

AUSTRIA'S FUTURE IN THE WORLD OF TOMORROW



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The Austrian paradox

Austria is a country of paradoxes. This was the judgement, at least, of the *Neue Zürcher Zeitung*.¹ *The Frankfurter Allgemeine Zeitung*, on the other hand, calls Austria a “robust dwarf with red-tape burdens” whose economic performance has been “thwarted” for years by a “lack of élan” in structural reforms.² And, in fact, based on the development in the last few years, this has been vividly demonstrated. Following Austria’s ability to exhibit strong growth momentum in many areas in the first decade of the millennium, since the crisis in 2009, its economic competitiveness has been stagnating. A comparison with all relevant country rankings shows that Austria’s development in individual, competitive-driving sectors such as education, public finances, regulation, etc., in the last four years has lost momentum. In its “Monitoring Report 2012”, the Austrian Economic Chambers gathered over 140 international rankings, which analysed the strengths as well as the weaknesses of the Austrian economy. In more than a third of these rankings Austria’s position compared to the previous year had worsened; in a further third there was no change.

Despite this, on a globally competitive level, Austria scores relatively well – based on macro-economic performance variables. Since 2004, Austria’s economic growth has continuously been above the Eurozone average. In a country comparison (IWF, 2012a), Austria exhibits a high employment rate and growing wealth, and, measured on its per-capita income, Austria ranks third in the EU and eleventh worldwide. The renowned American magazine *Foreign Policy* even talks of an “Austrian Miracle”.³

It is well known that miracles are rare, but what the *Foreign Policy* magazine calls the “secret of Austria’s success” can be revealed. There are several reasons for this positive development. One of the most important is the internationally competitive industrial economy and tourism industry with its numerous dynamic small and medium-sized businesses, but certainly also the productive agricultural industry (in particular the wine industry) and Austria’s return to the dynamic centre of Europe following the fall of the Iron Curtain. Not to be forgotten, however, is also the fact that, since the 1980s, Austria’s scientific and technological productivity has continually grown. A variety of analyses certifies a continually growing performance in Austrian research, technology and innovation systems (Aiginger et al., 2009; “Austrian Research and Technology Report” 2010, 2011, 2012, 2013).

The economic successes, however, should not belie the fact that, following the catch-up process of the last few decades, Austria now finds itself stagnating. Since 2009, the dynamics that characterised this catchup process have been lost (cf. Aiginger, article “Reform fatigue as a danger to a success model”, Chapter 1). This becomes apparent with the development of the unit labour costs: until

2005, this was in sync with Germany’s, but since then has worsened considerably. In Austria, unit labour costs rose to about 14 per cent between 2005 and 2012, compared to around 6 per cent in Germany, around 8 per cent in Switzerland and 10 per cent in Sweden.

In everyday life, it may seem that the Austrian is again far removed from the effects of the economic crisis and other global developments and trends. This is because the population is still enjoying comparably comfortable economic and social prosperity despite the continuing crisis in the international environment, which apparently also nurtures the illusion that everything could remain the way it is (Kramer, 2011). But in fact the situation is much less rosy than it may appear at first glance. An excessive pension system, the idiosyncrasies of which, such as the so-called “Hacklerregelung” (which allows long-term contributors to the state pension system to retire much earlier than the statutory age or early retirement age), costs billions, and leads to urgently needed funds, which are lacking for the future. Furthermore, at 5.4 per cent of GDP, Austria has a subsidy rate twice the EU average (cf. Marin, article “Austria 2050: Pensions of the Future”, Chapter 4). An inefficient education system, which in the OECD comparison only produces under-average results, is at the same time one of the most expensive in the world (Schilcher 2012; cf. Schilcher, article “Education in Austria: an inventory”, Chapter 2; Spiel, article “Education 2050 – the school of the future”, Chapter 2).

The biggest danger for the future development of the country lies, however, in its rigid resistance to reform and its oversized public sector (cf. Öhlinger, article “The Future of Federalism”, Chapter 5). This is not least evidenced in Austria’s continual backslide in the World Competitiveness Yearbook of the Swiss International Institute for Management Development (IMD), which annually compares the quality of 59 business locations. While in the year 2007 Austria still ranked eleventh, in the meantime it has fallen from twenty-first place in the year 2012 to twenty-third. According to the IMD, the reason for this is above all the limited efficiency of the administration and government. In this respect, it only took Austria five years to fall from twentieth place to thirty-seventh (IMD, 2013). There is, then, obviously a governance gap and inadequate public management, the consequences of which means that Austria, with 42 per cent, has a 3.2 per-cent-point higher tax ratio than the EU average or Germany and 5 per cent higher than Switzerland. But that is still not enough. Apart from that, we also have high regulation and bureaucracy costs.

The EU Commission also had similar arguments (2012); the International Monetary Fund (IMF 2012b) and the OECD (2011a) as well. Again and again, these institutions prompted Austria to tackle an effective state and administrative reform in the public sector as well as to reduce the high transfer payments of 34 per cent and the subsidy ratio of 5.4 per cent to a reasonable degree because their

funding results in an above-average high tax rate, whereby funds are withdrawn from important future sectors (Lehner, 2011).

Due to its above-average high expenditure ratio, the public sector is to a large degree responsible for the high public debt. The EU stability pact allows for a debt limit of maximum 60 per cent of the gross domestic product. According to Statistics Austria, with 73.4 per cent, Austria officially is, however, considerably higher (as of 2012). In fact, the rate, as a result of the outsourcing from ÖBB, ASFINAG, BIG etc., as well as additional costs for family burden equalisation or the bank bailout, is even higher. At the same time private debts cannot be disregarded.

The outlined contradictions form a paradoxical overall picture. The result of the special supplement of the *Neue Zürcher Zeitung* quoted above aptly describes these circumstances:

*"Political stagnation contrasts with economic dynamics and a high quality of living. Although ascension to the EU significantly contributed to prosperity, the initial euphoria has given way to major scepticism. The relationship of the Austrians to federalism is also divided. They may support a strengthening of the countries, but they are opposed to the tax authority."*⁴

So this begs the question of how long a country with such paradoxes can live in a world of rapid changes, which finds itself with huge challenges and at the same time in an extremely dynamic state of development.

The challenges of the world of tomorrow

More than about 20 years ago, after the reunification of Germany in 1989, the collapse of the Soviet Union and thus the end of Communism in Europe, there was talk about the "end of history" (Fukuyama, 1989): Instead of a hegemonic dichotomy between east and west, in the form of democracy and market economy the principles of liberalism were supposed to prevail on a global scale at long last. The idea of a united world under the sole leadership of the United States of America – in both economic and military respect – was widely popular.

Twenty years later, not much is left of this view. In the USA, intellectuals, economists, and politicians are discussing the alleged decline of the United States (DeLong/Cohen, 2009; Khanna, 2011, Nye, 2011) or are even speaking of the "disposable nation" (Nasr, 2013), and a possible scenario developed by the National Intelligence Council (2008) draws the following picture:

"The financial and economic crisis marked the beginning of a global economic shift. Consequently, the American dollar will

lose its role as the key currency. The United States are already the world's largest debtors. In light of its economic importance, the US, in the best case scenario, will be a primus inter pares in the mid-to-long term. Its political influence will also decline. Although the United States is likely to remain the single most powerful actor, the United States' relative strength – even in the military realm – will decline and US leverage will become more constrained.

