Part 1
Key trends and implications out to 2040
Part 1: Key trends and implications

In this section we describe ten trends driving and defining the future of policing’s operating environment out to 2040. The trends were identified by stakeholders as being the most consequential for policing over the next 20 years. We present them not as a prediction of what will happen but as a resource for thinking about the future more strategically.

While it can be useful to think about the impact of each trend individually, it is the convergence of different trends, often in unforeseen ways, that will shape policing’s future operating environment. We therefore recommend that readers consider how different combinations of trends might interact to create new impacts and implications for policing in the future.

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Trend 1: Rising inequality and social fragmentation

Summary

Inequality within countries is rising. Even in the world’s most developed nations, living standards have fallen, wage growth remains low and the gap between rich and poor has reached record levels. In the UK, already high levels of income and wealth inequality are likely to continue to rise out to 2040, with implications for poverty rates, levels of violence and social cohesion. As well as becoming more unequal in socio-economic terms, the UK is also becoming increasingly polarised and tribal in its beliefs, values and behaviours. In the period to 2040, there is an enduring, perhaps increasing, risk that existing fault lines could become even more pronounced and that extreme or violent ideologies could start to take hold.
Trend 1: Rising inequality and social fragmentation

What's changing and why is it important?

- Inequality globally is growing, with the gap between the haves and have-nots increasing in terms of income, wealth, education, social mobility and political advantage.  

- Without significant intervention, already high levels of income and wealth inequality are likely to increase over the next 20 years. In the UK, the income of high-income households is forecast to rise 11 times faster than the income of low-income households throughout the 2020s, while the amount of wealth owned by the richest 10% of UK households, currently 45% of total national wealth, is also expected to rise. Income and wealth inequality has potentially damaging effects for society at large, including increased rates of violence and lower levels of trust, cooperation and wellbeing.

- ‘Digital exclusion’ – the gap between those engaging effectively with the digital world and those who are not – could become a major source of inequality over the next 20 years, as digital skills become increasingly important to education, employability and the ability to access information and critical services. Poor digital skills could exacerbate existing inequalities by adding a new layer of exclusion to the already marginalised.

- A more connected world is likely to increase – rather than reduce – tensions over ideas and identities. Should current demographic, economic and governance trends hold, the shift towards populism and more authoritarian leadership will continue. So too will the rise of exclusionary national and political identities, as the relationship between technology and culture deepens and growing numbers of people seek meaning and security in the context of disruptive economic, social and technological change.

Implications for policing

- An increasingly polarised media and information environment could harden identities and reinforce tribal loyalties, both through highly personalised, algorithmically determined information feeds and through the deliberate and increasingly sophisticated efforts of organisations, governments and thought leaders. Increasing connectivity means that some of these (individual and group) identities will have an international character, leading to the importation of new ideas, ideologies and belief systems.

- More unequal societies tend to be more violent. This finding also holds up at community level, even after controlling for other determinants of crime such as low income, unemployment and teenage birth rates.

- An increase in income inequality will likely increase levels of socio-economic deprivation, in turn leading to an increase in demand associated with long-standing health and social problems such as drug abuse, anti-social behaviour and mental health conditions.

- The fracturing of societies (online and offline) into segments based on ever-narrower identities and tribal loyalties could drive new forms of identity-based hate crime, radicalisation, protest and resistance.

- If society continues to fracture along current fault lines (eg, liberal/traditional; leave/remain; nationalist/internationalist; pro/anti-change), many existing divides could become even more pronounced, with the police caught somewhere in the middle. It seems reasonable to question whether some traditional policing approaches, which have historically contributed to strained police-community relations and mistrust in the police (eg, the policing of protests), are capable of sustaining public trust and policing by consent under these conditions.

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9 Ibid.  
Trend 2:
An expanding and unregulated information space

**Summary**

The manipulation of information online is emerging as a major threat to public life. Across the world, state and non-state actors are using rumours, conspiracy theories, ‘fake news’ and propaganda to pollute online information environments and artificially shape public opinion. With advances in technology creating new opportunities for mass manipulation, this trend is likely to continue out to 2040, with many of the tactics pioneered by nation states adopted by others for a range of harmful and unlawful purposes.
Trend 2: An expanding and unregulated information space

What’s changing and why is it important?

- Over the last decade, disinformation has emerged as a favoured technique of nation states intent on artificially shaping public opinion during elections, security crises and other political events. While disinformation is not new, the rise of social media, where text, video and audio messages can go viral in a matter of seconds, has enhanced both its scale and resonance.

- While state-sanctioned disinformation will remain prominent out to 2040, attempts to pollute mainstream media and information environments with false, misleading or abusive information will extend beyond the coordinated activities of nation states. As the technologies and techniques of disinformation become more widely available and easier to use by people with limited technical know-how, the potential for financial, psychological and societal harm will increase.

