

NatWest Future Businesses Report



TOMORROW
BEGINS TODAY



NatWest

Foreword

The NatWest Future Businesses Report aims to highlight and explore the business trends most likely to emerge in the UK in the next 10-15 years. Included within it, are predictions from a panel of four leading futurists and consumer business experts.

From virtual reality travel agents to the evolution of the e-scooter - these expert forecasts provide a fascinating insight into the future businesses we could see, and the industries where new job opportunities may emerge. Environment and sustainability, healthcare and education are among the many categories that are set to benefit from new technologies such as artificial intelligence (AI) and robotics.

As this landscape evolves, NatWest continues to be the biggest supporter of UK small business at all stages of development. From our Dream Bigger programme in schools encouraging young people to explore an entrepreneurial mindset; our fully funded Business Builder initiative for early-stage entrepreneurs; and our Entrepreneur Accelerator hubs for high growth, green and diverse businesses, our vision is to help more companies start, scale and succeed.

Leaving the turbulent era of Covid-19 behind, the UK's 1.4 million small businesses need support now and, in the future, to prosper and adapt to new technologies and innovation. [Our Springboard To Recovery Report](#), incorporating data from a comprehensive array of surveys, reports, interviews and focus groups, revealed that the greatest gains can be found in five key areas: SME (small and medium sized enterprises) productivity, scale-up density, Black, Asian and Minority Ethnic representation, female entrepreneurship, and sustainability. If SMEs are intensively nurtured in all five areas, there will be rich prizes for the UK economy.

Our research also indicates that a thriving SME sector could deliver as much as £140 billion in gross value added (GVA) to the UK economy by 2030 – equivalent to creating 3.2 million jobs across the UK – if given the right support.

In partnership with the UK Government, business bodies and charities, NatWest is committed to helping level up the SME landscape, drive productivity, and encourage economic recovery and growth over the next decade. Interventions will focus on scaling up micro businesses, unlocking the untapped potential outside London, boosting managerial skills and practices, and supporting technology adoption within SMEs and will be personalised to maximise uptake and focus on enhancing SME ability to capture productivity impact.

At NatWest, we champion the potential of businesses that build tomorrow. This report demonstrates that many exciting opportunities lie ahead for those with the passion and drive to succeed.

Our thanks go to Dr Ian Pearson, Shivvy Jervis, Kate Hardcastle and Tom Cheesewright and the senior business leaders at NatWest who contributed to this report.



*Andrew Harrison,
Head of Business Banking*

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General trends

Co-authored by independent futurists and consumer business experts Dr Ian Pearson, Kate Hardcastle MBE, Shivvy Jervis and Tom Cheesewright.

We are operating in an age of high-frequency change where technology has taken the friction out of business. It's easier than ever to get started with all the digital tools at our fingertips giving us unprecedented power and reach. That doesn't mean that success is easy though: with great technological progress comes even greater market competition!

Over the next 15 years we will likely see continued growth in the number of self-employed people, particularly freelancers. Numbers have doubled since the turn of the century and though the trend was disrupted by the pandemic, it will return to growth as the economy recovers.

Freelancers allow organisations to scale up and down much more rapidly. Businesses built as networks will be able to take advantage of this flexibility, and thus be able to plug in new technologies quickly - as and when they add value.

But alongside a highly adaptable model, companies that adhere to a set of core values and proven social conscience will most likely thrive. The survival of the planet is a theme that will continue to dominate how businesses (and consumers) operate. Sustainability must be the byword for savvy business leaders, not short-termism nor an attitude of 'growth at all costs'.

Government 'green' policies mean the energy and transport sectors are being encouraged to evolve; something set to continue as newer and renewably powered technologies emerge. This is already evident in the electric vehicle market where firms race against each other to provide future-proofed solutions, from fuel cells to lithium batteries.

And all this is against a backdrop of the AI and robotics revolution. Mundane tasks from turning on the lights to food shopping will be carried out by automatons, in a trend that is already increasingly evident. Drones could keep us safe, driverless vehicles could take us to work, virtual shop assistants could help select the perfect outfits for us to wear, and farmers could use algorithms to decide which crops to feed.

Covid has been blamed for speeding up the demise of high street businesses and the shift online, and has shone a bright light on the need for adaptability particularly with regards to new technology. However, this does not mean the end of physical shops, as consumers will stay loyal if outlets give them enough reason to walk through the door.

Over 70% of the UK economy is built on services and these are perhaps some of the most susceptible sectors to automation.

However, there will still be many roles that require human skills such as caring for patients, dealing with customers and crucially in education. In essence, the more advanced technology becomes, the more people will be forced to concentrate on being people. With this in mind, the economy is gradually shifting towards a care-focused model, dominated by emotion-led skills such as leadership, motivation and nurture.

Looking ahead, society will be more connected than ever. The digital world will blend with the real world, and the ability to communicate will no longer be restricted by dodgy WIFI or distance. Conscious use of technology will be consigned to the past as humans and devices work seamlessly together.

