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ECONOMY AND EMPLOYMENT: TRENDS TO 2040

Abstract: In this paper we focus on three major factors that will affect the economy and employment globally through to 2040. First, although there will be economic growth globally, it will be uneven; mature economies with older populations slowing and economies with young populations growing, with a booming middle class in Asia. Second, trends in capital and labour culminating in the connected world — the internet and mobile phones — mean that knowledge can cross boundaries and local labour adds less value, leading to more inequality between the labour force and the wealthy within countries. Third, artificial intelligence (AI) will displace many jobs, leading to growth without employment. This raises questions of how to prepare Millennials, who will be decision makers in 2040, for this world?

Key words: *economic growth, connected world, jobs, skills, AI*

1. INTRODUCTION

This article is based on work developed through assignments with many leading organisations to develop their responses to the changes over the next twenty years, and previously published in *Megatrends and How to Survive Them: Preparing for 2032* [1].

After defining "a trend" we start by reviewing the current trends in the economy and employment, considering both underlying structural factors

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and the nature of employment. We then explore where these might take us by 2040. We discuss what could deflect the trends and conclude with some thoughts about how to prepare Millennials for 2040.

2. WHAT IS A TREND?

A trend is a way of describing one aspect of possible futures (and of course the past). It is not a forecast — it's a direction of travel. We contrast a forecast — a single point in the future — with the realistic approach of exploring the direction of travel of a trend — noting that both timing and direction cover a range of possible futures.

Sometimes it is hard to spot major changes as they unfold. However, major trends in the economy and employment are happening now and have effects both now and in the longer term. In this paper we focus on the economy and employment. These are of course, correlated with other trends such as demographics, urbanisation and technology adoption, and so we briefly explore these before examining the impact on employment.

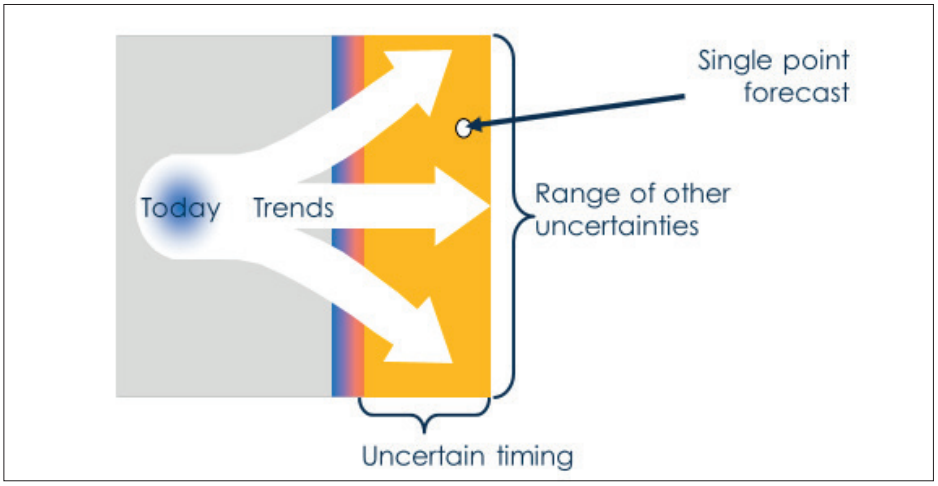

Fig. 1. Trends are not forecasts

3. CURRENT TRENDS

First, just to recap on progress to date — since 1975 the world has become a wealthier place. While poverty remains a global issue, large numbers of people in Asia are no longer living below the international poverty line. We should not lose sight of this improvement in discussions of the economy and employment.