China and India will be at the top of a multipolar world together with the USA and will accordingly fight for influence. The national states will lose their political and economic power. The shift from a crude-oil based energy system to one of renewable technologies will continue, but at the same time global warming will be tangible. Conflicts arising due to waning resources – above all water, food and energy – will increase. And in the trade, investment and the technological innovation sectors there will be strategic rivalries."

As summarised by the National Intelligence Council, this could all lead to the experiencing of "a scenario of arms races, of territorial expansion and military rivalries as in the 19th century". Other authors also paint a bleak picture of a world without leadership, in which all the cards will be dealt anew. At the end, there's a new world order in which states will only be intent on their own advantages and no willingness for global responsibility will exist (cf. Bremmer, 2013; Stürmer, 2006).

Although it is impossible to actually predict the future beyond the design of possible scenarios – alone due to the unpredictability of the events, which Nassim Taleb (2008) calls "black swans"⁵ – trends and developments are still recognisable, the consequences of which may not preoccupy us until tomorrow, but which demand decisions from us today. However the future may look, the fact is that our current habitat and economic areas are characterised by enormous ecological and demographic challenges as well as a rapidly growing economic, social and political complexity. Climate change, shortage of resources, rapid population growth in many regions of the world, at the same time an ageing European population, and, finally, the global economic crisis with the possible consequence of a third industrial, digital revolution – these are only the most prominent key words found daily in world media.

The first decade of the new century saw a worldwide economic slump, which, according to the World Economic Outlook of the International Monetary Fund (2012a) caused a global recession. And the second decade didn't start any better: the world economy continues to bob along. Despite all attempts to take counter measures with economic stimulus packages etc., it still hasn't been possible to crank up the global economy again. In the industrial countries in the western world at least, we may just have to adjust to a period of weak economic growth (King 2013). And in the long-term all over the world, we have to deal with the question whether the

growth paradigm can be further maintained. Alone from a physical point of view, a subsystem (our economy) of a finite system (our planet earth) cannot grow infinitely. How "prosperity without growth" (Jackson, 2013) can be possible is the subject of economic research and political debates (German Bundestag study commission, 2013; Jackson, 2013; Federal Agency for Civic Education, 2012; Miegel, 2010). The only answer at hand so far is to try to uncouple growth from material consumption and environmental impact – first and foremost, climate change. But this has not really worked to date. On the contrary.

In the meantime, climate change is regarded worldwide as one of the main challenges for the future of humanity (cf. Gropp, article "The DESERTEC Concept – From vision to reality", Chapter 6). The United Nation's Intergovernmental Panel on Climate Control (IPCC) found decisive words in its 2008 progress report on this topic: There is no doubt about global warming. Evidenced in rising global temperatures, the widespread melting of glaciers, ice and snow as well as the rising sea level and the obvious increase in storms. The first decade of the new century was by far the warmest ever measured since the beginning of records – followed by the 1990s, which were in turn warmer than the 1980s.

According to what science knows today, to a high degree of probability, human influence is responsible for the increase of the natural greenhouse effect. This warming is man-made: through the burning of fossil fuels, through global large-scale deforestation and agriculture and livestock, which are constantly growing.

The main closing document of the United Nations climate conference in Copenhagen in 2009, the so-called "Copenhagen Accord", defines climate change as one of the biggest challenges of our time. The community of states therefore agreed that a "dangerous anthropogenic interference with the climate system" can only be circumvented if global warming can be kept below 2 degrees Celsius. At the last climate conference in Doha 2012, the participating countries could only agree on the extension of the Kyoto Protocol (Kyoto II) until 2020 (cf. Bach, article "Sustainable energy supply for the future", Chapter 6).

Closely connected with the climate change challenge is the question of energy supply. Hardly a quote makes the challenge facing humanity as clear as the one from the International Energy Agency (IEA), which as early as its World Energy Outlook 2008 stated:

The world's energy system is at a crossroads. Current global trends in energy supply and consumption are patently unsustainable – environmentally, economically, socially. But that can – and must – be altered; there's still time to change the road we're on. It is not an exaggeration to claim that the future of human prosperity depends on how successfully we tackle the two central

energy challenges facing us today: securing the supply of reliable and affordable energy; and effecting a rapid transformation to a low-carbon, efficient and environmentally benign system of energy supply. What is needed is nothing short of an energy revolution."

With the fracking boom in the USA, however, the energy revolution could still be some time in coming because the new technologies make it possible to extract oil and gas from previously inaccessible deposits. Already, the boom has led to sinking electricity and gas prices in the USA. According to the IEA's World Energy Outlook 2013, the United States will overtake Russia by 2015 in gas extraction; two years later supersede Saudi Arabia as the world's largest oil producer and, by 2035, will be independent of energy imports. Thus, in the mid-term it will not only be America's energy market that will go through major upheavals.⁶ However, this won't change the fact that fossil fuels will run out in the long term.

We are also facing similar challenges, keyword: "Peak everything" (Heinberg, 2007) – in many other raw material areas (cf. Berger, 2012). For instance, special metals needed in the manufacturing of batteries, electro and hybrid motors, mobile phones as well as wind turbines have recently gained more public attention under the slogan "rare earth". Two studies by the United Nations Environment Programmes (UNEP, 2011a; 2011b) came to the conclusion that the entire consumption of raw materials will triple by 2050, and therefore also in the mid term will lead to a massive raw materials crisis.

The pressure is even greater, according to the OECD and FAO "Agricultural Outlook 2012–2021" when it comes to food products: be it wheat, rice or corn – the prices are exploding all over the globe, and the resulting social conflicts are becoming more acute. At the beginning of 2011, according to World Bank, the rise in costs alone plunged 44 million people into poverty. Robert Zoellick, former president of the World Bank thus called for the G20 to set the development of foodstuff prices at the top of the agenda – even if the number of those in poverty has substantially decreased worldwide.⁷

The report "The Future of Food and Farming" by the British Government Office for Science (2011) demonstrates the problem in its entire breadth when it states that food production up until the year 2050 will fall under a kind of pressure that has never before existed. In many parts of the world, starvation can no longer be pushed aside as a resolvable distribution task because the numbers speak very clearly: 925 million people suffer from starvation; a further billion suffer from a lack of important vitamins and minerals. In contrast, there are one billion people who increasingly suffer from excess weight and related effects – along with the corresponding costs to themselves and to the health-care system.

This is an expression of extreme inequality, but also a close interdependence of various factors. The outlined problems of raw materials and energy supply, the rapid increase of food prices, not least due to the fact that industrial countries increasingly burn wheat, rapeseed, corn or palm oil in the form of biofuel or biogas,⁸ the growing consumption of meat in progressively well-funded countries like China and India. All these developments are connected with humanity's huge challenge: rapid population growth in large parts of the world.

In its "World Population Prospects 2010" (2013), the UN believes that the current world population of 7.2 billion could rise to 8.1 billion by 2025 and by 2050 to 9.6; possibly even to 10.5 billion. This global population growth is accompanied by the ageing process in many countries and regions of the world. Since the end of the 19th century, life expectancy in all OECD countries has risen continually and in a linear fashion (OECD 2010c). Currently, the life expectancy average for the total population is around 80 years of age, which in comparison to 1960, represents a gain of more than ten years. Since the end of the 19th century, life expectancy has doubled. This development will continue in a linear way over the next 50 years: life expectancy will increase by a further three months annually.