- The sophistication of disinformation will be enhanced by new digital technologies over the next 20 years. The combination of more real-world data and artificial intelligence could enable highly accurate predictions about a person’s susceptibility to different types of disinformation (eg, rumours, conspiracy theories, fake news) while automating subsequent attempts to manipulate or deceive them. By using technology to craft and amplify divisive messages at critical moments (eg, after a terrorist attack, before an election or during a pandemic), malicious actors could cause panic, disorder or civil unrest.

- Many social media users already find themselves in highly personalised and algorithmically determined news and information feeds which isolate them from conflicting evidence and opinions.

   If this trend continues, people across all social and political spectrums will start seeing ‘realities’ which reinforce their existing belief systems, encourage tribalism and drive further polarisation, even if those ‘realities’ are far from objective truth. As people find it increasingly difficult to tell what is ‘real’ from what is ‘unreal’, political, ethical and regulatory conversations will become more difficult. Continuing down this path could undermine the importance and concept of truth.

- Accusations of censorship mean that disinformation is an area in which legislation can be slow to come to fruition. Alternative approaches to tackling disinformation (eg, media fact-checking services) have met with mixed success and are difficult to scale up.

Implications for policing

- Advances in technology will make it easier for people with little technical know-how to create and spread disinformation online. For example, as ‘deep fake’ technologies become more attainable (ie, as they move from software requiring technical know-how to an easy-to-use mobile phone app), many offenders will gain a powerful tool to commit offences such as fraud, harassment, blackmail and domestic abuse. What was once a threat by a single person to divulge embarrassing information to a victim’s family, friends or colleagues could become a highly convincing campaign across multiple media to discredit someone in all aspects of their life.

- ‘Fake news’ has led to vigilantism and other forms of violence in some countries. While state-led disinformation campaigns are typically aimed at disrupting an opponent’s political or economic system, the effects are often felt by ordinary citizens because of their exposure

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14 Disinformation is false or misleading information promulgated by design. It can be distinguished from misinformation, which refers to inaccuracies that stem from error.


18 Ibid.
Trend 2: An expanding and unregulated information space

to the platforms and forums in which false, misleading and abusive information is circulated.

- Responding to incidents of false or misleading information could expose policing to claims that it is acting to limit freedom of speech or expression. Some rights groups have claimed that the fight against disinformation is being used to make unjustified arrests and pass repressive laws.\(^1^9\)

- An increase in the volume and sophistication of disinformation online will challenge policing’s ability to ‘control the message’ at critical times (e.g., during a pandemic or in the aftermath of a terrorist attack). Police communications teams may need to take on a ‘fact-checking’ or ‘counter-narrative’ role to reassure the public, protect operational integrity and maintain police legitimacy.

- Ensuring the safety, integrity and wellbeing of the police workforce may require measures designed to protect officers and staff from disinformation.

\(^{19}\) Ibid.
Trend 3: A changing trust landscape

Summary

The relationship between institutions and the citizens they serve is under pressure, weakened by scandal, widening inequalities and populist attacks on the relevance and accountability of prominent institutions. At the same time, many institutions have struggled to adapt to a digital world characterised by heightened transparency, the near-ubiquity of social media and the rapid rise of online platforms and marketplaces. The result has been a shift in trust from centralised institutions to distributed technological systems.
Trend 3: A changing trust landscape

What’s changing and why is it important?

- Many Western nations are experiencing chronically low levels of public trust in government and key societal institutions. In 2019, the Edelman Trust Barometer reported that in 12 out of 26 countries, less than 50% of citizens trusted government, business and media to ‘do what is right’. In the UK the figure was just 42%.\(^{20}\)

- New demands for fairness, transparency and environmental sustainability are putting pressure on existing forms of governance, many of which were not designed to solve the problems they now face. Issues such as climate change, pandemics, cybercrime and terrorism transcend borders and require cooperation at all levels of government – national and international – to solve.

- While trust in government and other key institutions is diminishing, an increasingly diverse, atomised and technologically savvy population still expects them to deliver on a number of fronts. Without efforts to reform and make these institutions more inclusive and accountable, declining trust could lead to further political polarisation, a weakened capacity for collective action and an increase in the number of people turning to anti-democratic narratives and ideologies.\(^{21}\)

- Declining trust in government could lead to increased demands for decision-making to be passed down to lower levels of governance. Devolutionary pressures and continued separatist demands mean that some countries, including the UK, may not exist in their present form by 2040. Even where pressure to alter national borders is resisted, there is likely to be increasing calls for devolution of power to the regional or local level, particularly as cities gain greater economic, demographic and political influence.\(^{22}\)

- Technological change could drive a paradigm shift for trust over the next 20 years, as new (online) platforms, marketplaces and regulators assume responsibility for a growing number of functions which have traditionally been performed by public institutions. As more people and services (including e-government) move online, new sources of information, mediums of exchange and mechanisms for signalling trustworthiness will become increasingly important – potentially leading to further erosion of trust in established actors and institutions.

