

# Transforming health and social care with technology



# Safeguarding the future of healthcare

This document highlights the digital change happening in healthcare and shows how Vodafone Business is helping to transform the delivery of care through:



## Digital Hospital Campus

Where patients receive acute care within a hospital



## Hospital Without Walls

Delivering effective healthcare outside of a hospital setting



## Social Care and Wellbeing

For more independent living and better health promotion

Healthcare in the UK is on the road to recovery with the mission to cut waiting lists and shortfalls in services in parts of the country. Digital technologies will play a key role in clearing the backlogs, levelling up access to quality care and is the foundation of the Long Term Plan to secure the future of the NHS.



Connectivity for greater care



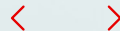
Simplifying digital transformation



Explore the art of the possible

"We must tackle the backlog of people waiting for treatment, bring NHS and social care services closer together and deal with the stark inequalities and level up the health of the nation."

**UK Government Healthcare and Social Care Secretary**



# Our commitment to simplify digital transformation

The Vodafone Centre for Health with Deloitte brings a true end-to-end digitalisation experience in healthcare. From optimising connectivity across sites and helping staff integrate new technology into their daily practice to redesigning process and patient pathways and implementing digital transformation.

Together, we ensure healthcare providers are empowered to make the most of their digital transformation:

## Vodafone

For secure and reliable connectivity, Vodafone provides monitoring, managing and maintaining solutions that connect buildings, people, rooms, wards, things and the cloud. Vodafone's networks have the speed and security to support next-generation health applications. Plus, with expertise in new technologies like Edge Computing and 5G, Vodafone offers new ways to deliver effective care wherever it's needed.

## Deloitte

For end-to-end change management consultancy for digital transformation, Deloitte ensures a smooth implementation and integration of digital solutions, assisting with business case development, process and pathway redesign and training. As a leading healthcare professional services company, Deloitte provides healthcare consultancy experience – accelerating healthcare transformation and helping healthcare professionals adopt new capabilities faster.

## Specialist partners

Selected by Vodafone and Deloitte to deliver transformational solutions, these specialist partners work within the Vodafone Centre for Health with Deloitte, providing health organisations with everything they need to design and implement digital transformation through one trusted, single point of contact.

Working together in partnership, we are dedicated to leveraging technology and innovation so more people can access healthcare when and where they need it.

We're proud to have Professor Shafi Ahmed as Vodafone's health ambassador. As a technology pioneer, technologist and futurist, Professor Ahmed is instrumental in developing the Vodafone Connected Health programme.



Professor  
Shafi Ahmed





# Connectivity for greater care

Access to better healthcare starts with strong connectivity to support more connected devices, more cloud-based applications and more wireless experiences.

Vodafone provides a one-stop shop for the NHS to meet its digital transformation needs across campuses and beyond hospital walls to enable healthcare everywhere. The Vodafone Business connectivity portfolio delivers the strong foundation the NHS requires for new digital technology and covers:



## Mobile

High-speed 4G and 5G connectivity for digital surgery and community carers working even in remote places without fibre connectivity.



## Fixed

Connecting devices within buildings and buildings across hospital campuses straight to the internet.



## Security

Providing Critical National Infrastructure grade cyber security expertise and defence-grade technology to protect healthcare-related data.



## Cloud

Enabling access to cloud-based applications and data, such as electronic patient records, from anywhere through a secure connection.

Offering connectivity, new technologies and practical implementation in healthcare settings, these services support everything from process redesign to staff adoption of new working methods for maximum healthcare impact.



# DIGITAL HOSPITAL CAMPUS

The digitalisation of hospital campuses is critical, giving NHS staff access to the right tools and technologies to simplify tasks, enhance effectiveness and deliver better care to patients.

## A digital hospital campus aims to:

- Enable easy and secure collaboration between personnel
- Streamline medical pathways and open up access to training
- Ensure access to the right medical expertise when it's needed
- Help clinicians work more efficiently to reduce elective care backlogs

Central to every digital campus is the deployment of the right connectivity and cloud infrastructure. Only through reliable networks and scalable cloud capabilities can hospitals ensure the seamless integration and collaboration needed for an ecosystem of solutions that delivers the right support for clinicians and patients.

**"Though the NHS is facing its biggest ever backlog – with 5.98 million people on waiting lists in November 2021 – digital healthcare is already helping us make progress."**

**Professor Shafi Ahmed**





5G remote surgery assistance and training



5G immersive and interactive learning experience



Connectivity for vulnerable patients



Secure mobile messaging



Patient booking system



Digitising processes

## PRODUCTS

Enabling patient decisions on the move



Keeping people and sites safe



Connect and collaborate anywhere



Sustainability savings through buildings



Tracking equipment and supplies



Digital surgery and training



Clinical messaging and critical alerts for secure collaboration



## CONNECTIVITY

Network management



Reliable WiFi for hospital staff and patients



Reliable, fast and secure connectivity



Adopting Cloud for better patient outcomes



Keeping healthcare safe from cyber risk



# Case Studies and Toolboxes



# HOSPITAL WITHOUT WALLS

To deal with the core challenges impacting the NHS, hospitals need to relieve pressure at the centre by addressing care needs in the community or in the home.

Staff are constantly managing increasing demands for a hospital's limited resources, identifying those who don't need to be admitted because they can be monitored remotely. They also require collaboration tools across

integrated care systems to reduce the millions of lost bed days from delayed discharges.<sup>1</sup>

The goal is for patients to be supported outside of a hospital's walls through telemedicine, virtual therapy sessions and remote-patient monitoring capabilities, so that they can receive the right level of care that they need at home.

<sup>1</sup>Reference

**"We need to use our finite healthcare resources in smarter, better connected and more coordinated ways."**

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Medical supply delivery by drones



5G and AI to connect ambulances with hospitals



Lone worker protection



Unified communications

## PRODUCTS

Enabling patient decisions on the move



Keeping people and sites safe



Connect and collaborate anywhere



Crisis communication system



Clinical messaging and critical alerts for secure collaboration



## CONNECTIVITY

Network management



Reliable WiFi for hospital staff and patients



Reliable, fast and secure connectivity



Adopting Cloud for better patient outcomes



Keeping healthcare safe from cyber risk



# Case Studies and Toolboxes








# SOCIAL CARE AND WELLBEING

With a rapidly ageing population, the budget spent on adult care is rising. To continue providing high-quality healthcare to this increasing demographic, the NHS, together with community health and social care organisations must deliver effective remote patient monitoring and virtual consultation solutions for chronic conditions and reduce impact on secondary care.



**“Healthcare needs to be less reliant on secondary care, utilising remote monitoring and self-management for chronic conditions.”**

**Professor Shafi Ahmed**





Inspiring independent living for vulnerable people



Improving admin efficiency to give more time for care



Connecting the elderly

## PRODUCTS

Tracking equipment and supplies



Connect and collaborate anywhere



Crisis communication system



Protecting the workforce



Connecting the most vulnerable



Keeping people and sites safe



Clinical messaging and critical alerts for secure collaboration



Sustainability savings through buildings



## CONNECTIVITY

Reliable, fast and secure connectivity



Network management



Reliable WiFi for hospital staff and patients



# Case Studies and Toolboxes



# A long-term commitment to delivering change

The pandemic has left the NHS with a significant backlog of elective care cases to resolve and a rapidly growing requirement to alleviate pressure by supporting health in the community and reducing inequalities in care.

At Vodafone, we are delivering connectivity and solutions to NHS Trusts to meet these challenges, enabling staff to make hospitals run more effectively to see more patients. Like the NHS and the wider care sector, we believe that improving access to care for everyone will result in a brighter future for all.

## Looking to accelerate your digital transformation?

Discover how we're innovating for better patient outcomes, improved connectivity and a more rewarding employee experience.

Contact your **Vodafone Account Manager** or call **0808 099 8877**

Explore the art of the possible



### In the hospital

The future for hospitals and other clinical settings



### In the community

Empowering people, integrating health and social care



### At home

Care that was previously only possible away from home







# Enabling patient decisions on the move

Giving healthcare professionals the devices they need to communicate

## The need to access patient data securely on the move

Many healthcare professionals have to make patient decisions on the move, qualifying mobile devices with access to patient data as essential. Yet, these devices are increasingly targets for attackers and need to be able to protect sensitive information. In addition, the devices can play a crucial role in the wellbeing of many patients, giving them a way to stay in touch with loved ones and be entertained, alleviating the feeling of isolation.



## What's the solution?

At Vodafone Business, we offer a wide range of mobile devices and mobile network services to keep medical staff connected securely to the data they need while on the go. Devices can be pre-installed with messaging applications like Teams, Zoom or clinical communications solutions such as Alertive. With secure solutions such as Lookout Mobile Security and Samsung Knox, your devices are protected, with our technology helping prevent, detect and remediate against threats.

## What's the outcome?

Healthcare providers can rest assured that employees gain reliable connectivity to maximise efficiency and that mobile devices and data are protected. They can also apply and enforce the right levels of access and security controls to keep staff and data safe at all times. Plus, as seen by Betsi Cadwaladr University Health Board (BCUHB), the provision of 100 of our tablet devices with 250 Unlimited Emergency Tariff SIMs connectivity helped 100s of older people stay in touch with family and friends when hospital visits were restricted during the pandemic.





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# Clinical messaging and critical alerts for secure collaboration

Linking care professionals with patient data, prioritised alerts and clinical tasks

## Trusts need to deliver faster, safer and more convenient care

Delays in finding contacts within a medical and care environment can have serious consequences, particularly when shifts are changing over or urgent care is required. It's essential that access to patient records and clinical decision making isn't hampered by unsecure platforms, delayed alerts or late clinical results.



## What's the solution?

What's needed is a two-way solution that provides fast, secure and auditable communications between clinicians – particularly in emergency or trauma cases. At Vodafone, we work with our partner Alertive to provide communications for secure and fast clinical messaging, efficient critical alerts and real-time visibility of crucial data.

## What's the outcome?

Our solution supports direct and secure clinical decision making. It removes confusion, wasted time and unanswered bleeps from outdated paging systems. An NHS Trust replaced its legacy paging system with a secure mobile messaging solution from Vodafone and our partner Alertive. The solution complied with all IT governance standards and included a new Trauma Incident Messaging Service, which featured audit trail and reporting capabilities. As a result, the Trust improved productivity, switchboard efficiency, accuracy of information and data governance.





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## Connect and collaborate anywhere

Keeping health professionals connected and collaborating with their teams anywhere

### Clinicians want to connect and collaborate securely from anywhere

Trusts find it challenging to direct calls efficiently to different clinical teams and wards using legacy phone systems. They can't balance call traffic according to each team's capacity, giving employees an inconsistent experience across locations and offices. Plus, the legacy phone systems have limited phone features.

### What's the solution?

Unified Communications removes the inconsistency, combining our mobile and WiFi coverage for secure communication using multiple tools. As well as supporting the integration of key collaboration technologies such as Microsoft Teams, the solution helps address any limitations of legacy systems. This allows Trusts to get the relevant communication tools into the hands of the staff to helping them do their jobs more effectively.

### What's the outcome?

Trusts find it considerably easier to manage call flows and route calls to the right people in the right teams. Furthermore, staff and partner organisations can collaborate freely from both inside and outside a hospital or care facility to enhance efficiency and improve patient outcomes. For instance, Care Tech in the UK engaged Citycom and Vodafone Unified Communications so that staff could communicate with the right teams and collaborate on the move when making home visits to be more productive and patient focused.





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# Tracking equipment and supplies

Tackling theft or mislaid equipment and medicines

## How to take control of hospital equipment and supplies

Health and care sectors lose millions of pounds through missing, stolen, or non-returned equipment. It is difficult to measure how frequently equipment is being used when it was last used and where it is located at any given time. Improving the efficient use of equipment and ensuring it is available when needed will support healthcare teams to reduce delays and improve turnaround times. Another advantage is that it is no longer necessary to rely on third parties to track and locate the delivery status of products, like blood and vaccine supplies. In addition, they can now also monitor the condition and temperatures of products in transit.

## What's the solution?

Asset Tracking solutions, backed by our IoT.nxt platform and our mobile and WiFi coverage, provide live and real-time monitoring of asset locations. We deploy a tracking system, with compact trigger-tags placed on the assets. A series of beacons across Trust locations constantly monitors where the assets are. Plus, automatic trigger event generation based on geofences means assets going walk-about can be tracked.

## What's the outcome?

Staff spend less time locating medical equipment, freeing them up for patients. Trusts reduce the costs incurred from missing, stolen or non-returned equipment and can spot underused equipment. Plus, they can optimise management efficiency and improve turnaround times in operating theatres. And they can use the solution to obtain the real-time location, of packages and their delivery status, including arrival times and even their current temperature.





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# Keeping people and sites safe

Provide real-time visibility for greater insights and improve employee safety

## How to ensure staff safety cost effectively

Health and care providers want to be able to process video for greater insights in smart and secure ways. Furthermore, they want to balance image quality with the demands of video processing on network bandwidth, and they don't want any surveillance solution to add to management workloads.



## What's the solution?

Smart Vision Enhanced consolidates existing analogue CCTV systems to a single, trigger-based smart solution that can be accessed from a single platform that can view both fixed sites and body worn cameras to support a variety of use cases:

- City Vision Enhanced – turns analogue CCTV into smart solutions with simple encoders that enable you to lower storage costs and more efficiently analyse critical events from either a central or remote location.
- Bodyworn Vision Enhanced – body-worn cameras work on top of the Smart Vision Enhanced platform to give real time visibility of critical situations. Paramedics wearing the cameras deliver a picture of an emergency in real-time. Video stream from the cameras and sensor data provide a multidimensional view of the situation with cutting edge processing reducing the chance of disruption.

## What's the outcome?

Smart Vision Enhanced offers a wide range of benefits for multiple use cases from keeping employees and patients safe to real time assistance for critical incidents. It analyses information at the edge for real-time observation, and a unique encoder enables data to be compressed without a reduction in video quality. A fully managed service, Smart Vision Enhanced is designed for Critical National Infrastructure and can operate using 10 percent of the bandwidth of the competition for the same price or less. Bodyworn cameras are also a proven deterrent against attacks on staff and are being rolled out nationwide by the NHS. Additionally, using the cameras, community and ambulance staff can live stream critical situations to get remote support which could be crucial for combatting time sensitive scenarios such as strokes.







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# Sustainability savings through buildings

Drive carbon efficiencies from your buildings

## Achieving sustainability goals needs the right tools

The world has seen that 39% of global carbon emissions come from buildings<sup>1</sup>, and 30% of energy is wasted<sup>2</sup>. Based on these kinds of findings, Trusts have set their own energy efficiency targets and are striving to boost the efficiency of their buildings to improve the experience of personnel.

## What's the solution?

Integrate digital IoT solutions into your hospital's Building Management System to monitor and manage your building's energy requirements in real time. The platform offers a single pane of glass to visualise, monitor and manage all your hospital locations.

## What's the outcome?

Using Vodafone's IoT.nxt platform, it's possible to make energy savings of up to 30%<sup>3</sup>. Hospitals can track and reduce carbon emissions and rightsize maintenance scheduling to prevent costly disruption and repairs. They can monitor ambient conditions to ensure the optimal environment for delivering care. Plus, because the platform is extensible, it lays the foundation for further digital transformation such as Asset Tracking, predictive maintenance and smart operating theatres.



<sup>1</sup>[Reference](#)

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## Digital surgery and training

Help tackle elective care backlogs and improve efficiencies in training

### Make surgery more efficient to reduce waiting lists

Fixing the elective care backlog is an NHS priority. A key part of the solution involves making surgical procedures more efficient and improving training through digital technology.

### What's the solution?

Vodafone Business's 5G coverage and Multi-Edge Computing (MEC) solutions deliver reliably low latency to make digital surgery a viable proposition. Working with Proximie, a provider of world-class connected surgical care software, we are delivering this kind of surgery with fast and reliable network connectivity.

### What's the outcome?

The University Hospital of Wales and the University Hospital Llandough found that surgeons could interact and consult with colleagues anywhere in the world via live video during procedures. Participants could provide precise directions during an operation, and overlay notes, sketches and anatomical diagrams. Coventry University Department of Medicine also found using our low latency 5G network with MEC supported an immersive and interactive virtual learning experience.





# Network management

Centralising network management to reduce complexity across multiple locations

## The need to reduce management effort and cost

Health and care providers have to integrate and manage connectivity across multiple locations, including hospital campuses, GP practices, community centres and other integrated care system (ICS) partners. However, they want to avoid the complexity and expense of traditional network management where switches and routers across the locations have to be configured manually by an IT specialist.

