

The World 2017

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Upheaval casts cloud over view from Davos

Annual meeting represents the globalism Trump has pledged to destroy, writes *Gideon Rachman*

The World Economic Forum's slogan is "Dedicated to improving the state of the world". This year, however, a more fitting motto might be "Fending off a hostile world".

Last year I ended my report from Davos, where the business and political elites have mixed since the 1970s, by writing: "It is possible – if still unlikely – that when the WEF gathers this time next year, Mr Trump will be US president and the UK will have voted to leave the EU . . . These developments would turn the Davos world upside down."

In the interim 12 months, the unlikely has turned into reality. And although the delegates at Davos this week, fuelled by champagne and canapés, will do their utmost to pretend that it is business as usual, the fact is that the world view epitomised by the WEF is under attack as never before.

The chosen theme for this year's forum is "Responsive and responsible leadership". But the political context for the annual meeting will be set by the inauguration of Mr Trump – which also takes place this week. And Mr Trump is not the average Davos delegate's idea of a "responsible leader".

The distaste is mutual. For the incoming US president and his political advisers, Davos epitomises the "globalism" that they are pledged to destroy. Steve Bannon, who will be chief strategist in the Trump White House, has denounced "the party of Davos", which he regards as a rootless global elite that has little concern for the common person or the nation state.

Mr Trump's avowed protectionism is an assault on the central premise of Davos, which is that international trade and investment are forces for good. The



Storm ahead: the US president-elect's protectionist views are an assault on the central premise of the World Economic Forum meeting — Drew Angerer/Getty Images

president-elect's call for a temporary ban on all Muslims entering the US – even if it is never enacted – is the very opposite of the plea for "earnest multi-cultural dialogue" that was made in this year's WEF introductory overview. Mr Trump has also argued that "the concept of climate change" was invented by the Chinese as part of a plot to wreck American industry. And yet the WEF programme is traditionally packed with sessions on the politics and science of climate change.

Symbolically, the last day of this year's forum, January 20, will coincide with the first day of Mr Trump's presidency. He will be sworn in just as the Davos delegates are packing away their skis and preparing for the last night gala.

In the absence of Mr Trump, the big star of this year's forum is certain to be Xi Jinping, the president of China. The Chinese leader's decision to make his first appearance at Davos is intriguing. In the physical and spiritual absence of the new US president, Mr Xi may have decided to audition for the part of a "responsive and responsible leader" of the international economic system.

Mr Xi, who will be the first Chinese president ever to speak at Davos, can probably be counted upon to make reassuring statements about the concerns that are dear to the hearts of the delegates, in particular globalisation and climate change.

A good Davos performance could provide Mr Xi with a considerable reward. It is quite likely that the coming year will see heightened tensions between the US and China over trade, Taiwan, North Korea and the South China Sea. Mr Xi will be keen to use his appearance to make China's case to an influential audience that includes some of the world's most important businesspeople, financiers and government officials.

Another administration that will be looking to use Davos to shape international opinion is the British govern-

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Leaders take long-term view over short-term profit

Management

Some businesses are trying to reinvent the traditional model, writes *Andrew Hill*

Since the 2008 financial crisis, conferences for corporate leaders have explored ways they might restore trust in business. Policymakers and regulators have tinkered with codes and rules to encourage boards and executives to do the right thing. In turn, executives have underlined their commitment to long-term goals over short-term profit. Yet public confidence continues to be shaken by corporate scandal and the disconnect between business leaders and the public has contributed to anger over inequality and resentment of institutions, evident in both the UK’s vote to leave the EU and Donald Trump’s election as US president.

For some, this lack of trust is proof that a revolution in top-down hierarchies is imminent. “Leaders no longer have the ability to control the conversation. The predominant communication [in companies] is already lateral rather than vertical” management expert Gary Hamel told last November’s Global Peter Drucker Forum — named after the influential management writer. Some leaders of large companies are subverting traditional structures. Zhang Ruimin, chief executive of Haier, is leading the transformation of the Chinese white goods maker into a shareholder of “micro-enterprises” that will compete for staff, capital and the right to make the machines customers want. It will operate more like a venture-capital incubator for start-ups than a multinational. Other companies, including Microsoft and Ericsson, are giving autonomy to self-managed teams working on complex projects.


As such models develop, the role of corporate leaders will evolve. Leaders will not disappear but will have to be more attentive to customers and their changing attitudes. One such is Feike Sijbesma, chief executive of DSM, the Dutch group that has transformed from a coal miner into a chemicals manufacturer and then a life sciences and materials group over its 115-year history. “Of course I take care of my shareholders and take care that the company makes profit,” he says. “But my first priority is having customers who are happy.” Mr Sijbesma wants his company “to play a responsible role in the world”, but says traditional corporate social responsibility (CSR) initiatives, managed separately from the core business, are “nonsense”. “The things I want to do well for the world can only be done if linked to the strengths and competencies of the company,” he says. Another Dutchman, Paul Polman, chief executive of Unilever, has moved

the consumer goods group away from short-term quarterly earnings updates and plans to halve the environmental impact of the manufacture and use of its products by 2030. This effort is part of the group’s normal profitable business rather than as a separate initiative. Sustainability — in the broadest sense — is built into this business model and is evident in companies’ attitudes to both innovation and leadership incentives. Half of Mr Sijbesma’s bonus is based on non-financial targets, such as increasing employee engagement and improving energy efficiency. The mantra of leaders in this mould is that long-term financial returns will improve as a result of

working in a way that benefits society. Yet many companies remain prone to a tendency identified in a 2005 academic survey of financial executives that found a majority would avoid starting a project to increase long-term economic value if it meant missing that quarter’s earnings forecasts. Another 2016 survey of 400 executives by Black Sun, a stakeholder communications company, found 60 per cent would prefer planning horizons of more than three years, but only a third have so far adopted such a strategy. Even at companies known for taking a long view, short-term pressures may remain. Last November, Novo Nordisk’s chief executive Lars Rebien Sorensen was named the world’s best-performing chief executive for the second time by Harvard Business Review, based on the healthcare group’s long-term financial, environmental, social and governance record under his stewardship. But before the ranking had been published,

Mr Sorensen’s planned retirement was brought forward by two years after the group cut its long-term profit targets and its shares plunged. Finally, business leaders need to anticipate changes in public attitudes. For instance, by responding sooner to concerns about tax avoidance, companies such as Google and Starbucks could have avoided the public outcry they provoked in the UK. As part of a research project looking at how to rebuild trust in business, the Oxford University Centre for Corporate Reputation suggested to business leaders that they should embrace changing societal norms. However, “a surprising number . . . responded by paraphrasing Milton Friedman’s 1970s assertion that the only responsibility of business is to make a profit for its shareholders,” the study said, revealing “a gaping distance between the views of the elite and the views of the public,” who “now expect much more of business”.