Implications for policing

- There are some early signs that trust in the police may be starting to decline. In 2019, 55% of the public had confidence that ‘the police and local council are dealing with the anti-social behaviour and crime issues that matter in the local area’, down from 59% in 2018. Between 2012 and 2017 the average was 61%.\(^{23}\)

- As the near ubiquitous presence of social media brings greater visibility (but limited context) to police conduct, some traditional policing approaches, especially those which have historically contributed to strained police-community relations or struggles for legitimacy, may serve to undermine public trust. More novel and non-traditional policing approaches might be needed to bridge the gap between effective community relations and public safety.

- As technologies such as blockchain\(^{24}\) become more widely used in cybersecurity (eg, to protect personal data and make financial transfers more secure and transparent) private actors will likely play a more overt and significant role in regulating online harms. In the future, the creation of highly secure cyber-networks could mean that decisions about what online harms to govern, how to govern them and who ultimately benefits will fall to profit-driven private actors rather than the state, raising important questions about policing’s role in regulating online spaces.

21 Policy Horizons Canada (2018) Next Generation Emerging Challenges
23 Crime Survey for England and Wales (2019b) Estimates of personal and household crime, anti-social behaviour and public perceptions, by police force area
24 Blockchain is a data structure that holds transactional records while ensuring security (through cryptography), transparency and decentralisation. It can be thought of as a chain of records stored in the form of blocks which are controlled by no single authority.
Trend 4: Technological change and convergence

Summary

Connectivity, processing power and the volume and variety of data will continue to grow exponentially to 2040, driven by the evolution of ‘next generation’ technologies such as artificial intelligence, the internet of things, biotechnology and quantum computing. While the development and convergence of new technologies will improve our capacity to solve problems of increasing complexity and urgency, they will also increase the risk of societal upheaval, political grievances and possibly violent conflict. Greater awareness of the social and ethical costs of emerging technologies could cause debates about their value to become more divisive.
What’s changing and why is it important?

- Digital technologies are evolving and converging rapidly, fuelled by extreme connectivity and growing volumes of real-time, real-world data. This trend will intensify over the next 20 years, benefitting individuals, communities and businesses through easier communication and more efficient access to information, products, services and experiences. However, a growing digital divide, where some individuals and groups are unable to fully access digital technologies, could mean that benefits are unevenly distributed and existing inequalities are exacerbated.

- ‘Next generation’ technologies such as AI, robotics, the internet of things, 3D/4D printing, genetic editing and synthetic biology are likely to bring numerous benefits, from increased productivity and economic growth to greater success in tackling global challenges such as climate change, resource scarcity and transnational organised crime. The development and application of new digital technologies will be critical for industrial and economic competitiveness going forward.

- Technological convergence will transform the transport sector by 2040. Combined advances in AI, robotics, electric or hydrogen engines, sensors and satellite navigation systems will allow growing numbers of people to move around in autonomous vehicles while working, surfing the internet or interacting with ‘smart’ homes. This evolution in ‘intelligent mobility’ could fundamentally alter travel between and within urban centres.

- Digital surveillance technologies are likely to cross new frontiers in the next 20 years. While current digital surveillance systems typically track and record a person’s ‘digital footprint’ (e.g., their internet presence), future systems will possess the ability to interpret people’s moods, emotions and (hidden) intentions. For example, advances in neurotechnology could allow us to monitor brain ‘events’ in ways that are not currently possible, with information ‘downloaded’ from the brain used to control devices or obtain knowledge of a person’s intentions.

- At the same time, digital assistants, sensors, self-driving vehicles and aerial delivery drones will have a growing presence in everyday life, many equipped with advanced audio and video systems capable of collecting highly personal information. The ‘deep’ surveillance these technologies make possible could dissolve the boundary between public and private spaces.

- Ever-more information may impact cognitive and attentional capacities, while the trend of outsourcing labour to digital assistants, therapy bots and carer robots could increase both physical and emotional dependence on technology – developments which could give rise to a number of physical and mental health conditions. In the longer term, increasing human-machine interaction, combined with the development and application of new human augmentation technologies, could blur the boundaries between human consciousness and artificial intelligence.

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26 A human augmentation technology is any technology which enhances a human capability or somehow adds to the human body. Examples include pacemakers, prosthetics, wearable devices, chip implants and genetic modifications.
Trend 4: Technological change and convergence

The following technologies are expected to develop on a significant scale between now and 2040:

- **The internet of things.** By 2030, more than 125 billion items, ranging from cars to fridges to coffee machines, are expected to be connected to the internet.\(^{27}\) The mass of data generated by these items will become a highly valuable resource for those who can access and interpret them.\(^ {28}\)

- **Advances in AI** will improve the ability of machines to act intelligently and autonomously. AI is already having a significant impact on the health, defence, education and transport sectors, but its status as a platform technology\(^ {29}\) means it could become ubiquitous by 2040. It is possible, though unlikely, that we will see the development of artificial general intelligence (AGI) – where a machine has the ability to understand or learn any intellectual task a human can – in the next 20 years.

