



Discover the future

2020 predictions for UK Technology,
Media and Telecommunications

Foreword

As a new decade approaches, the impact of the technology, media and telecommunications sectors on society, business, and consumers' daily lives remains as broad as ever.

The last ten years have delivered multiple, mainstream shifts, from smartphones to subscription video on demand; from cloud computing to biometric authentication; from near-perpetual connectivity to ever broader, deeper data trails. The next ten years are likely to be equally disruptive, with some of the most significant technology advances in our lifetimes having their foundations in 2020.

The next release of the 5G standard has the potential to reinvent enterprise communications, particularly in industrial environments. The last few decades have been about connecting people. The next tranche of 5G standard should enable every machine and every tool to become connected, generating more data, enabling more insights and delivering higher productivity. We forecast 100 companies around the world will have deployed 5G by end 2020; by the end of the decade, 5G could be enabling hundreds of billions of pounds worth of value.

5G enables machines to become more autonomous. This includes service robots, which can be better connected through 5G, more capable due to edge computing, and operate for longer thanks to better battery technology. We forecast 2020 is the year in which half a billion service robots will be sold, generated over £13 billion in revenues.

Better batteries are also a core enabler of the reinvention of commuting, an evolution that will take many years to complete. The lithium ion battery enables bicycles to be reimagined and repurposed. Adding a 2.5 kilogram battery to a bike means it no longer needs to be optimised for weight. A bike with a battery can be reinvented as a compact multi-person vehicle, powered by pedalling, but assisted by battery power, particularly for starts, up-hills and headwinds. It can become a delivery vehicle, an urban taxi or a powered wheelchair. We predict that the proportion of commutes that include a cycle ride could double over the next three years, resulting in tens of billions more cycle rides per year.

Commuters have long been accompanied by radio, and increasingly they will be accompanied by podcasts in 2020. We predict that podcasts will be a £20 million business in the UK in 2020, but \$1.1 billion (£850 million) globally.

The podcasts may be listened to on wireless earbuds, which are part of the growing smartphone multiplier market. Sales of hardware, software, content and services related to smartphones should be close to half a trillion dollars in 2020, with mobile advertising being the largest component. The value of smartphone accessories alone, at \$77 billion (£60 billion) is multiples of the forecast revenues for tablets, wearables or smart speakers.

As we approach 2020, TV viewers are being spoilt with an ever-widening array of some of the best television content ever made. The surge of the subscription video on demand (SVOD) market should continue in 2020, and this will be complemented by the rise of advertising video on demand (AVOD). TV advertising is a £5 billion market in the UK; AVOD, which is a subset, will be over £500 million. By the end of 2020 there will be many more new names in SVOD, but there will also be a growing number of AVOD providers, including the recently launched Pluto.TV and Plex, as well as smartphone optimised Quibi.

The new decade beckons; the tech, media and telecoms markets are ready.

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Prediction 2

Cycling's digital transformation: Making cycling faster, easier, and safer

Globally, more and more cyclists are taking to the roads, assisted partially by an array of technological advances. We predict that tens of billions of additional bicycle trips per year will take place globally in 2022 over 2019 levels. This means fewer car trips and lower emissions, with spill-over benefits for traffic congestion, urban air quality and improvements in public health.

Underlying this growth in bike-riding is a diverse array of technologies, including predictive analytics, product and application design, wireless connectivity, digital urban planning tools, 3D-printed parts, and electrification. These innovations are making cycling safer, faster, more convenient, and easier to track and measure.