Half of Feike Sijbesma's bonus is based on non-financial targets such as employee engagement



Comment Those calling for change should be careful what they wish for, writes *Martin Wolf*

Populism will not lead to a better world

Does Donald Trump’s ascent to power in the US mark an end to the influence of Davos Man? This is a term invented by Samuel Huntington, the late political scientist, himself a participant at the annual meetings of the World Economic Forum in Davos, for a class of people he despised. He argued that they “have little need for national loyalty, view national boundaries as obstacles that thankfully are vanishing and see national governments as residues from the past whose only useful function is to facilitate the elite’s global operations”. So are we about to witness a decisive shift away from the aspirations of the WEF’s members and, if so, is this desirable? The answers are “yes” and “no”. Core beliefs of the Davos creed have been global co-operation and economic globalisation. But faith in the latter was shaken after the global financial crisis of 2007-09. The ratio of trade to global economic output has stagnated since then, after doubling between the early 1970s and 2007. The stock of foreign direct investment continues to rise relative to world output, albeit slowly. But the stock of cross-border financial assets has declined outright. This weakening of globalisation partly reflects the exhaustion of easy opportunities for global commerce and the feeble growth of demand since the crisis. But it also reflects shifts in policy: the post-crisis re-regulation of finance has had a pronounced home bias, with reduced support for cross-border activities. Trade liberalisation has stalled, while some studies already show

a rise in protectionist measures. Mr Trump’s inauguration as US president this week presages a marked tightening of the protectionist screws. The Trans-Pacific Partnership negotiated under his predecessor Barack Obama seems dead. The Transatlantic Trade and Investment Partnership is stillborn. More important, Mr Trump threatens to focus on bilateral deals, impose tariffs on imports from important partners, notably China and Mexico, and treat the World Trade Organisation with contempt. This approach could take us back to the kind of global trade-policy chaos that occurred between the first and second world wars. At the same time, strangely, Mr Trump seems set on abolishing many of the regulations imposed on finance after the crisis. So Davos people could still take whatever financial risks they wanted but could no longer trade as freely in goods and services. Finding a rationale for this is impossible. It is a reflection of the intellectual incoherence characteristic of populism. Yet make no mistake: Mr Trump could bring down the temple of world trade. If he were to impose punitive (and unjustifiable) tariffs on Chinese imports, the EU is likely to follow suit in order to protect its producers from a surge of Chinese imports. China would then feel obliged to retaliate. The system of trade rules could collapse. So, too, could the very idea of a co-operative global system. Trade could be just one aspect of a bigger shift. If the US administration adopts the mindset of Vladimir Putin’s Russia — inward looking, narrowly self-interested and indifferent to moral norms in



Illustration: Daniel Puddles

international relations — even a minimally co-operative global system — could disappear. This would be the end of the Pax Americana — the period of US hegemony since the end of the second world war. The world will not easily or quickly find a replacement for the US, particularly when similar populist and protectionist forces are at work elsewhere, notably Europe. Much of the work that countries still need to do together — tackling climate change or challenges of economic development — would become impossible. This, then, could also be the end of a world managed for — and often by — Davos man and woman. Many will feel that might be no bad thing. But they should be careful what they wish for. As has happened so often before, hubris led to over-reach. Davos people underplayed the role of legitimate and potent states in underpinning the global system. They forgot the need for the successful to recognise their responsibilities to the societies that had made their success possible. They ignored, above all, the obligation to share the gains of globalisation with its losers. The enthusiasm with which many

Elites far more brutal, stupid and damaging can all too easily be imagined

of them seized opportunities to avoid paying taxes was disgraceful. Some of the projects of the age of global economic liberalisation also went too far — notably heedless financial liberalisation, the imprudent expansion of the eurozone and encouragement of large-scale immigration. Citizenship might not matter that much to many Davos people, but it matters very much to many of their fellow citizens. These mistakes, however, are not nearly as bad as those likely to be made by the new populists. Davos people are in business: they do not wield the instruments of mass coercion, but rather seek to engage in mutually enriching commercial transactions and believe in the desirability of a peaceful and essentially co-operative world. Elites far more brutal, stupid and damaging than this can all too easily be imagined. The populist reaction might have become inevitable. But it will not lead to a better world, even for those who support it. Yes, policymakers should have paid more attention to what was happening to ordinary citizens, but the simple-minded populism now on the rise will soon prove far worse than the hubris of the Davos elite.

Upheaval casts cloud over view from Davos

Continued from page 1 ment. It is safe to say Davos man and woman neither predicted nor welcomed the result of the UK referendum on leaving the EU. On the WEF’s first day, Theresa May, the UK prime minister, is due to make a long-awaited speech in London on Britain’s approach to Brexit that will be listened to intently in Davos. Mrs May is not now expected to travel to Switzerland but other British visitors, including Philip Hammond, chancellor of the exchequer, will seek to define Brexit in positive terms. The UK delegation is likely to draw an implicit contrast with the Trump agenda by making it clear that Mrs May intends Britain to become a global champion of free trade. They will also seek to allay fears that the Brexit process is likely to be chaotic and disruptive to business. Many of the sectors represented — finance in particular — are anxious about Britain’s future access to the EU single market. The bigger question is whether British efforts to champion global free trade are likely to seem realistic in the context of a protectionist White House and a Brexit proc-

In the absence of the German and French leaders, May will seek to define Brexit in positive terms

ess that, almost inevitably, will see some increase in trade barriers. If Mrs May does stay away from Davos, she will not be alone. Angela Merkel, the German chancellor, a frequent WEF attendee, will not be there for the second time in a row, perhaps mindful that Davos is not the place to be seen in an election year. Also absent will be François Hollande, the president of France, who is on his way out. But another politician who will leave office imminently — US vice-president Joe Biden — is expected to make a swansong speech there. It will be interesting to see how Mr Biden strikes the balance between condemnation of Mr Trump and reassurance for the WEF audience. Although the Davos attendees will be desperate for reassurance, there is no avoiding the fact that the WEF is operating in a radically changed context — one with which the forum itself is only just beginning to come to terms.

The WEF’s introductory overview to this year’s meeting begins: “Global events this year have reminded decision makers that the more complex a system, the greater a community’s concern about its future.” But it then swiftly moves to the usual pious requests for “enhanced international co-operation and earnest multicultural dialogue”. Well-meaning platitudes of this sort are unlikely to be much help as the WEF struggles to adapt to the political storms that are raging in the world beyond the protective mountains of Davos.