- **Intelligent mobility.** By 2040, energy, transport and information systems will be closely linked by sensors of all kinds, making the movement of people and goods easier, more efficient and more environmentally sustainable.

- **Synthetic biology** will enable the production of new environmentally friendly products through the industrial-scale production of biomaterials, leading to innovations in fields such as healthcare, agriculture, manufacturing and the environment. At the same time, genetic editing could lead to significant improvements in medicine by enabling precise, reliable and efficient changes to targeted DNA, possibly allowing previously untreatable genetic conditions to be cured. However, such developments could enable rogue actors to develop deadly biological weapons, or give themselves extraordinary abilities.\(^ {30}\)

- Ubiquitous sensors will govern communications devices, clothes, houses, vehicles and drones. The data captured by these sensors will be analysed by powerful AI systems and used to model and/or predict a variety of events, such as pollution, traffic flows and criminal behaviour.

- **Computer-aided design and additive manufacturing (3D/4D printing)**\(^ {31}\) will reduce the time needed to develop new products, increase the number of products tailored to individual customers and open up the product design and manufacturing process to a broader range of people.

- A combination of robots, nanotechnology and artificial intelligence could replace humans engaged in repetitive production or household services. By 2040, autonomous, perhaps even self-learning algorithms, will enable vehicles, drones and anthropomorphic robots to operate autonomously.

- **Augmented and virtual reality (AR/VR)** will become everyday design and communication tools in a wide range of fields. Their development could open up new arenas in which human desires and preferences can be met more reliably and efficiently than in the ‘real’ world.

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29 A ‘platform’ is a group of technologies which are used as a base upon which other applications, processes or technologies are developed.


31 4D printing is a renovation of 3D printing which uses special materials to print objects that change shape post-production.
Implications for policing

- Advances in technology could cause criminal behaviour to become increasingly two-tiered. Police use of advanced data analytics and crime prevention technologies could mean that getting away with some traditional crimes will require enormous technical know-how, potentially diminishing crimes such as theft, burglary and public order offences. Meanwhile, the emergence of crime-as-a-service, where sophisticated cybercriminals develop advanced tools and other packaged services which are then sold or rented to less experienced criminals, could mean that a significant number of offenders are either carrying out low-level cyberattacks (e.g., phishing) on low-security targets, or working on behalf of states, private companies or organised crime groups to carry out sophisticated cyberattacks or acts of cyberterrorism.

- As the ethical and social costs of new technologies become clearer, public and political debates about their role, value and control are likely to become sharper and more divisive. Policing will need to weigh the risks of new technologies against their benefits to the core policing mission, focusing on what each technology should, rather than can, do.\(^{32}\)

- Those parts of policing most impacted by rapid technological change may require an increased share of funding due to rapid obsolescence and high replacement costs.

- Technologies such as VR could increase the realism, efficiency and cost-effectiveness of a wide range of police training packages.

\(^{32}\) This will in turn require a more evidence-based understanding of what the benefits and risks of new technologies are.
Trend 5:
A larger, older, more diverse population

Summary

Demographic trends will reshape the UK’s political, financial and social priorities over the next 20 years. By 2040, the UK population will be larger, older and more diverse – trends that will increase demand on public services and necessitate tough financial choices and trade-offs. At the same time, global challenges such as climate change, resource scarcity and regional conflict are likely to drive increasing migration in many parts of the world, with the UK remaining an attractive destination for both legal and illegal migration.
What's changing and why is it important?

- Global demographics are changing as a result of increasing life expectancy, declining fertility rates and rising levels of education and mobility. With life expectancy overall increasing, the world population could peak at around 8.5 billion in 2030, before starting to flatten out. Most of this growth will be concentrated in Africa, Central Asia and the Middle East, with Europe’s population expected to decline.

- The UK population will grow in size over the next 20 years. By 2043, the UK population is forecast to reach 72.4 million, with much of this growth concentrated in cities – the population of London is projected to grow to 10 million by 2030 (up from 8.9 million in 2018). A larger population will place increased demands on a range of public services, including education, housing, health and social care. Population density is also a predictor of crime.

- More than 70% of UK population growth over the next 20 years is forecast to be in the 60+ age group (taking the total number of over 60s to 21.9 million by 2039). Meanwhile, the number of working aged people is expected to grow by just 2%, resulting in less people working and a shrinking tax base. The increasing proportion of elderly people will reshape the UK’s financial, social and political priorities as governments grapple with issues related to ageing populations.

- By 2040, the UK is forecast to become almost as ethnically diverse as the United States is today, with the non-white share of the population rising to about 23% (up from 14% in 2011).

- The number of one-person households in the UK is forecast to reach 10.7 million by 2039 – up from 7.7 million in 2017. This could lead to a growth in technology-based initiatives aimed at tackling social isolation, including the use of chatbots, VR, carer robots and social media to provide both real and virtual companionship.