Overall, the future looks bright for small and medium-sized enterprises; especially those built as networks, which, whilst having relatively few full-time employees, will be able to compete with global giants. Increasingly consumers are seeking out companies that give back to society, offer a bespoke service and meet their individual needs.

For SMEs, this could be the era to step forward, step up and shine.



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Agriculture



Precision Farming

As populations continue to grow, we are seeing a rise in the demand for food and farming globally. Food demand is expected to increase anywhere between 59% to 98% by 2050. To combat this, businesses need to provide more efficient solutions for farmers.

Enormous gains in efficiency will be achieved via a more precise approach to farming within the next 15 years. The use of sophisticated technologies, including farming robots, is set to spring up to meet the demand for food, says Shivvy Jervis. Robots and drones will be equipped to identify exactly which parts of a crop need extra water or nutrition and then to deliver it precisely with no waste. Advanced ‘eye-in-the-sky’ drones will fly over farmland to analyse soil quality, track crop disease, and distribute pesticides. A more autonomous approach to crop management will also cut down the time needed to harvest and pick crops, tasks that often must be completed within a tight window. This in turn will further help eliminate waste and maximise yields.

It’s predicted that use of small robots will increase revenue by up to 40% while reducing costs by up to 60%. This will lead to huge opportunities for farming consultants as well as companies supplying and servicing the technology needed for automation and AI. Thus, as farming continues to embrace a shift towards technology and data, opportunities for small and medium size businesses (SMEs) will present themselves.

From an environmental perspective, with a more precise approach, Dr Ian Pearson predicts that less agricultural land will be required as yields will be higher, so more land will be returned to nature.

Roddy McLean, Director of Agriculture at NatWest, adds: *“Technology will dominate. Data gathering will become an integral part of the business, from emissions to soil mapping to crop scanning drones. It’s easier than ever to gather data but the challenge is to maximise its use we need AI that will analyse the data and provide recommendation or actions to be taken. This along with increased automation, will enable farmers time to work on their business rather than in it, using their time to do more value-added tasks. At NatWest, we are already seeing a growing interest and uptake of low carbon practices including the use of cover crops, regenerative agriculture techniques and agroforestry and this will increase. Down the line, developments are taking place that could mean we will see hydrogen fuelled tractors – although there is still some way to go before that is mainstream.”*

Urban Food Farms

With climate change disrupting food production and the potential for changing international relations, the ability to produce crops domestically is likely to grow in importance. While the bulk of this will still occur in the fields, within the next 10-15 years it’s likely that some food production will happen closer to consumers in city centres.

Urban farms will take a variety of different shapes; from climate-controlled warehouses powered by solar energy producing items such as herbs, tomatoes and salad leaves; to containers in alleyways where robot farmers will cultivate rare mushrooms.

This new industry will cater to a demand for the freshest produce that has travelled the least distance, as consumer awareness of the carbon impact of food increases further.

Livestock Wearables

The same principles as precision farming will be utilised for livestock, with the implementation of cheaper, more effective wearable technologies to monitor the health, welfare, whereabouts and development of livestock at all times.

These technologies are likely to be provided by SMEs, with farmers investing to equip themselves with the insights needed to administer medicines to their animals as soon as they need it, thus cutting down livestock fatalities and maximising yield.

Health & Medicine

Smart Toilets

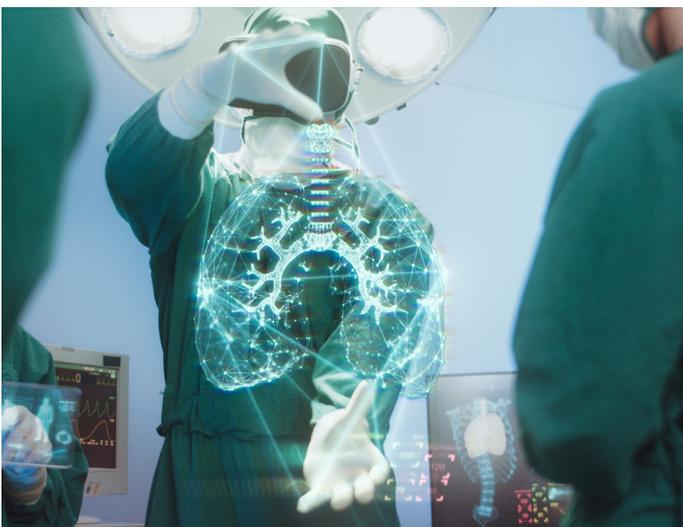
Smart toilets that can analyse urine and faeces for signs of diabetes or cancer are just starting to come to market, and within the next 10-15 years it's likely at-home consumer demand will increase. These products will have the benefit of comprehensive health tracking users can monitor via an app. Tom Cheesewright predicts that not everyone will want one straight away, but that they are likely to grow in popularity as the technology gets smarter, with businesses emerging to sell, install and service them.