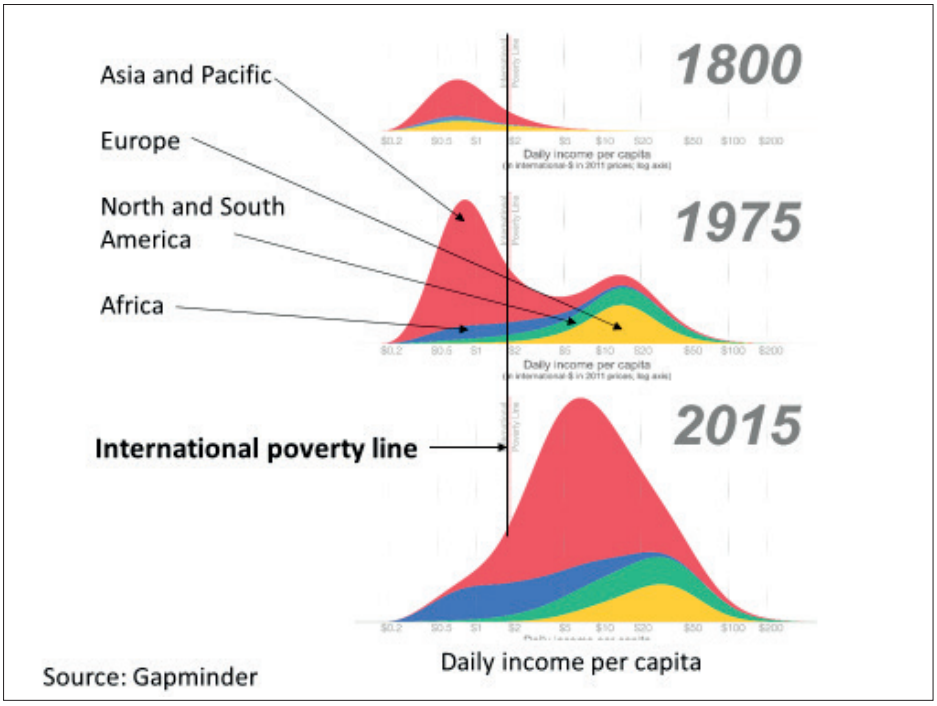

Fig. 2. Income distribution

4. THE ECONOMY — UNDERLYING STRUCTURAL FACTORS

Dependency ratios

The structural factor often discussed as the key contributor to the post World War II growth phase was the benign dependency ratio [2]. In Europe, East Asia and the Americas the current trend is for the number of workers to fall in relation to the number of dependents as the population ages [3]. In South Asia and Africa today, young and growing populations provide a benign dependency ratio..

Urban migration

Productivity is higher in the cities than in rural areas, and so the proportion of people living in urban rather than rural areas is important for the economy [4]. Migration and urbanisation are currently high, caused in some places by disruptions due to conflict, and in general by the economic ambitions of migrants. The figure below shows the rate of urbanisation anticipated through to 2050, by region [5].

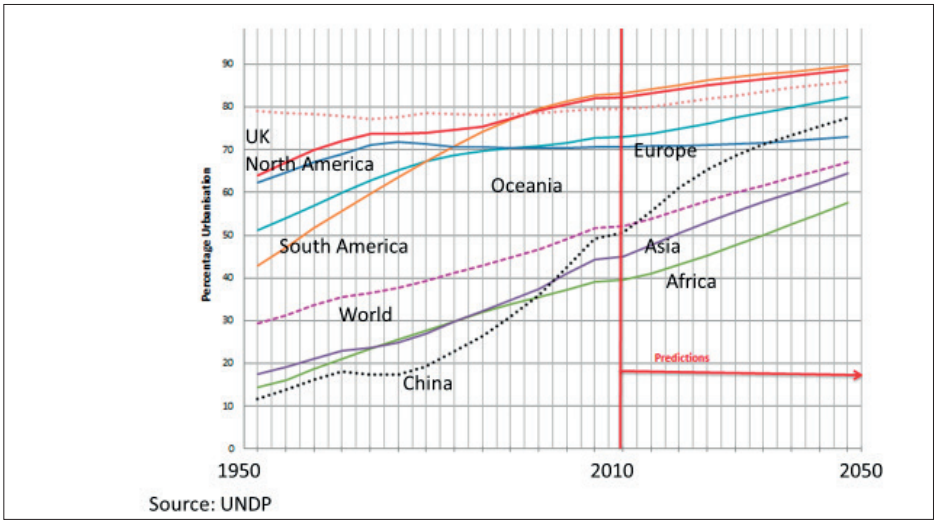

Fig. 3. Urbanisation

Capital and labour (this section is based on discussion with WAAS Fellow Dr Robert Hoffman)

Economist and social scientist Kenneth Boulding made the point that, "The classical economic taxonomy of factors of production into land, labour and capital is too heterogeneous to be useful; know-how, energy and materials are a much more useful taxonomy in understanding productive processes" [6]. Over the past decades, each of these has seen a substitution.