## What's the solution?

Vodafone SD-WAN gives healthcare organisations the ability to quickly and flexibly change switch and router configurations themselves. This helps operators manage the entire network consistently and holistically, regardless of the underlying network technology. The solution uses the cloud to dynamically steer connectivity and prioritise critical applications as well as deliver a sustained communication network service 24/7.

## What's the outcome?

Trust IT staff can reconfigure network services in near realtime to handle emergency situations, saving hours and resources. Integrated Care Systems (ICS) partners can also streamline the integration of communications between themselves. And network managers have a single point of access for quick and easy control of a network that intelligently anticipates demand.





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## What's the solution?

Vodafone SD-WAN gives healthcare organisations the ability to quickly and flexibly change switch and router configurations themselves. This helps operators manage the entire network consistently and holistically, regardless of the underlying network technology. The solution uses the cloud to dynamically steer connectivity and prioritise critical applications as well as deliver a sustained communication network service 24/7.

## What's the outcome?

Trust IT staff can reconfigure network services in near realtime to handle emergency situations, saving hours and resources. Integrated Care Systems (ICS) partners can also streamline the integration of communications between themselves. And network managers have a single point of access for quick and easy control of a network that intelligently anticipates demand.







# Reliable WiFi for hospital staff and patients

Keeping healthcare professionals and patients connected

## How to meet the connectivity needs of all users?

Maintaining a wireless network 24/7 is essential for keeping healthcare professionals connected with the data and patient records they need to deliver excellent outcomes. Furthermore, patients expect uninterrupted WiFi to help them stay in touch with friends, loved ones and the outside world.

## What's the solution?

Cisco Enterprise WiFi and Cisco Meraki WiFi give network and IT managers a cloud-managed network for distributed health organisations that can be controlled from anywhere. It's a simple, secure and intelligent solution for managing wireless infrastructures using expertly designed and engineered wireless technology. A cloud-based dashboard makes it easy to monitor a network's users, their devices and their applications, with location analytics and reporting features providing real-time statistics.

## What's the outcome?

Health and care providers can securely connect staff and patients across their multiple locations. Clinicians can deliver patient care as they move between buildings, with secure mobile access to patient information. Plus, patients gain the mobile internet experience they want to stay in touch and reduce the burden of their hospital stay.





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## Reliable, fast and secure connectivity

Providing the connectivity health and care professionals need 24/7

### Taking speed and capacity issues out of the equation

Access to connectivity within a hospital, on the move or at home is critical for health and care professionals. But it's been a challenge with bandwidth and latency hampering the ability to download documents, patient records and scans, or even make calls or send messages to colleagues.

### What's the solution?

5G provides fast, reliable and secure connectivity so staff can access patient records on the go and collaborate in real-time with colleagues. Plus, surgeons can livestream medical procedures to colleagues in other locations for their remote support or for training purposes.

### What's the outcome?

By being able to overlay digital solutions on a reliable and fast connectivity infrastructure, hospitals can drive better patient outcomes, developing new medical approaches. Plus, being able to download critical documents in seconds or collaborate easily with colleagues means less time with patients is spent more productively.





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# Adopting Cloud for better patient outcomes

Launch critical patient records systems with confidence

## Accessing expertise to take full advantage of the cloud

Since NHS Digital approved the use of public cloud for patient data in 2018<sup>1</sup>, health providers have looked to adopt cloud-based electronic health records (EHR) systems to take advantage of the efficiency and scalability. Yet, knowing how to get the mix of cloud services right to lower risk and maximise value often requires support, though Trusts don't want to work with multiple partners.

## What's the solution?

Vodafone can enhance a Trust's cloud experience with end-to-end multi-cloud, connectivity and security services. As an expert cloud aggregator, Vodafone has broad strategic relationships with partners including Microsoft and AWS. Plus, Vodafone cloud backup services protect cloud based EHR systems around-the-clock.

## What's the outcome?

Trusts can adopt cloud with confidence, accessing its pay-as-you-go cost benefits and using its simple scalability to the full. Plus, customers know they'll be gaining the right cloud platform for their applications, with systems secure against cyber attackers. They can also migrate with confidence, aware that any cloud data will be constantly available to deliver better patient outcomes.

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# Keeping healthcare safe from cyber risk

Progressing Digital Transformation with the right protection

## How to make certain critical data stays safe and secure?

Though the NHS is looking to improve access to patient data wherever and whenever it's required, Trusts need to be vigilant that it doesn't create additional risks. With ransomware attacks increasing by 44%, and with 37.9% of employees without awareness training and falling victim to simulated phishing scams, cyber security has never been more important<sup>1</sup>. As a result, it is more crucial than ever to ensure data is managed safely and securely, with end-to-end protection.

<sup>1</sup>[Reference](#)

<sup>2</sup>[Reference](#)

## What's the solution?

Vodafone has developed leading partnerships in cybersecurity with organisations with extensive experience across the public sector to support the adoption of digital technology. Our suite of solutions is designed to secure your infrastructure from device to the cloud, with everything in between. On top of this, we work with leading providers to upskill your staff and mitigate potential vulnerabilities through professional services. All of this means we can support you with every stage of your transformation journey, in line with the four stages set out by the NHS Good Practice Guide to Cloud adoption<sup>2</sup>.

## What's the outcome?

Healthcare providers gain seamless access to patient data wherever it is required to enable better patient outcomes. Everything is underpinned by an end-to-end security infrastructure that helps you enhance security, protect your data, defend against cyberattacks and mitigate risk.





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# Crisis communication system

Keeping communication lines open at all times in times of crisis.

## How to ensure business continuity when emergencies strike?

Things don't always go to plan. Crises happen, systems get hacked and communications are put at risk. Hospitals and blue light organisations are at the forefront when things go wrong, so an effective, easy-to-use and secure mass communication system is essential.

## What's the solution?

BlackBerry AtHoc Crisis Communication, which is supported by Vodafone mobile and WiFi coverage, helps organisations manage their communications in a crisis. It has several components, including a mass communication tool for alerting staff and other affected parties (patients, partner organisations) via SMS, Voice, Email and TV Screen. The app-based solution is controlled centrally via a portal.

## What's the outcome?

The BlackBerry AtHoc Crisis Communications System gives real-time visibility into the safety status of staff during a crisis, supporting duty of care commitments. Emergency managers can provide assured rapid communication across the organisation. The ability to alert the entire workforce at the click of button can also prevent costly IT outages. For example, in one healthcare instance, the solution was used to contact all employees telling them not to open their emails following a cyber-attack.





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# Protecting the workforce

Keep your people safe wherever they are working

## When staff need to work alone or in high risk situations

Emergency and social care staff often work in remote locations, delivering critical services late at night or in the early hours. Yet not all employers have visibility on personnel out in the community, meaning they are unable to comply with their duty of care or employee wellbeing programmes.

## What's the solution?

Lone Worker Protection services are accessible via a wide range of mobile phones and tablets and simple-to-use mobile apps. Available along with device management solutions, Lone Worker devices include a Redalert SOS alarm fob so your lone workers are one click away from complete protection.

When working in remote locations our Smart Hub solution can also provide instant connectivity, so health and social care workers can send, receive and access critical information and communication anywhere. Lone Worker Protection services are delivered in partnership with Orbis, the UK's leading provider of 24/7 property and people protection relied upon to protect over 25,000 employees all day, every day.

## What's the outcome?

With Lone Worker Protection Services, staff can easily and discreetly raise red alerts in the event of an emergency. They can also work with confidence and focus on the job in hand with the reassurance that employers are putting staff wellbeing first. Plus, Trusts gain an affordable solution that helps them meet their legal responsibilities. Additionally, they can locate the position of staff in real time to receive instant incident alerts while gaining data insights to understand and optimise their safety further.





# Connecting the most vulnerable

Support your most vulnerable customers and tackle digital poverty

## How to make connectivity affordable for all?

The internet coupled with laptops, desktops and tablets now provides tremendous opportunities for learning well beyond classrooms. Yet, Ofcom estimates that 1.9 million households in the UK don't have access to the internet at home and up to 1.8 million children don't have the devices they need. As a result, a digital divide is putting the futures of many at risk and action needs to be taken now.

## What's the solution?

At Vodafone, we've launched communities.connected, an exclusive limited-time mobile broadband offer with three contract length options to suit a range of needs. End users can simply pop a SIM into a spare smartphone (to act as a WiFi hotspot) or straight into a laptop, or connect a dongle/MiFi device to get online. Each plan comes with unlimited data for an affordable price and will block age restricted content, roaming and premium charges by default. Customers are responsible for triaging queries from end users, but our Care team will continue to provide authorised contact with first line support.

## What's the outcome?

The communities.connected plans have been designed to support schools, further education colleges, universities, local authorities and charities. By providing connectivity to individuals and families who are struggling to access the internet, we can start repairing the digital divide. In this way, we can stop people in our communities from missing out on education opportunities, employment prospects and access to healthcare.





# Coventry University Department of Medicine

## An immersion in the future of healthcare

The Coventry University Department of Medicine wanted medical training to go beyond its lecture theatres and become more hands-on.

Using Vodafone's high-speed, low-latency 5G network with Multi-Access Edge Computing, the university created an immersive and interactive virtual learning experience – the first in the education sector. Students wearing VR heads accessed high-resolution images and videos via 5G, feeling as though they were in a room with patients – and in some cases inside the human body itself.

As medical professionals in the future, these students will use 5G-enabled technologies like this to deliver consultations with patients regardless of their physical location.



# University Hospital of Wales and University Hospital Llandough

## Telesurgery proves a success

The results of surgery are better when surgeons work in teams. But what can be done when a team can't physically fit into an operating theatre?

University Hospital of Wales and University Hospital Llandough found an answer when it teamed up with healthcare technology company, Proximie, and us to trial 5G remote surgery assistance and training in cancer care. The technology enabled teams to interact with surgeons and be in the room from anywhere in the world. Via live video, participants could demonstrate precise directions during an operation, and overlay notes, sketches and anatomical diagrams.

Today, clinicians in Cardiff are using the technology in training, connecting remotely consultants who can oversee surgical procedures. This empowers clinicians to share skills, while reducing variation in treatment which in turn improves post-op patient outcomes.



GIG  
CYMRU  
NHS  
WALES





## Health and Social Care Trust

### Secure mobile messaging raises efficiency

A NHS Trust wanted to replace its current paging systems with a 'smarter' mobile app solution that provided an approved alternative to publicly available messaging solutions.

Vodafone worked with partner Alertive to develop a secure mobile messaging solution that complied with all IT governance standards. Our solution included a new Trauma Incident Messaging Service that featured audit trail and reporting capabilities. Plus, our work established a Peer to Peer Messaging Application for staff that retained all communications data on the Trust's internal IT systems for compliance.

As a result, the Trust improved productivity, switchboard efficiency, accuracy of information and information governance. Moreover, it gained greater control and management of Trauma Incident and Major Incidents with reporting and real-time information management and greater accountability and transparency.





# District Hospital Somerset

## **Fixed mobile convergence improves service delivery**

The Trust provides acute care for 180,000 people living in Somerset, North and West Dorset, and parts of Mendip. It wanted a flexible and affordable solution that improved on the Patient Appointment Booking System and offered a fixed mobile convergence (FMC) capability.

The Trust worked with Vodafone, whose solution delivered FMC functionality within the Trust's current budget. The outcomes from the collaboration included clinicians and key staff being available through a single number, a 20% reduction in physical handsets, management savings from a single supplier and contract and an improved contact centre experience for patients.



# Connected Ambulances in Italy

## From robots to connected ambulances

With one in six people across the world expected to be over 65 years old by 2050, hospitals will need new ways to meet the increased demands on their resources.

IRCCS San Raffaele Hospital in Milan has created a robot called R1 to support staff as they work with patients. R1 answers questions, providing useful information on hospital services and facilities. It also provides companionship and takes food orders.

To give it human-like capabilities, R1 is using AI and 5G, which is also providing the technological foundation for connected ambulances. These vehicles are sharing patients' vitals and symptoms in real-time with the hospital. Plus, high-resolution video calling is helping doctors to gain a better understanding of the situation on-board from ambulance staff.



# NHS Shared Services

## Helping NHS staff to feel safer

One of the vital functions of the NHS Wales Shared Services Partnership (NWSSP) is as a Health Courier Service (HCI). Personnel travel more than 3.4 million miles a year, delivering everything from medical records to blood samples in the organisation's 185 vehicles.

NWSSP wanted to ensure its drivers were safe, especially when travelling alone. It chose Vodafone's Lone Worker Protection solution to give drivers 24/7 direct contact to emergency services during their shift.

Today, NWSSP staff have the reassurance that help is available if they need it, and their families have peace of mind. Plus, NHS Wales is looking at lone devices for lone workers in other areas of the organisation.



## Health care trust

### A digital toolbox for NHS Trusts

At this NHS Trust, staff could be working in the hospital, at a nearby GP surgery or out in the local community. Keeping in contact with all of them was challenging because the Trust had no central directory, so contact details were dispersed.

Using Vone-C, the Trust merged fixed, PC-based and mobile phones together in a cloud-based system. The unified communications solution, in partnership with Cisco, ensured staff were easy to reach, making everyone feel like they were working in a single organisation.

Furthermore, Vone-C gave staff access to business-grade collaboration tools through multiple devices for instant messaging and video conferencing as well as file sharing and virtual whiteboard sessions. It's helped increase efficiency and productivity, and now the Trust plan to trial similar tools with patients.



# Betsi Cadwaladr University Health Board

## Enabling virtual visits during a time of crisis

Betsi Cadwaladr University Health Board (BCUHB) is the largest health organisation in Wales. COVID-19 left many of its older and vulnerable patients feeling isolated because of restrictions on hospital visits. To fix things, BCUHB wanted these groups to be able stay in touch with loved ones using a solution that could work across multiple geographies.

Vodafone supplied 100 connections free of charge for six months, along with over 250 Unlimited Emergency Tariff SIMs at a discounted rate, for BCUHB tablet devices that were pre-installed with Skype, FaceTime and Zoom.

The connections enabled hundreds of older people across North Wales to keep in touch with family and friends during the pandemic. Plus, the connectivity opened the door to the prospect for other technology projects, launching BCUHB on a digital journey.



GIG  
CYMRU  
NHS  
WALES

Bwrdd Iechyd Prifysgol  
Betsi Cadwaladr  
University Health Board





# Mencap

## Improving the lives of people with a learning disability

Mencap aims to make the UK the best place in the world for people with a learning disability to live happy and healthy lives. As part of that goal, it looked to make everyday activities – such as household tasks, time planning and socialising – as easy as possible.

They launched an innovative Connected Living project with us that saw a range of IoT-enabled devices controlled by a bespoke Vodafone MyLife app installed at Mencap Supported Living homes. With a single tap on the app, Mencap clients could control the smart devices in their homes and support workers could gain remote access.

## The MyLife app gave clients a host of features to simplify their lives such as:

- My Room – enabling them to manage smart plugs, smart locks and smart lights
- How To – allowing them and support workers to create visual guides for everyday tasks
- My Day – providing a personalised diary management tool for residents to create daily task reminders
- My Talk – enabling those with speech problems to communicate via personalised images, text and a speech function
- Call Support – ensuring prompt remote support via a digital 'panic button' and two-way video calling between residents and support workers
- To Do List – enabling residents to create easy-to-manage to do lists to encourage them to carry out and tick off tasks throughout the day
- My Front Door – allowing residents to answer their front door and check who is calling from anywhere in the house



# Skyport drones

## Drones delivering coronavirus supplies to remote hospitals

Healthcare providers in Scotland have faced a constant challenge over the cost and time needed to deliver medical supplies to remote parts of the country.

To overcome the problem, Drones, operated by drone specialists Skyports, have been using Vodafone's 4G network to transport crucial medical supplies, such as COVID-19 testing kits, to rural hospitals in the remote Argyll & Bute region in western Scotland.

The unmanned aircraft should dramatically reduce not only expense but the amount of time needed to deliver supplies to each destination, from as long as 36 hours to as little as 15 minutes.



Skyports







# Midlands Hospital

## Modernising network connectivity

An NHS Trust in the Midlands needed to modernise its network for greater connectivity. The Trust, which treats more than 640,000 patients a year, wanted to digitise processes, including bookings, and provide virtual appointments as part of a drive to minimise waiting times.