Although in many countries and regions the proportion of younger people is still very high – in Africa or in the Arab world, for example, the proportion of under-35-year-olds is almost 70 per cent, and in India, a third of the population is even younger than 15 – a change in the age structure will also eventually occur. In 2050, according to UN calculations, Europe will represent the "oldest world region". The average age will then be 50. The largest population group of the European states will be older than 65. The average life expectancy of a 65-year-old European will increase a further 20 years in 2050 – with dramatic consequences for health-care and pension systems (cf. Knell, 2011).⁹

While life expectancy has steadily increased over the last few decades and will continue to do so, the official age of retirement has only been extended in a few member states. At the same time since the 1970s up until recently, the actual retirement age in many countries has even sunk (cf. Sahlgren, 2013).¹⁰ In addition, there has been a continued decline in population numbers, which in total results in a significant decrease in the number of working people and a further burden on the pension systems (cf. *Sachverständigenrat* 2011). Even if these trends are similar for all OECD countries, for Europe they have the most dramatic consequences (cf. OECD 2011b).

Arising from this development – varying depending on the region – are societal and economic challenges. These range from scarce human resources on the labour market, implications regarding the security of

pension systems, diverse health-care-related effects, a rise in care costs up to new technological and social challenges due to a change in lifestyle with housing requirements, trends in leisure, consumerism and savings in the light of demographic change.¹¹

And while many economically highly developed countries want to curb the cost explosions in the health-care and care sector related to the ageing of the population and medical advances (keyword: cost-intensive high-tech medicine), other countries are facing the challenge of building up their medical care for the population in the first place.

Yet another related challenge lies in the process of urbanisation. In 1950, for example, only 28.8 per cent of the world population lived in cities; now it is more than 50 per cent. And until 2050, this quota, according to the United Nations' "World Urbanization Prospects" (2011) will rise to just under 70 per cent. In China alone, the 1.04 billion or almost three-quarters of the population (73.2 per cent) will live in cities. In India it will be 875 million people, or more than half (54.2 per cent) of the population. The associated development of mega-cities places enormous demand on political structures through the need to provide infrastructure and similar requirements. And here, also, research is of the utmost significance because complex systems such as cities with millions of inhabitants behave differently and have emergent qualities which are not found in smaller cities.¹²

In addition, in these mega-cities and metropolitan agglomerations we are faced with the increasing phenomenon of greater social inequality (cf. OECD, 2008). The British sociologist Richard Wilkinson together with psychologist Kate Pickett collected empirical evidence, which showed that major social inequalities within a country could lead to a significant rise in health and social problems (cf. Wilkinson/Pickett, 2009). For everyone concerned, unequal societies cause shorter life expectancy, increased psychological illnesses, higher drug consumption or more prevalent obesity. But inequalities in educational participation and academic performance can also be corresponding consequences. Finally, unequal societies also have a significantly higher rate of crime and homicide.

The consequences of social and economic inequality in turn influence developments in migration, in particular by economic and poverty-stricken refugees, whereby also here, the intensive interweaving of the already mentioned problem areas can be seen. The number of international migrants has tripled since 1960 and is thus "the central human factor in transnational globalisation". Moreover, due to the rising proportion of women, it is developing a more "female face" (Development and Peace Foundation, 2010). How migration and the flow of refugees will develop in the future will depend largely on global trends – above all, global warming and its consequences – but also on regional developments, mainly in the trouble spots in the Near and Middle East; in Africa or in the Caucasus.

Key factors: education, research and innovation

A number of reports partly with very dramatic scenarios¹³ have outlined what could happen if it isn't possible to overcome the challenges such as globalisation "intelligently" or to contain global warming or to hinder the closely linked consequences such as shortage of resources, food shortages and the influx of refugees (cf. Commenda, article "Global geostrategic development", Chapter 7).

Natural catastrophes such as floods and droughts cause crop shortfalls and famines. This in turn triggers mass migration on a scale never seen before. Fuelled by chaos, social unrest and civil wars result in terror and ultimately the collapse of entire countries. This in turn causes new migration movements. As a dramatic consequence, Swiss author and journalist Jürg Altwegg (2011) diagnoses "the end of the European world".

A somewhat more positive interpretation of the consequences of these developments is offered by future researcher Jeremy Rifkin (2011). According to Rifkin, the outlined crisis-like developments show the necessity for global economic and societal upheaval. This fundamental change, illustrated as the third industrial revolution is based on the consequences of the "New Digital Age" (Schmidt/Cohen, 2013) through the digital revolution and its meeting with renewable energy systems and intelligent production modes (cf. Marsh, 2012). The idea of the third industrial revolution indeed suggests that technological innovations for the future of humanity will play a central role, but at the same time it also implies social innovations and the necessary restructuring of interrelated political, economic and social processes (cf. Anderson, 2012; Rothkopf, 2012).

As consequences of these upheavals, Rifkin forecasts a new economic and social paradigm, which has far-reaching social consequences. As well as the change in social structures, which should be more democratic and less hierarchical, the changed production conditions through increasingly automated processes will have massive effects on working life (cf. Anderson, 2012; Marsh, 2012).

This theory was examined by two professors of the Massachusetts Institute of Technology (MIT), Eric Brynjolfsson and Andrew McAfee (2011), in their book *Race Against the Machine*. According to the book, technological progress will ultimately lead to knowledge-based economies being able to increase their productivity detached from human labour. This leads to the stagnation of the number of work places; a fact that has been recognisable in most of the OECD countries for some years now while the productivity rate continues to increase. Globally successful businesses have demonstrated how massive revenues can be generated with only a few hundred employees. Affected by the consequences are not only the much-cited cashiers, who are gradually being replaced by the use of self-service

terminals, but also in the long-term the specialised professionals who are being replaced by intelligent industrial robots.¹⁴

The British economic historian Robert Skidelsky (2013) suggests that the result is an inevitable social revolution, which makes a new definition of the concept of work necessary. In his book *Bürger, ohne Arbeit* ("Citizens without work", 2005) the German sociologist Wolfgang Engler noted that dealing with the issue of the disappearance of work and the resulting implications will be inevitable. Here, the central theme will be the discrepancy between the loss of work above all and at the same time a shortage of qualified workers with changed and constantly rapidly changing requirement profiles. While in several OECD countries the number of jobs is stagnating, or from time to time even decreasing dramatically, there is a shortage of increasingly highly qualified workers who match the requirement profiles of the market (OECD, 2012a).

All this does not have to happen but could – and easier and more quickly than we want to admit. What is sure is that the world is going to change. These changes will also include other, positive aspects, which we deliberately don't mention here, because in the vast majority of the scenarios outlined in this publication the focus lies on negatively connotated disruptive events (cf. also Leo, Gadner, Geiger, Gemes, article "Disruptive events and how politics can deal with them", Chapter 7). In any case, what is clear is this: the world of tomorrow will be different.