Non-human sources of energy have largely replaced manual effort, automated control systems replaced humans as a source of process control, and the embodiment of knowledge and know-how in process plant, and equipment for knowledge and know-how has replaced that embodied in production labour. Second, almost every production process requires process control. Increasingly automated control systems are displacing humans as a source of process control, for example driverless vehicles. This substitution will continue to play out over the next few decades. Third, almost every production process is informed by knowledge and know-how. Originally, the humans who did the work and provided process control, also provided the knowledge and know-how needed for production. Increasingly, the knowledge and know-how are embodied in the plant and equipment. The generation of knowledge and know-how is highly specialised and is easily replicated.

Together these substitutions have deep implications for human societies. As humans play a smaller and smaller role in production, payments for labour will not be enough to pay for the goods and services that can be produced.

Most of the value created in production will go to the owners of the process who are then able to buy more, that, in turn, generates even more income. The result is that we are seeing increasing concentrations of wealth globally. While the expansion of the middle classes in Asia is a dominant force for change in our timescale, the underlying structural factors mean that inequality of wealth and the nature and role of work represents an ongoing challenge for society.

Industrial development and new industries

In thinking about the effect of industrial development, and which new industries will emerge, we follow the thinking of Carlotta Perez, from *Technological Revolutions and Financial Capital* [7].

In looking at the effects of technology on society, the shape of waves of innovation (see the figure below) suggest that we are at a transition point in the exploitation of ICT infrastructure and the next technological revolution. This means that creative destruction gives way to creative construction.

— Technological innovation will spur growth through AI and robotics, and through ICT infrastructure;

— A continuing convergence of emerging market economies with the developed regions as adoption of innovation drives growth;

— An increasing share of services based on adoption of innovation;

— Globalisation of services provision based on economies of scale of ICT platforms;

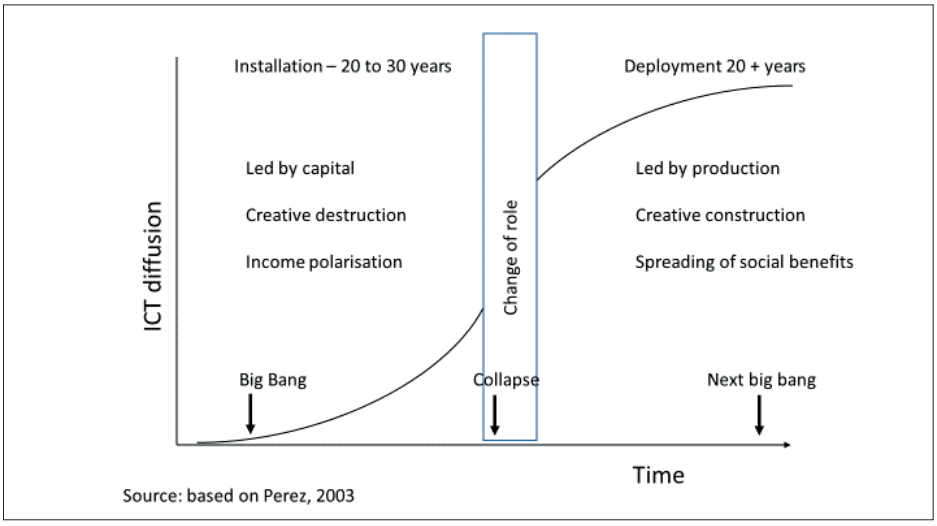

Fig. 4. Waves of innovation

— Waves of innovation in biotechnology may well start to impact economic growth in the next decade.

The connected world: cross border flows

Globalisation constrains the ability of national governments to collect tax revenues. Supply chains over many firms and countries can mean revenue is recognised in low tax locations. Mobile flows of people and money across borders compare with nations based in a geography. In *Moneyland*, Oliver Bullough illustrates how international money flows make it really difficult for national governments to enforce a fair regulatory environment [8].

While people have been moving funds across borders for ever, the use of the internet and mobile phones means that in many parts of the world, the banking system is being bypassed by providers of transaction services.

For instance, cross-border transactions from one currency to another are important in many countries with a large diaspora — systems like TransferWise, based on a low-cost platform and easy to use interface, transfers money efficiently for a low fee and a good exchange rate. And in Africa, M-Pesa has revolutionised access to finance using mobile phones. It allows users to store money on their phones. If you want to pay a bill, or send money to a friend, you text it and the recipient can convert it into cash as their local M-Pesa office. It means that millions of Africans who do not have a bank account can still manage their finances.

5. THE NATURE OF EMPLOYMENT

The informal economy

The relationship between employer and employee has changed. Even in family firms, the gig economy and the informal economy are widely present.