Fate of free trade depends on the whims of one man

Globalisation

Donald Trump has bought into the idea that the global economy is a zero-sum game, writes *Alan Beattie*

The current era of globalisation, which began in the 1990s, has frequently been compared to the “golden age” of world-wide economic integration that started almost a century earlier in the 1870s. Then as now, there were protests against the perceived inequalities and vicissitudes of trade, and demands for tariffs to protect producers from foreign competition. But it took the first world war — and later the Great Depression — to bring that era of globalisation to an end. The end of the current age has often been predicted. A series of shocks have tested the resilience of the world trading system — the September 11 attacks on the US in 2001, the huge rise in oil prices and the global financial crisis of 2007-2009 chief among them. Trade in goods has indeed slowed over the past few years. Yet, until now, the new golden age has failed to come to



Stalled: the cancelled Ford plant outside San Luis Potosi, Mexico

a crashing halt. But if there is one person who threatens to endanger this relative peace, it is Donald Trump. While many US presidential candidates have talked tough protectionist language on the campaign trail, Mr Trump’s rhetoric is different. The president-elect’s plans to impose huge tariffs on imports from China and Mexico and to rip up trade deals unless they are fundamentally renegotiated would be the biggest shock to world trade for decades. When he enters the Oval Office,

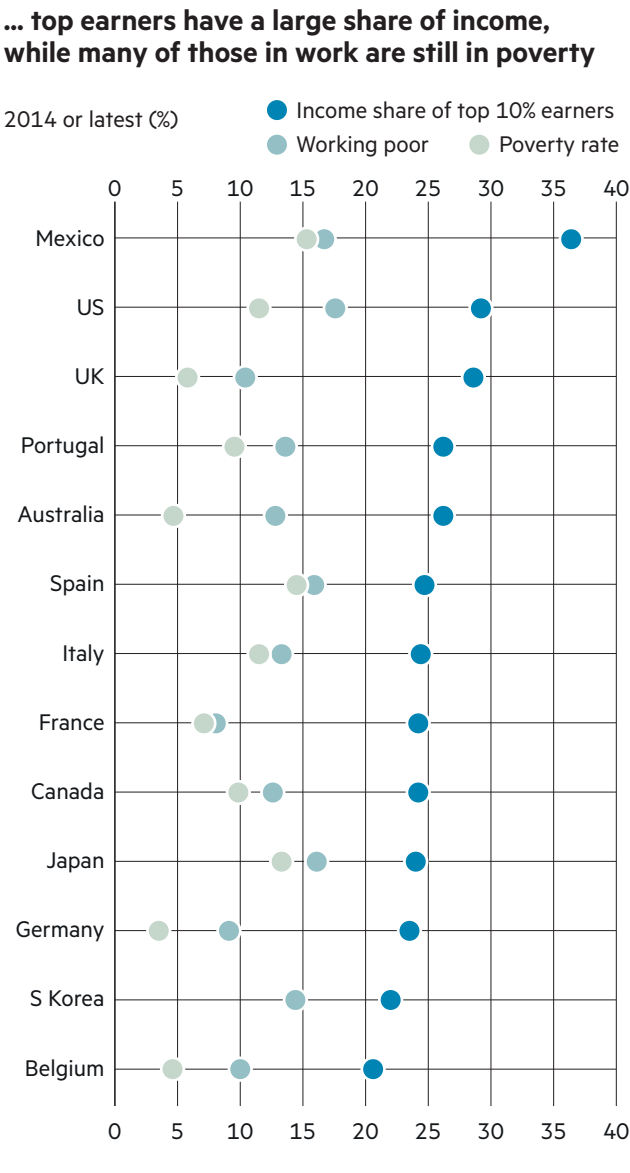
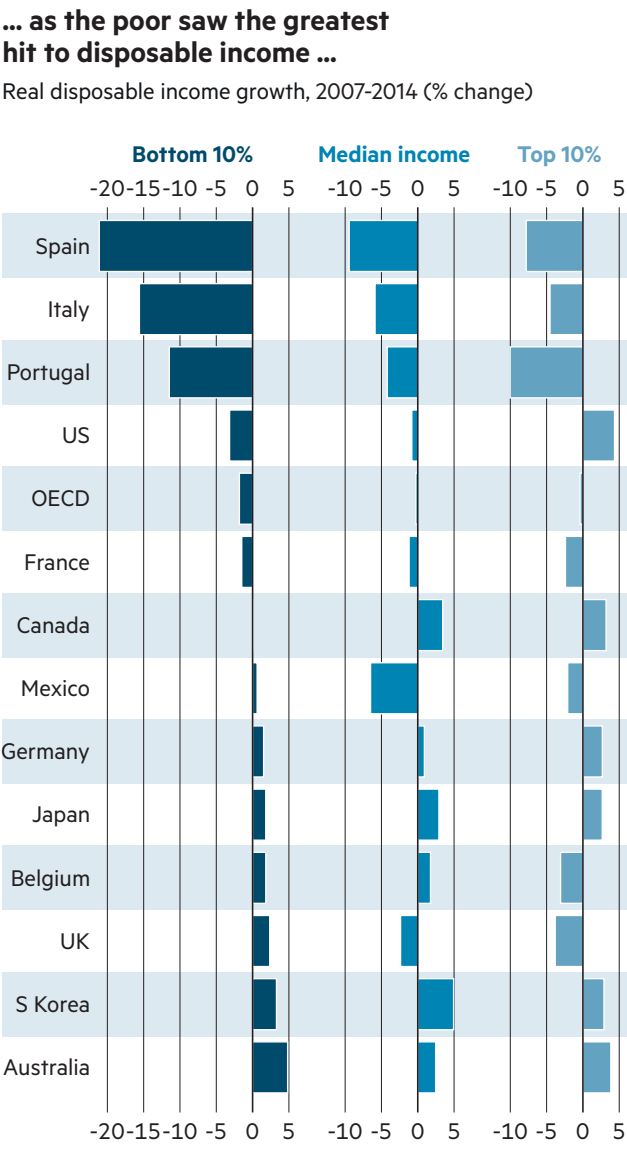
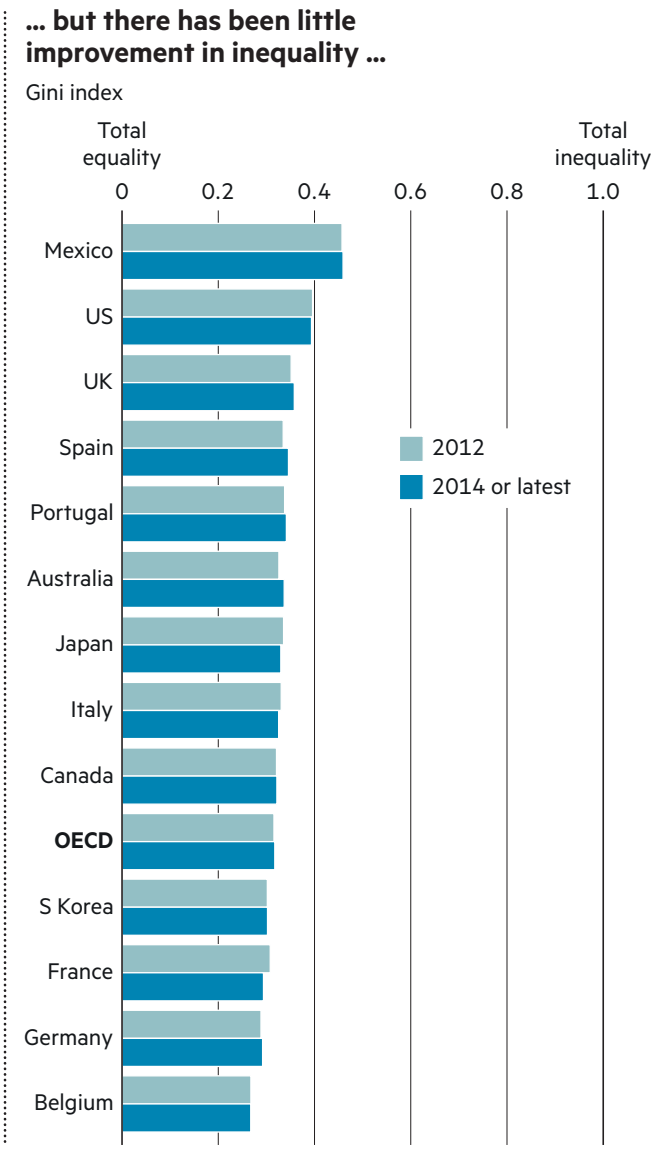
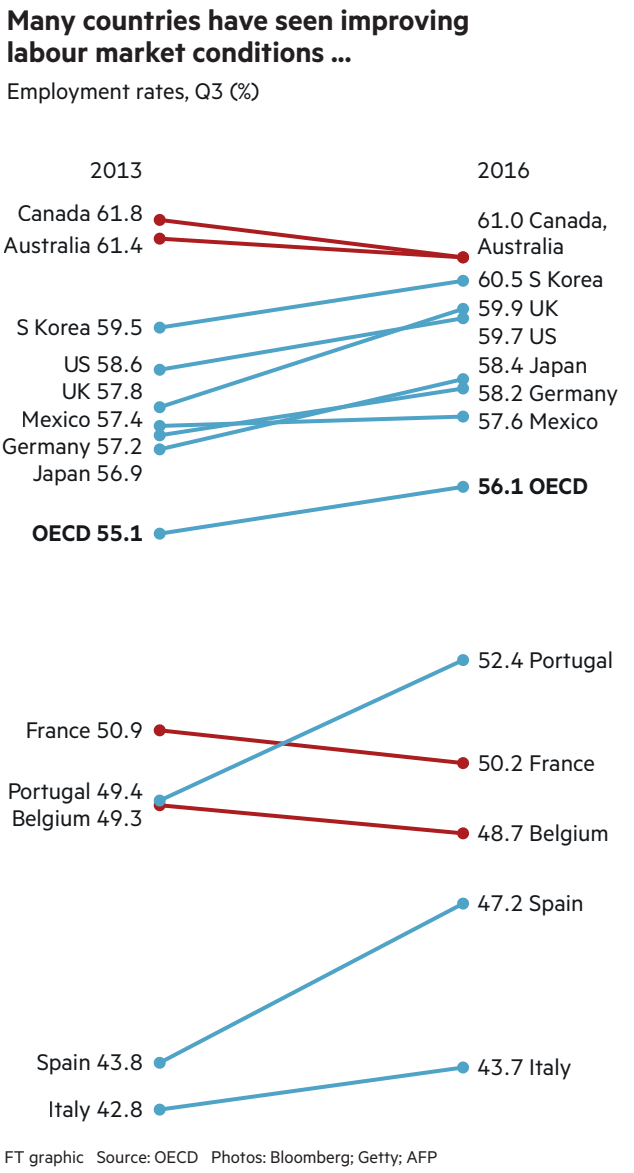
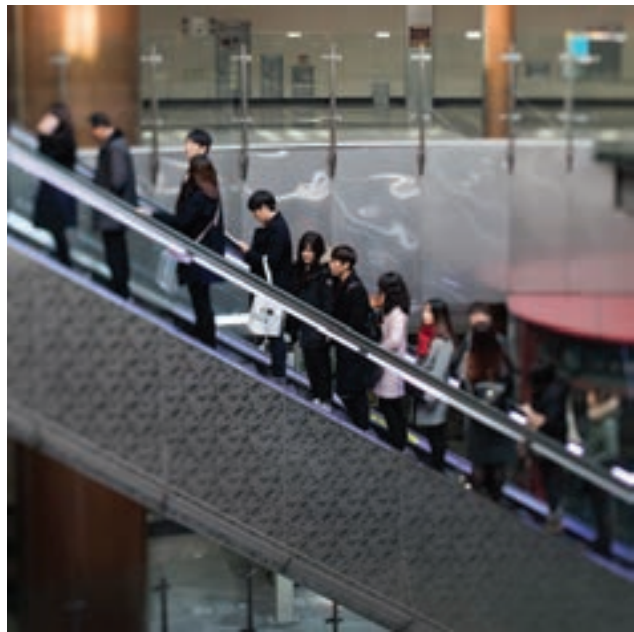
Mr Trump will survey a global trading system that looks worse off than it actually is. Trade in goods grew around twice the rate of world GDP in the years before the global financial crisis; since then it has slowed barely to keep pace. But although some have posited that protectionism has played a role, the most likely explanation is that some supply chains that had previously been divided up between countries are now increasingly taking place inside a single economy, notably China. In principle there is nothing wrong with that: it is the effect of emerging markets moving up the value chain and companies making appropriate business decisions. But widespread government intervention and protectionism would be a different matter. Mr Trump has bought into the idea that the global economy is essentially a zero-sum game, with jobs created in China coming directly at the expense of those in the US. He has been staffing the trade section of his administration with people who seem to think the same. Mr Trump’s picks for commerce secretary and to head a new administration trade council are, respectively, Wilbur Ross and Peter Navarro, both instinctive