Smart Skin Clinics

Building on enormous demand for health and fitness monitoring, we'll see ongoing miniaturisation leading to the creation of 'smart skin,' where wearable technology will communicate with electronics on or even inserted into the skin itself. Close proximity to blood capillaries and nerves, will enable these smart wearables to provide constant and precise monitoring of blood chemistry and nervous system activity. With an increased personal awareness and responsibility for one's own health, this trend will see the rise of companies manufacturing, fitting, and analysing 'smart skin' wearables as well as treating the conditions identified by the devices.

'Smart Skin' will also help meet the demand for medical staff. This means patients will not only get accurate diagnostics fast (without having to wait in long hospital queues for a time-strapped doctor), but also that those with more critical conditions can receive more time with a doctor to diagnose and find solutions more effectively.

AI Doctors



Triage consultations could become virtual, and initial appointments done by a supercomputer, which will then refer the patient to the most-qualified available expert for an appointment. These 'AI Doctors' may also be able to offer advice and prescribe repeat prescriptions. It's likely this would initially be offered by SMEs as a private but

cost-efficient service, before being rolled out on a much larger scale in the future. This innovation could also cut down waiting times and assist doctors with the ability to instantly scour global databases for faster diagnoses.

3D printed organ production

Organ donation waitlists could be a thing of the past 15 years from now says Shivvy Jervis, who predicts that 3D printing might evolve enough to be able to replicate human organs from a patient's own cells.

Most people do not pass the criteria needed for them to donate their organs and because of the strict rules, it can mean that those on waiting lists don't receive vital organs in time. Within the next 15 years it's highly likely that we can expect to see businesses using 3D laser printing technology to create safe, legally approved yet lab-grown human organs and tissues.

Intelligent Ambulances

Imagine an ambulance that uses augmented reality and other technology to share vital patient details with hospitals and doctors, in real-time. This visionary advancement would be of huge benefit to patients and could be a reality within the next decade, according to our expert panel.

Intelligent ambulances are hyperconnected ambulances that use 5G, IoT (Internet of Things) and augmented reality (AR) to connect the vehicle and patient with the hospital and other professionals. Additionally, high-resolution video calling between the ambulance and hospital will give doctors a better understanding of the kind of emergency involved and allow them to prepare for what the patient will need on arrival.

There is a huge opportunity for private businesses to start developing Smart Ambulances for the NHS. Using AR to help medical professionals react more quickly and efficiently should have a measurable impact on clinical outcomes and patient welfare – in other words, saving time and money without compromising care. Overall, this will mean the general health of patients will be greatly improved.

Mind-controlled exoskeletons

In the UK it is now estimated that there are thousands of people living with a spinal cord injury.

University College London has recently created and successfully tested a mind-controlled exoskeleton that has allowed people not only to walk again, but to use their arms as well. While it's currently in the testing phase and needs improvements (such as the ability to run without a support harness), it can be expected to be much more effective and accessible in the next 10 - 15 years.

This device has the potential to give 50,000 people in the UK their mobility back as well as hundreds of thousands across the world. Not only will this help those who suffer from spinal cord damage directly, on a social level it will help families and communities who currently support and care for those injured.

BioSimulator Businesses

The development and research of a new drug takes a decade on average. Future businesses will address both issues lowering the risk and accelerating valuable drugs development halving the time it takes to reach the market. AI platforms that will predict clinical outcomes of new drugs will be critical to getting medical solutions to those that need it the most and are anxiously awaiting a cure.

Barrie Davison, National Sector Head of Healthcare at NatWest, observes: *“We will see the evolution of tailored diets for individuals, driven by data from wearable devices. NatWest is already seeing demand from businesses offering specialised services that maintain us in health, rather than fix us when we are ill or suffering from long-term conditions. The incentive is to live longer, healthier lives.”*



Microgrid Managers

The panel predicted that localised energy grids could prevent larger-scale energy shortages, harnessing a range of local energy sources including solar and wind. Consumers with money to invest, may build their own microgrids to minimise risk in an increasingly uncertain market.

Homes with solar panels may be permitted to launch local cooperatives. These community hubs will be able to over-produce energy and sell it directly to neighbours, bypassing energy distributors. By cutting out the middle-man, everyone will benefit from lower costs while helping to meet carbon zero goals.

New businesses will likely spring up to source the space and hardware, connect everything up and maintain the systems. On top of this, Microgrid Managers would be responsible for the day-to-day oversight and management of these localised grids.

Ian Burrow, Head of Renewable Energy at NatWest, observes: *“How we consider and approach energy has changed exponentially in the last ten years. A focus on energy efficiency and the drive to limit climate change has and continues to be transformed through technology and will continue to benefit in the future from smart technology and AI. Climate Impact and Energy Assessments will continue to develop from the auditor with a clipboard approach to instantaneous and continuous monitoring for all.”*

“At NatWest we are supporting a broad range of sectors as they seek to become more energy efficient and make a sustainable and lasting transition to renewable energy sources.”

