jobs are far more likely to feel the squeeze than those that have already survived the harrow of earlier developmental step changes or those where automation makes no sense in any case; your author's hairdresser is thus assured of a secure existence for

the foreseeable future. Some analogue professions may even undergo a renaissance, as relatively few people are talented enough to practise them and, after so much digitisation, preferences may well swing back in that direction.

Notwithstanding this, in our opinion, the only chance of engaging sensibly with Industry 4.0 on a socio-political level is to embrace change – to refine preferences and create entirely new ones. The solution does not lie in upskilling (which is necessarily rooted – *nomen est omen* – in existing structures) but in the quickest and freest acceptance possible of new and unexpected ideas – let young men see visions and old men dream dreams. And this has to happen at the double, as the developmental leap waits for no man and the structural changes will be upon us before we know it.

How are new preferences created? When they are *permitted*, given space. Following the massive wave of deregulation during the late 1980s, the last two decades have seen a phase of re-regulation in most professions, principally under the banner of well-meant consumer protection. There is hardly a professional cadre in this country that (with significant aiding and abetting from the relevant trade associations, who thereby establish and perpetuate a *raison d'être*) has not tightened up the qualification criteria for practising their line of work. Much-vaunted further education and upskilling have been misused as tools to maintain cartels, and tender new shoots find it difficult to put down roots under such conditions; Joseph Schumpeter has described bureaucratisation as the enemy of innovation and entrepreneurship. It's also high time we did away with moral straitjackets on our actions and thoughts; betting and games of chance – an essential preference of humanity since time immemorial – present occupational opportunities on a par with more socially acceptable cultural pastimes for humans who no longer have to fight tooth and nail for their very existence, and the same ought to be true for soft drugs; why should there be renowned Masters of Wine and not Masters of Cannabis or Ecstasy?

But that is not all. Catering to new or modified preferences also has to be sensibly bedded into a wider social context. One may well have sympathy with the taxi trade's efforts to stifle competition from Uber, and the hotel industry's struggle with Airbnb, but semi-criminalisation of new business models cannot be the way forward. Fiscus and social institutions alike will have to accommodate the "Me Inc." trend, along with modes of operation that lie somewhere between voluntary work and freelancing, without throwing initiatives like the Swisscom Friends straight out with the bathwater. Where institutions become obsolete because technology has made them superfluous, they have to be allowed to wither on the vine; creative destruction in the Schumpeterian sense is already a precarious enough process in the purely commercial sector, let alone when it is applied to public or semi-public institutions. Still, schools, universities, hospitals – all generally the preserve of the state in Switzerland – are unlikely to be spared.

The issue of social redistribution will have to be rethought. The balance between labour and capital may yet get so skewed that a truly serious asymmetry arises, especially in countries where the broad population has been kept at arm's length from capital – and thus from its returns – out of a desire to maximise consumption. More importantly though, the *labour market must be liberalised as far as possible*, so that a new equilibrium can be struck and new preferences accommodated without delay. Neither minimum wages nor the notion of status preservation have any place in such a colossal structural transformation.

We are fully aware that everything in this chapter goes against the grain of the *zeitgeist*; but what might the alternative be? We suspect a drift towards a kind of cloud cuckoo land of plenty in which, in the absence of human labour, Man's every desire is spat out by the 3D printer, the cornucopia machine described above, financed by a kind of unconditional basic income that in turn would be sustained by the progressive global wealth tax proposed by Piketty. The problem of inequality that the WEF has declared so pressing would then perhaps be solved, but the human race would also have reached the end of the line, as our lives would have lost all purpose. This risk is real, as artificial intelligence is quite capable not only of helping Man's reach exceed his grasp, but also of letting his mind go to seed; degeneration would thus have become our evolutionary goal.

Yes, everything *is* different this time. We cannot just let Industry 4.0 roll over us, we have to make a choice: between a quasi-cloud cuckoo land controlled collectively by the common weal (which may provide equal nourishment for its serfs – for each and every one of whom technological progress will become a surrogate, however) or, alternatively, a far more demanding social model in which individuals retain responsibility for themselves. This will be a world of constantly changing conditions that bring forth all manner of new and surprising preferences – for which there will be a demand that springs eternal.

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