Vodafone Professional Services worked closely with the Trust to design a modern network. It upgraded and installed the Trust's LAN across two campus sites and designed a service wrap, based on a range of tiered managed services.

As a result, the Trust saw an increase in bandwidth from 100mg to 1GB download speeds, ensuring robust connectivity. What's more, it gave the Trust the option of having Software Defined Access in the future to enhance data management.





# CareTech

## Improving productivity for care workers

Care Tech in the UK helps people with disabilities and challenging behaviours lead a more independent way of life. Its priority is the people under its care, and thus the organisation wanted a solution that allowed it to maintain that focus while still completing admin tasks.

The company engaged Citycom and Vodafone Unified Communications to make it easier for personnel to complete tasks during their business schedules. Now they can check and securely share critical patient information when making care home visits through a single platform.

Today, Care Tech personnel are more productive, spending less time worrying about admin and more time focused on the people they care for.





## Wirral Borough Council

### Keeping vulnerable people connected

Lockdowns left a lot of persons, particularly older people living alone or in care homes feeling separated from their loved ones. Wirral Borough Council and Age UK Wirral looked to bring some relief to this vulnerable group and their families through tablet technology.

They worked with Vodafone, which was able to provide 150 tablets complete with SIM cards for older residents in the area, in just one week. After receiving the tablets as well as an easy-to-read guide on using the devices and a brief handover session, the recipients were making video calls to loved ones.

At such a difficult time, the tablets provided a valuable lifeline to people living alone or in care homes and ensured vital connectivity for people self isolating or feeling lonely.

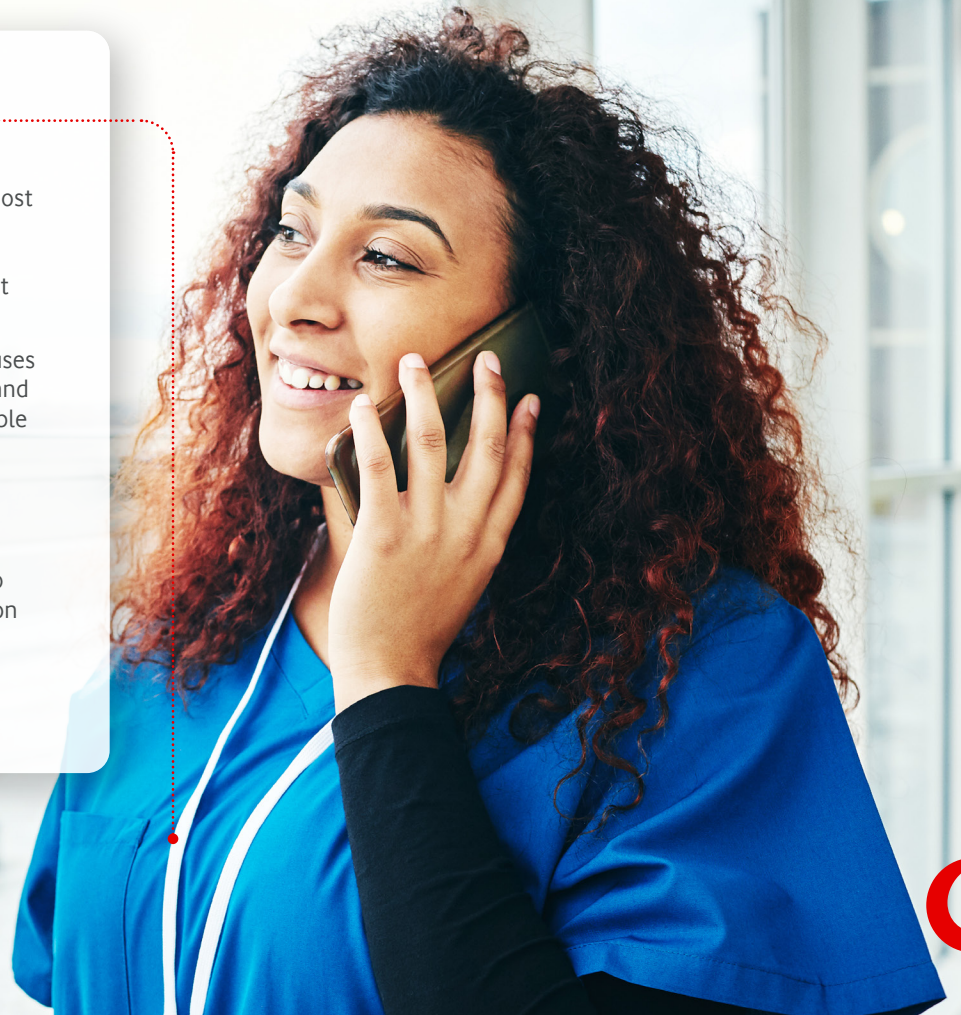


## Mobile

Our mobile coverage across 4G and 5G networks, plus our neutral host coverage scheme ensures NHS sites gain connectivity — even in remote areas — for secure communications across healthcare campuses and communities on a range of mobile phones and tablet devices.

Our mobile coverage enables Asset Tracking across hospital campuses to tackle theft or equipment being mislaid. While our 5G coverage and Multi-Access Edge Computing solutions make digital surgery possible thanks to ultra-low latency connectivity. Added to this, our mobile core delivers better collaboration between your healthcare teams, using Vodafone Unified Communications, BlackBerry AtHoc Crisis Communications System and Lone Worker Protection.

Finally, our coverage can make inpatients happier, allowing them to call loved ones from hospital wards or watch their favourite shows on their devices. Plus, people out in the community also have reliable mobile connectivity to get the support they need to live happy and healthy lives.





## Fixed

With our fixed core, healthcare providers gain a reliable high-speed connection that ensures their hospitals are always online. With Dedicated Internet Access (DIA), healthcare professionals have connectivity they can count on. It's fast and secure while elastic enough to scale easily as workloads change.

Our complete and flexible LAN and Wi-Fi solutions are designed by Vodafone and powered by Cisco, delivering a smart and secure connectivity experience to support any hospital. This includes Cisco Enterprise and Cisco Meraki WiFi to help healthcare IT teams save time and optimise network costs. Plus, by using services such as SD-WAN, IT teams can simplify device management, and IP-VPN can ensure healthcare staff and anyone who needs access to healthcare-related data can reach what they require, securely, even from remote sites.





## Security

At a time when cyber threats are increasing, Vodafone's security portfolio is helping healthcare organisations store, manage and communicate sensitive patient information worry-free. Furthermore our leading experts in cyber security, Vodafone Business Security Enhanced and the defence grade quality of our technology, means healthcare providers have peace of mind that even as the threat landscape changes, our services will always be up to the task.

Our security portfolio includes Protective Monitoring, with continual remote surveillance and analysis to reduce and prevent threats. Plus, our Managed Firewall offering includes remote managing and monitoring as well as support for your new and existing firewalls. Finally, our Managed Security Services deliver support that's tailored to each healthcare provider's unique requirements, and our Secure Data Centre facility safeguards data and platforms. All services are UK-based, including a 24/7 customer helpdesk, overseen by security cleared UK nationals.



## Cloud



75% of healthcare providers plan to increase spending on the cloud in the next 12 months<sup>1</sup>, and Vodafone is helping many of them successfully move their platforms and applications out of their data centres. We offer public, private and hybrid cloud solutions, enabling you to choose leading public cloud providers like Azure and AWS through Cloud Connect or the Vodafone Data Centre for your private cloud and hybrid cloud workloads.


In addition, our Multi-Access Edge Computing solution (MEC) enables healthcare providers to leverage the flexibility and pay-as-you-go efficiency of the cloud with the super low latency of 5G. As a result, healthcare organisations can introduce telesurgery to boost training and reduce elective care backlogs. Furthermore, using MEC, more ambulances are being connected over 5G for more accurate diagnoses and effective treatments.

<sup>1</sup> Gartner Cloud Opportunity in Healthcare Providers (Mar 21)

How can Vodafone help?

In the hospital



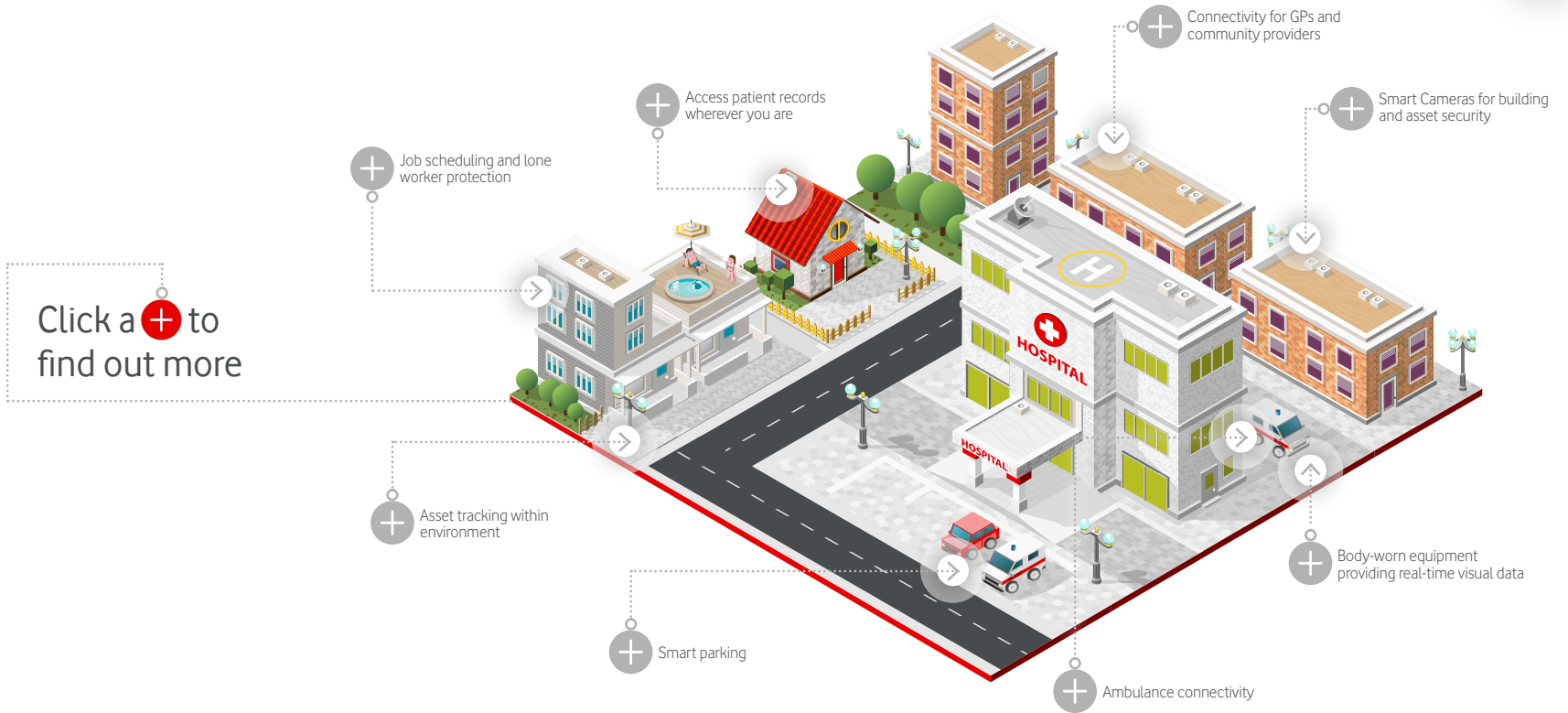
Click a  to find out more

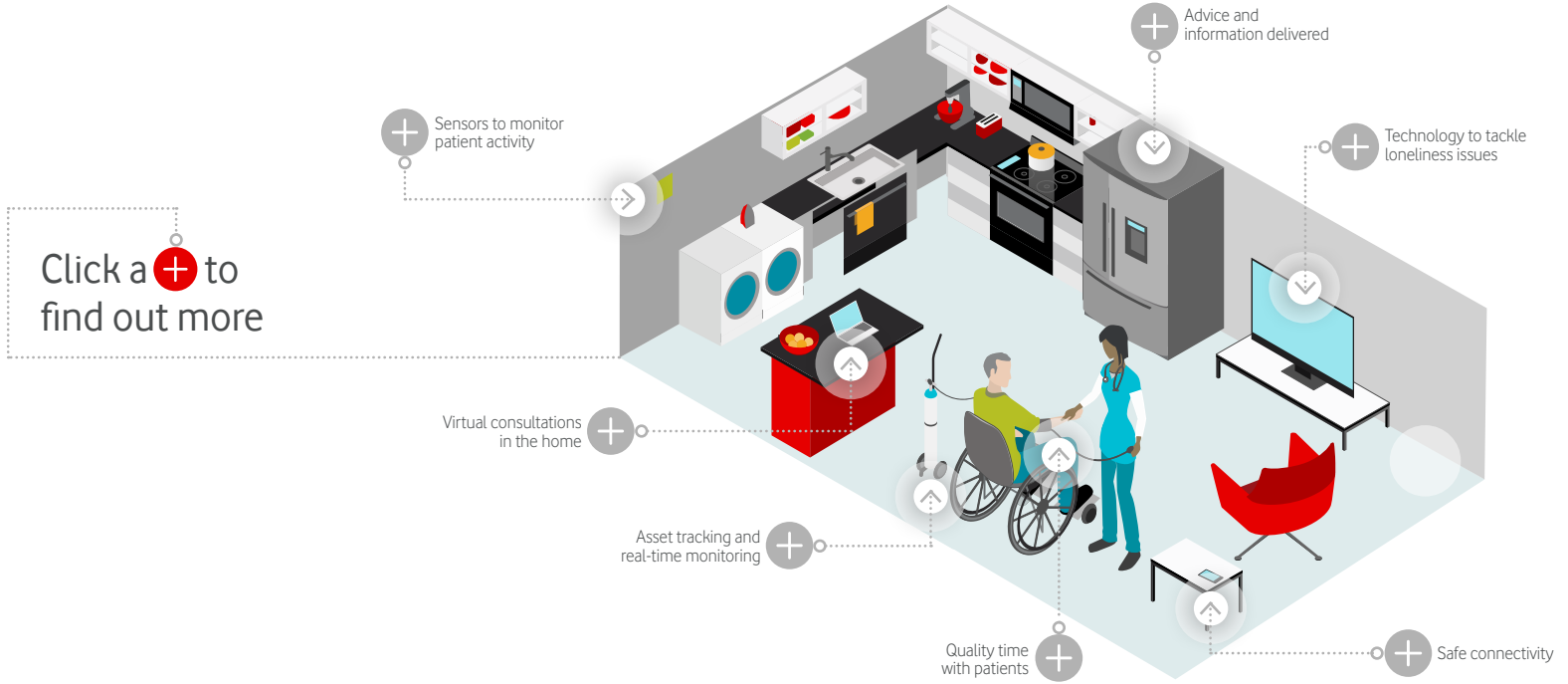




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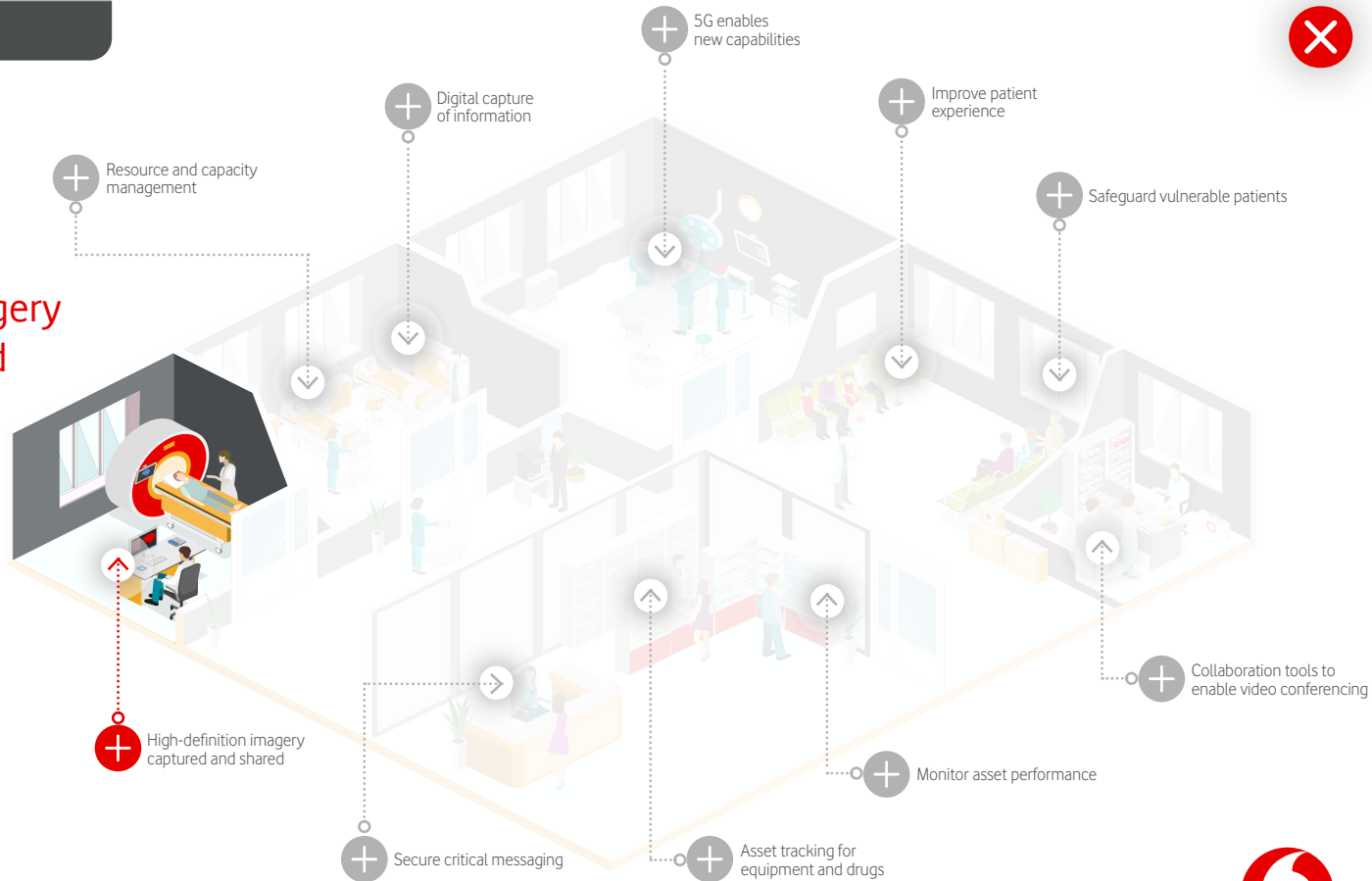
In the community