Media & Entertainment

Haptic Body Suits

Haptic wearables that can stimulate the sensation of touch or heat already exist, but in the future, it’s predicted that this technology could advance to whole suits, allowing gamers to literally feel the action on screen.

AI Digital Entertainment Critics

An end to spending 30-minutes scrolling multiple streaming services for something to watch could be in sight. In future, hyper-personalised platforms for streaming TV services, movies, books, podcasts will free up scarce leisure time.

A ‘digital critic’ will first get to know you, then do the choosing on your behalf. There will be fierce competition in algorithms that make the best selections and, for those that can afford it, human curators who will create the perfect playlist of music and shows.

Interactive TV



The 1990s dream was a television experience where viewers could take part in the action. Or at least determine its direction. The ongoing convergence of films with computer games suggests we may be near to realising this goal. Dr Ian Pearson says this is likely to lead to the emergence of new businesses. These will be small compared to the film and games industries at first, but will slowly grow as AI, augmented and virtual reality develop. Eventually, people will expect high-quality media overlaid on everything they see through wearable technology such as smart glasses or contact lenses.

Neil Bellamy, NatWest’s Head of Technology, Media and Telecoms, adds: *“For a clue on the direction of the sector, you only need to look at Facebook’s pivot to a Metaverse. The future is a more personalised and immersive experience – it’s a good excuse to re-watch the film Ready Player One.”*

Education



Immersive Teaching

The same teaching model – be it educational or education-at-work has been used for 100 years with no reform. Since the pandemic, schools and classrooms have been forced to create new ways of teaching that aren't confined to a physical space, instead utilising a virtual platform.

The power of virtual and augmented reality (VR and AR) will be available for education and training from the classroom to the boardroom. While some of these services are currently available, they're regarded as elite, niche, expensive and not mainstream. This is set to change as VR and AR headsets become sleeker, more affordable, and more widespread at educational institutions and offices.

A crucial way this adoption of technology within education and training will help people is by drastically improving the retention rate of information. One study found that immersive tools such as VR and AR had a retention rate of 75% versus 10% if the same information was read as plain text. This will not only improve the overall skills and knowledge of workplace or educational learners but will most likely help those struggling with traditional learning methods.

Holographic Teachers

Like in famous sci-fi films, the technology now exists to create interactive holograms, capable of providing remote teachers to anywhere in the world with a fast internet connection.

In the future, the panel predicts that these technologies could become more advanced, rising in popularity with universities that will be able to transmit lectures from specialist experts all around the world; as well as in schools, where teacher shortages will be more easily managed with supply teachers able to cover classes from wherever they are.

Barrie Davison, National Sector Head of Education at NatWest, comments: *“While universities seek to differentiate their teaching and student experience, the rise of distance learning might not be welcomed by all students as many sign up to the social interaction of the campus experience. If universities are to thrive, they must find a way to protect students and replicate the advantages of campus life. Hybrid university courses that are part study, part work, offer an opportunity for businesses to grow their own skilled recruits.”*

Haptic Gloves

Wearable devices such as gloves that can stimulate the sensation of touch or heat are among tech solutions to elevate and evolve practical lessons. Businesses have yet to start designing haptic gloves specifically for education, but the potential is there, according to University of London research. For medical students training to become surgeons, this type of technology could help guide their hands as they learn precise surgical techniques. For musicians, haptic gloves could help with muscle memory and the technology could also be used to help students learn how to touch type.

As haptic technology becomes more accessible, it will create opportunities for students who may not be able to afford in-person lessons from a world class trainer - meaning they can still learn and develop their skills without financial restrictions.

Adaptive Learning Platforms

Research* claims that students who received “personalised instruction” outperformed 98% of those who did not. Due to the outcome personalised learning can create, there has been a rise in demand for some time and it's predicted to continue growing over the next 10 - 15 years.

We will see the rise of businesses using cognitive neuroscience and data analytics to create personalised learning platforms that adapt and flex to suit the user's individual way of learning. In other words, teaching in the format that each learner best responds to, versus one generic approach being applied to all. These platforms would also identify knowledge gaps and offer personal study recommendations and feedback, akin to if the user had their own personal tutor.

The benefit to students would be a learning experience tailored to their needs, advancing their capabilities to learn as well as the amount and quality of information they retain. This will also reduce pressure on teachers.

*S. Bloom, 'The 2 Sigma Problem: The search for Methods of Group Instruction as Effective as One-to-One Tutoring'



Fashion and Retail

AI Tailoring

One of the biggest gripes about fashion has always been ‘the fit,’ leading to thousands of tonnes of clothes ending up in landfill after being returned. As the backlash against fast fashion grows, smart technologies will be introduced by clothing stores where AI body-scanning meets automated, personalised production.