What does all this have to do with the Austrian paradoxes we outlined at the beginning? The answer is simple: in a constantly changing world, it is not enough for Austria to insist on the status quo. If you stand still, you fall behind, when everyone else is developing. Already in 1776, Adam Smith recognised this fact and named it the "stationary state". In the meantime, this view is part of the economic standard repertoire. Even if the described challenges give the appearance that they are far away, and happening in distant countries or times – ultimately, they are already ubiquitous. And they affect every single one of us. The fragile recovery of the world economy following the crisis of 2008 should not be construed as a license for continuing as if nothing had happened. The real threatening scenarios are the global grand challenges. They will also affect Austria in one or the other way.

While no individual policy approach can contain all the answers to these burning questions of our time, there is still a consensus that education, research and innovation are significant factors in overcoming the challenges ahead (cf. Osterwalder, Schneider, article "Science and research: Luxury or life necessity?", Chapter 3; Weissenberger-Eibl, article "The future of science and research and the conditions conducive to innovations", Chapter 3). The OECD (2010a) summarises these circumstances as follows in its Innovation Strategy:

"Innovation drives growth and helps address global social challenges. Action on innovation must be a priority for emerging from the crisis."

In his book *The Wealth and Poverty of Nations*, David Landes, an economic historian in the United States, shows the eminent importance of innovations and the dissemination of knowledge for the development not only of the individual but entire nations. Even if his approach is not undisputed and due to his Eurocentric position has been very controversially discussed, his analysis of the role of scientific and technological innovations is a coherent explanation for the prosperity and poverty of countries. The importance of innovations for the economy was already recognised and described by the Austrian economist Joseph A. Schumpeter (1911).

A while ago, the most globally innovative countries, above all the United States, Germany, the Scandinavian countries, Switzerland, Japan and South Korea acknowledged that the path to surmounting the huge challenges of humanity can only be forged through strengthened efforts in the sectors education, research and innovation. Accordingly, these countries have also massively increased their investments in research and development (R&D) and education especially during an economic crisis.

These countries have also recognised that only a tax system based on economic growth can generate income that will equip an economy for the future. This is needed in order to generate additional growth, which then in turn will be available for growth-promoting expenditures such as education and research.

Already a few years ago, the American Committee on Prospering in the Global Economy of the 21st Century in its "Agenda for American Science and Technology" pointed out the central role of education, research and innovation as a way to overcome the grand challenges. In his budget forecast for the year 2013, despite enormous public debt and the resulting mandatory tightening, even President Obama, kept the sectors education, research and innovation from general cutbacks. The budget forecast sees an increase in the R&D budgets by 1.5 per cent compared to 2012. Around half of the 140.8 billion dollars of the R&D budget are dedicated to non-military purposes. At just under 3 per cent of the GDP, the research rate in the USA is the highest in the world.

The German federal government has also set appropriate measures: By 2015, despite the current successful budget consolidation, an additional 11 billion euros will be invested in education, research and innovation as part of the Konjunkturpaket II (stimulation package). Germany is approaching the 3-per-cent R&D ratio (Endres, 2009).

In the longer term, however, it can be assumed that the demographic, economic and technological ascent will be in Asia, which will

lead to a massive shift in the global production of knowledge and use. Particularly countries like China, India and South Korea are already massively increasing their research efforts and adapting their education systems to the demands of the future.

China's rapid economic growth in the past few years led to the fact that in only three decades China became a direct competitor with the USA and Europe – in 2007, GDP grew by 14 per cent and even during the crisis the increase was still 9 per cent. For 2013, the International Monetary Fund is predicting a growth of approximately 8 per cent. Germany has already lost the rank of export world champion and Japan as the second-largest economy.¹⁵ Even if China's economic growth should decline in the next years¹⁶, according to calculations by American economists, it will have become the biggest economic market by 2025. However, according to all forecasts, this will not apply to the per-capita income for a long time.

Parallel to its economic growth, China is also continually increasing its R&D expenditures; the research ratio in 2008 was only 1.5 per cent of the GDP. Yet the trend is soaring, and the political targets are ambitious: the goal is to reach 2.5 per cent of the GDP by 2020.

A similar picture arises with publications and patents. In the natural sciences and engineering sectors researchers from the Middle Kingdom have in the meantime already overtaken America with the number of publications. If these trends continue, China will also overtake the US in the total of publications by 2015.¹⁷ Furthermore, in 2010 China registered 391,000 patents; this is about 30 per cent more than in 2009. If this trend stays stable, in a few years China will surpass the USA and will register the most patents worldwide.¹⁸

China's stated goal is to build up an economy increasingly based on innovation and less on imitation. An appropriate strategy document ("National Patent Development Strategy 2011–2020") plans the unbelievable number of two million patent registrations by 2015. This goal may have been classified by critics as unrealistic, but it clearly shows the ambition of China's political leadership. As a comparison, in the USA in 2010 nearly 480,000 patents were registered.¹⁹

Despite all the success stories, in China there are still also signs of a slump in growth which could give perspective to the dramatics of these developments.²⁰ Besides that, China's model of economic growth shows increasing social tensions and is more and more often met with resistance by larger numbers of the population.²¹ Connected to this are also increasing environmental problems, which are rapidly intensifying the ecological footprint of the country, as well as rapid ageing, which is already causing major problems today because the relevant adjustment of the social system is lacking. These developments are expressed in a nutshell by this evaluation: "China will age before it can get rich". Sceptical voices are thus al-

ready saying that the impressive performance by China and other Asian countries or Brazil could soon be a thing of the past (Giesen, 2013; Bowring, 2011; Rachman, 2011a, 2011b).). Especially in India, increasingly serious problems have recently been coming to the fore, in particular due to the unresolved gender relationships, the rigid labour market regulation or the excessive bureaucracy, which stand in the way of the country's stronger global importance.²²

Europe's role

Despite all uncertainties regarding the actual development, all signs seem to indicate that there will be a massive shift in importance in favour of China but also India in the global balance of power – even if, as mentioned, the trees even in these countries don't reach the sky. In his book *The Post-American World* (2009), political scientist, CNN commentator and writer for *TIME Magazine*, Fareed Zakaria, describes not only the end of the era dominated by the United States but also an epochal shift in power towards Asia. *New Asian Hemisphere: The Irresistible Shift of Global Power to the East* (2008) is also forecast by Singaporean political scientist and diplomat Kishore Mahbubani. And the chief economist of the major British-Asian bank HSBC, Stephen D. King (2013), sees western industrial countries entering an era of stagnation with the end of their long phase of economic growth – with extensive internal and external political and social consequences. It is not surprising, then, that the British historian Niall Ferguson is already talking of a "Decline of the West" (2013) in this context.

Through this shift in power, it also becomes clear that the dominating role of Europe or the West is not necessarily attributed to the "cultural superiority" of European or western civilisation, as some may think (Ferguson, 2011). Besides the fact that there are basically other explanations for the dominance of the West in the past roughly 200 years (cf. Morris, 2010; Diamond, 1997), the observable shift in power towards Asia clearly shows that the historical processes, which have ultimately led to the rise or fall of civilisations and thus also to the status quo of today's world, were neither inevitable nor are they stipulated for the future (Morris, 2010; Acemoglu/Robinson, 2013).