## High-definition imagery captured and shared

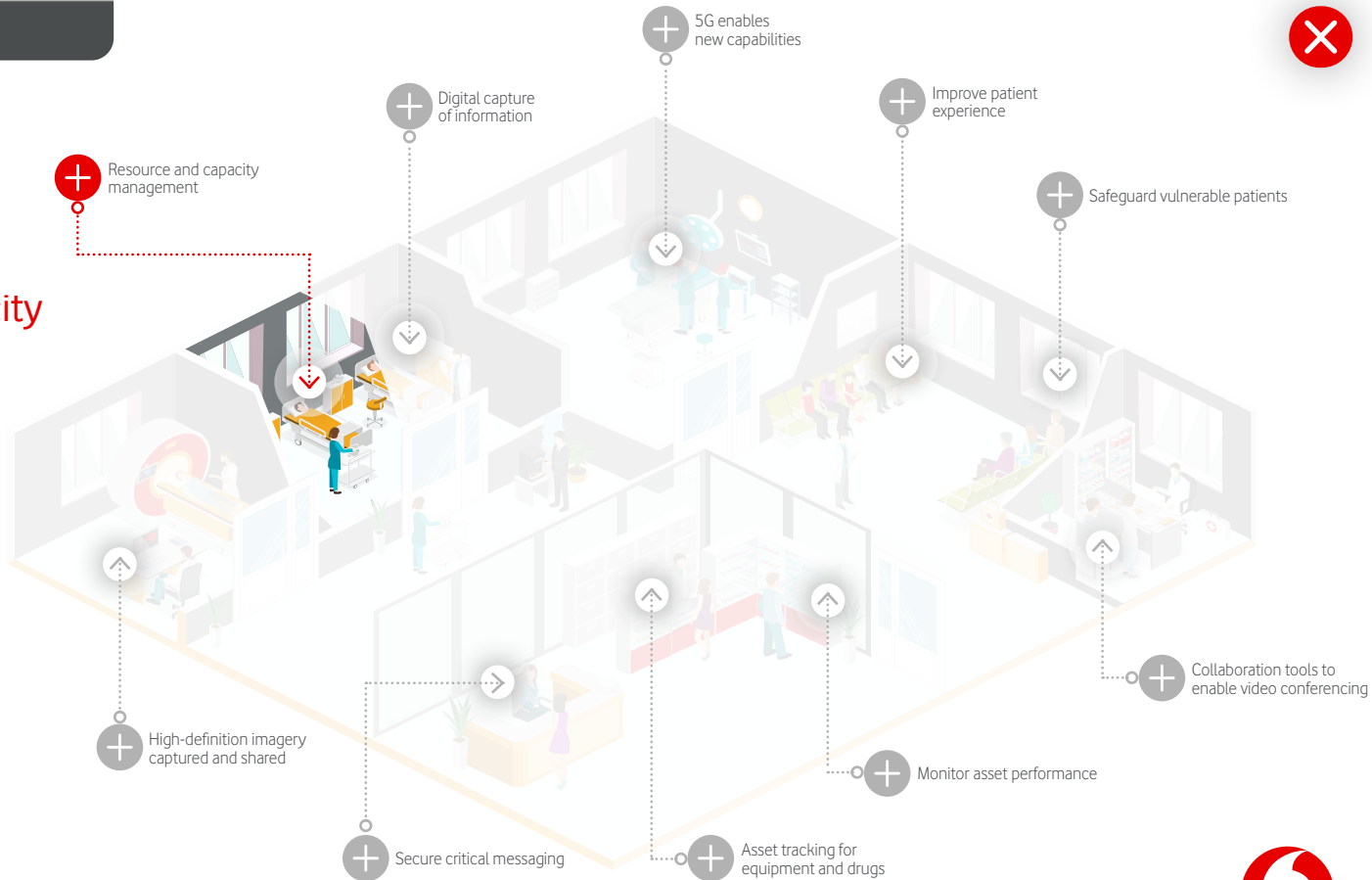
SD-WAN enables optimal performance for networks, allowing high-definition imagery to be captured and shared in real-time.





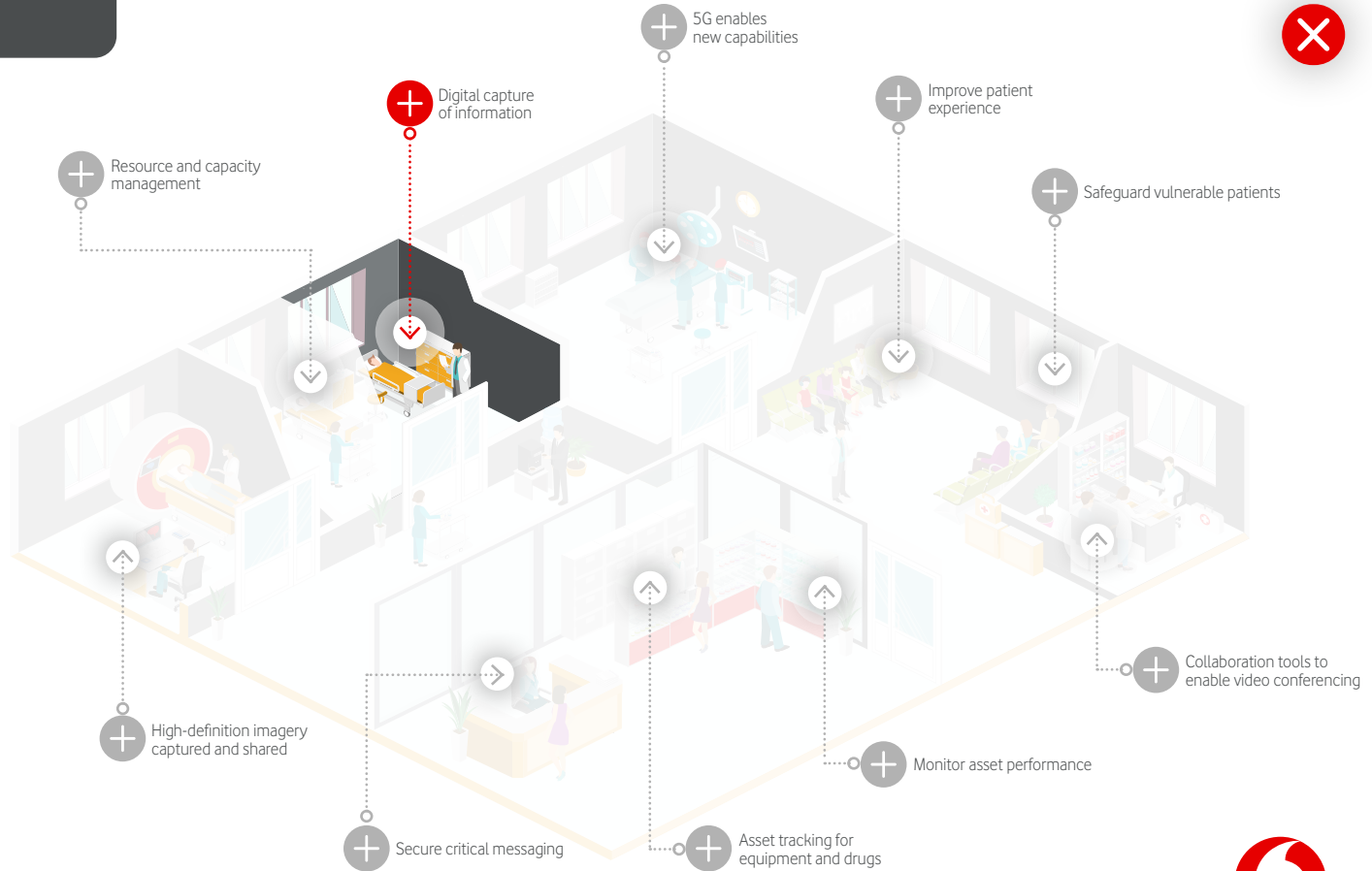
## Resource and capacity management

New applications provide the capability for efficient resource and capacity management, including bed availability.



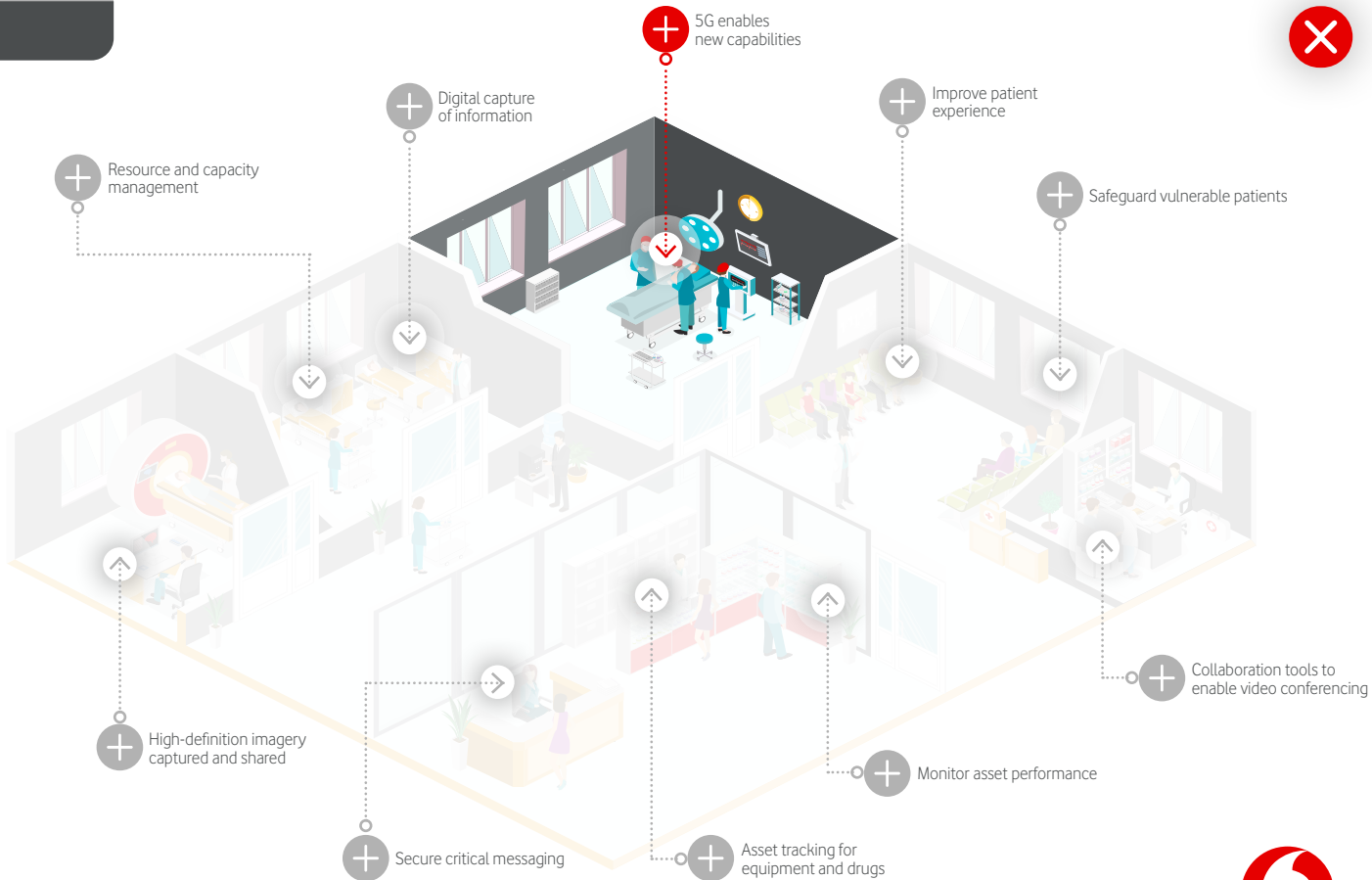
## Digital capture of information

Electronic patient records can be integrated across systems and devices, enabling digital capture of information and secure coordination of individual patients data.



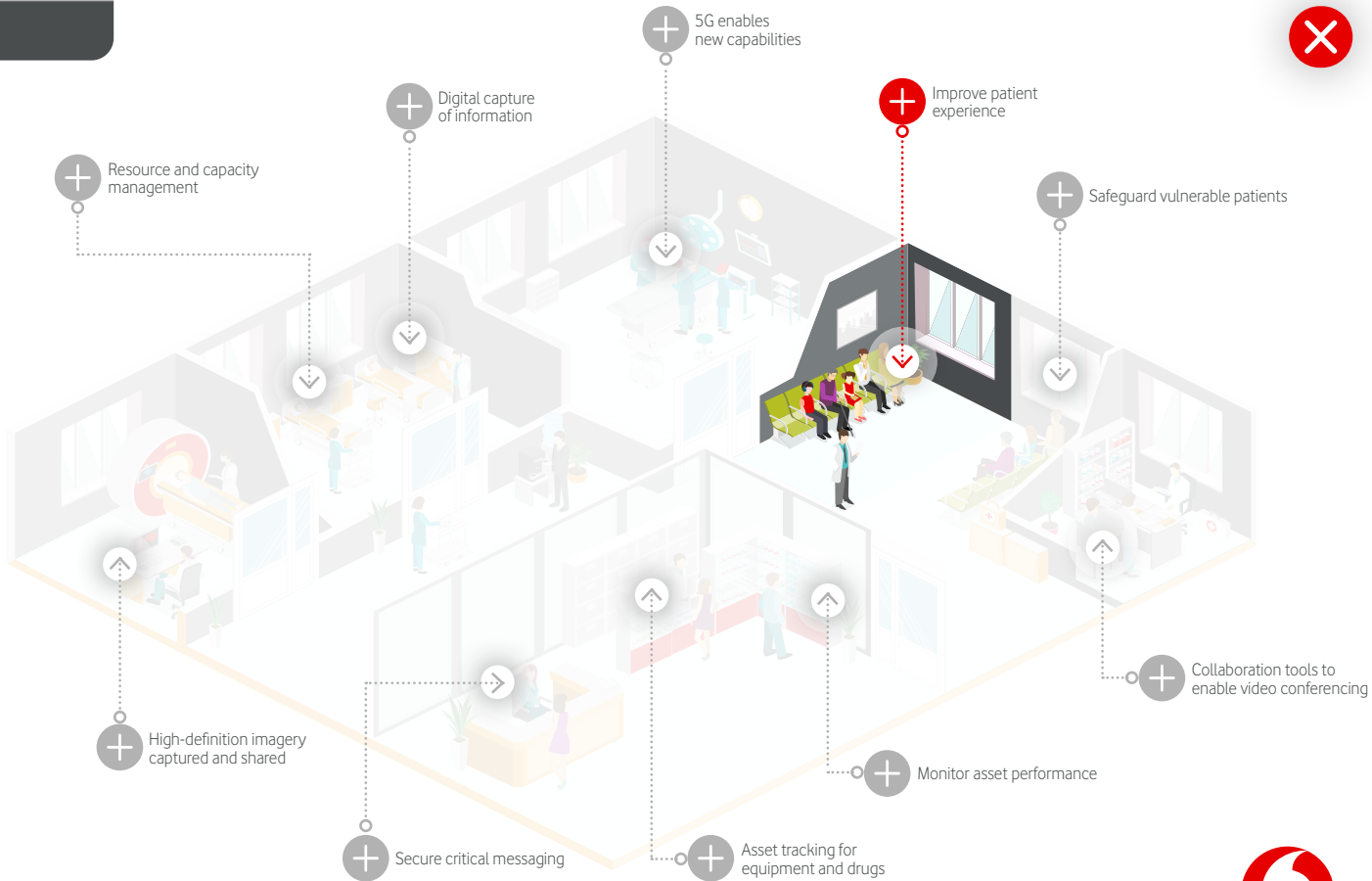
## 5G enables new capabilities

As 5G becomes mainstream, the capacity and low latency create opportunities for game-changing uses, such as remote surgery.