The informal or shadow economy is the diversified set of economic activities, enterprises, jobs, and workers that are not regulated or protected by the state. The concept originally applied to self-employment in small unregistered enterprises. So domestic help — working a few hours per week for a neighbour and paid in cash or kind — is the way this has worked in the past. The informal economy does not contribute to tax revenues.

The gig economy often refers to jobs paid by the piece as in taxi journeys or pizza deliveries or document translation. Commissioners of gig economy workers are usually organisations that pay company taxes.

The informal economy comprises more than half of the global labour force and more than 90% of Micro and Small Enterprises (MSEs) worldwide [9]. Informality is an important characteristic of labour markets in the world with millions of economic units operating and hundreds of millions

of workers pursuing their livelihoods in conditions of informality. In both the gig economy and the informal economy, the responsibility for support in sickness or old age rests with the individual or their family. The state may be able to provide some welfare payments, but this is often linked to tax payments and revenues. Over the past decade, the informal economy is said to account for more than half of the newly created jobs in Latin America. In Africa it accounts for around 80%. In Europe, official estimates are that this represents less than 10% of GDP.

Employment in large companies

The nature of employment is changing due to the impact of globalisation and earlier waves of the introduction of ICT. These waves have a structural impact on the nature of employment. Entry level job roles are still needed, as are decision making roles: but layers of middle management have been removed. Their tasks were two-fold: supervisory or mentoring to junior roles and providing information flow upwards. Information flow upwards has been automated but a number of management thinkers [10] believe that the weakening of the mentoring role has been damaging to the functioning of many organisations.

One of the biggest changes affecting economic activity may well be the nature and expectations of the work force. Family sizes are decreasing globally as women move to urban areas, become educated and are exposed to images of life and work with fewer children [11]. This means that family structures which have supported working women in the past are less available, leading to the need for more flexible work. And Millennials globally, share many similarities. For example, the number one reason Millennials leave organisations is due to lack of personal career opportunity within their parameters of work/life balance and job satisfaction. Millennials are exhibiting a shift from consumerism to shared experience: tourism, leisure and sport. There is also an increasing acceptance, in many regions, of sexual diversity. And a desire to "do good in the world" [12].

AI — the effect on jobs and skills

A discussion of the current technology for AI systems compared with that for "superintelligence" is outside the scope of this paper. Here we focus on current applications and trends to 2040.

A two-year study from McKinsey Global Institute [13] suggests that by 2030, intelligent agents and robots could eliminate as much as 30 percent of the world's human labour, displacing the jobs of as many as 800 million

people. These will mainly be blue- and white-collar jobs — not entry level or those requiring higher education levels. However, AI is already augmenting jobs, from surgery to truck driving. Medical and security applications involve scanning and interpreting data for progressing cases through departments of organisations, and in robots to augment human care or cleaning services. Swathes of white-collar jobs have already been partially automated.

AI is emerging as a battle ground between China and the USA [14]. Adoption of AI is slower in Europe [15].

6. WHERE THE CURRENT TRENDS COULD TAKE US BY 2040

6. 1. THE ECONOMY — UNDERLYING STRUCTURAL FACTORS

Dependency ratios

The economies of Africa, South Asia and the Middle East are likely to benefit from new entrants to the workforce. The age structures of Nigeria and Japan in the figure below illustrate the difference between the number of people in the labour force in 2040 [16].

Over the next decades, a major challenge for organisations and governments in mature economies is likely to be the increasing number of older people. Older people buy less, so the economy is likely to shrink. Organisations are likely to struggle to pay out pension obligations, and governments