protectionists. His choice for US trade representative, Robert Lighthizer, is a trade attorney who has fought for decades for protection of the steel industry from cheap imports. The question is whether Mr Trump genuinely wants to start widespread trade conflicts or simply to score some points that will play well in the Midwestern states that gave him his victory. Since the election, he has touted a couple of decisions — the moves by Carrier and Ford to keep some production in Michigan rather than expanding it in Mexico — as evidence that the prospect of his presidency is keeping jobs in America. These decisions, which involve a few hundred jobs, are of small significance. If Mr Trump is content with some symbolic victories he may hold off on the bigger conflict and global trade may continue relatively unabated. But if he really wants to use the power of the presidency to force producers to make their goods in the US there are several significant steps he can take. As Gary Hufbauer of the Peterson Institute think-tank in Washington DC points out, US presidents have far more power to tear up trade agreements than

they do to make them. Mr Trump could quite easily fulfil his threat to abrogate the North American Free Trade Agreement (Nafta) — which has been a cornerstone of US trade policy for more than two decades. Moreover, by declaring that he was retaliating against unfair practices by trading partners, or reacting to an emergency situation, Mr Trump could raise tariffs sharply. Of course, such actions would be subject to litigation at the World Trade Organisation (WTO), but if Mr Trump has truly decided to go for broke he could ignore any WTO ruling and dare his trading partners to impose trade sanctions, or even pull out of the organisation altogether. After so long defying the threat of protectionism and depression, it is remarkable that the future of the world trading system depends so heavily on the whims of one man. Yet the US’s pre-eminent role in global commerce, plus the extremism of Mr Trump’s stated views on trade, unrivalled by any presidential candidate let alone president-elect since the Great Depression, mean that the second age of globalisation faces an extraordinarily uncertain future in 2017.