## Improve patient experience

Innovative use of mobile devices and applications improve the patient experience such as gamification for children, and VR to create calming environments.

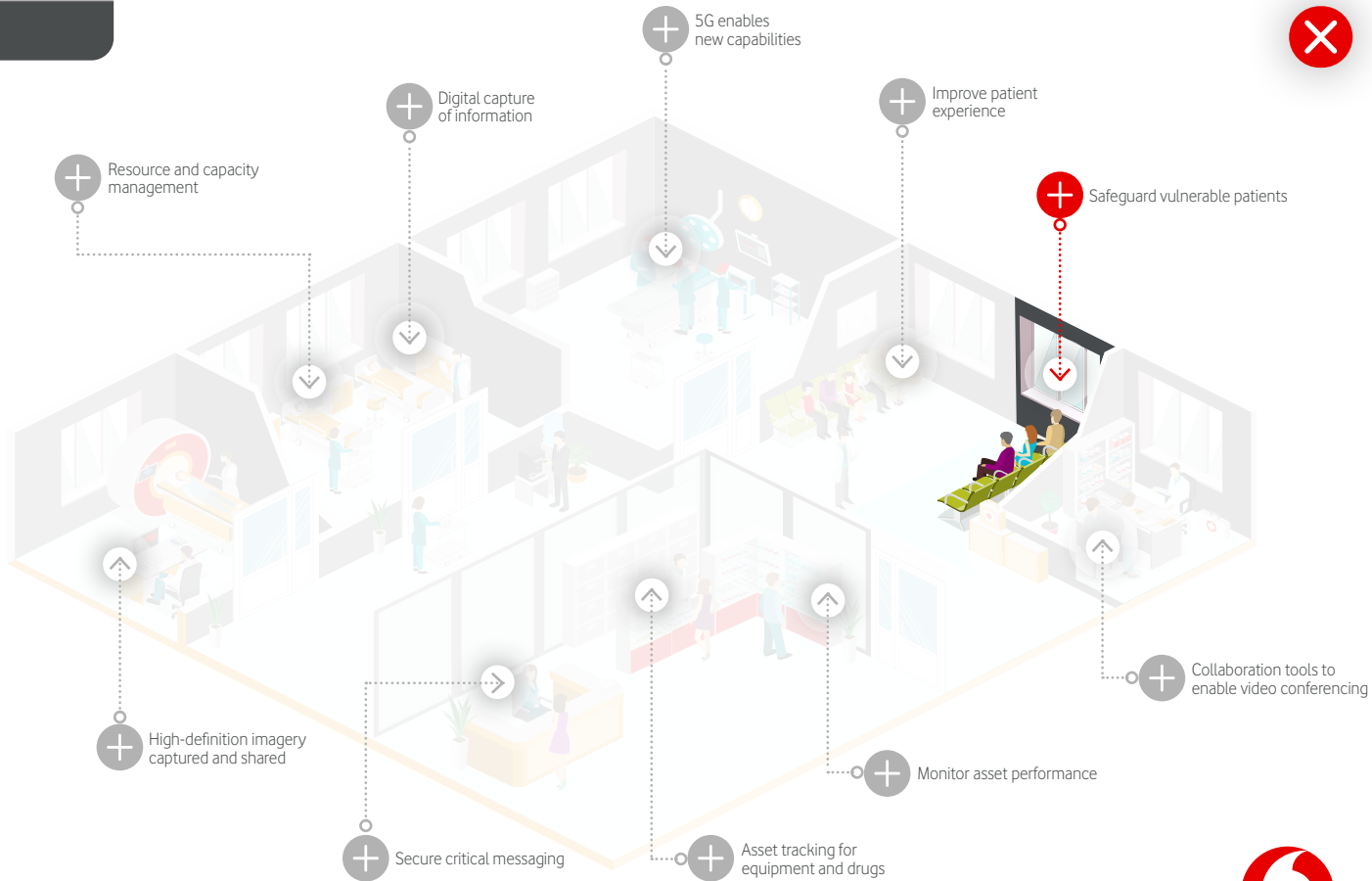


How can Vodafone help?

In the hospital

## Safeguard vulnerable patients

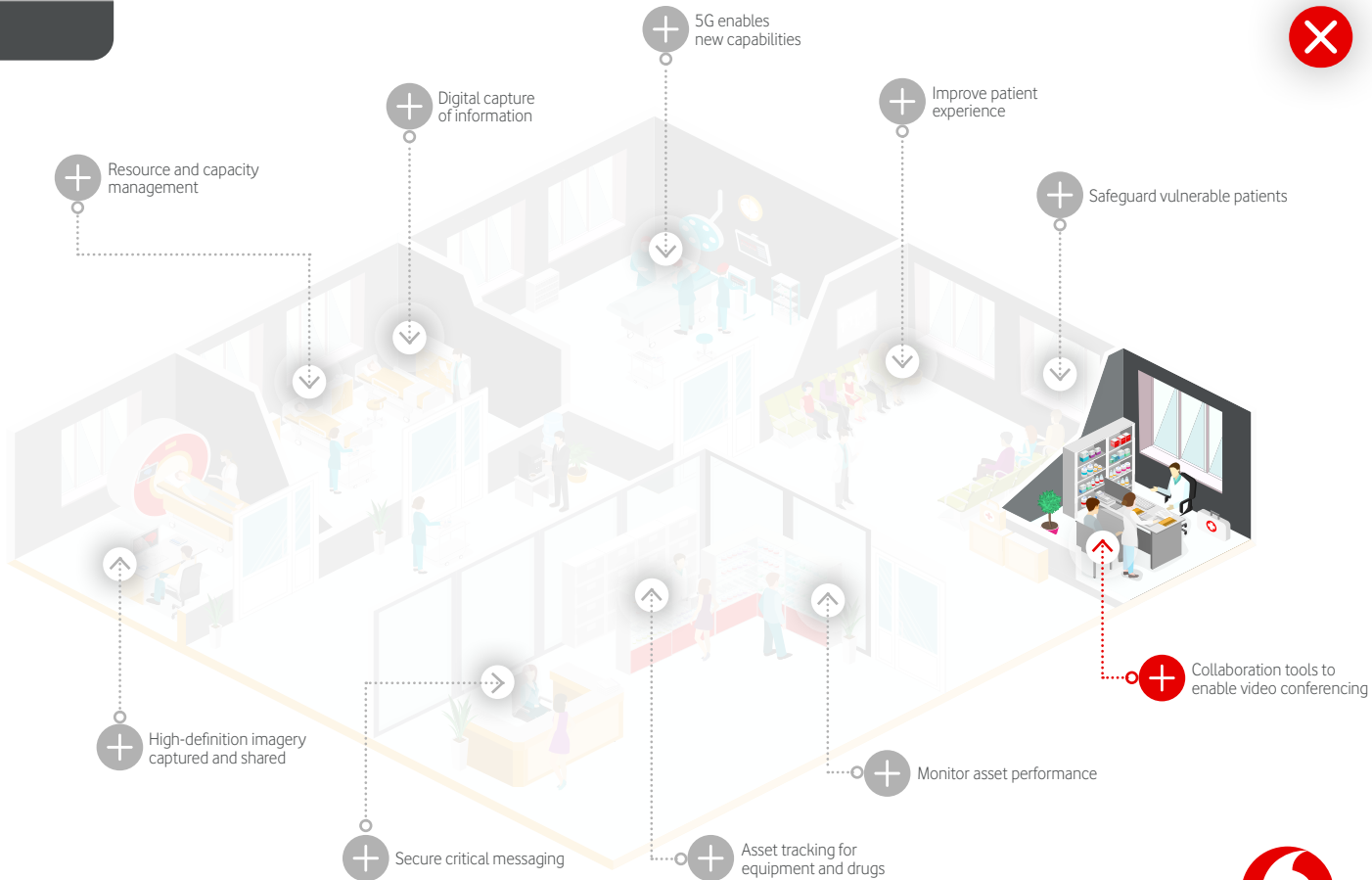
Wearable technologies can help safeguard vulnerable patients via location tracking.





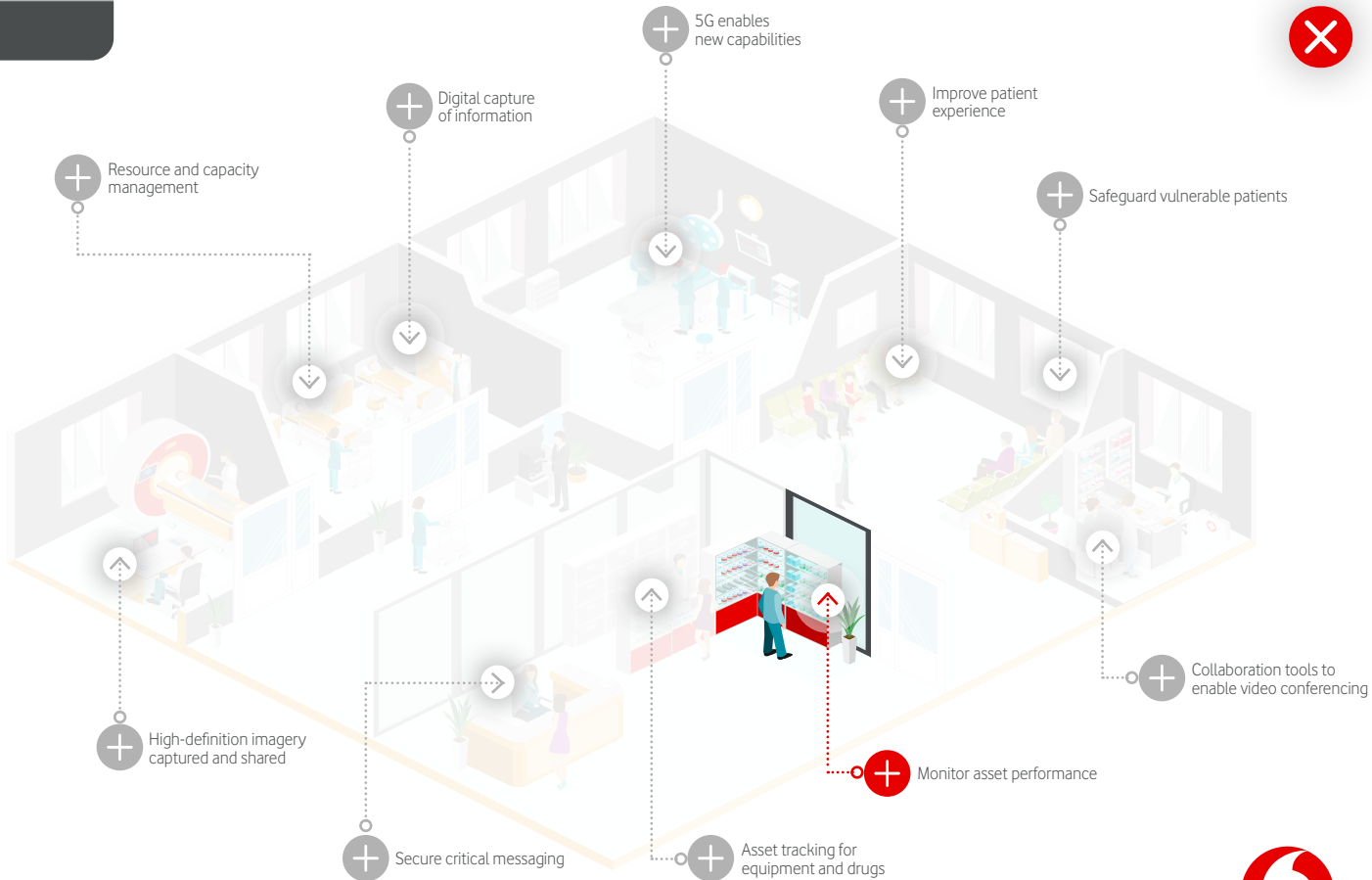
## Collaboration tools to enable video conferencing

Collaboration tools can be made available for all staff, such as video conferencing, enabling the right professionals to be involved when and how they need to be.



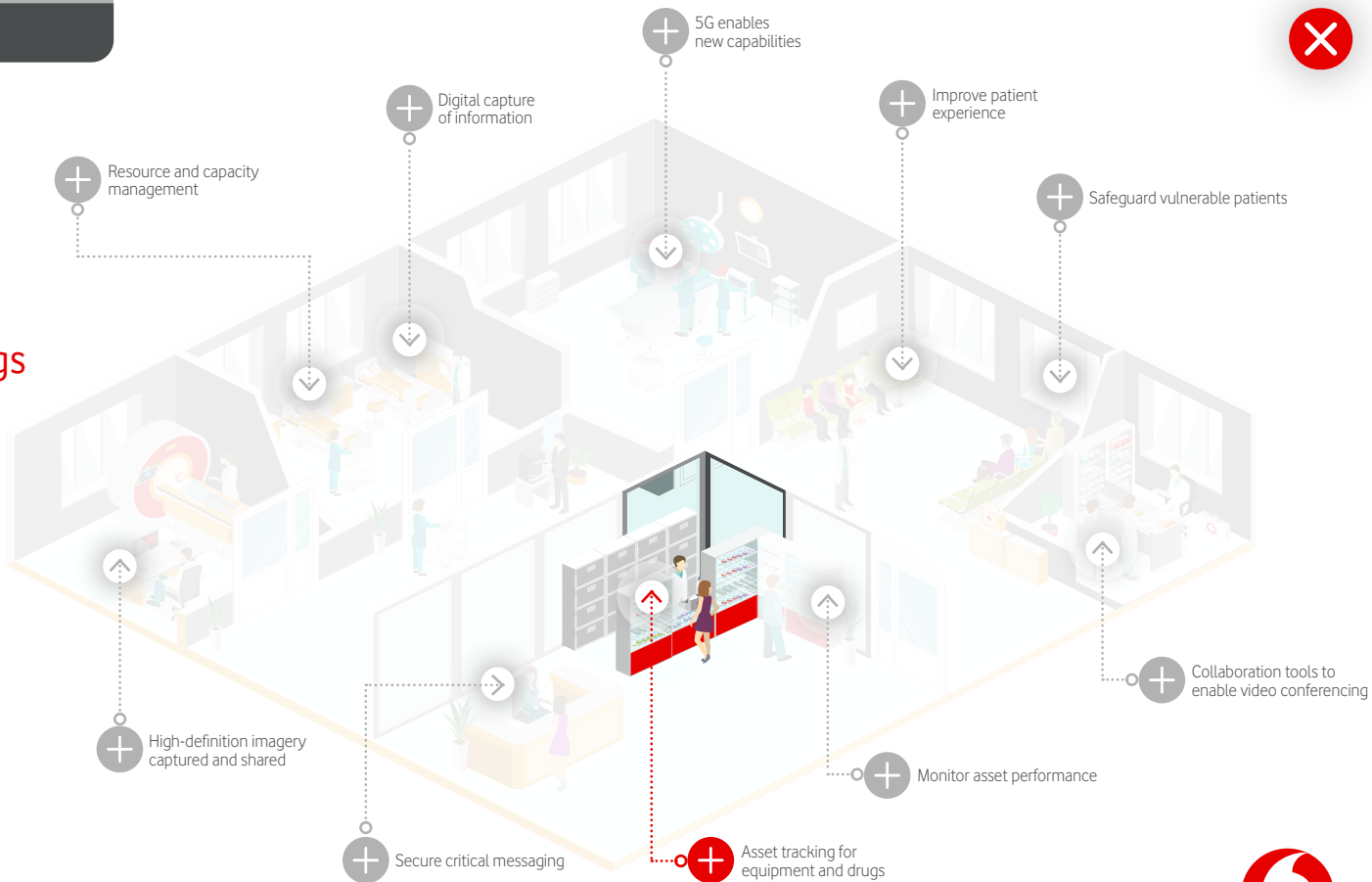
## Monitor asset performance

IoT technology can monitor assets performance and actions e.g. fridge temperature, or whether a secure door has opened.