- Learning and training will become even more important as the population ages. ‘Lifelong learning’ will help people participate for longer in the labour market, build personal and mental resilience and bring a variety of health and wellbeing benefits. Despite this, participation in adult education and training has fallen in recent years.

- Climate change, resource pressures and regional conflict will create pressures to emigrate in many parts of the world. Europe may not remain a primary destination as south-north migration declines and south-south migration increases. However, the need in many parts of Europe for immigrant workers may increase in response to projected labour shortages, even though current trends (eg, low wage growth and rising populism) could make it more difficult for governments to win support for more open and forward-looking immigration policies.
Implications for policing

- Older people have greater need for various kinds of social services.\(^{42}\)
  While elderly people are not by definition vulnerable, they still require support, are more likely to fear being victims of crime and are vulnerable to a range of criminal behaviours, especially those involving deception.\(^{43}\)

- The number of elderly people who are now online has increased significantly in recent years and will continue to increase out to 2040.\(^{44}\)
  As the number of elderly people online increases and their use of the internet extends into new areas (eg, virtual companionship), their dependence on it, as well as their exposure to risk, will increase.

- As working lives lengthen and the workplace undergoes major changes, including becoming more virtual, job-related training will become almost as important to people in mid- and later-life as at the beginning of their careers. This will require policing to move towards a model where training and reskilling opportunities are available throughout people’s careers.

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\(^{42}\) Joseph Rowntree Foundation (2007) The support older people want and the services they need.


\(^{44}\) Age UK (2016) ‘The Internet and Older People in the UK – Key Statistics’.
Trend 6: Harnessing artificial intelligence

Summary

AI could be the most transformative technology of the next 20 years. By helping machines perceive, reason, learn and plan, AI will boost productivity, aid human cognition and improve our capacity to solve problems of increasing complexity. At the same time, the widespread adoption of AI will bring questions of ethics and regulation into sharper focus, as it starts to challenge deeply held assumptions about work, privacy and human purpose. The widespread use of AI systems will pose a fundamental challenge to business models, economies and cultures.
Trend 6: Harnessing artificial intelligence

What’s changing and why is it important?

- Advances in AI (e.g., machine learning and natural language processing) will increase the pace of change and create new opportunities in a wide range of sectors. But AI will also create disruption: combined with advances in other technologies (e.g., robotics), AI could change industries faster than economies and regulatory systems can adjust, potentially leading to widespread job displacement.

- As AI matures it will spur advances in other technical fields, particularly the domains of autonomous robots, cars, lorries, boats and aircraft. The ability of AI to process, analyse and make decisions based upon real-world data will change the way people and products move through the world. Any device with mobility will be increasingly capable of navigating the physical world and accomplishing the tasks they were designed for without direct human control.

- The combination of biometrics, surveillance technologies and machine learning are making ‘human profiling’ systems a reality. In some countries, AI and biometrics are already being used to identify and track fugitives, profile potential future criminal activity and provide alerts if certain individuals (e.g., sex offenders) move into areas that are restricted based on their profiles.

- Low-value manufacturing – historically a stepping stone to economic development for poor countries and a pathway to prosperity for aspiring workers – will tend toward needing fewer low-skilled workers as advances in AI, robotics and other manufacturing technologies take hold.

- Alongside emerging technologies such as data analytics, sensors and telepresence, AI could transform government structures and processes by allowing policy design, service delivery and citizen engagement to be customised to individual citizens.

Implications for policing

- AI has the potential to vastly improve policing’s ability to prevent crime, manage its resources more efficiently and coordinate fast-moving responses to major incidents. Crime prevention and criminal investigation teams could use AI to speed up the identification of criminals and their motives; neighbourhood policing teams could benefit from a better understanding of community dynamics; major incident commanders could use AI systems to improve situational awareness and better visualise potential strategies and tactics; and police call centres could use AI systems such as those pioneered by Amazon and UPS to more efficiently route responses to calls for service.

- The physical and psychological distance that AI systems create for attackers (e.g., through automation) could diminish many of the moral barriers to cybercrime – thereby lowering barriers-to-entry. AI could lead to an increase in novel cyberattacks seeking to mimic human abilities (e.g., speech synthesis for impersonation) or exploit existing software vulnerabilities (e.g., through automated hacking).

- Increasingly, what is considered important or ethical in policing could be determined by opaque algorithms rather than legal, moral or political frameworks grounded in human values. To realise the full crime prevention and public safety benefits of AI, policing will need to become

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45 Profiling in this context refers to the use of technology to analyse aspects of an individual’s personality, behaviour, interests and habits to make predictions or decisions about them.

46 Policy Horizons Canada (2018) Next Generation Emerging Challenges


48 ‘Telepresence’ is the use of VR technology for remote control of machinery or for participation in distant events.

comfortable with making quick, high-stakes decisions on the basis of algorithms that are often (currently) unintelligible to human beings.