The World 2017

Unequal distribution: the gap between the haves and have-nots



Economies need to heed wrath of the ‘left behind’

Productivity Almost all countries are failing to improve growth rates, writes *Chris Giles*

Responsive leadership — the theme of this year’s World Economic Forum in Davos — is absolutely crucial for corporate success. Similarly economies also need to be able to respond to a changing world.

A responsive economy can adapt to change; it is resilient in the face of adversity; it encourages innovation and transformation, helping all within it to prosper. Most important is its ability to harness rapid productivity growth while remaining sufficiently flexible to ensure there are few idle resources, whether they be labour or capital.

Many advanced economies are failing on the flexibility front. With unemployment rates still averaging almost 10 per cent across the eurozone, and much higher in southern Europe, the pain of the past decade’s economic weakness has been concentrated among those who cannot find work.

Almost all countries are failing one of the necessary conditions of a responsive economy — the ability to harness rapid productivity gains. As most countries have seen falling productivity growth rates this century, this has cast the world into a low-growth trap. In this snare, sustained economic weakness generates expectations of low returns, thereby reducing investment and generating the lower levels of potential economic growth.

Maurice Obstfeld, chief economist at the International Monetary Fund, says, “compared to the 1998-2007 averages, long-term potential growth is now projected to be lower in all regions, and current growth rates are lower still in much of the world, notably in emerging market and developing economies”.

If even flexible economies, such as the US, struggle to harness new ideas for more productive output, then low growth will generate disappointing tax receipts and governments will struggle to offset the negative effects of trade and new technology on their populations. There will be little money to help the “left behind” and their anger will mount.



Abandoned: graffiti artists outside a disused Detroit factory

“Productivity growth isn’t everything, but in the long run it is almost everything,” said Nobel Prize-winning economist Paul Krugman in 1994. Rarely has his adage been so important.

The productivity challenge is stark. In the US, sluggish growth has not prevented unemployment falling to a new low of 4.6 per cent, but this has merely highlighted the weakness of labour productivity — the output per hour worked. It fell 0.3 per cent in 2016, having grown at an annual average rate of 2.8 per cent between 1999 and 2006, the Conference Board, a research group, estimates.

Labour productivity growth has also declined in Europe — from 1.5 per cent

‘Trade protectionism shelters some jobs, but worsens prospects and lowers wellbeing for many’

to 0.3 per cent over the same period in the eurozone — and Japan, from 2.2 per cent to 0.8 per cent. Part of the decline is the result of ageing populations, but more can be attributed to a fall in the growth rate within industries and a smaller change in the composition of work, with some middle-skilled jobs

being replaced by lower-productivity employment.

The result of low productivity growth has been historically small rises in incomes, adding to the sense that economic structures no longer satisfy the public’s expectations, especially where rising inequality has concentrated gains among a very few.

To raise productivity growth rates and generate more responsive economies, at least three ingredients are required. The first, says the OECD, is faster growth rates. This would ensure an escape from the low-growth trap. The US economy is already closest to becoming the global test bed of whether rapid growth can restore responsiveness and productivity to an economy.

Janet Yellen, chair of the Federal Reserve, said in September that a faster rate of expansion might itself lead to more rapid productivity growth, increasing speculation that the Fed could keep interest rates low to encourage faster growth. But minutes from its December meeting, when it raised interest rates, showed the Fed was ready to put up rates faster than expected if the new US administration stimulates the economy in 2017 with tax cuts and spending increases.

A second ingredient is fulfilment of structural reforms to improve potential growth. In 2015, the G20 nations pledged reforms to improve their economies’ growth rate by 2 per cent, but they are falling behind in their efforts to reach this target.

A third is for leaders to avoid the increasingly harsh protectionist language regarding trade. Trade growth has fallen to no more than economic growth in the world since 2010 (it has traditionally grown at twice the level, intensifying competition and helping to boost productivity growth). The OECD has calculated that this drop in the growth of trade has shaved 0.2 percentage points from annual global productivity growth since the 2007-09 financial crisis, leaving it growing at only 0.5 per cent a year.

Catherine Mann, the OECD’s chief economist, says that adoption of protectionist measures will fail to create responsive economies: “Trade protectionism shelters some jobs, but worsens prospects and lowers wellbeing for many.”

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The World 2017

Life-long learning will be crucial in the AI era

OPINION

Vishal Sikka

Artificial intelligence and automation technologies are already starting to affect our work and daily lives. AI is present in everyday objects and processes such as virtual assistants, supermarket checkouts, driverless cars and detecting fraud in credit card transactions.

Disruption is inevitable but it is often deeply feared. The current wave of change, fuelled by technological advancement, is no different. However, like generations before us, we must learn to transcend the disruption and thrive in new times. Changing how we view education is essential to humanity’s ability to achieve the best from new technologies.

I recently spoke to graduating students at the University of Queensland in Australia and their excitement was tinged with trepidation about the future. I made three points to them: first, AI – and the resulting automation of industrial and business processes – will affect us all and is here to stay; second, it is in its infancy and there is an immense opportunity to transcend the disruption; third, as AI develops, this disruption will be repeated again and again. The only certain strategy in our world is for us all to become life-long learners.

We are still far from the “society of mind” that Marvin Minsky wrote about in the 1980s, in which many sophisticated instruments of intelligence possessed with faculties of deduction and learning – as well as different ways of representing knowledge and reasoning about it – combine to deliver systems capable of complex, autonomous behaviours. Yet many business leaders already consider AI integral to the future. A recent survey of 1,600 global enterprises by Infosys found that 71 per cent of their leaders feel the adoption of AI in business and society is inevitable; more than three quarters feel AI adoption will deliver positive, wider economic change; a



Future on show: people will have to learn to work with robots

Jeff Spicer/Getty Images for Westfield

quarter have already fully deployed at least one AI technology.

But I believe humans will not do well if they merely endure such disruptions. Rather, we can play an active part in shaping our collective future and changing our world in a meaningful and purposeful way. Technology can be a great enabling force that amplifies and empowers people, improves the quality of life for all and opens up opportunities for the underprivileged.

For example, at the start of the 20th century 38 per cent of Americans worked on farms. Since then, mechanisation has increased production while reducing the number of employees. Today hired farm workers constitute less than 1 per cent of the US workforce and yet overall

employment has soared. Farming jobs have been replaced with new industries – telecoms, health, manufacturing, financial services and more. We work in areas unimaginable to a farmer in the 1900s.