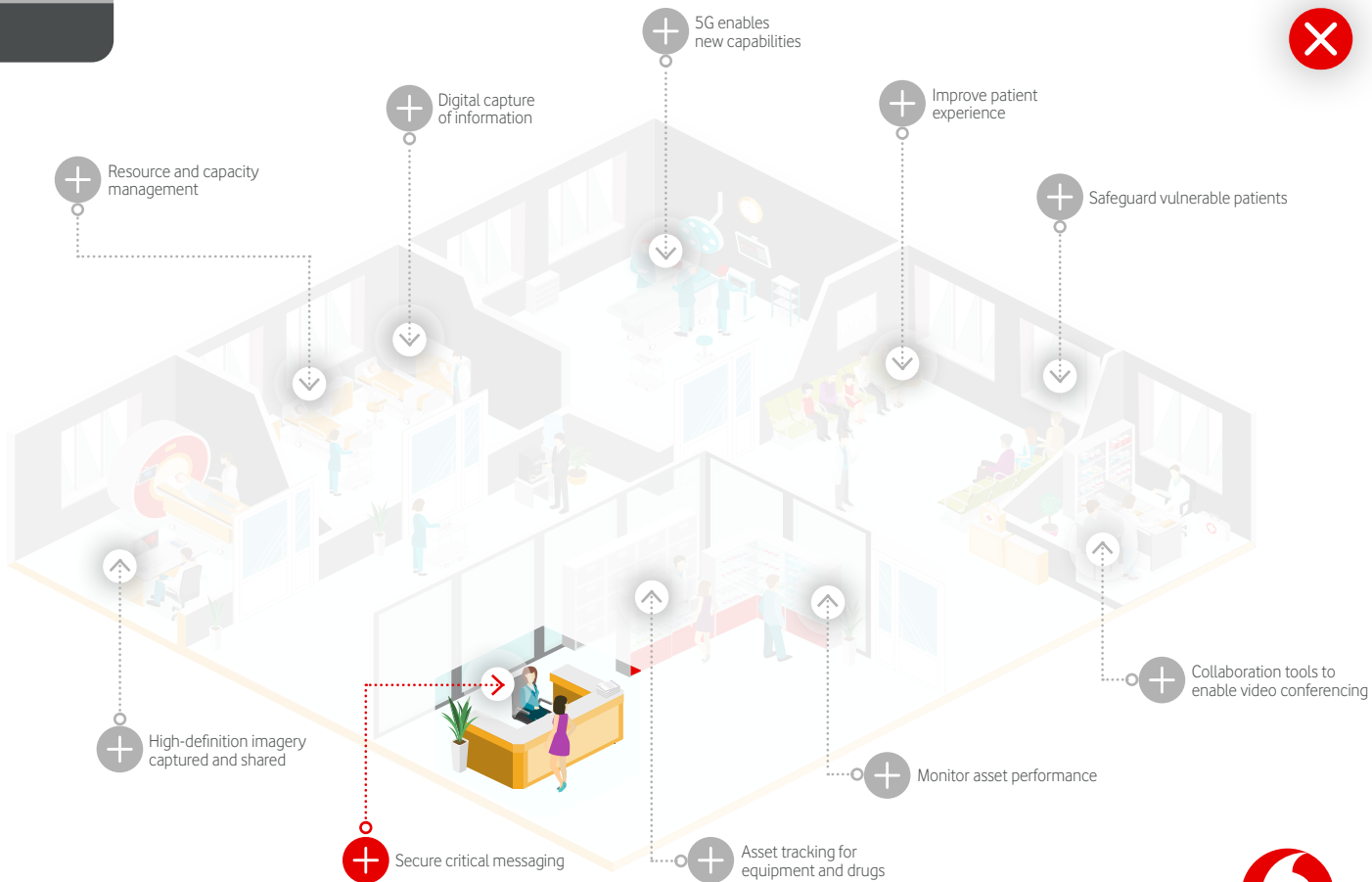
## Asset tracking for equipment and drugs

Asset tracking can be applied across the supply chain, providing a detailed understanding of levels and usage and a quick way to find them.



## Secure critical messaging

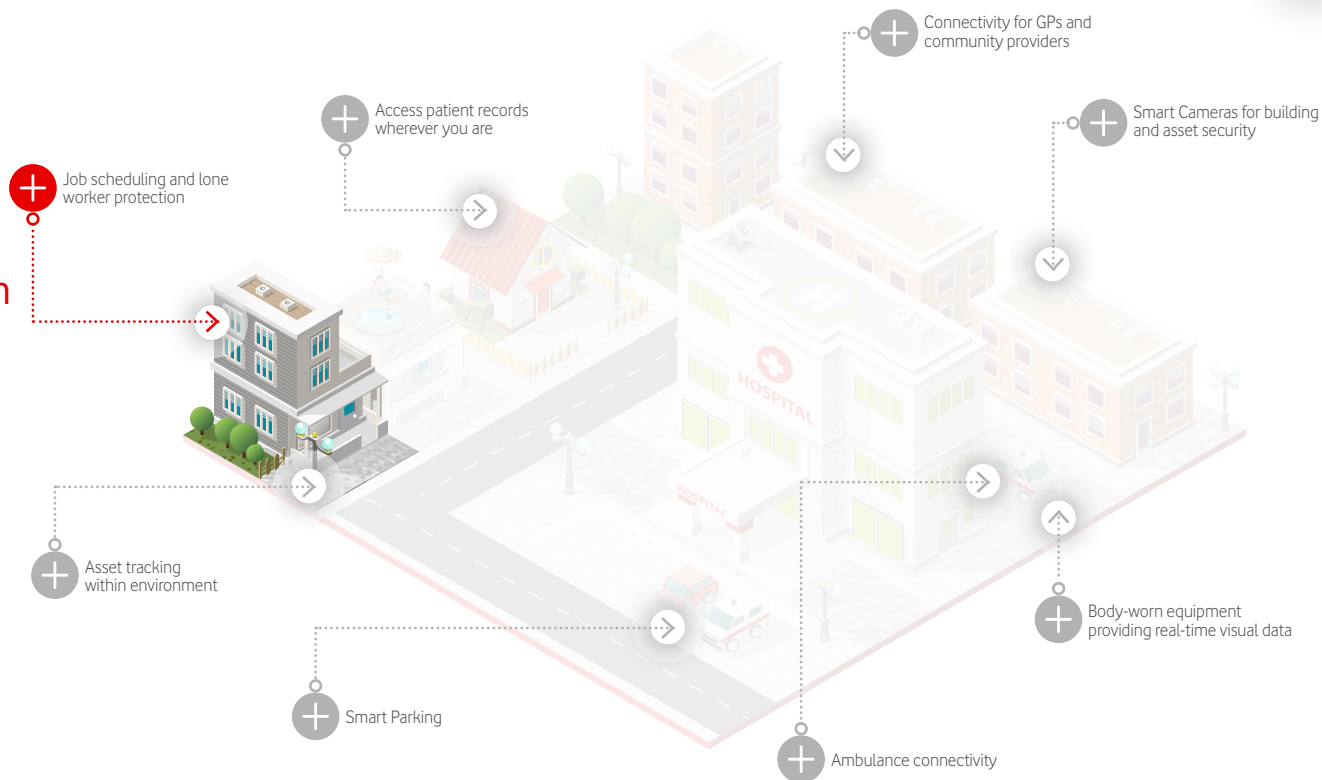
Emergency resources can be centrally managed and controlled via secure digital messaging and paging, with real-time understanding of response.





## Job scheduling and lone worker protection

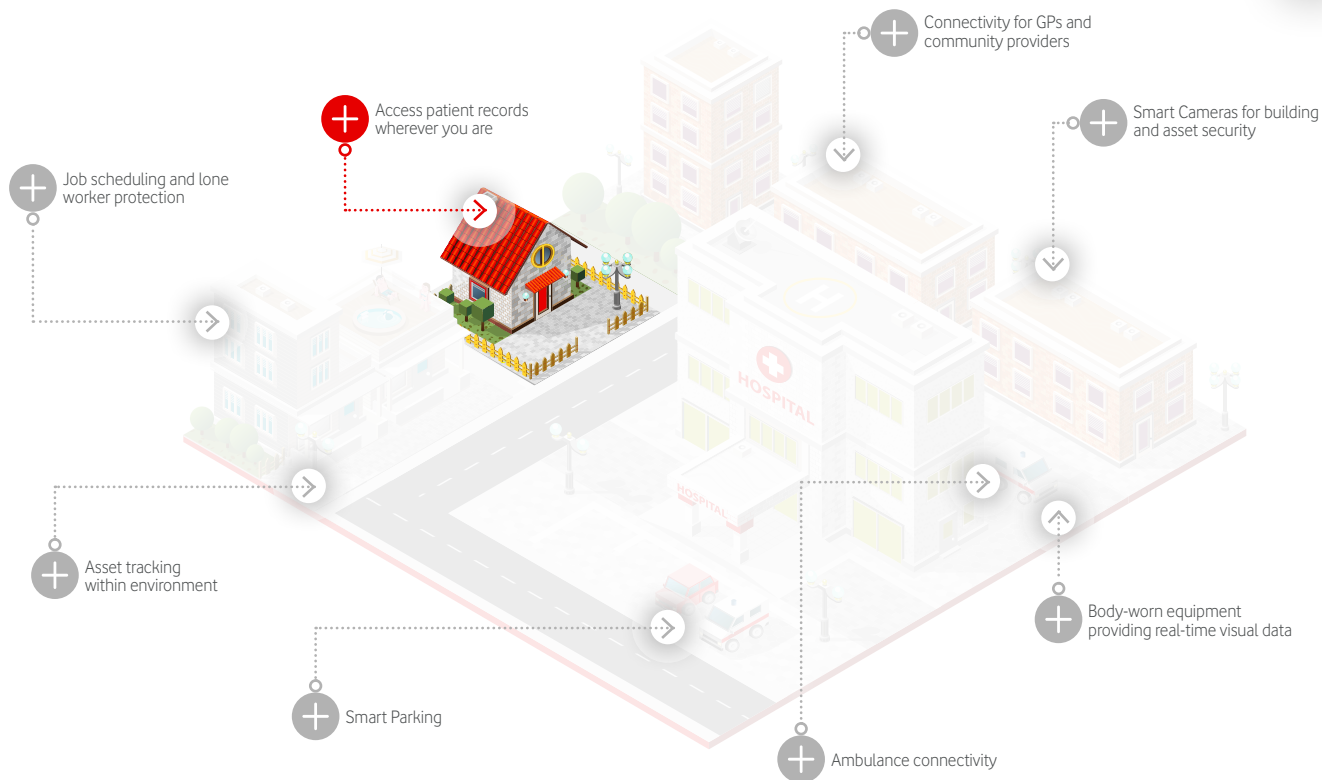
People tracking and lone worker protection creates a safer environment for professionals that work in the community, and applications can deliver efficient job scheduling.





## Access to patient records wherever you are

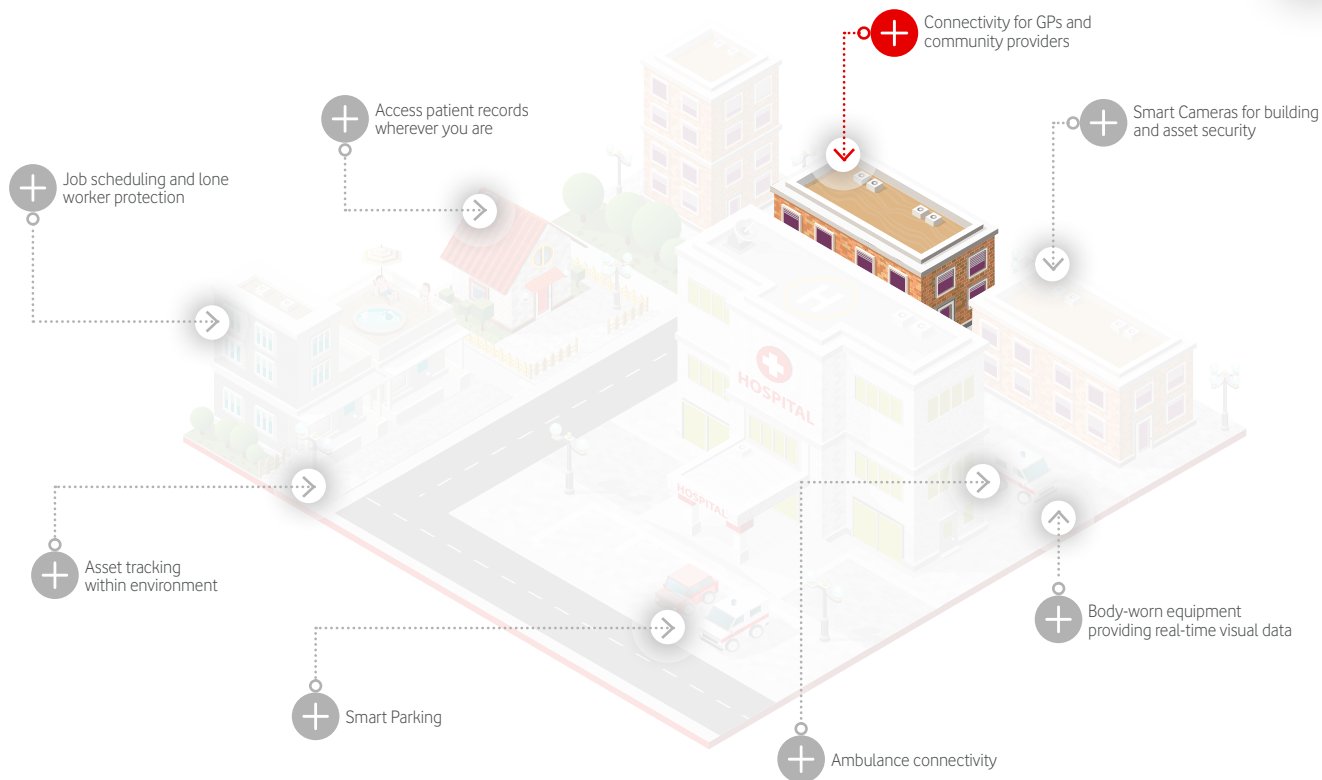
Community based care can be improved by providing healthcare professionals with access to patient records outside the hospital, and on appropriate devices.