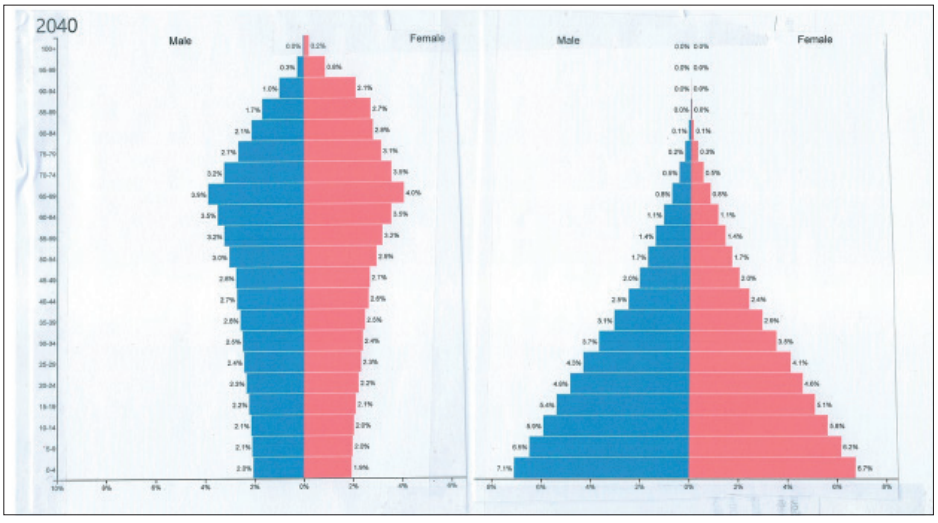

Fig. 5. Japan and Nigeria in 2040

are likely to be faced with welfare obligations to older people, to increased numbers of surviving disabled, and to those displaced by the next technology revolution These problems could hinder economic growth.

Urban migration

The United Nations has projected that nearly all global population growth from now up to 2030 will be in the cities, with over a billion new urban inhabitants over the next 10 years [17]. Based on population growth models, the Global Cities Institute at the University of Toronto projects that the 10 biggest cities in 2050 will be (in order) Mumbai, Delhi, Dhaka, Kinshasa, Kolkata, Lagos, Tokyo, Karachi, New York, Mexico City [18].

Capital and labour

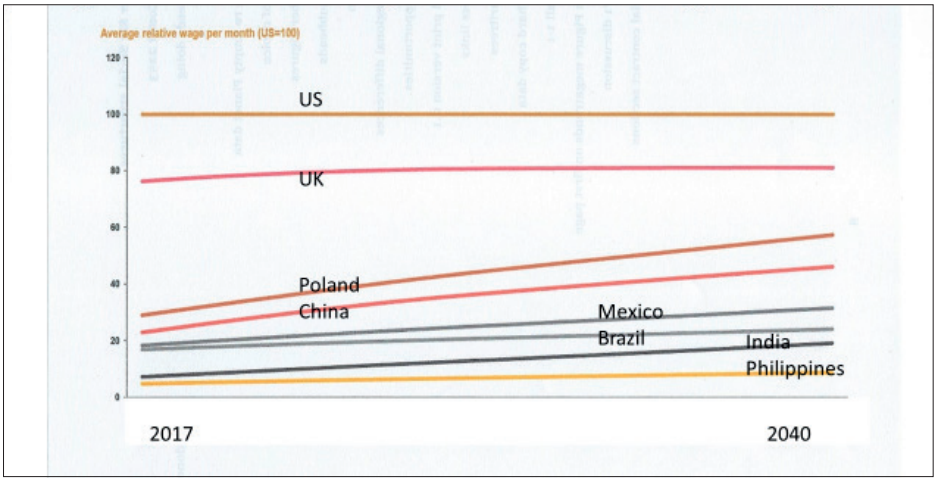

Fig. 6. Convergence of average wages

The figure above shows the relative convergence of some national average wage rates to the rate in the USA, to 2040 [19]. This reflects the globalisation of knowledge and its encapsulation in electronic platforms.

Industrial development and new industries

Many of the new industries are likely to combine the use of technology with social innovation in service industries such as health, social care, leisure and entertainment, education and government [1]. Investment in new industries are likely to be less from governments, and more from individuals — using ICT platforms — as investors or through family firms [20].

The global financial system is unlikely to survive in its current form, due to the increased mobility of money and the large percentage of wealth in private hands at the expense of governments. This has advantages, as one of the contributory factors to the 2008 financial crash was the connected nature and homogeneity of the world's financial system [21].

The connected world: cross border flows

Average wages are converging across geographies, and at the same time the ability of people and organisations to transfer funds is increasing. This is not only remittances — estimated to be US$ 700 billion in 2019 globally [22] — but transfers by companies, and by individuals seeking a safe haven or low tax regime. These are estimated at several times total world GDP and are likely to only increase as the importance of non-bank institutions increases.

6. 2. THE NATURE OF EMPLOYMENT

The informal and gig economies

The informal economy is likely to continue to be important in the fast-growing urban areas of Asia and Africa, as family firms and corporate structures find it hard to engage. The gig economy is in many ways compatible with the ambitions of Millennials and is likely to flourish. New alliances of workers could become their safety net.