- If policing is to strike the right balance between the benefits and risks of AI, it will need to work closely with citizens, government and private sector partners to develop a clear value proposition – as well as ethical use principles and intervention criteria – for its use across the full spectrum of policing activities. With policing still in the early stages of its ‘AI journey’ there is ample opportunity for ethical frameworks and regulation to be developed up front.

- AI and advanced data analytics raise the possibility that some analytical roles could become automated in the future. However, given the fallibility of AI and the high-stakes nature of much police decision-making, some degree of human input, both in the development of algorithms and in the oversight of AI-based assessments, will be crucial. Police analysts in the future may become less focused on identifying crime patterns and more focused on deciding what to do with the analysis performed by AI systems.
Trend 7: Workforce automation

Summary

Advances in robotics, machine learning, data analytics and affective computing mean that growing swathes of work are potentially automatable. Managed well, automation could boost productivity, reduce human involvement in potentially harmful activities and free up time for alternative pursuits that allow for the development of new skills and contribute to greater wellbeing. However, as automation spreads, a growing number of people may become surplus to requirements, increasing the need to upskill workers, support career changes and rethink basic and deeply entrenched ideas about work and income.
What’s changing and why is it important?

- The widespread adoption of automation technologies is transforming – and disrupting – a growing number of skills, jobs and types of work. Technologies such as robotics, machine learning and affective computing could increase productivity, economic prosperity and opportunities for workers to focus more on their wellbeing, but could also lead to significant job losses, lower pay and inequality.\(^5^0\)

- The impact of automation will affect regions differently over the next 20 years. More than 50% of jobs are at risk of becoming automated in many countries in Asia, Africa and the Middle East, with China potentially the hardest hit because of its high number of manufacturing jobs.\(^5^1\) In the UK, fewer jobs are likely to be vulnerable, although estimates of the proportion that could be automated range from 20% to 40%.\(^5^2\)

- While earlier workforce transformations (e.g., the large-scale shift from agricultural work to manufacturing that occurred in the early 20th century in North America and Europe) took place over many decades, allowing older workers to retire and new entrants to the workforce to transition effectively, the shift to a more automated workforce will occur much more quickly. This will increase the risk of widespread job displacement and intensify the need to reskill, retrain and redeploy large numbers of workers, both within individual organisations and the economy as a whole.

- Increasing automation in the workplace is likely to increase demand for medium- and high-skilled workers. Low-skilled workers could increasingly take up jobs in sectors where automation has not yet replaced human labour.\(^5^3\)

- As automation becomes more widespread, the primary value that human labour can add is in creative, analytical or interactive contributions that result in discovery, innovation, teaming, leading or learning.\(^5^4\)

Implications for policing

- Machines are already part of the police workforce: chatbots that respond to public enquiries, for example, or algorithms which analyse crime data and provide forecasts about ‘hot spots’, linked crimes and potential offenders. Their role, however, is set to increase dramatically over the next 20 years as the combined power of technologies such as AI, advanced robotics and data analytics present opportunities to perform a growing number of tasks (e.g., use of pattern recognition software to review CCTV or body-worn video footage) with greater speed and accuracy than traditional approaches. At the same time, there will also need to be significant investment to secure these systems from cyber threats, as ‘unsettling’ automated systems may be all that is required to have big effects on them.\(^5^5\)

- AI and other automation technologies could damage the morale, motivation and wellbeing of the police workforce if their integration into the workplace is not managed carefully. Building a workforce with the intellectual and psychological aptitude necessary to work in an increasingly automated environment will be an important part of preparing policing for the future.

- As automation within policing increases, policies aimed at reskilling, retraining and redeploying workers will become increasingly important. This will require an increase in police education and training budgets as well as initiatives designed to retain highly-skilled workers (whose creative, analytical or collaboration skills will be in high demand).

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\(^5^1\) See https://www.pwc.co.uk/services/economics-policy/insights/the-impact-of-automation-on-jobs.html
\(^5^2\) Ibid.
Trend 8: Economic transitions

Summary

The global economy is becoming more fragile as globalisation evolves and economic power shifts from west to east. For many Western countries, the combination of low productivity, ageing workforces and geopolitical uncertainty point toward a prolonged period of weak economic growth and strained public finances. This is also the case for the UK, whose post-Brexit economic realignment could take several years and is likely to lead to a more managed economy, new trade partnerships and increased protectionism. At the same time, the transition to a low carbon economy, combined with the development and application of new technologies, could create new pockets of economic strength.
Trend 8: Economic transitions

What’s changing and why is it important?

- Over the next 20 years, the economic world order will become more fragile as globalisation evolves, economic power shifts toward Asia and new trade patterns and dynamics emerge. For many Western countries, including the UK, demographic and productivity trends point toward a prolonged period of weak growth underpinned by a number of systemic risks linked to financial systems in emerging economies.\(^{56}\)

- Many of the values, rules and institutions governing the global economy are likely to come under growing pressure as the ‘globalism’ that underpinned the post-Second World War international order is challenged.\(^{57}\) At the same time, many of the products and services of the next 20 years will likely depend on the ability of consumers, companies and governments to exchange information across borders with minimal restrictions. This could lead to the emergence of new trade agreements, regulatory standards and governance arrangements, including new supranational institutions.