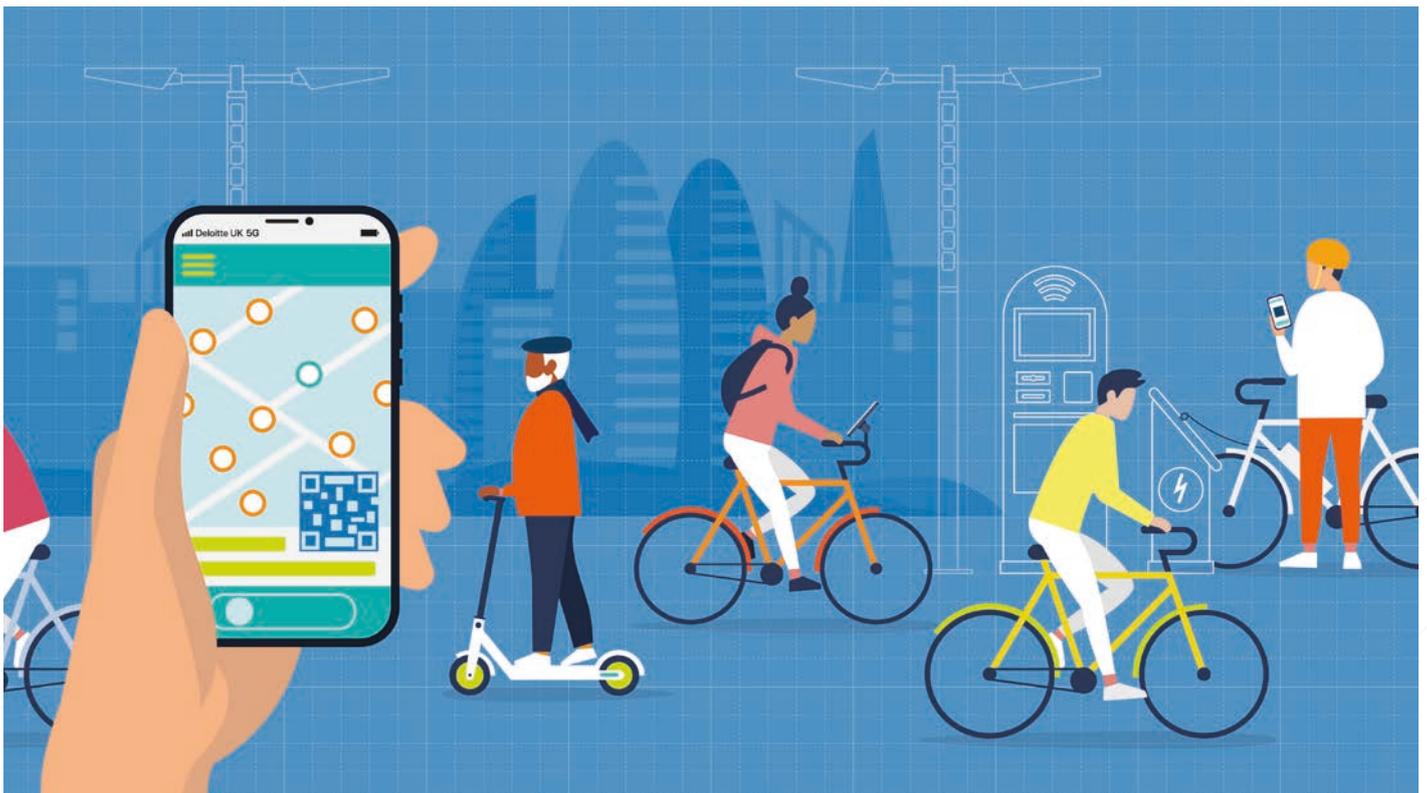
The need for more effective transportation is particularly acute in cities where congestion is most severe. Bikes can pick up some of the slack for shorter journeys: More than half of car trips in England are less than 5 miles and a third of trips in urban areas such as London are less than 1.2 miles.²⁰ However, as of 2019, only around 5 percent of journeys in London are taken by bike.²¹

Electrification: My other car is an electric bike

Of the slew of bicycle-related technologies, the development and spread of electric bike, which use batteries to assist pedalling, stands out for its potential to boost cycling's growth.

Electrifying a bike is not a new idea: The first patent for an electrically powered bicycle was registered in 1895.²²

Now, thanks largely to recent improvements in lithium ion battery technology, pricing, and power, the electric bike market is seeing a surge in interest globally, particularly for high-end models. Between 2020 and 2023, more than 130 million electric bike (using all battery technologies) are expected to be sold globally,²³ and in 2023, electric bike sales are expected to top 40 million units worldwide,²⁴ generating about £16 billion in revenue.²⁵ To put these numbers into context, only 12 million electric vehicles are expected to sell in 2025; at the end of 2018, just 5.1 million electric vehicles were in circulation.²⁶



Some European countries have fully embraced electric bike. In Germany, electric bike sales in 2018 rose by 36 percent to nearly one million units, representing 23.5 percent of all bikes sold;²⁷ almost a million more were sold in Germany in just the first half of 2019.²⁸ More than half of all adult bikes sold in the Netherlands in 2018 were electric.²⁹

Sales in the UK however are far weaker: in 2018 only 70,000 e-bikes were sold, a paltry two percent of all cycles sold.³⁰ A key reason for the significantly lower numbers is linked to the purpose of cycling. In Germany and Netherlands, cycling is considered a commuting option, while in the UK it is regarded more as a sport. Over half of trips on the Dutch transit system start with a bike ride.^{31a} In the UK just 6 percent of the population (3.1 million) cycles as part or all of their commute. Nearly double that number (6.1 million people) cycle for sport or leisure.^{31b}

An increase in dedicated bike lanes, electric bike hire, subsidy and cycle-to-work schemes should help boost sales in 2020 and beyond.^{31c}

What's the appeal of e-bikes?