Employment

In developed countries, the personal aims and ambitions of those joining the workforce, or becoming decision makers by 2040, could challenge the current assumptions of many organisations. These are often tied to the experience of senior managers, gained in a different age. This may lead to new approaches to work/life balance at different stages of a person's life.

Societal questions are posed as we (again) consider a future in which many of the activities involved in "work" are done by machines. A Harvard Business Review article [23] "Economic Growth isn't Over, But it Doesn't Create Jobs Like it Used to", suggests that information technology (and specifically Artificial Intelligence) is going to intertwine with any innovations that occur in the future, making them less labour-intensive. Unless we change the economic rules — perhaps with something like a Universal Basic Income — broad-based prosperity is likely to remain elusive. The innovations may come, but the people at the top of the income distribution pyramid will continue to capture nearly all of the gains.

AI — the effect on jobs and skills

Two questions loom large — how many jobs? And what skills will be needed? A study by the Millennium Group [24] proposed three scenarios for an economy of 9 billion people as AI becomes more powerful by 2050:

— It's Complicated: A Mixed Bag

— Political/Economic Turmoil: Future Despair

— If Humans Were Free: The Self-Actualization Economy.

Each of these stresses the disruption, and need for political and social measures, as well as technology.

A recent report by Nesta on "The Future of Skills", [25] found that around one-tenth of the workforce are in occupations that are likely to grow as a percentage of the workforce, and around one-fifth are in occupations that will likely shrink. Education, healthcare, and wider public sector occupations are likely to grow while some low-skilled jobs — in fields like construction and agriculture — are less likely to suffer poor labour market outcomes than has been assumed in the past. The report highlights the skills that are likely to be in greater demand in the future, which include interpersonal skills, higher-order cognitive skills, and systems skills. The future workforce will need broad-based knowledge in addition to the more specialised skills that are needed for specific occupations

7. POSSIBLE DEFLECTIONS

7. 1. UNDERLYING STRUCTURAL FACTORS

Corruption

Many nation states are also struggling to tackle corruption. The World Bank points out that the roots of corruption lie deep in bureaucratic and political institutions, and its effect on development varies with country conditions. But while costs may vary, and systemic corruption may coexist with strong economic performance, as in many parts of Asia, the World Bank's experience suggests that corruption is, in general, bad for growth [26].

We can distinguish two forms of corruption:

— Direct (and often illegal) corruption: measured in international league tables published by organisations like Transparency International.

— Use of legal, national or international loopholes covering aspects such as tax or wages. These become even more important in the connected world.

Ethical industries

There is increasing concern about the scandals and frauds in firms, and in government. Recent examples include the opioid crisis, where unethical

pressure on consumers has led to many deaths [27]; the energy companies continue to be attacked as a source of CO_2 [28]; at a recent event to launch a report on corporate governance, the top three firms judged to have the best processes were also noted to have had scandals in the newspaper headlines in the previous week [29].

The attitudes of Millennials will be crucial in disrupting current trends and creating ethical industries [12].

8. CONCLUSION: HOW TO PREPARE PEOPLE FOR 2040?

Who needs to be prepared?

Alvin Toffler in *Future Shock* [30] spoke of the post-industrial society and how the pace of change was accelerating — the Tofflers emphasised how threatening people find change. They "coined the term 'futureshock' to describe the shattering stress and disorientation that we induce in individuals by subjecting them to too much change in too short a time".

Since that time, change has accelerated, with technology having a reach barely imaginable then. It is perfectly reasonable for existing governing structures to feel threatened — on the whole, older people are more likely to feel threatened by change. People who did not grow up with technology may find it hard to adapt.

However, Millennials and Generation Z — born after 1980 — have grown up with the idea of continuous change, and technology, and use it to connect, often to the despair of parents and teachers. This gives them the power of the network for global reach. So, we suggest that Millennials and Generation Z, who will be decision makers by 2040, are the groups that need to get prepared for 2040.

How can this be done?

Generation Z are famous for their assumption that technology can fix all problems. As part of the Ethics in Schools programme at Ethical Reading, we use a number of routes to explore why technology may not be enough. We use case studies based on real life, for the students to discuss in groups and then report back; and let them analyse why different groups have come to different conclusions [31]. We also use games such as Terra Nova, [32] which engage children and adults in exploring current trends.

The best guide to toolkits for gaining views of the future to 2040, in use in many organisations, is *Strategic Foresight* [33]. This can be used in conjunction with *Megatrends* [1] which provides the evidence for the trends, to inform the discussion.

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