Indeed, the worldwide dominance of Europe or the West – according to British historian John Darwin in his book "After Tamerlane: The Rise and Fall of Global Empires, 1400–2000" (2009) – did not begin until the 1880s. Until 1850, China and India constituted nearly 60 per cent of the global economic output. In the 18th century, about 60 per cent of the global manufactured exports were produced in India. And between 1750 and 1820 China experienced a "prosperous era" with political stability, extensive prosperity and peace (cf. also Kang, 2010).

As outlined by the historian Kenneth Pomeranz in his work "The Great Divergence" (2000), since the Renaissance, Europe had seen a cultural development, which ultimately led to a global shift in power relations. This was based on a new, "enlightened" and rational view of the world, the resulting industrial revolution and the increase of trade volume built on the advantages of industrialised production. Europe and, sometime later, the USA experienced monstrous economic recovery to the degree that part of the world's economic production in the other countries starkly decreased. China and India were badly affected by this. Between 1750 and 1900, China's share of global economic production decreased from 33 to just under 6 per cent. India, which for a long time had the role of being the world's textile workshop, fell during the same time from 25 to below 2 per cent.

Europe's share, on the other hand, grew between 1750 and 1900 from less than a quarter to 62 per cent. Much of this increase came from Great Britain, whose share of the global production, which went from just under 2 per cent in the year 1750 to over 18 per cent in the year 1900, increased almost tenfold. America gained even more. Its share during this period went from 0.1 per cent to 23 per cent. At the end of the 19th century, the world economy was therefore, almost entirely dominated by the West.

Following what was described by the then English foreign minister Edward Grey as the primal catastrophe of World War I and its apocalyptic continuation in World War II, Europe forfeited its dominating importance in the world. The concurrent rise of America and its subsequent "victory" over its Communist counterpart led in 1989 to the United States becoming the sole world power.

But also this dominance would not last very long, for today the trend is clearly going in a different direction. The world economy is becoming – formulated bluntly by *Die Zeit* – more Chinese.²³ In the table of the biggest economies, China is steadily whooshing past the leading industrial countries, so that there is only one country left to follow: the United States.

For small countries like Austria there is the increasing threat that they will become pawns at the hands of the powerful, and the whole of Europe is in danger of losing its importance. This is why, in the future, it will not only be about modernising Austria and adapting to the demands of the time, but above all to counter the global loss of importance of the individual European national countries in a united Europe.

In order to recognise this necessity one only needs to take a look at the development of the population. In Europe, this has been declining for over 100 years in relation to the world population. In 1900, only 19 per cent of the world population lived in Europe – now it is a mere 7 per cent. Until 2050 it will only be 4 per cent. In 1950,

according to the United Nations' "World Population Prospects" (2013), 549 million people lived in Europe. Today there are 740 million; in 2050 it will be about 700 million. Europe is thus the only continent whose population is waning.

In contrast, in 1959 in China, there were even less people than there were in Europe. Today the country already has 1.3 billion inhabitants, and in 2050 it will be 4 billion. In India during the middle of last century there were only 370 million. According to the "World Population Prospects", after 2050, India will replace China as the most populous country. In the year 2050, around 1.61 billion people will be living in India.

All this of course has consequences: for Europe, but also for Austria. In the year 1900, within the borders of today's Austria, there were about 6 million inhabitants; in 1950 there were almost 7 and today there are 8.5 million. According to a prognosis by Statistics Austria, the population will rise by 2050 to around 9.5 million through migration. This makes clear that Austria, alone due to its size, is dependent on the cooperation in a united Europe.

However, Europe, too, can only exist as a unit in the world economy. Not only when it comes to its economy but also to its size of population. Regarding population numbers, the EU 27, with a total of almost 500 million inhabitants, are ranked third behind China and India – followed by the US with somewhat over 300 million. Regarding the European Union as a whole, today it is by far the largest economic power. According to the International Monetary Fund, as of April 2013, the EU 27 brings in a joint nominal GDP of 16.5 billion US dollars. America follows with a GDP of 15.6 billion dollars. No member state of the EU alone comes anywhere close to this magnitude. Together, the EU generates an economic performance that represents 25 per cent of the world social product. This makes it about two times as large as China's or Japan's and still bigger than the USA's, with 23 per cent. And the EU citizens use around 50 per cent of the global social budget.

These figures alone impressively attest to the global importance of the European Union as a whole, if it could only bring about the required unity. This is why the Austrian essayist Robert Menasse in his book *Der Europäische Landbote* ("The European Courier", 2012) pleads for more Europe. Because only this way – within the network of the European states – does Europe have a chance to compete as a global player. In addition, it is necessary to continue to promote European integration in order to be able to tackle the global challenges together (cf. Pelinka, article "Austria in Europe", Chapter 7). Otherwise, it is feared that nothing will change in the future in Egon Bahr's accurate characterisation of Europe, which held that Europe is an economic giant but a political dwarf and from a military perspective a worm. American political scientist and expert for international relations, Parag Khanna (2011), sees Europe as an

economic and social model for the future. The fact that the EU has been largely successful in creating an integrated, supra-regional national market without borders and common infrastructures should be seen as a central success recipe of model status.

At the same time, this is where the biggest challenge for the future of the EU lies since the further development of the common market is largely dependent on the stability of the common currency. And this will take – shown clearly during the Euro crisis – a minimum of a common economic and fiscal policy. And as Robert Menasse remarks, there is no way around a political deepening of European integration. And there is no way around a research- and innovation-oriented, common European economic policy, the highest growth policy of which must be to prioritise the strengthening of the EU's power of innovation, mainly also in the peripheral countries (Paqué, 2011).

A study group on the future of Europe was implemented by the European Council following the failures of the Lisbon goals – according to which Europe was meant to be the most knowledge-intensive economy in the world in the year 2010. In its report to the council in May 2010, the group recorded that without strengthening (economic-) political control, the challenges of the coming era will hardly be able to be overcome:

"If the EU is to reach its targets, the European Council and the Euro Group needs to develop their leading roles in agreement with the Commission and the European Parliament.

With these reforms we must take full advantage of the new instruments offered to us by the Lisbon treaty, in order to achieve greater citizen participation, effective politics to develop internal and external security, foster and nurture better relationships with our neighbours and be in the position to represent our interests in the world."

The study group sees the deciding strategic instruments for the future success of the EU as being the sectors education, research, technology development and innovation. Coordinated efforts of all member states is needed to provide the necessary resources – also with support from the private sector – and to implement out the overdue structural reforms, above all in the education sector. More Europe is just as critical an imperative for the securing of global competitiveness as more education, research and innovation (cf. Weissenberger-Eibl, article "The future of science and research and the conditions of innovation", Chapter 3; Keuschnigg, article "Growth and welfare through change", Chapter 7; cf. also Münz, article "Migration policies for the ageing society of tomorrow", Chapter 4).

Innovative pioneers

Population growth, climate change, shortage of resources or the rise of China and India – all these global developments and shifts in significance do not go unobserved in the European national states. Many of the most innovative countries are aware of the fact that they must continue to develop structurally in order not to fall behind in global competitiveness. And as in so many cases the Scandinavian countries and – particularly interesting for Austria – Switzerland especially stand out as innovative pioneers.