In the same way, AI will affect how we work, the jobs we do and the activities we take part in, both for work and in our free time. It will provide humans with opportunities to create new kinds of experiences and jobs that are unimaginable today, but that have the potential to create trillions of dollars of new value. While intelligent systems may eventually surpass humans in performing well-defined cognitive tasks (such as problem solving), it takes human creativity and ingenuity to “see” the opportunity (such as recognising a

problem technology can solve in the first place).

AI can enable us to overcome the limitations of our minds and senses. As my co-chair at the World Economic Forum’s Global Future Council on AI and Robotics, Professor Missy Cummings of Duke University, says, we are still in the early stages of understanding how intelligent systems can work with people more seamlessly. This would enable both the sharing of work and achieving shared meaning and perspectives. It is not a question of man or machine, but of man *and* machine. Such collaboration is critical to establishing shared meaning as we have seen in human collaboration for generations.

Breakthroughs can only be achieved if

‘Today’s rapid changes call for a new perspective on education by both states and companies’

man and machine work together on a set of shared goals. When we achieve such a symbiosis, the potential for our species will be immense.

This story of disruption and transcendence has played out over millennia. But the pace of change is accelerating, necessitating an ever-faster rate of adaptation.

The time has come to rethink education and to recast it as a life-long process. That means we need to move away from rewarding memorisation and instead prize curiosity and experimentation – the building blocks of discovering and understanding the things we do not yet know. Curriculums should be modernised to encourage creative problem finding and solving, and learning through doing, with mandatory computer science learning as the bedrock for enabling digital literacy. Organisations also need to make life-long learning resources available for employees to enhance skills development. Indeed, they should be required to dedicate a percentage of their annual revenue to reskilling staff.

Humans have adapted in part because we have evolved our education systems alongside our technologies: we advanced our capacities to understand our tools. As with reading and writing, being digitally literate is a fundamental need and every child should study computer science.

Today’s rapid changes call for a new perspective on education by states and companies. Infosys is rethinking its training infrastructure and augmenting it with, for example, short courses (or “nanodegrees”) to help drive the rapid acquisition of new skills, including AI techniques, at scale. We are also introducing company-wide training to help employees reassess the way they approach challenges and identify problems, and to be more creative and bring innovation to everything we do.

These are small starts and governments and businesses need to help develop an approach to life-long learning that will create a more level playing field for people everywhere.

If we can do this, I believe the only limit to our human potential will be the capacity of our imaginations. The AIs of our creation will help us to become more human.

The writer is chief executive of Infosys

Chiefs hold back on smart factories as new age dawns

Automation

Senior executives worry that new technologies could feed public distrust, writes Peggy Hollinger

A revolution is stirring in the world’s factories. Industrial robots are breaking out of their cages to work side by side with humans. Autonomous vehicles scoot around factory floors replenishing production line supplies. Giant milling, moulding and pressing machines are learning to communicate with each other. And Factories are improving their links with suppliers, exchanging data and rectifying problems, with minimal human intervention.

The age of the smart factory is upon us and with it the promise of a step-change in manufacturing efficiency and productivity. The falling cost of sensor technology and the ability to harvest previously hidden data – hitched to an all-pervasive internet – promises to transform the fabrication of everything from cups to cars.

General Electric, one of the world’s biggest industrial companies, estimates that digitising industrial machinery, networks and processes will not just bring down the costs of manufacturing. The data it generates will open new business opportunities, such as optimising maintenance schedules for customers or improving the design and quality of products. The resulting “industrial internet”, GE argues, has the potential to deliver global productivity improvements that could add \$10tn-15tn to global GDP over 20 years.

No manufacturer can ignore the coming revolution. Yet many, in developed economies at least, are wary. A backlash against globalisation, fuelled by decades of decline in America’s rust belt and the erosion of blue-collar jobs, has already upset the status quo in the US, where Donald Trump’s protectionist slogans helped him to win the White House.

Almost half the 1,370 chief executives

questioned in PwC’s annual Global CEO survey published this week fear that this latest industrial revolution will feed further distrust among their companies’ stakeholders – whether they be investors, employees or the wider public.

German manufacturers have been some of the earliest converts to the new technology age, having recognised that unconventional competitors such as Google pose a threat to traditional industries, including carmaking. The government has over recent years led a national campaign to encourage the adoption of the industrial internet under the banner of Industry 4.0, and provided incentives for investment.

But even German business is finding the transition more complicated than expected. Hartmut Rau, deputy director of the mechanical engineering industry association VDMA, says that many of his members are struggling to identify where the value will finally lie in the new industrial model. Predictions that manufacturers would derive new revenue streams from data-led services remain unfulfilled, he says. Customers are not yet convinced that they should

‘If you put your head in the sand you . . . lose competitiveness and jobs’

pay for such services. “It is a question of behaviour and it is not so easy to change the behaviour of a customer, and of the whole value chain,” he says.

Yet failure to respond to these new changes would be fatal, says Juergen Maier, chief executive of Siemens UK. “There is only one responsible thing to do and that is to embrace it and see the opportunities,” he says. “We are now in a race as to who uses all of this technology the most effectively to increase productivity and to be globally competitive. If you put your head in the sand you get the opposite. You lose competitiveness and lose jobs.”

Irmgard Nübler, senior economist at the International Labour Organisation,



Production line: a GE factory in Texas

argues in a recent study that investment in new technology is a defence rather than a threat to industrial employment and should be sold to the public as such. Germany, Denmark, Italy and South Korea invested heavily in robotics between 1993 and 2007. Yet manufacturing’s share of overall employment fell far less in these countries than in the US and UK, where growth in robot use was far lower, her study found. In Germany the decline in industrial jobs as a percentage of the total was roughly half that in the US between 1991 and 2014 – yet it has 301 robots for every 10,000 manufacturing workers compared to just 176 in the US.

ThyssenKrupp, the industrial conglomerate, began to prepare its business for the industrial internet more than five years ago. Stefan Schmitt, ThyssenKrupp’s head of human resources strategy, says the nature of jobs has changed but not the overall number of employees. “It is not robots or humans,” he says. “It is robots with humans.”

Yet those humans will have to learn how to do their jobs differently, whether it is about maintaining the automation that has replaced traditional labour or using the data that their new smart machines generate. Tim Lawrence, a manufacturing specialist at PA Consulting, warns that not enough companies have begun to formulate strategies to retrain their existing workforces.

Blake Moret, chief executive of Rockwell Automation and a member of the executive committee of the US National Association of Manufacturers, says companies will have to give training budgets the same priority as research and development spending. “Life-long learning for factory workers can be a competitive advantage. No matter how much you automate, your people will remain your most important asset.”

Defeated liberals seek to define their roles after voters turn right

Politics

The centre-left in the US and the UK is struggling to oppose the populist tide, reports George Parker

Tony Blair, the former UK prime minister, lamented recently that the UK had turned into a “one party state” and that Theresa May’s government was heading towards leaving the EU with no opposition; in the US, Democrats have seemingly turned inward as the Trump era dawns. At a time when the old certainties of the liberal left are being replaced by the new uncertainties of the populist right, traditional opposition parties are pondering how to become a responsive and responsible alternative.