Denim jeans tailored to your specific measurements and home-delivered at speed will become a reality along with other fashion essentials. You will be able to walk into a store, scan your body, and have anything from a t-shirt to a three-piece suit cut, stitched, coloured, and delivered to your door – or even made up while you grab a coffee.

It’s also likely that these shops will look different too, becoming more like ‘clothing galleries’ that display only one of each item for shoppers to select, before being made to their exact measurements. This presents a huge opportunity for SMEs to design and install the technologies. Initially, installation will likely be limited to small boutiques as a USP, but within 15+ years this sort of offering will be rolled out across the industry.

Super-Fast fashion

Developments in manufacturing technology and delivery services, like the potential for drone deliveries, will ensure that in future, clothes cannot only be made and fitted with AI, but also delivered to your door quickly. This is just another development which will help the fashion industry become more sustainable.

VR Shop Assistants

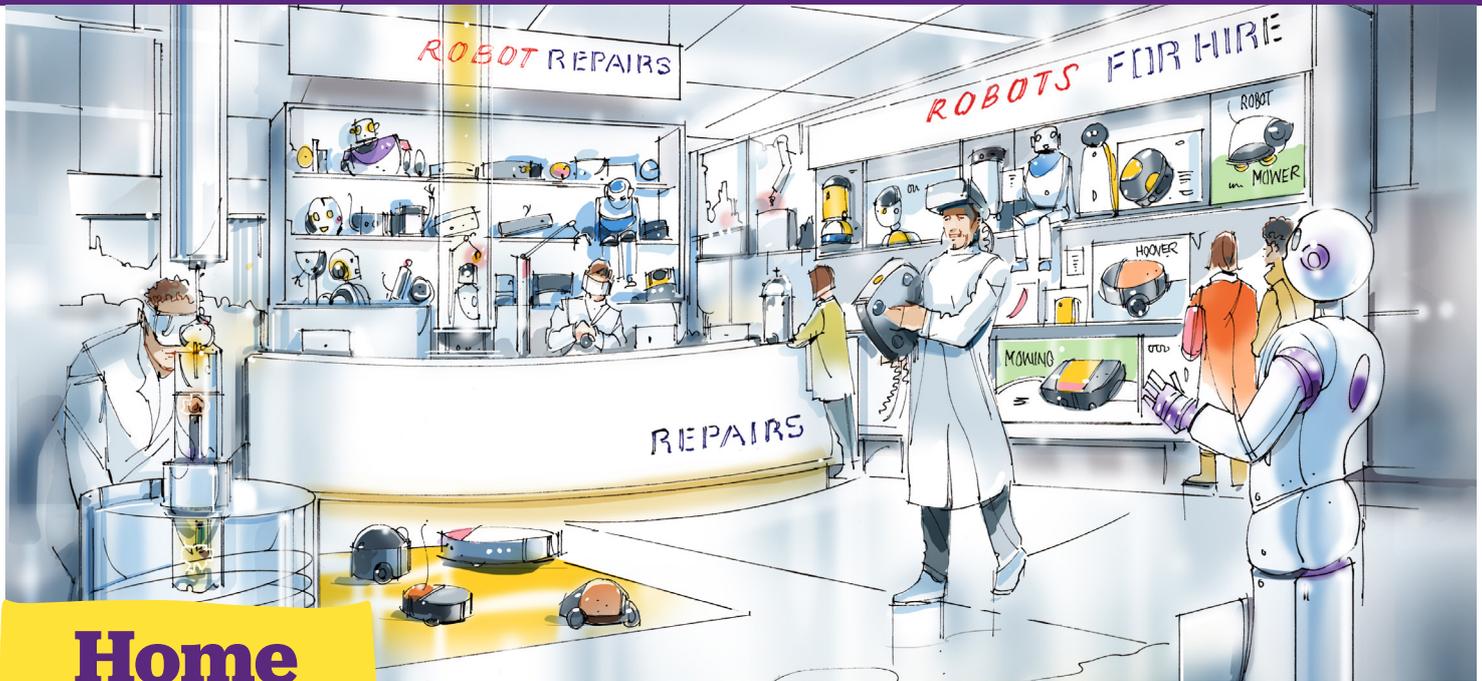
In the next 10 - 15 years, it’s predicted that upon entering a shop, a personal Virtual Reality assistant will

appear in your smart glasses. They’ll welcome you by name, recommend what to try, and even offer a discount based on your loyalty to the store. Of course, this person isn’t real. They’re AI wrapped in a 3D projection. But in a few years, it will be hard to tell the difference. The job of designing their form, creating their voices, and constantly tailoring their interactions will be down to savvy SMEs taking advantage of a new opportunity in this market.