As early as two decades ago, Finland and Sweden above all started with comprehensive reform processes and modernised their economies.²⁴ Alongside structural reforms in the health-care and pension systems excessive subsidies in, for example, agriculture were radically reduced. Apart from this, the state did not pick up loss-making or outdated industries with public funding.

It is, however, important that in these countries a societal consensus about the importance of education, research and innovation existed and exists - a commitment which is also always followed by actual investments in education and R&D, even in times of crisis (cf. Välijärvi, article "The Finnish School System", Chapter 2).

This general acceptance of the promotion of education and research was made possible through a non-partisan consensus model, which follows a long-term policy approach and defines the necessity of system changes as the foundation for every further development. This ultimately led to both Sweden and Finland taking leading positions in various international rankings, which illustrates the performance of countries in the areas of education, research, innovation or competitiveness. But in the last few years Denmark has also positioned itself very well in international competition. Comprehensive structural reforms there have led to the country's economic performance being exemplary today.

Yet we don't always have to look to Scandinavia to find interesting benchmarks. Several of the most research intensive and innovation friendly regions like Switzerland, Bavaria, Baden-Württemberg or parts of northern Italy – mainly South Tyrol – are geographically close to Austria.

Let's look at Bavaria, for example, and observe the region's university landscape: In Bavaria, with 12 million inhabitants Germany's second-largest state, there are 18 public universities and colleges. There are 185,000 students in total. Public expenditures for universities amount to about 4 billion euros.

In comparison, Austria affords a total of 21 universities and about 292,000 students with a budget of just 2.8 billion euros.²⁵ This means that this country educates more students and maintains and

manages more institutions – and for that, not even three-quarters of the Bavarian budget is available. The consequences of this disproportion are expressed in the regularly published international university rankings.²⁶

Another example elucidates this further: With 24,000 students in the financial year 2010, the Technical University in Munich had a budget of around 550 million euros; the budget of the Technical University (TU) in Vienna was only 267 million euros, with approximately the same amount of students. And while in Munich the professor/student ratio was about 1:55, in Vienna it was 1:150.

In the German-speaking realm, the Swiss Federal Institute for Technology Zurich (ETH) is in an even better position. In 2010, the school had a budget of around 860 million euros. With about 15,000 students, the lecturer/student ratio was 1:34, meaning that for one lecturer there was an average of 34 students. It is no surprise, then, that the ETH is one of the world's best universities. In the university ranking of the *Times Higher Education Supplement* it currently takes 12th place. Incidentally, Switzerland, with roughly the same population as Austria, only has ten universities and two technical colleges.

During the last few years, through the mutual efforts of all those responsible, Switzerland has managed to develop into a top-class land of innovation. Hereto, the Swiss economy, which was able to recover surprisingly quickly and robustly from the worldwide economic slow-down post 2008, played its part (Rütti, 2012) as did politics with its setting of agendas in the sectors health-care, pensions, education and research (cf. Flückiger/Schwab, 2011; Meyer, 2013). So it is not surprising that Switzerland also receives good ratings in various rankings in standard of living, social situation or income distribution. This inspired the *Neue Zürcher Zeitung* to describe Switzerland as the "island of the blissful".²⁷

In the Innovation Union Scoreboard 2013 – an annual EU ranking, which compiles various indicators for innovation performance – Switzerland was consequently named the most innovative country once again. Only in four of the 24 indicators is Switzerland not above the average of the EU 27. However, especially in its growth, dynamism in innovation and in scientific output the country by far surpasses the EU member states (cf. Kratky, article "Will Austria be a global leader in basic research in the year 2050?", Chapter 3). Austria's ranking, on the other hand, fell for the third time in a row and, in 2013, it is ranked ninth in the EU 27 and eleventh in the ranking of all European countries in the Innovation Union Scoreboard.

Reform gridlock in Austria

So that is the situation in our immediate vicinity. In comparison, a reform gridlock prevails in Austria. In the last two decades the societal and economic framework conditions have obviously developed faster than the political discussion and decision processes. In the meantime, there is a veritable gap between Austria's results and comparable European states in current rankings and statistics. In its last country report (2009a), the OECD noted about Austria that the government needs to urgently set measures in order to make up for ground lost over the last decade compared to more competitive economies. The Austrian paradoxes outlined in the beginning of this article threaten to become a portent for the future of the country.

Despite political stagnation, the economic dynamics has continued unabated. The unprotected sector is competing well on an international level. Austrian businesses have successfully established themselves on the global market. They were able to strategically use the EU expansion and labour market in the opening of the East and today have a strong standing in Eastern Europe. In several areas and niches, Austrian companies are among the top international players.

At the same time, Austria affords a "hypertrophic", protected and expensive public sector, which is not open to any reform efforts (cf. Öhlinger, article "The future of federalism", Chapter 5). The education system is a good example: despite the abolition of district school boards with the school administration reform 2013, the individual principals, the school departments of the state government offices and the nine boards of education as well as, finally, the federal government or the ministry for education all share the responsibility. That this is not necessarily beneficial is obvious.

Based on its education studies (2010b, 2012b) the OECD has noted several times that the education system in Austria is especially characterised by inefficient structures and a high degree of social selection. A lot of money may be invested in education, but due to bureaucratic frictional losses, not much is left over for the schools. In other words, from each euro that flows into education, only half actually goes into teaching (cf. Schilcher, 2012). Furthermore, these investments are not reflected in student performance – a circumstance that mainly has to do with the fact that so-called educationally deprived classes in Austria only have inadequate access to education. Or, more dramatically put: in Austria, education is inherited. A child from an academic household will be more likely to finish its studies in the above-average bracket than a child from a working-class family. This leads not least to the fact that, in an OECD comparison, Austria has a lower university-entrance rate and produces less academics than in comparable countries. (cf. Schilcher, article "Education in Austria: an inventory", Chapter 2; Spiel, article "Education 2050 – the school of the future", Chapter 2).

The problem here is that a global knowledge society without a sophisticated education system cannot guarantee long-term competitiveness. Apart from this, without equal opportunities and permeability of the education system, there is no distributive justice. However, the social selectivity of the education systems has yet another dimension: even second and third generation migrants exhibit mostly significantly worse levels of education than non-migrants, not least because of language barriers. Consequently, the available potential and qualification of migrants develops on too small a scale and is not used enough on the labour market (cf. Münz, article "Migration policies for the ageing society of tomorrow", Chapter 4). In their article for this publication ("Austria's population 2050", Chapter 4), population scientists Elke Loichinger and Wolfgang Lutz therefore come to the conclusion that strengthening the competitiveness of the Austrian workforce can only be achieved through a combination of qualified immigrants and an education offensive for the population already living in Austria. And that it should not only be about pure knowledge of facts, but ultimately about the creation of a new educational culture, an attitude to education that cultivates the enjoyment of learning, is stressed from different sides (cf. Spiel, article "Education 2050 – the school of the future", Chapter 2; Välijärvi, article "The Finnish school system", Chapter 2; Dueck, 2010)

In addition to the fact that migrants with available qualifications are being developed and used to far too less an extent, Austria is still foregoing the potential of another part of its population: the employment rate of just under 75 per cent is still too low compared to other countries. Here, Sweden has over 80 per cent and Switzerland more than 83 per cent, thus showing significantly higher employment rates. This is not least attributable to the roughly 70 per cent very low employment quota of women in Austria. In Switzerland, this is 77.2 and in Sweden, 77.9 per cent.

