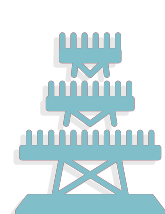


Your healthier connected future

Our next generation 5G network

The future of healthcare with 5G and Internet of Things (IoT)

As part of its Long Term Plan, the NHS intends to upgrade its technology and establish digitally enabled care within the next ten years. 5G will play a big part in this, becoming integrated into the many hospital trusts, GP surgeries and private clinics across the UK.



Massive MIMO

The number of antennas will increase more than ten-fold, which means more signal paths for sending data to customers faster



Edge computing

Data is being processed closer to the end user in local networks and devices rather than in the cloud, making response time faster and millisecond decision-making possible



Network slicing

Capacity of the 5G network can be allocated to match requirements, meaning simple devices and data-heavy demands have the right sized network slice

IoT informed triage

First responders to mass casualties can tag the injured with IoT sensors and relay biometric data to approaching response teams to better allocate the right care to the right people

Fast transfer of crucial files

Imaging machines like MRIs can produce 1GB of files per patient. Even during peak times, the 5G network can ensure files are sent and received quickly between clinics

AI for disease detection

Machine learning can support radiologists by increasing early cancer diagnoses and cutting the number of false-positives



Growth of telemedicine

With 5G supporting real-time high-quality video, remote diagnosis and treatment of patients can take place, particularly in remote and rural areas

Operations in AR

Augmented reality can overlay patients with key information, like the location of blood vessels, for smoother surgery without lag

Remote robotic surgery

The low latency of 5G means surgeons can direct robotic surgery, bringing specialist expertise to anywhere in the world

Not all of this is possible yet – but it's not far off.

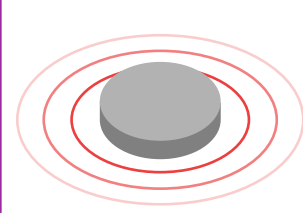
Vodafone are rolling out 5G across the UK this year, transforming connectivity for operating theatres, waiting rooms and mobile medical units

A lot of what makes this technology tick comes from IoT – and is available now:



Connectivity

In order to communicate with users and with each other, smart devices need an internet connection. This could be 4G, 5G, over Wi-Fi or with Narrowband-IoT. No matter where the devices are, there's a connection available almost anywhere.



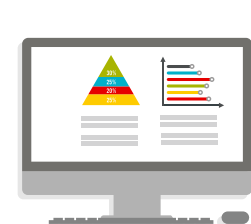
Sensors

Sensors are the “what does it do?” part of IoT. They can take the temperature of something, measure speed and sound, detect gas and monitor vibrations.