- The UK economy is likely to experience a prolonged period of low growth and low inflation, characterised by weak real wage growth, heavily indebted households, extensive financialisation and Brexit-related trade uncertainties.\(^{58}\) Despite this, the UK economy is likely to remain within the top 10 global economies, as measured by GDP.\(^{59}\)

- The period to 2040 could see new pockets of UK economic strength emerge, including green energy, advanced manufacturing, a growing space sector and the design and management of ‘smart’ cities.\(^{60}\) As the boundaries between disciplines such as nanotechnology, biotechnology, information technology and cognitive science converge, new markets and novel application fields will start to emerge, creating new jobs and economic opportunities.

- Rapid technological change is likely to transform – and disrupt – a growing number of skills, jobs and sectors of the economy. Companies may become more virtual, large swathes of work could become automated and freelance, contract and temporary work – as well as the infrastructure to support them (eg, online platforms and reputation systems) – will grow in scale and importance. The number of self-employed people could overtake the number of public sector workers by 2030.\(^{51}\)

According to a study by the Institute for Public Policy Research, a number of major, systemic risks could significantly worsen the health of the global economy over the next two decades, including:\(^{62}\)

- A global energy price shock driven by geopolitical instability and resource conflict.
- Economic instability caused by widespread automation, water management crises and major natural disasters.
- Asset bubbles created by excessive private credit growth.
- China failing to transition smoothly to a mature consumption-led growth model.
- Large-scale involuntary migration caused by climate change, resource scarcity or interstate conflict.

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59 Ibid.
60 Ibid.
61 Ibid.
Implications for policing

- In a fiscally constrained environment, competing priorities such as technology investment, education and training, pension payments and workforce wellbeing will make the affordability challenge ever starker and will require difficult decisions. With the economy likely to settle into a low-growth, low-productivity equilibrium, planning assumptions will need to be carefully considered. Prudent investment in science and technology will be necessary to mitigate threats and identify and realise opportunities.

- Given the number of major, systemic risks to global economic health, it may be prudent for policing to routinely and actively prepare for recession, whenever it may come.

- Scope to invest in employment and education initiatives is likely to be challenged by competing fiscal pressures. There may be greater onus on the individual to invest in learning and training if funders are unwilling or unable to maintain their level of investment in human capital.
Trend 9: Growing influence of non-state actors

Summary

Non-state actors are becoming increasingly powerful both domestically and internationally. Technology companies in particular are using their influence to gain control over more data, provide new public services and demand concessions from national governments. While the state is expected to remain the primary actor in shaping UK society for the next 20 years, it could struggle to keep pace with the demands of an increasingly diverse, atomised and technologically savvy population. This disconnect could result in non-state actors becoming even more powerful, potentially undermining the levers that nation states rely on to grow their economies, protect their borders and ensure the security of their populations.
What’s changing and why is it important?

- A small number of multinational corporations have grown extremely powerful in recent years. Global corporations such as Facebook and Google are working to connect the next billion people to the internet; Amazon and the Gates Foundation are providing critical public services; and BlackRock is calling for increased corporate responsibility on social and environmental issues – all of which enhances the power of these non-state actors to act in highly consequential ways.

- Through their investments in artificial intelligence, ‘smart’ cities and autonomous vehicles, private companies are building the infrastructure of the next 50 years in ways that national governments once did. This is putting powerful resources – particularly data – in the hands of non-state actors without the burdens of bureaucracy and accountability. It is also expanding the range of actors who can block or circumvent political or regulatory action.

- New technologies threaten many of the levers that national governments rely on to affect change. For example, the development of cryptocurrencies, because they stand outside the control of central banks, could undermine the ability of nation states to grow their economies by removing a number of policy levers.

- The economic, political and cultural significance of today’s ‘megacities’ is likely to grow over the next 20 years, increasing their ability to act independently of national governments. For example, the decision of several US cities, states and technology firms to sign up to the Paris Agreement on climate change, in response to the US Federal Government’s decision to withdraw from it, may in the future be replicated by other cities on a variety of issues.

Implications for policing

- Over the next 20 years, global technology platforms are likely to grow in scale, reach and influence. In the absence of effective regulation, the opportunities currently afforded to criminals and other malicious actors to operate with a high level of anonymity will continue, or perhaps even increase.

- As what it means to be protected from harm becomes increasingly associated with security in online spaces, private actors, particularly those operating in areas of technological complexity, are likely to play a more overt and significant role in law enforcement. As a result, decisions about what harms to govern, how to govern them and who ultimately benefits will increasingly fall to profit-driven private actors rather than the state. This could challenge police legitimacy by undermining the claim that security is a primary task of the state.