Augmented Reality Shopping Experiences

From beds to bathroom suites, ‘try-before-you-buy’ experiences ranging from previewing furniture and products in your home, to trying on clothes are an increasing trend. Larger retailers like Ikea are already using this technology and there’s scope for improved software to create more realistic digital renders. Shivvy Jarvis predicts a rise in businesses offering this type of digital tool to brands. This will allow customers to test products, from furniture, to clothes, and makeup, from the comfort of their homes - visualising them in their real-life settings; among other things.

David Scott, Head of Retail and Leisure at NatWest, observes: *“Although it was already an emerging trend that we could clearly see through our business customers at NatWest, the importance of customer engagement will be even greater as fewer of us visit physical stores. Whether it’s capitalising on the ‘see now, buy now’ impulse of browsers online, anticipating customer concerns on safety policies and opening hours, leveraging user-generated content to create a sense of community, or using machine-learning tools to reach new audiences, we will see more companies using new channels to engage customers.”*



Home

Robot hire, servicing and repairs

Every day we see more proof that AI and robotics (including drones) are transforming organisations and the workplace; and within the next 10 - 15 years this is set to extend to the home too. As home robots and drones become more common, we could see robotic repair, servicing and hire shops emerging to service and supply robots for house and garden chores. The skillsets of the people working in this industry will need to be broad, combining an advanced grasp of both engineering and AI programming.

Robo-gardener / Robo-housekeeper

Tedious chores such as pulling out weeds, digging vegetables, cutting the lawn, vacuuming the house and washing the floors could soon be solved by robots, the panel predicts. These robots will be introduced to the home and garden in many ways - advancing further than the basic robotic vacuum cleaners we're already accustomed to. Tomorrow's service companies will install and maintain these systems and provide customers with constantly maintained homes and gardens.

Leisure

Analogue Activity Centres

Tom Cheesewright predicts that with the world going digital, there could be a rising hunger for all things analogue, particularly in instances or experiences with an element of risk that fire up our senses.

There could be a growing market in the future for activities that get us away from our screens and smart glasses, whether that's an experience to amp up our adrenalin like a motor sport or rock climbing; or more sedate affairs offering the chance, for example, to sample slow cooked food and meet some new people. Singles events might be a particularly good market, as people look to meet others outside the confines of a dating app.

Wearable Experience Technologies

Fitness bands and smart watches have already made people more aware of their everyday activity, general fitness, and able to track several other aspects of their health. The ongoing innovation cycle in these industries will continue, potentially even extending to our blood and nerve activity with the ability to record and replay emo-

tions and sensations. Skiing on a virtual ski slope could feel much more real using augmented reality glasses as well as haptic technology that would recreate the feeling of a cold wind.

This sort of expertise tends to enter markets via small companies built around a few experts but is then replicated by others at scale.

Robotics and augmented reality can also allow for automated companions or contestants in races and other sporting events. While that is already possible on expensive machines or labs, it will become much cheaper and commonplace over the next decade. This sort of technology will likely feature in your local gym and home versions may create a new cottage industry of techie fitness instructors using AI to offer precision tailored immersive exercise regimes.

Even sports and leisure wear will evolve significantly thanks to new technologies such as those allowing fabrics to monitor electrical activity from the skin surface. They have the potential to extend the volume of data for their various apps, while also allowing automatic control of smart fabrics, offering solutions such as variable water permeability which will keep wearers the right temperature while they exercise and reduce sweat.



Food and Drink

Insect/Bug Foods

The answer to climate change, low carb eating, and high protein diets could be smaller than we think. Crickets and other bugs might seem a little unpalatable to most of us, but they can be ground down to make a nutritious and protein-packed ingredient. For example, it can be partly substituted for wheat flour in a pizza recipe or even added to the patty in a burger. The result is a nutritious base with a nutty flavour, full of essential micronutrients such as iron and zinc.

Insects already make up a large part of the everyday diet in many cultures around the world and they present a sustainable food source for humans in the future.

David Scott, Head of Leisure and Retail at NatWest, added: *“While eating bugs doesn’t sound very appetising, the benefits of cutting carbon emissions from food production is incredibly compelling. According to the UN’s Food and Agriculture Organisations, insect farming produces one hundredth of the emissions of the equivalent output from beef cattle or pigs, which makes the likelihood of farming insects at scale seem pretty inevitable.*

This is just one of many opportunities that exists for businesses in the UK that can help contribute to the overall reduction of carbon emissions; according to our recent Springboard to Sustainable Recovery Report, businesses that play their role between now and 2030 stand to take a share of a £160billion economic opportunity.”

Algae Snack Foods and Supplements

In addition to insects, algae can provide a high protein food source and is likely to feature in a wider range of snack foods and supplements in future. The nutritional value of microalgae typically includes essential fatty acids such as omega-3 and amino acids, as well as several key vitamins. These organisms can be found in both fresh water and seawater and can also be farmed.

Lab-experience Restaurants

They may be perceived to be the future of Frankenstein foods, but lab-made foods are likely to become a staple of our future diet. In fact, lab restaurants may bring a touch of theatre to the concept of cooking, according to Kate Hardcastle. With some consumers still fearing the unknown in the development of processed food and drink, SMEs may bring to life the science behind lab-grown foods in immersive cooking experiences and demonstrative restaurants.