The centre-left’s plight is well documented: Britain’s Labour party – which won three successive general elections under Mr Blair – is drifting towards irrelevance, with a recent national poll putting its support at just 24 per cent.

Meanwhile, in the US, Hillary Clinton’s defeat by Donald Trump in the presidential election, coupled with the Republican party’s control of Congress, has led to soul-searching about where the Democrats go from here.

Both Labour and the Democratic party have struggled to work out how to oppose the populism that manifested itself in Britain’s referendum to leave the EU last June and Mr Trump’s victory; some say there may be no answer.

Patrick O’Flynn, a member of the European Parliament for the populist UK Independence party, believes that Labour’s “traditional electoral coalition has fractured” and it may be impossible to put it back together.

According to Mr O’Flynn, most of Labour’s support is now urban, professional, pro-EU and against immigration controls, while perhaps a third consists of white working-class voters who backed Brexit and see immigration as “against their economic interests in terms of wages, jobs and scarce welfare resources”.

Labour’s working-class heartlands had already been captured by the Scottish National party north of the border; Ukip threatens its citadels in northern

England; the pro-EU Liberal Democrats are targeting anti-Brexit voters.

Anthony Wells, research director at pollster YouGov, says: “It would be difficult enough to tie all this together if you were a political master like Tony Blair or had the intellectual heft of Gordon Brown.” Instead Labour is led by Jeremy Corbyn, an old-style socialist who struggles to win the support of his own MPs; a YouGov poll found only 14 per cent of voters thought he would be the best prime minister.

Some Labour moderates secretly hope Mrs May will hold an early election and crush Mr Corbyn, allowing the party to rebuild. In the meantime, older heads try to figure out how to look like a credible opposition. Yvette Cooper, a former Labour minister, is mapping out a moderate immigration policy that recognises parties of the left must not ignore public concern on the matter.

Meanwhile Sir Keir Starmer, Labour’s Brexit spokesman, hopes to exploit government missteps on Europe. But he is forced to straddle his party’s divisions, endorsing Brexit but calling for Britain to stay in the single market.

The biggest check to Mrs May’s plans could come in the unelected House of Lords, where her Tories make up less than one-third of its members. The upper house has already started flexing its muscles on Brexit.

Labour’s dilemma is all too familiar to Democrats in the US as they grapple with how to win back white working-class voters, although they are not faced with Labour’s existential threat; Mrs Clinton, after all, won the popular vote.

But the party’s strategic dilemma was exposed last November when Democrats in the House of Representatives

tives chose Nancy Pelosi, a wealthy liberal from San Francisco, to continue to lead them ahead of Tim Ryan of Ohio. “[Ryan’s] appeal was this: ‘We need white, working-class, Midwestern men and I’m a white man from a working-class area of Ohio,’” says Paul Waldman, a Washington Post blogger. Mr Waldman thinks embracing “identity politics” – trying to win support based on race or gender for example – is not enough to build a successful opposition.

He says the Democrats need to sap the authority of Mr Trump’s administration by finding organisations that will sue the government and by submitting thousands of freedom of information requests to find out what it is doing.

Meanwhile Josh Chafetz, professor of Law at Cornell Law School, argues the Democrats can form alliances with disaffected Republicans in Congress – particularly in the Senate, where the GOP has only a 52-48 majority – to frustrate Mr Trump. “The biggest thing they can do to do is to try to pick off a few Republicans, especially in the Senate, on a given issue,” Prof Chafetz says. That could be on specific legislation or in opposing a Trump nominee.

Prof Chafetz argues that while the Republicans might control both houses, Mr Trump’s candidacy has split his party and the new president is already unpopular. Democrats looking for GOP rebels will find their task easier “the less popular he becomes”.

Opposition looks tough in 2017 but governing could be harder. As Mr Blair told Esquire magazine last November: “There’s been a huge reaction against the politics I represent. But I think it’s too soon to say the centre has been defeated.” And one of the oldest dictums of the political game still remains that oppositions do not win elections; governments lose them.



Democrat leader: Nancy Pelosi

Uncertain times call for moral leadership

OPINION

Mary Robinson

Millions across the world feel that the current globalised system is not working in their best interests. From unemployed former steel workers in the US rust belt, to the small island states in the South Pacific where livelihoods are threatened by climate change, people are angry that decisions taken by governments and in corporate boardrooms appear blithely indifferent to their daily struggles.

We know from history that crude populism offers no real solutions, creating only false hope and scapegoats. Yet it is also clear that there are many politicians who will cynically exploit genuine grievances for their own ends.

All of this means that the new year is beginning with uncertainty and trepidation at every level of society. Potentially seismic changes in political leadership in 2017, not only in the US but also across Europe, Iran, India and parts of Africa, could disrupt established institutions and multilateral processes.

At the same time, across the world we see rising levels of xenophobia and intolerance, a narrowing of political vision and a focus on parochial introspection. It feels as if a lid has been taken off a simmering pot of tensions and discontent. Views on race, gender and religion that only a few years ago were deemed unacceptable are now commonplace. Over the past year we have seen how public discourse can be tarnished by harsh and ugly rhetoric. This is most evident online, where women and minority groups are targets of cowardly abuse and intimidation.

Some politicians claim this is a populist revolt against global elites and that the whole system of international governance established since the end of the second world war, including the UN, needs to be comprehensively



overhauled. I would argue that the values that form the foundation of the UN and the Universal Declaration of Human Rights are as relevant today as they were in the 1940s and that our challenge is to uphold them.

At the same time, we need to make changes to the international governance system so that it is more resilient, robust, representative and equipped to adapt to new geopolitical realities and complex long-term challenges, including climate change, mass migration and growing inequality.

If we are to have any hope of making constructive progress in 2017, and stopping this rising tide of anger turning into destructive nihilism, all responsible politicians, civil society and

business leaders must stand firm and reassert our basic, common values of dignity for all.

I am encouraged by the fact that there are many leaders, organisations and citizens who are still determined to act together to secure a sustainable future for our people and our planet.

I saw this for myself at the COP 22 climate negotiations that took place in November 2016 in Marrakesh. Leaders from countries at all levels of development — as well as business, cities, regions, civil society and indigenous communities — renewed their commitment to the goals set out in the Paris Agreement. The focus now is on implementation, so that any rise in global temperatures can be

The need for sustainability: food and supplies being distributed in Haiti after Hurricane Matthew struck the island in 2016

Andres Martinez Casares /Reuters

limited to 1.5C or below, an absolute prerequisite for climate justice.

Fortunately, leadership exists. In Marrakesh, I was very impressed by the Climate Vulnerable Forum: a group of 48 countries that are among the most vulnerable to the impacts of climate change, and most committed to leading a rapid transformation in their own countries to carbon-neutral, climate resilient economies.