One big plus is that battery assist makes cycling less of a physical effort: you do not need to be an athlete to travel by e-bike. This translates into faster average speeds (about 50 percent faster than on a standard bike);³² easier acceleration after a stop, such as at a traffic light; and a power boost when going uphill, facing headwinds, carrying heavy loads, or some combination of the above.³³ As it requires less effort than a standard bike, e-bikers sweat two-thirds less than regular cyclists which matters to commuters.³⁴ E-bikes make cycling less daunting to many who might otherwise hesitate.

Yet electrifying a bicycle does more than making it easier to pedal. E-bikes can be secured, unlocked and tracked via apps. Electrification can also improve safety. Most high-end e-bikes incorporate large, bright, battery-powered front and rear LED lights.

Technologies beyond electrification

Apps can quantify the cycling experience in many ways as well. They can calculate the number of calories burned or measure the amount of greenhouse gas saved by cycling instead of driving. Using an app, cyclists can not only easily log and share their journey times, but also receive time estimates down to the minute based on aggregated user data.

Apps also exist for bikesharing. As of July 2019, Google Maps displays bikesharing stations' locations, as well as how many bikes are available at each station, in 24 cities.³⁵

A major reason that people do not ride bikes—of any type—is because of safety concerns. Here, too, technology can offer multiple solutions through the accelerometers and gyroscopes available on most smartphones, tablets, action cameras, or embedded onto helmets.

Beyond hardware: Cycling and analytics

Data and analytics technologies can aid urban planners' efforts to devise bicycle-friendly solutions. The amount of data available to planners is growing, while advances in analytics are making this data ever more useful.

London's transport authority is using a digital tool called Cynemon to help inform investments in the city's bike lanes.³⁶ This tool applies algorithms to data synthesized from multiple sources to determine what routes cyclists are most likely to take along Greater London's network of streets and urban paths. Strava, whose consumer app collects data from millions of cyclists and runners around the world, aggregates and anonymises this data through its Metro product and makes it available to departments of transportation and city planning groups to use in improving bicycle and pedestrian infrastructure.³⁷ Depersonalised, aggregated data from mobile network operators could also be used to understand commuter journeys.³⁸

Bicycles and bike accessories themselves can be fitted with location and motion sensors to yield useful data. In the UK, Manchester's city council subsidised a program that equipped bikers with See.Sense lights to capture data on routes, journey times, problem spots such as potholes, and key pinch points or stoppages.³⁹ The council used the aggregated and anonymised data to understand what routes cyclists were using and where safety concerns were highest due to factors such as lack of infrastructure, adverse road conditions, or overexposure to traffic.

Bottom line

The technology industry has a large role to play in encouraging greater bicycle use—a goal that can help society address many challenges arising from continuing global urbanisation. Improving the technology itself—better data analytics to support urban planning, or faster battery recharge times, or apps that help people integrate cycling into their commutes—is only part of the picture. The other, equally important part is to support policies and programs that promote cycling.

The tech industry can't do it alone, however. Many vertical sectors should be involved for cycling to make a dent in certain entrenched challenges. For example, consider public health and the related issue of health care costs. Instead of prescribing pills, doctors could offer programs designed to change behaviour, such as encouraging exercise.

This is actually already happening to a limited extent: In the UK, some doctors are referring patients to a 12-week cycling course with the aim of making them more confident about being on a bike—and, hopefully, to make cycling a habit.⁴⁰

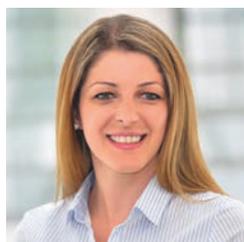
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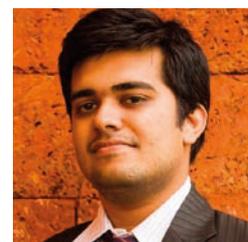
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