Yet another serious problem in Austria is federalism. The catchword has been coursing around in the state and administrative reform in political and public discussions for years. Countless experts have raised awareness and the Audit Court (2006, 2009, 2011) has submitted several reports on the subject. However, nothing moves (cf. Bauer, 2011). And this although federalism in its current form causes costly and inefficient parallel structures. These are manifested in various federal and national legislation for regional planning or building regulations, a variety of different efficient social insurances, duplications of grants, an unsystematic approach to infrastructure projects or the already outlined costly organisation of the school administration (cf. Öhlinger, article "The future of federalism", Chapter 5).

Although for years experts have been pointing out the great potential of increasing the efficiency of the public sectors, a substantial administrative reform is being stubbornly blocked by the representatives of the federal provinces. This was criticised by WIFO head Karl Aiginger,

as early as 2010, who summarised his experiences in the administrative reform working group and estimated the loss of potential reform at up to four billion euros.²⁸ As examples for the most urgent areas of action he suggested a new provincial budget law, renouncing doubtful infrastructure projects, and saving where possible in the hospital sector.

Speaking of the hospital sector: according to the Audit Court (2011), Austria's hospitals are in the top field of the EU when it comes to costs. They cause about 40 per cent of the national healthcare expenditures at around 11 per cent economic performance, which is especially attributed to the overcapacity of hospital beds. The Audit Court has already repeatedly noted that by reducing the inpatient capacities to the European average and at the same time optimising the locational structure, about 2.9 billion euros could be reallocated. In the context of the health-care system this furthermore begs the question why each state needs to have its own state health fund and furthermore, even more for individual professions such as public servants, farmers, self-employed and freelancers or railroad employees (cf. Öhlinger, article "The future of federalism", Chapter 5).

Or let's take the Austrian pension system: in its publication "Pensions at a Glance", the OECD (2009b, 2011b) has been noting for years that the Austrian system compared to the OECD is too expensive. The effective retirement age of men is under 60 in Austria. This is a good five years before the statutory retirement age of 65. Because a total of 91 per cent of employees retire early into subsidised retirement, the budget for public pension costs is exploding. Even today, about 10 per cent of the total pension costs come from the federal budget, even though Austria basically has a pay-as-you-go system. In the year 2012, at around 10 billion euros, the federal grants were about three per cent of the GDP. At this rate, it is only a matter of time until the state will become insolvent. In his article (cf. Marin, "Austria 2050: Pensions of the future", Chapter 4) the social scientist Bernd Marin cites a number of problem areas in the Austrian pension system. In light of the importance of the subject matter, it is not surprising that he once referred to the urgently necessary pension reform as the "existential question of the nation".²⁹ This is all the more relevant as the costs for care and health will explode in the coming 30 years.

A serious problem is that many companies send their older workers into early retirement to save costs because contrary to the principle "equal pay for equal work", older employees often receive significantly more income.³⁰ An extreme example for this is with teachers. And while, for example in Finland employing 63- to 68-year-olds is rewarded, the Austrian system supports early retirement from the workforce. Here, a new approach in the context of a comprehensive pension reform is needed. In Marin's view, this must be carried by all parties, as it is in Switzerland.

The current pension policy is, in any case, at the expense of both our youths and our competitiveness. Pension costs for a single day are already as high as the expenses for external university research for an entire year. This can and shouldn't be affordable in the long term by a society that wants to be a knowledge society.

One last example that should not remain unmentioned is the Austrian tax system, which the head of the Institute for Advanced Studies (IHS), Christian Keuschnigg, and economist Gerhard Reitschuler tackle in their article (cf. Keuschnigg & Reitschuler, article "A tax reform for the future", Chapter 5). According to the OECD (2012c) the tax system is urgently in need of a reform for many reasons: with about 42 per cent, Austria has one of the highest tax ratios compared to other countries. The EU average is 38.8 per cent; Switzerland has 37.6 per cent – with an at the same time antigrowth emphasis, that means a burden on income and relief on assets. The burden of earned income is in total very high; progressively embellished taxes on income and assets – as was also criticised by WIFO (2009) – do not carry enough weight; regressively embellished social taxes and indirect taxes on the other hand are too high. Furthermore, there is a lack of sensible ecological aspects such as the taxing of fossil fuel consumption while at the same reducing the tax burden on incomes – as it was successfully done in Denmark and Sweden. And thus, according to WIFO (2010), Austria is only ranked twenty-third in the EU 27, in terms of share of environmental taxes and total tax revenue. The taxing of fuels is also very low on an international scale: petrol prices are significantly lower than those of the neighbouring countries, due to the low mineral oil tax (0.442 cents per litre). In Germany, for example, the mineral oil tax is 0.655; in Italy 0.564 cents per litre. At the same time, in Austria there are misdirected incentives such as the high commuter tax relief, which was recently stocked up by 120 million euros.

Regarding all this as a whole, it is not surprising that satisfaction with democracy of Austrians falls under the Europe-wide average, while the Scandinavian countries and Switzerland have the highest satisfaction values (cf. European Social Survey 2010). In this country, it also correlates with an under-average trust in the government and its ability to provide solutions – quite the contrary to Switzerland or Sweden (cf. International Social Survey Programme 2010).

Change to success

So Austria is today faced with the question of how to sensibly resolve its paradoxes. In the changed world of tomorrow, the Austrian status quo, unchanged for years, could become a serious problem. In a modification of a poem by Erich Fried, one could say, "Those who want Austria to stay the way it is do not want it to stay." Those who don't change will be changed – and certainly not to his or her advantage. Continuing on as before is not an option. It is more about now establishing how we can secure our sustainability and to build on prosperity, also for further generations. The success history of the Second Republic is absolutely about self-trust, but no reason for self-satisfaction or even euphemistic complacency. Resignation, fatalism or lethargy are not, however, a solution, either.

One thing is for sure: in order to tackle the existing and future challenges successfully, an effective, powerful and comprehensive economic and research landscape is necessary. This will include a modern and efficient education system as well as a motivating model for action, which gives all young people the opportunity to develop their potential. There is no distributive justice without performance-based justice. And both demand the best possible education system.

For a small, open economy like Austria's it will thus not be enough to simply "be present" in the global competitive knowledge-based economies. Education, research, technology and innovation are the deciding prerequisites to staying competitive in the future for a resource-poor country like Austria and to advance in the economic, technological, social, ecological and cultural sectors. The main task of the national policy in the European context and increasingly progressive globalisation is to prepare the country for the challenges of the future. To do this, the future areas need to be strengthened at the expense of the less productive or only consuming sectors. The required conditions must be created today.