## Connectivity for GPs and community providers

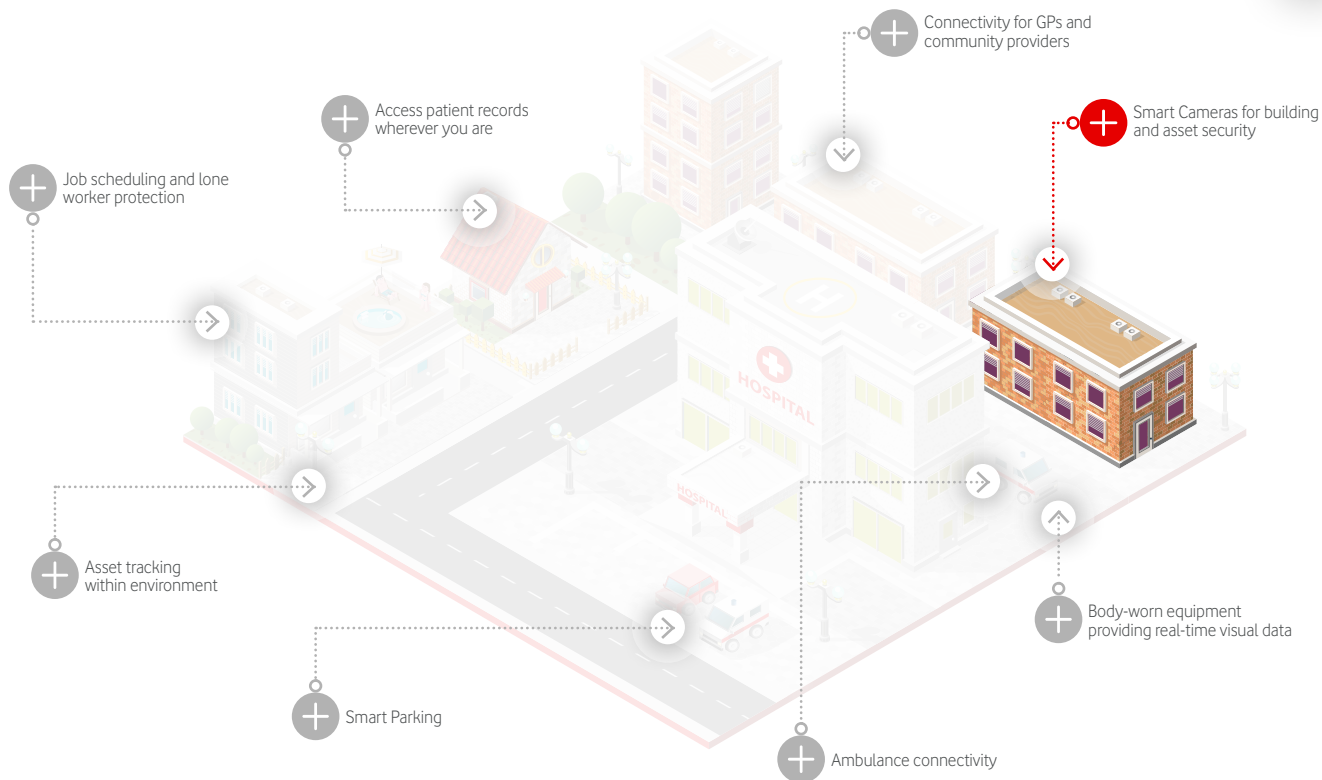
Convergence and collaboration tools such as VONE-C extend from the hospital to other associated services such as GPs and community providers, connecting all of the relevant professionals.





## Smart Cameras for building and asset security

Vodafone's digital buildings proposition uses IoT capability to modernise existing CCTV infrastructure and create a smarter security system.

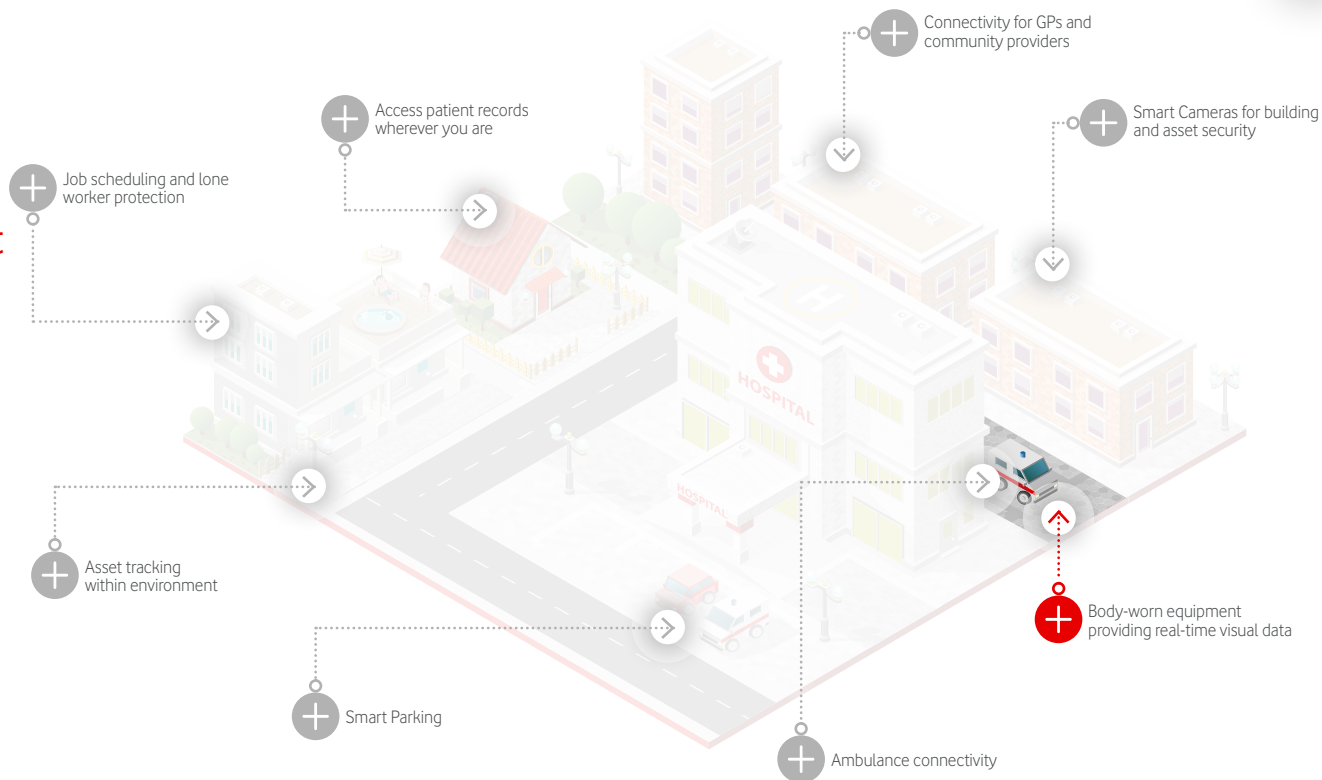






## Body-worn equipment providing real-time visual data

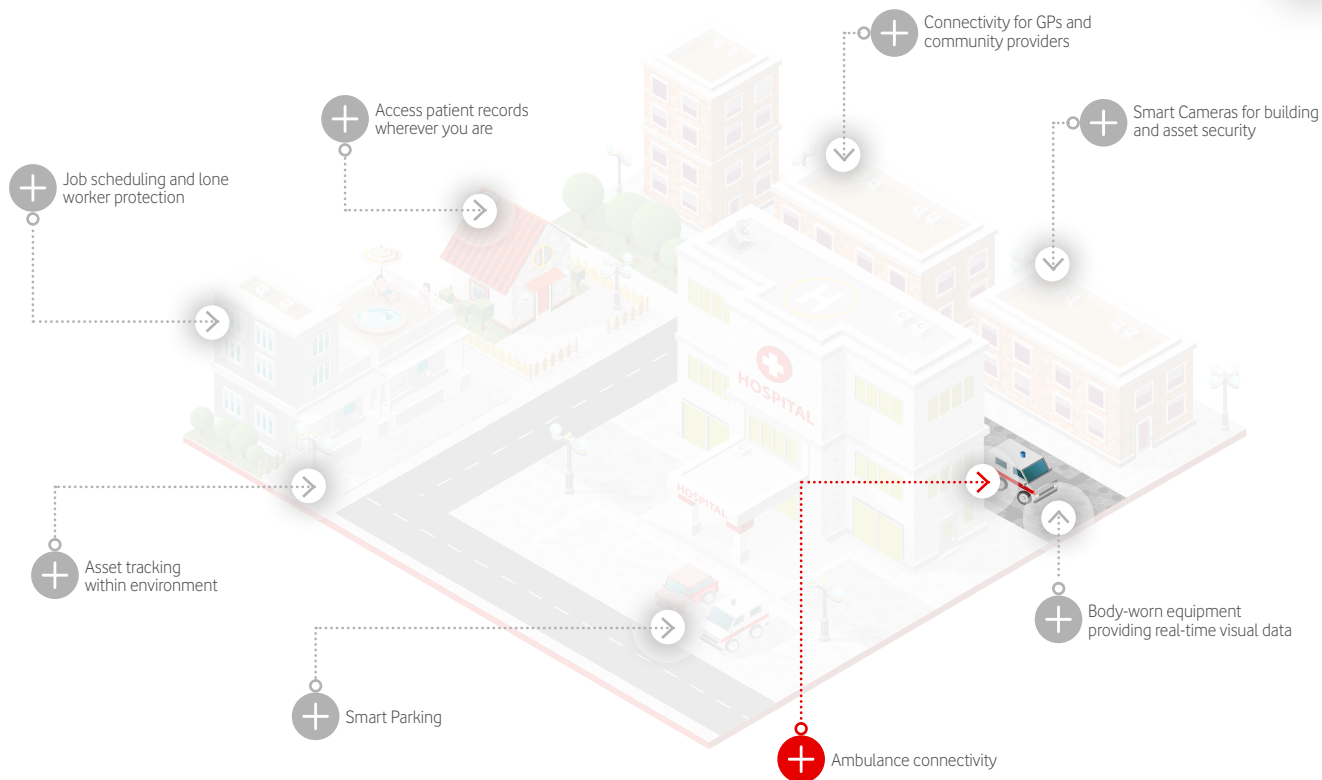
Paramedics could make use of body-worn equipment such as video, providing real-time visual data back to the hospital for incident management and A&E preparation.





## Ambulance connectivity

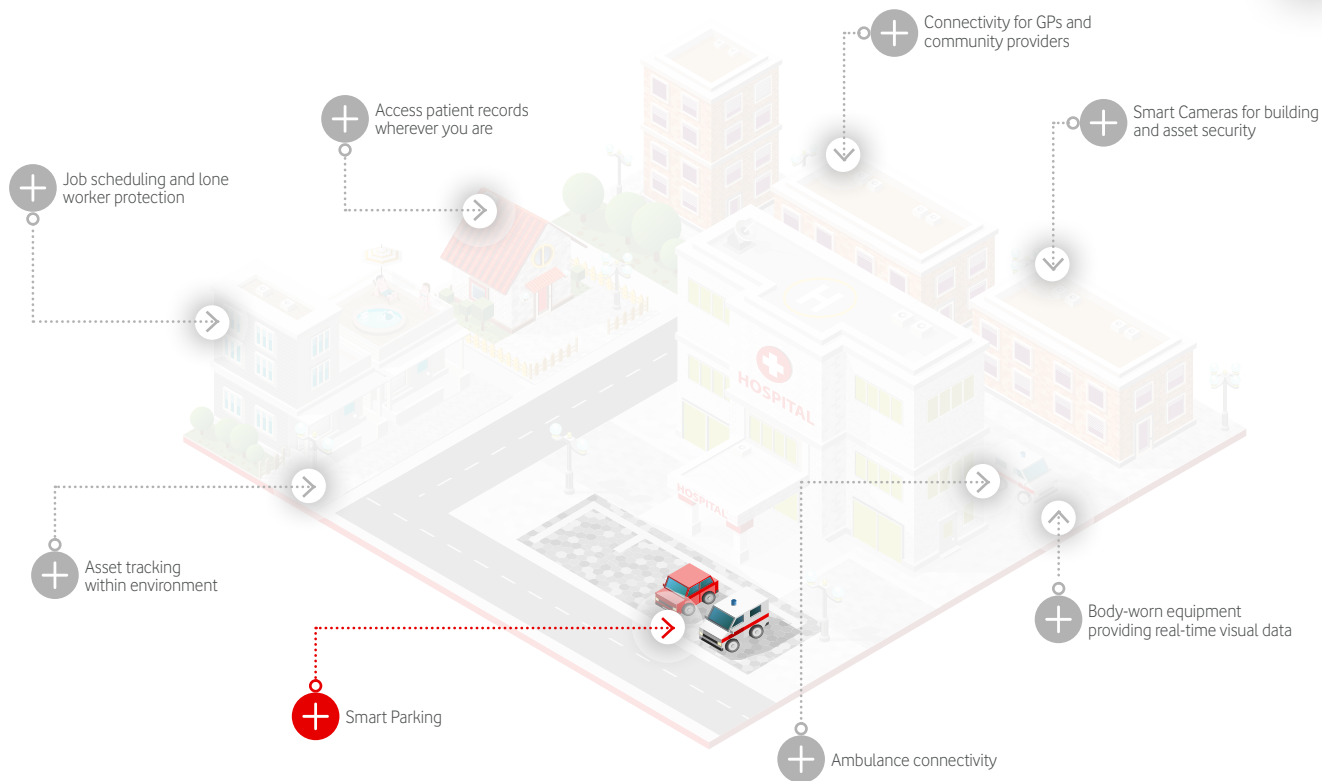
The latest connectivity methods can enable connected ambulances improving availability, efficiency and a greater capacity for patient care e.g. video conferencing in the ambulance for quicker consultation and action from specialists.





## Smart Parking

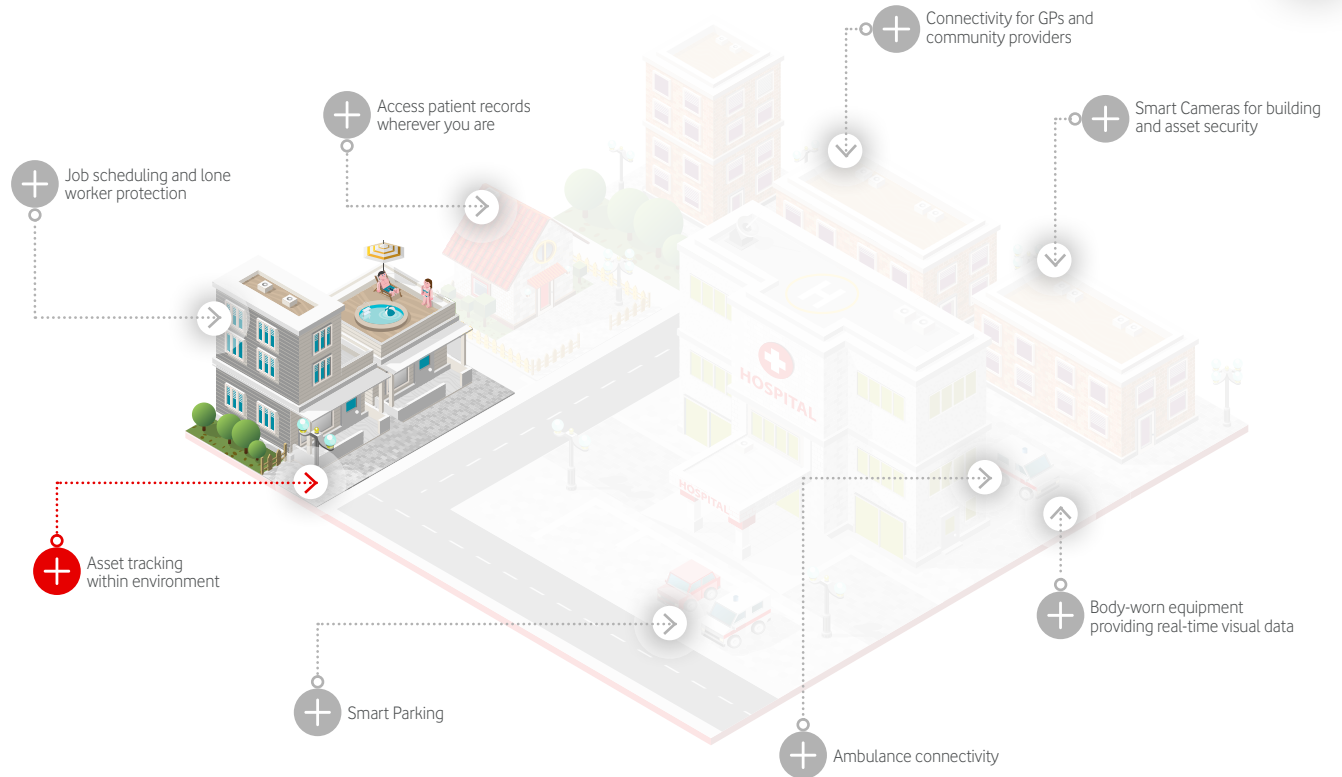
Smart Parking solutions can be applied to healthcare facilities to manage spaces and improve user experience. Automatic calculation of mileage expenses reduce admin effort.