The cloud

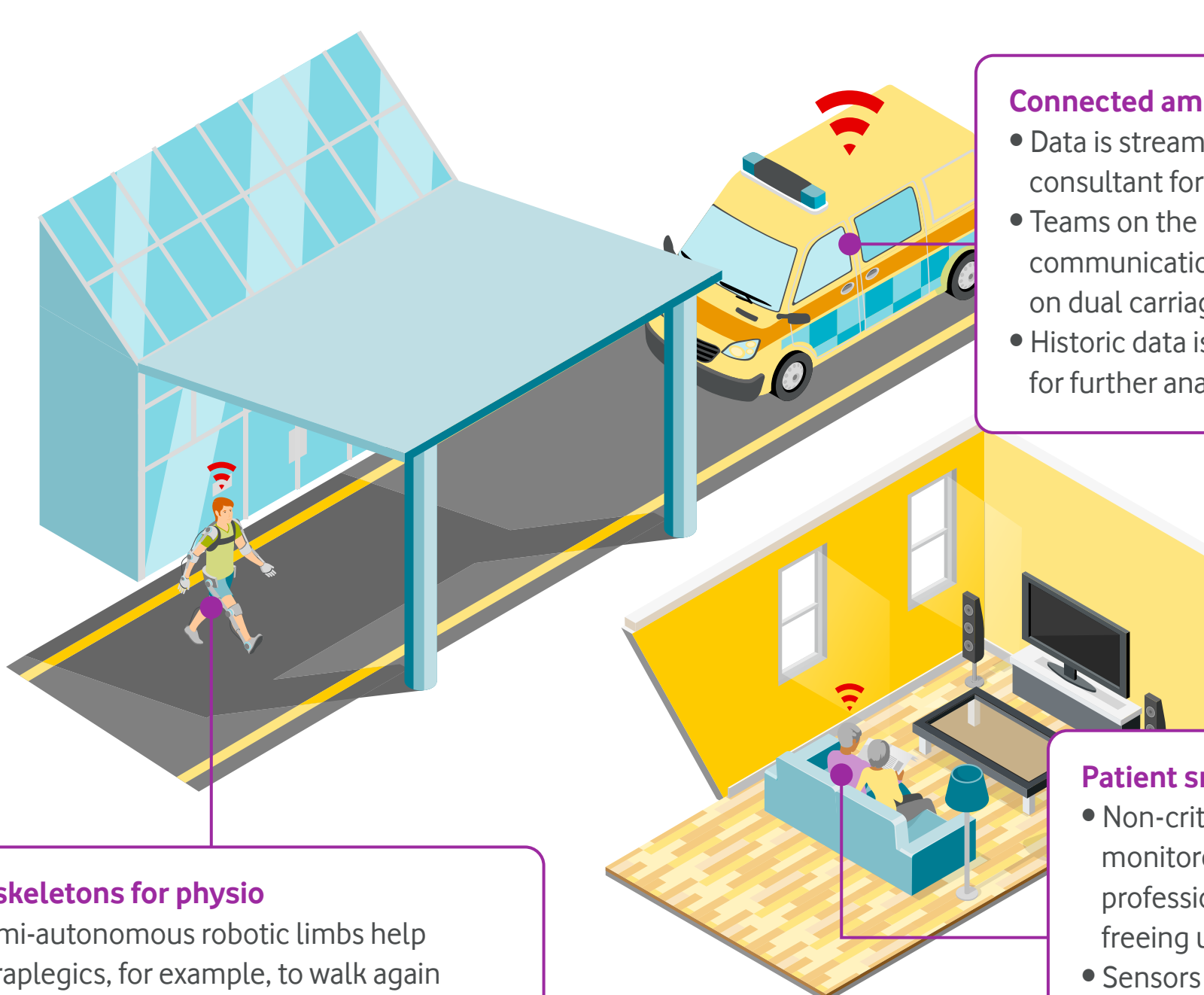
Made up of a huge, interconnected network of powerful servers, the cloud can be public or private, and is safe and secure. With the cloud, activity takes place over an internet connection rather than on the device itself.



IoT platform

A central platform allows for the remote management of smart devices, 24/7. What's more, with third party integration, real-time analytics can be dissected to reveal patterns and trends and identify any performance issues.

These IoT building blocks are transforming healthcare in all kinds of ways. Examples include:



Connected ambulances

- Data is streamed from ambulance to consultant for real-time guidance
- Teams on the road have constant communication with hospitals, whether on dual carriageways or side streets.
- Historic data is preserved after the handover for further analysis by the hospital

Patient smart monitoring system

- Non-critical patients can be monitored at home by health professionals as they recover, freeing up hospital beds and staff
- Sensors monitor biometry such as body temperature and heart rate
- If data readings show ill health, care can be instantly summoned by text message or a direct call to emergency services

Exoskeletons for physio

- Semi-autonomous robotic limbs help paraplegics, for example, to walk again
- Data is relayed back to physiotherapists to monitor patient progress
- Data is also shared with exoskeleton manufacturers to stay on top of wear and tear, and to replace parts before they break

Healthcare and IoT today

Vodafone's 2019 IoT Barometer report has found:

77%

of UK healthcare adopters say they're spending more on IoT than 12 months ago

77%

also said the scale of their IoT projects have grown

Over 50%

of IoT healthcare and wellness projects are considered sophisticated

The future of your business

5G is here, unlocking the potential of businesses across the UK.

Discover how 5G can take your business beyond limits at vodafone.co.uk/business/why-vodafone/5g-for-business

The future is exciting.
Ready?