- To counter new threats and exploit new opportunities, particularly those presented by fast developing technologies, policing will need to build partnerships with a more diverse range of actors than is presently the case, even where this involves greater decentralisation of decision-making and accountability. Police forces will need to become ‘network orchestrators’ who harness and lead the problem solving capabilities of other actors.

- As the reach and power of non-state actors increases, the sovereignty of the state is likely to be further eroded and a more complex, networked system of governance may emerge. In the future, a growing number of state responsibilities, including aspects of law enforcement (eg, surveillance), may be delegated to more complex public-private partnerships, organised on a transactional basis according to the task in question.

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64 Ibid.
Trend 10: Climate change, environmental decline and competition for resources

Summary

Climate change, environmental decline and increasing demand and competition for resources are already having a severe impact on people, economies and ecosystems around the world. While the UK will be spared the worst effects of these developments over the next 20 years, the disruption caused by rising sea levels, extreme weather events and increasing resource scarcity will affect many aspects of people’s lives and livelihoods. As time passes, the social and economic costs of climate change and environmental decline will increase, as mitigation becomes increasingly complex and expensive. Meanwhile, increasing global demand and competition for resources will drive international competition and could give rise to market volatility, geopolitical tensions and violent conflict.
Trend 10: Climate change, environmental decline and competition for resources

What’s changing and why is it important?

- Global warming and environmental degradation is undermining the peace, security and wellbeing of millions of people worldwide. At the same time, a growing world population and rising living standards are increasing demand and competition for many natural resources, including food, water, energy and rare earth materials.  

- In the period to 2040, the social and economic cost of climate change to governments, businesses and citizens will increase as mitigation becomes more complex and expensive. As pressure on these groups to ‘do their part’ increases, actions viewed as slowing or blocking change could give rise to further protest, civil unrest and even violent disorder.

- Demand and competition for natural resources will increase over the next 20 years, as will the associated risks of market volatility, geopolitical tensions and interstate conflict. This is because large-scale exploitation of natural resources is – and will remain out to 2040 – highly concentrated in a small number of producer countries (China, United States, Australia, the European Union, Brazil, Russia, India and Indonesia). The UK will remain heavily reliant on imported food, energy and industrial resources, leaving it vulnerable to global supply bottlenecks.

- Rising demand for technologies such as wind turbines and electric cars will cause demand for rare earth elements (REEs) to increase out to 2040. However, the scale of demand, supply monopolies and environmentally unsustainable mining practices could lead to supply shortages. Insufficient supply of REEs could cause large fluctuations in prices for many sectors of the economy.

According to the UK Climate Impact programme the likely effects of unmitigated climate change on the UK include:

- It is likely that average temperatures in the UK will rise. Hotter summer temperatures will become more frequent and very cold winters will become increasingly rare.

- The amounts and frequency of rainfall will change. There will be increased local flooding with more flash flooding occurring, putting increased pressure on infrastructure, water resources and local economies.

- Severe weather events such as droughts, heat waves, flooding, severe gales and snowfall are likely to increase. In the longer term, extreme weather may affect where people live, work and spend their leisure time.

- The impact of climate change on other parts of the world will create supply bottlenecks that affect the UK.

- Sea levels could rise by 40cm by the end of the century leading to further coastal erosion and flood risks. Some parts of the UK could be under water by 2040.

71 Ibid.
73 Ibid.
74 Ibid.
76 UK Climate Impacts Programme: Available at https://www.ukcip.org.uk/
Implications for policing

- If progress towards mitigating global warming, ecological degradation or resource scarcity is deemed inadequate or too slow, current grievances and protest movements could mutate into violent ideologies and mass mobilisations.

- Policy responses to climate change will require new legal mechanisms that will in turn require rigorous policing. For example, enforcing regulations in carbon trading, as well as investigating corruption or fraud in such a system, is something that police forces may get drawn into. Growing recognition that climate stress is primarily due to human influence is likely to prompt calls for more state involvement in identifying and holding responsible those causing environmental harm.\(^\text{77}\)

- An increase in the frequency and intensity of extreme weather events will increasingly impact on population centres. Droughts, heat waves and floods place significant demands on the police to both maintain security and provide emergency response and disaster management. Police forces may need to integrate further with local and national disaster response agencies as well as factor the likely effects of climate change into their disaster management plans.

- Organised crime groups could take advantage of the stresses caused by climate change and increasing demand for resources. For example, disruption to resource-related supply chains, because of the impact this would likely have on certain industries (e.g., agriculture), could lead to more corruption, price-gouging and demands for protection.

\(^\text{77}\) There have already been calls for a new crime of ecocide (see Agnew, 2013; Haines and Parker, 2017).
About the College

We’re the professional body for the police service in England and Wales. Working together with everyone in policing, we share the skills and knowledge officers and staff need to prevent crime and keep people safe.

We set the standards in policing to build and preserve public trust and we help those in policing develop the expertise needed to meet the demands of today and prepare for the challenges of the future.

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