Fungus Food-Packaging

Plastic packaging could soon be a thing of the past as crates made from biodegradable fungus are utilised to transport foods, not only helping with getting to a carbon zero future but also reducing waste.

Transport

Driverless pods

Pollution and congestion are up there among the bug-bears of commuting. Cheap driverless pods, which will be the next evolution of the e-scooter, are on the horizon. In urban areas, they could travel on special lanes, likely powered from the road surface, and navigate by smart infrastructure such as the passenger's phone. Such personal rapid transit would allow for nonstop, point-to-point travel for individuals or small groups.

Air Taxis



Overcrowding on public transport is a widely acknowledged problem. One company finding solutions in the sky is UK start-up Vertical Aerospace. This leading business is already developing air taxis for public use with the aim of launching a fleet of zero-emission electric air taxis as cheap as an Uber. It's likely that these high-powered drone-copter air taxis will start being introduced to cities within the next 15 years. Consumers will benefit and so will the environment, says Shivvy Jervis.

Self-driving Car Rental Services

Further developments in self-driving automotive technologies could pave the way for rental agencies specialising in this type of vehicle. With self-driving cars likely to be expensively prohibitive for most people for a long while, rental agencies are a great way for regular consumers to experience this tech. It's likely these could also be run on a subscription-based service.

Richard Hill, Head of Manufacturing and Automotive, NatWest, said: *"The UK has a great opportunity to develop its electric vehicle sector and infrastructure. More sustainable manufacturing and renewable energy will boost industry, innovation and jobs while addressing climate change. The business model of the future is resilient, adaptable, flexible and modular. Through partnerships with the likes of Octopus Energy, EV8 and CoGo, NatWest is aiming to reach more of our customer base with innovative and progressive services that can help them make the switch to electric vehicles, or monitor their carbon footprint, right away."*

Travel & Tourism

VR Travel Agents

A new era of local travel experts will bring personalised planning to holidaymakers through virtual reality (VR). Instead of a formulaic travel agency layout, Kate Hardcastle predicts the VR experience will allow you to 'try-before-you-fly', perhaps even with a pre-booking cocktail in hand.

VR Mind Refresher Holidays

Stressed out workers will soon be able take 30-minute 'mind-refresher' holidays via VR headsets, predicts the panel. The ability to further enhance work-life balance through regular 'trips' that help you fully switch-off from work and relax, will become available in the future.

VR Holidays

The panel believe that VR technology could even take over from complete holidays. It's likely that we'll all have fewer real holidays in future, as the pressure of the carbon impact of travel becomes viewed more negatively, but we'll top up these trips with separate virtual breaks, where we can experience global travel via immersive technology.

Construction & Engineering



Robot Pilots

Exoskeletons are coming to a construction site near you. Designed to increase safety and give the wearer super-human strength, a range of different full body suits could allow workers to do more, for longer. But the larger they get; the more expertise will be needed to pilot them. That means opportunities for expert pilots, trainers, and technologists.

High-speed 3D construction

Dr Ian Pearson says the construction industry is one of the most accessible to automation and so the use of AI and robots is likely to increase steadily. With building sites free of humans for much of the time, high speed assem-

bly, 3D printing, and aerial drone work could construct buildings very quickly, with short intervals incorporated where skilled specialist humans come in to do specific tasks. This is also a likely solution to make construction safer, over having people working alongside lots of robots – particularly given it's much easier to make a cheap and fast robot if it doesn't have to watch out for people all the time!

Shivvy Jervis says that businesses using 3D printing, robotics and automation can build houses twice as fast as usual methods, with 80% less man hours and eight times less waste. This will benefit consumers as it will help address the ongoing housing crisis in the UK, providing faster alternatives to construction. Finally, this is also extremely helpful in disaster situations or for housing those in immediate need, as producing homes with 3D printing is very fast.

cracked? This is one promise of quantum computing, the fast-advancing alternative to traditional computers.

Cryptography relies on the sort of maths problems that quantum computing is suited to solve, which means once it becomes widely available, we will need to upgrade a lot of systems. Fortunately, there are quantum-ready forms of cryptography, but with almost every organisation in the world likely to need an upgrade – a lot of opportunities will be created for businesses and individuals in this field.

Neil Bellamy, NatWest's Head of Technology, Media and Telecoms, adds: *"As the economy continues to digitalise it will be more important than ever to ensure that the digital infrastructure of countries, companies and consumers is safe and secure."*

IT & Security



Drone security specialists

Private security via drone-mounted surveillance could replicate the benefits of living in a gated community without the cost. This technology could also be used to assist in policing big events or securing large businesses and homes with large grounds. Drones will be accurately deployed, and directed to where they are needed, supported by a human team of security experts.