I was inspired by their call for “a new era of the pursuit of development, ending poverty, leaving no person behind and protecting the environment” and for an international co-operative system that is fully equipped to address climate change. This is precisely the right vision and attitude — and a powerful antidote to today’s pervasive gloom.

Only by embracing such a holistic approach can we successfully implement not only the Paris Agreement but also the UN Sustainable Development Goals. Taken together — which is absolutely essential, because without action on climate change the rest of the UN’s 2030 Agenda for Sustainable Development will be unachievable — they have the potential to improve the lives of millions of people across the planet.

It must be a bottom-up approach, in which leaders and policymakers show humility and listen to the experiences and voices of people at the sharp end of climate change, poverty, violence and injustice.

This is no time for naive optimism; the challenges ahead are stark and the voices of hostility are strident. But I remain inspired by the words of Nelson Mandela, who said in 2003 that: “Those who conduct themselves with morality, integrity and consistency need not fear the forces of inhumanity and cruelty.”

As a member of The Elders, the group of independent former leaders founded by Mr Mandela to work for peace and human rights, I will hold his words close in the coming year and hope they will continue to inspire citizens across the globe to trust their best instincts and work together for justice.

The writer is a former president of Ireland, UN High Commissioner for Human Rights and a member of The Elders

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Healthcare: six big policy areas to keep an eye on in the year ahead

Wellbeing

Tremors from last year’s political shake-ups will be felt beyond country borders, writes *Andrew Jack*

Health in 2017 will be significantly affected by two of last year’s most striking events: the UK referendum to leave the EU and the US election of Donald Trump. Because of matters such as international aid payments and the global fight against diseases, the impacts of the changes these will bring will be felt far beyond these countries’ borders.

Here are six areas vulnerable to buffeting by the changing political winds.

1. Healthcare coverage

President-elect Donald Trump has pledged to dismantle the Affordable Care Act. Despite concerns over the way “Obamacare” was implemented, efforts to curtail the care it provided will trigger political opposition. Mr Trump is already showing signs of backtracking in some areas, such as support for those with pre-existing conditions and ensuring young Americans can be covered by their parents’ plans.

In other rich nations that offer comprehensive coverage, cost pressures will increase at a time of slowing economic growth — such as in the UK’s National Health Service. Many lower and middle-income countries — including India and Nigeria — have an expanding and vocal middle class keen for more extensive, affordable and equitable universal health coverage. But that will require domestic political funding.

2. Development funding

The US (at around \$18bn a year) and UK (which commits 0.7 per cent of GDP) are among the largest contributors of foreign aid, including via multilateral agencies such as Gavi, the Vaccine Alliance, and the Global Fund to Fight Aids, Tuberculosis and Malaria. But rising wealth means middle-income countries risk becoming ineligible for such funds.

The UK is redirecting and trimming development aid funding, while Mr Trump has warned the UN system risks being “a waste of time and money”. Optimists say that Rex Tillerson, the US secretary of state nominee, supported ambitious malaria programmes while running ExxonMobil, and may still view



Vaccination: a clinic in the Indian state of Bihar — Romana Manpreet/AP/Gavi Alliance

global health as a useful form of wield-ing influence over developing nations.

3. Migrants and health

Conflict and global inequality continue to create record numbers of migrants and displaced people: more than 65m people were classified as forcibly displaced last year and there were 21m refugees. The result is huge disruption to the lives of millions, who suffer inadequate access to health and education services, and a lack of work. As a consequence they face a rising burden of disease and instability.

But a populist backlash against immigration of any sort, including across much of Europe, risks backfiring on nations trying to repel migrants. The dangers include a brake on economic growth and making it difficult to recruit essential workers, including doctors, nurses and carers, from abroad.

4. Global health leadership

A shortlist to replace Margaret Chan as director-general of the World Health Organisation will be agreed in January, ahead of a final selection by ministers at the World Health Assembly in May.

Failure to select a strong leader who is able to improve the agency’s reputation and raise core funding from national governments could result in erosion of the UN body and a shift to other agencies and initiatives.

Mr Trump’s administration will also have an important say in the nomination of new heads of other important agencies, including the Global Fund to

Fight Aids, Tuberculosis and Malaria — the largest multilateral funder combating three of the most lethal infectious diseases — and the Centers for Disease Control and Prevention, pivotal for public health matters in the US and beyond.

5. Health efficiency

Rising medicine prices will come under renewed scrutiny following the sharp increases of products such as Martin Shkreli’s Daraprim, used to treat malaria, from \$13.50 to \$750 per pill, and Mylan’s EpiPen, which has risen in price by almost 500 per cent since 2007.

Internationally there is a growing desire to encourage health innovations, and to judge how much value for money drugs and medical procedures provide, as the UK’s National Institute for Health and Care Excellence is already doing.

6. Spread of infectious diseases

Outbreaks of existing and new diseases, from flu to the Mers virus, are likely. Some are spreading as a result of climate change, including mosquito-borne malaria and dengue. Inappropriate drug use and poor infection control will fuel further antimicrobial resistance to medicines, including in tuberculosis.

There is growing discussion of “one health”, which recognises and responds to infection between humans and animals. Initiatives, including the Coalition of Epidemic Preparedness Innovations, to be discussed at the World Economic Forum this week, aim to build resilience in health systems, anticipate outbreaks and prepare a more robust response.

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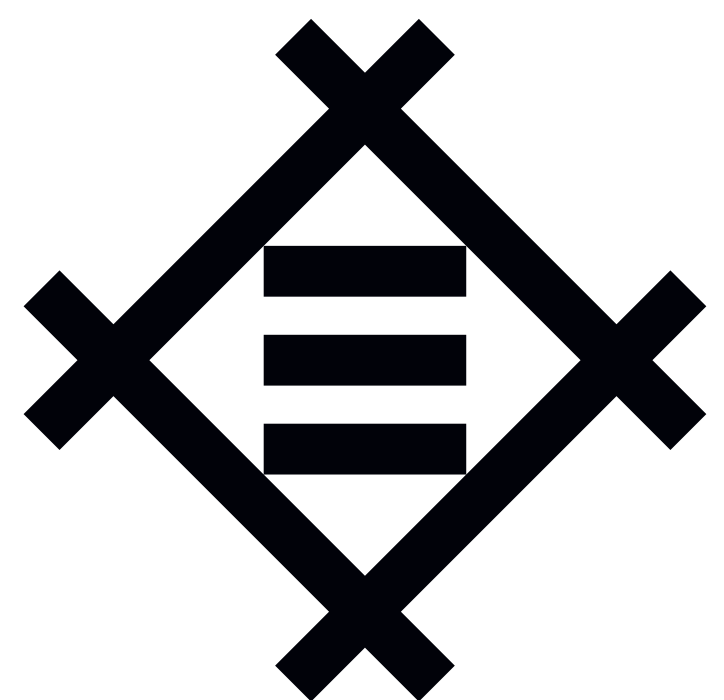


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