The first step was taken by the Austrian federal government in 2011: passing its strategy for research, innovation and technology, the government set a milestone to create a strategic foundation to advance towards leading innovation nations like Switzerland, Germany, Sweden and Finland. The targets formulated in the RTI strategy are consistently ambitious and show the correct direction. But now it is about implementing the appropriate measures with emphasis in order to reach the visualised goals. Because, in the light of the rapid changes occurring throughout the world it takes an active setting of the course with long-term orientation instead of delays, helplessness or short-term action. Those wanting to be successful in the world of tomorrow must be prepared to change themselves now. We are still quite a way from that. In the last 60 years and especially since entering the European Union, Austria may have achieved remarkable things. But despite the successes,

development must continue. Standing still in a globalised world means going backwards. Obvious defects must be overcome and new opportunities seized in order for Austria to be fit for the future. The main challenges that exist on the path to an internationally well networked and innovative knowledge society have long been identified and analysed in depth. There is an abundance of expert reports, political strategies and plans for taking measures; also in the articles in this book. Now it's time to finally take up on the suggestions. Only then do we have the chance to implement the positive future scenarios at least in part which were outlined in this publication by 2050 and avert the threats.

The MIT economist Daron Acemoglu and Harvard political scientist James Robinson express so succinctly the thoughts developed in this article in the preface of the German edition of their bestseller *Why Nations Fail*, summarised in this quote: "[It] is [...] the regulations chosen by the States – or institutions who have the say on whether they are economically successful or not. Economic growth is driven by innovations and technology and organisational change, thanks to the ideas, talents and creativity and energy of individuals. But appropriate incentives are needed. Furthermore, capabilities and ideas are broadly spread through society, which is why a state that deprives a large proportion of its population should hardly be allowed to use the existing innovation potential or benefit from economic change. This all suggests a simple conclusion: the key to sustainable economic success can be found in the structure of a series of economic institutions – including economic institutions that can make use of the talents and ideas of the citizens of a state in that they offer appropriate incentives, secured right of ownership and contractual rights, a functioning judicial system and free competition so that the majority of the population can productively take part in the economic life." (Acemoglu/Robinson 2013, p. 14).

We can still correct the existing undesirable developments – under the pretext that we set ourselves the challenges of the future and fulfil the necessary tasks. The window of opportunity that we have for this, however, will get smaller if we don't finally get on with it instead of being "Half way to halt, and doubtfully to aim/At half a deed, with half considered means", as Grillparzer has Matthias complain in "A fraternal quarrel in the House of Habsburg". What we need is a comprehensive, dynamic forward strategy with a 2050 perspective as well as to implement an oriented agenda for 2025, which will give people courage for independently responsible accomplishments, and orientation and support. Then the saying coined by national economist Philipp Wilhelm von Hörnigk in 1684 may perhaps sometime become a reality: "Austria Over All, If She Only Will." However: in the end, it is up to us. ■ (translated by Mý Huê McCowan)

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Notes

- ¹ Neue Zürcher Zeitung, 27 January 2011, supplement "Österreich"
- ² Frankfurter Allgemeine Zeitung, 17 June 2013: "Länderbericht Österreich: Robuster Zwerg mit Bürokratieballast"
- ³ Foreign Policy, 5 November 2012: "The Austrian Miracle: What's the secret of Austria's singular success, while the rest of Europe's economies founder?"
- ⁴ Neue Zürcher Zeitung, 27 January 2011: supplement "Österreich"
- ⁵ Taleb defines events as "black swans", which, due to the change of one single variable, lead to a dramatic and unforeseeable change in the entire system. Examples are the financial crisis, political upheavals in the Near East and Maghreb countries or the Fukushima reactor accident caused by a tsunami in Japan with its dramatic consequences.
- ⁶ The Economist, 25 May 2012: "Some fracking good news"
- ⁷ Time Magazine from 28 February: „Food Fights: Rising global grocery bills are hitting the poor and causing political unrest“ .
- ⁸ Die Zeit, 3 February 2011: "Im Wettlauf um Ressourcen"
- ⁹ The Economist, 9 April 2011: "Special Report: Pensions"
- ¹⁰ The Economist, 17 March 2011: "Running faster but falling behind"
- ¹¹ Cf. The articles from the symposium "Ageing Societies – Mature People: Healthy Ageing as an Opportunity?" Austrian Academy of Sciences, 10 May 2011; cf. Die Presse, 15 May 2011: "Pumperlgsund ins hohe Alter"
- ¹² This so-called "scaling problem", i.e. the fact that assigning an order of magnitude to another one is not automatically possible, has not been considered enough. Scaling problems occur because the complex social systems in their entirety often show characteristics or behaviour that the individual units do not have in this form (emergent properties) (cf. Bertalanffy, 1998).
- ¹³ Cf. Gwynne Dyer (2010): Schlachtfeld Erde. Klimakriege im 21. Jahrhundert. Stuttgart: Klett-Cotta; Center for Strategic and International Studies & Center for a New American Security (2007): "The Age of Consequences: The Foreign Policy and National Security Implications of Global Climate Change"; CNA Corporation (2007): "National security and the threat of climate change."; The National Academy of Sciences, The National Academy of Engineering, and The Institute of Medicine of The National Academies (2005): "Rising Above The Gathering Storm: Energizing and Employing America for a Brighter Economic Future".
- ¹⁴ The Economist, 21 April 2011: "Special Report: Manufacturing and innovation – A third industrial revolution"
- ¹⁵ Frankfurter Allgemeine Zeitung, 9 February 2010: "China exportiert mehr als Deutschland"; Der Standard, 14 February 2011: "China wird Wirtschaftsmacht Nummer zwei".
- ¹⁶ The Economist, 16 December 2010: "Save the Date: We invite you to predict when China will overtake America"
- ¹⁷ Der Standard, 19/20 February 2011: "USA werden von China überholt"; Der Standard, 28 March 2011: "Weltrangliste der Wissenschaft: USA bleiben Nummer 1 – großräumige Veränderungen zeichnen sich ab"
- ¹⁸ The Economist, 14 October 2010: "Innovation in China: Patents, yes; ideas maybe"; China Daily, 29 March 2011: "China's domestic applications for invention patents up 28 % in 2010"
- ¹⁹ The New York Times, 1 January 2011: "When innovation, too, is made in China"
- ²⁰ The Economist, 20 April 2013: "China: Climbing, stretching and stumbling"
- ²¹ The Economist, 21 April 2012: "China's Achilles heel. A comparison with America reveals a deep flaw in China's model of growth".
- ²² The Economist, 30 April 2013: "Can India become a great power?"
- ²³ Die Zeit, 17 February 2011: "China begegnen: Glückwunsch, Peking! Aber noch geben wir uns nicht geschlagen" .
- ²⁴ The Economist, 2 February 2013: "The next supermodel: why the world should look at the Nordic countries".
- ²⁵ Mentioned in passing, in this context, the Arbeitsmarktservice (employment service) spends about 2 billion euros on retraining for 80,000 people.
- ²⁶ Times Higher Education (2012): World University Rankings 2012-2013; Academic Ranking of World Universities 2012 (www.arwu.org)
- ²⁷ Neue Zürcher Zeitung, 30 May 2013: "Insel der Glückseligkeit – Die Schweiz hat seit Jahren eine stabile Einkommensverteilung"
- ²⁸ Wiener Zeitung, 4 July 2010: "Sparen an den richtigen Stellen: WIFO-Chef Aiginger schlägt nationalen Zukunftspakt vor – Verwaltungsreform stockt"
- ²⁹ Salzburger Nachrichten, 11 February 2011: "Existenzfrage einer Nation"
- ³⁰ Partly responsible are also parts of the salary system collective agreements as well as automatic salary advancements, which contribute to older workers becoming over-proportionally more expensive.

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