Dr Ian Pearson suggests the development of security drone fleets may also give rise to companies specialising in new home-protection products. This would be boosted by the ability to track and apprehend offenders.

Post-Quantum Security

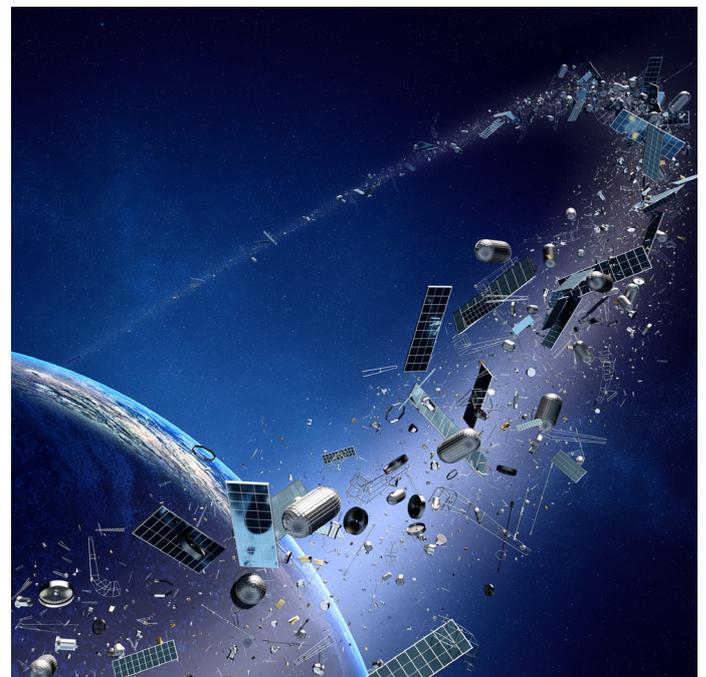
What happens to our digital world if the cryptography that secures all our communications and transactions is

Space Industries

Space Tourism

The prospect of the first space travel agent will excite many armchair astronauts. Existing start-ups could be future leaders in the space industry, according to Kate Hardcastle. However, she predicts that this space travel is still likely to be at a prohibitive cost for most people for a few more years yet.

Orbital Bin Lorries



With more use of outer space, one big growth area could be how to clean up the universe. A whole new market may be created in identifying, tracking and removing pieces of junk that present danger to astronauts and equipment. Orbital Bin Lorries would be needed to collect and clear this space junk and return it to earth to be recycled.

Expert Panel



Dr Ian Pearson BSc DSc(hc) FWAAS CITP MBCS

Ian Pearson has been a futurologist for 29 years, tracking and predicting developments across a wide range of technology, business, society, politics and the environment. He is a Maths and Physics graduate, a Doctor of Science, and has worked in numerous branches of engineering from aeronautics to cybernetics, sustainable transport to electronic cosmetics. His 1850+ inventions include text messaging and the active contact lens, more recently a number of inventions in transport technology, including driverless transport and space travel. He writes and consults globally on all aspects of the technology-driven future. He has written eight books and made 850 TV and radio appearances. He is a Chartered Member of the British Computer Society and a Fellow of the World Academy of Art and Science.



Shivvy Jervis

Named one of Britain's leading 'Women of the Year' for 2021, Futurist Shivvy Jervis advocates for human-led innovation and focuses on the critical intersection of three vital areas – digital advances, scientific developments and psychology or our brain chemistry. She is described by the World Economic Forum as “having the unique ability to address complex topics in such a human-centred manner” and by TED Talks as “having a remarkable capacity to uncover the relevant from all the noise”.

She is known for finding, testing and bringing to life only those innovations with sustainable and ethical value. She demystifies and connects how they will go on to shape how we do business, secure our financial futures and elevate our individual potential.



Tom Cheesewright

Tom Cheesewright is the Applied Futurist, helping people and organisations around the world to see the future more clearly, share their vision, and respond with innovation. Tom will help you and your audience to connect tomorrow's world to today's experience, and make sense of what's happening next, and why. Tom's clients include global 500 corporations, government departments, industry bodies and charities. Using a unique set of tools that he developed, and now teaches and licenses to others, Tom finds the critical intersections between today's macro trends and the existing stresses in each client's organisation and sector.



Kate Hardcastle MBE

Kate Hardcastle MBE - Broadcaster & Global Business Expert. Kate is a multi-award winning business specialist with clients in EMEA, UAE, USA and Australia - supporting each and every partner to build stronger relationships with their customers. With a “Head for Business and a Heart for Consumers” she is a leading advocate on better business practice & sustainability.

Additional NatWest contributors:

Roddy McLean, Director of Agriculture; Barrie Davison, Head of Healthcare and Education; Ian Burrow, Head of Renewable Energy; Neil Bellamy, Head of Technology Media and Telecoms; David Scott, Head of Retail and Leisure; and Richard Hill, Head of Manufacturing and Automotive.



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