## Asset tracking within environment

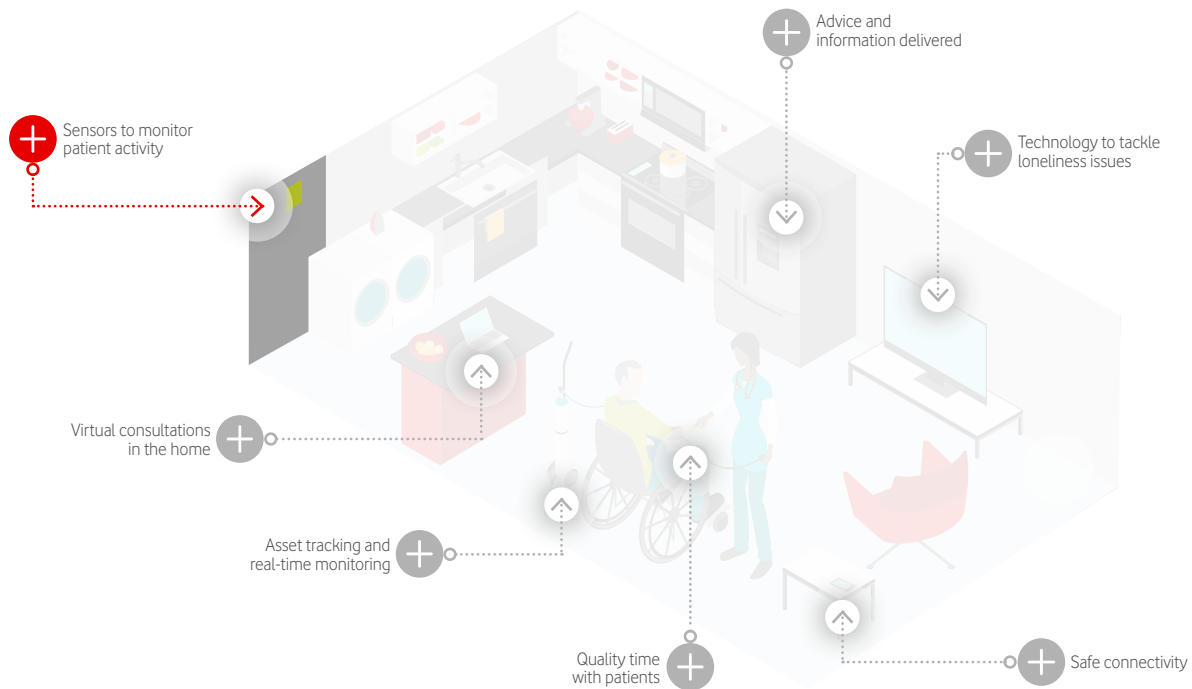
Geo-fencing across asset tracking can include any area to be monitored, outside and in.





## Sensors to monitor patient activity

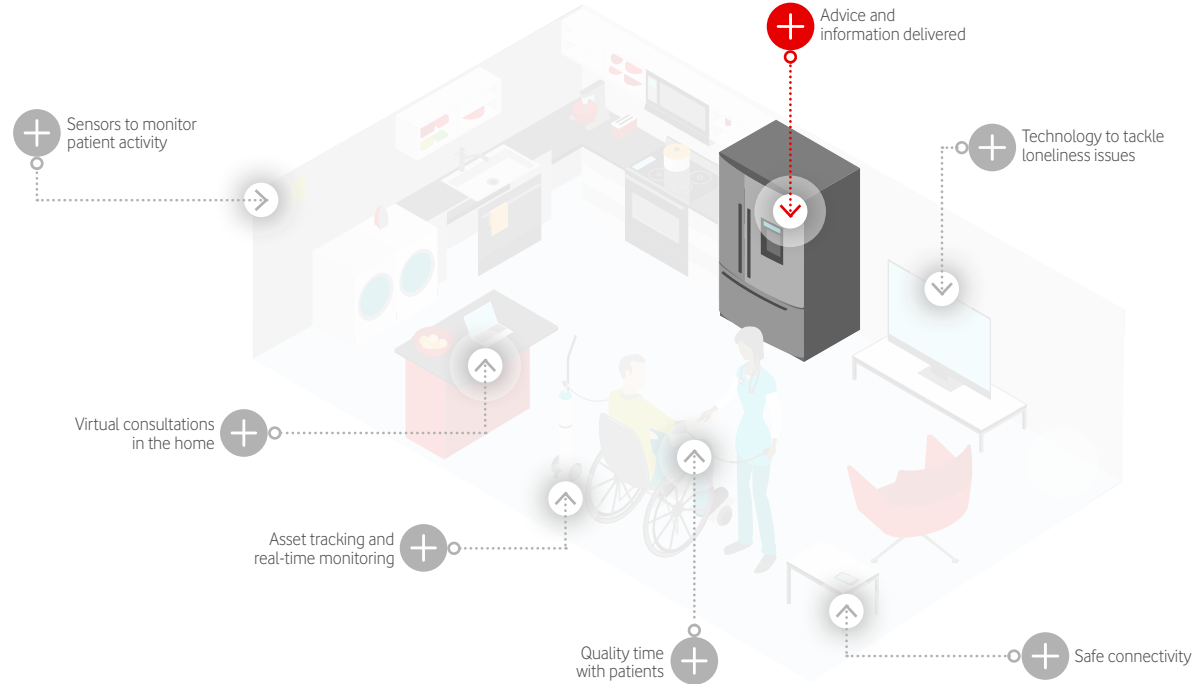
Sensors in the home can provide activity based data such as movement and temperature change, so that alerts can be provided when lone patients aren't acting in their normal way.





## Advice and information delivered

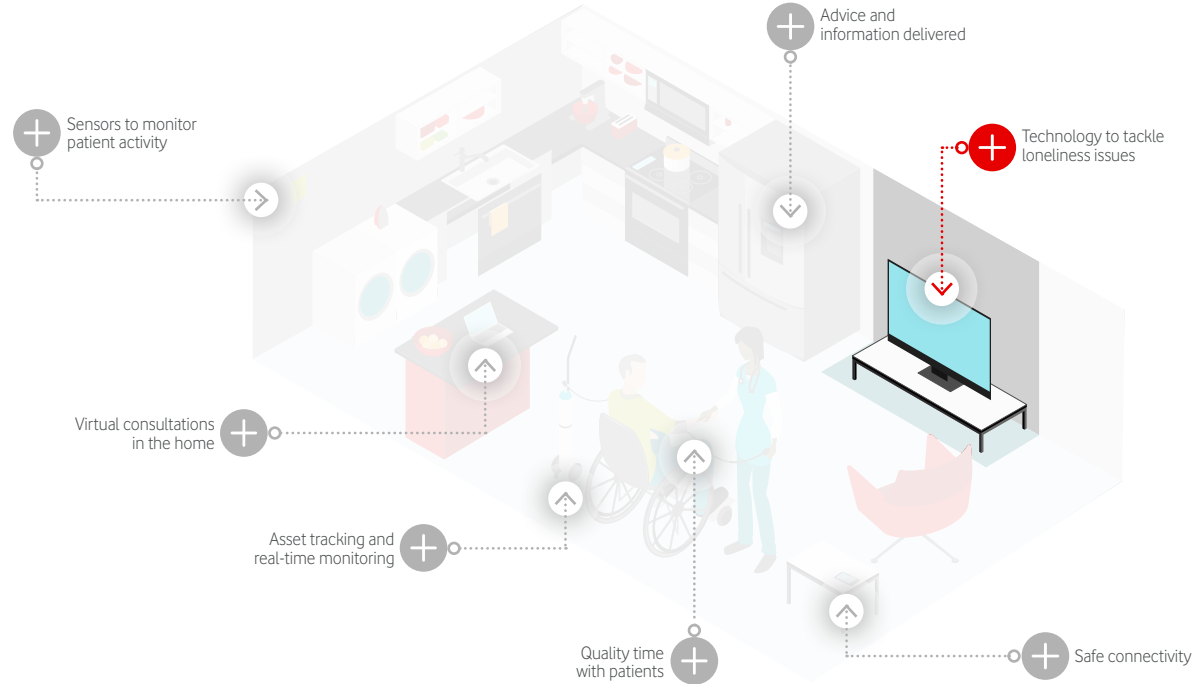
Health based information can be delivered to citizens in the home in innovative ways, helping manage the causes and the prevention of health issues e.g. obesity or smoking.





## Technology to tackle loneliness issues

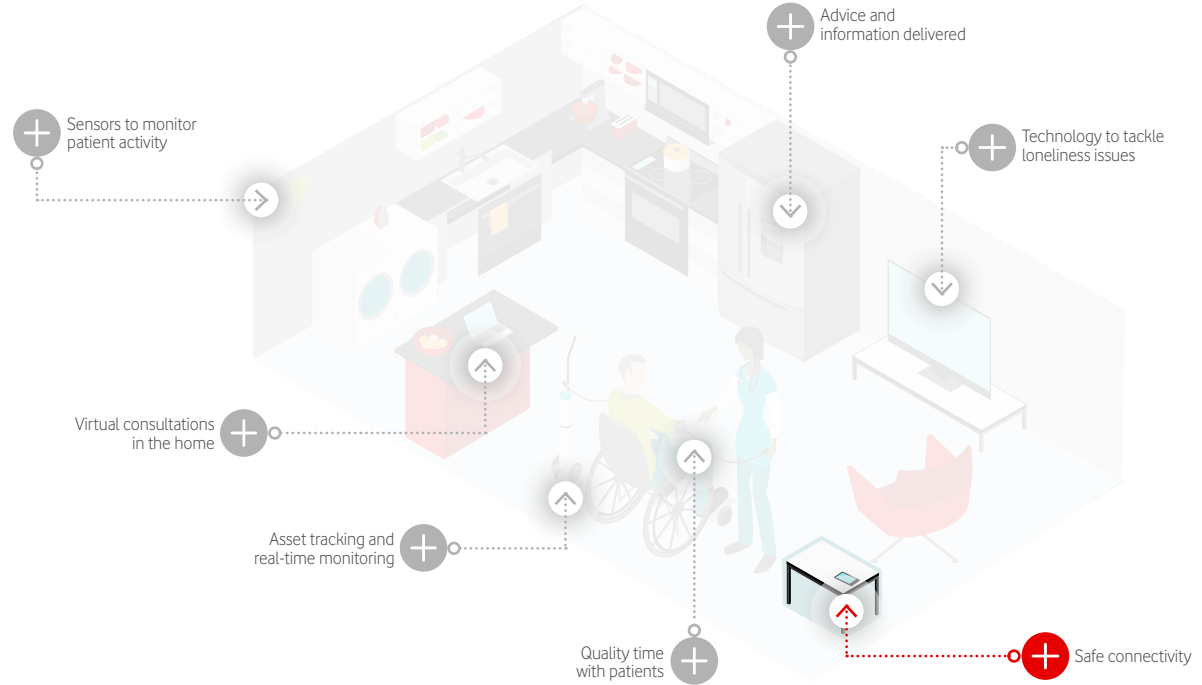
Loneliness issues can start to be tackled through technology, such as providing video interaction with other people via familiar devices such as TVs.





## Safe connectivity

Connectivity can be provided to homes without normal internet connection via IoT and be provided safely, without any wires to trip over.

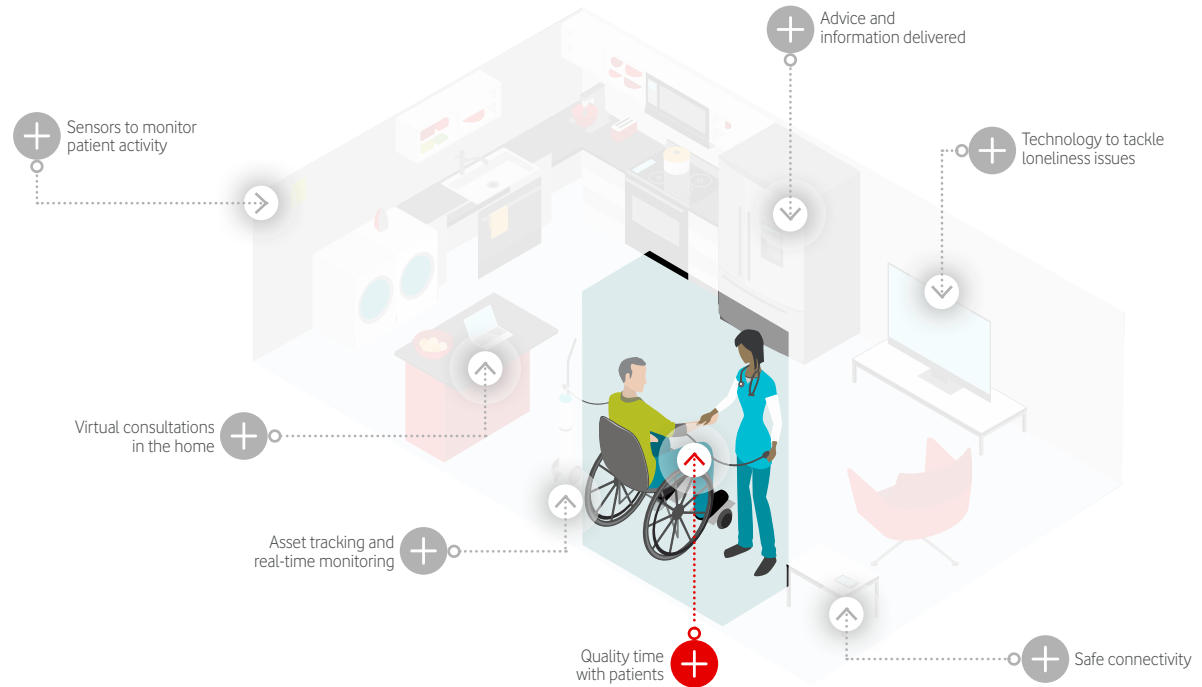






## Quality time with patients

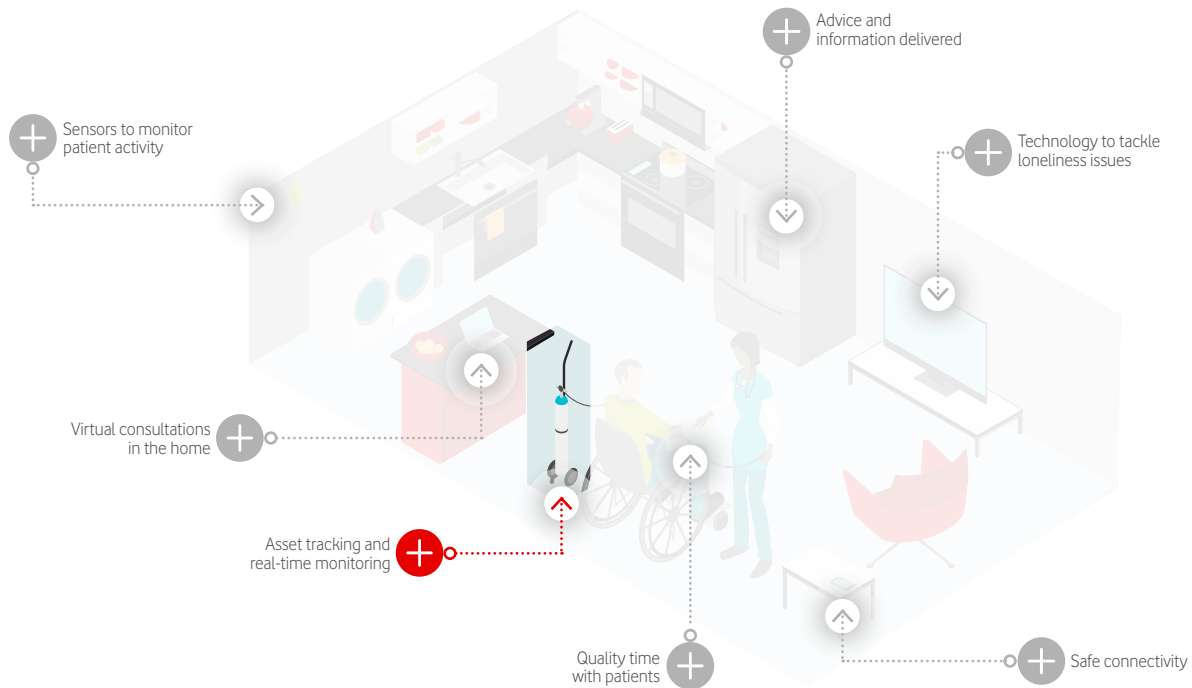
Greater levels of self care, combined with the provision of patient data when in the community and better resource management means that healthcare professionals can spend more quality time with patients.





## Asset tracking and real-time monitoring

Clinical tools in the home can be connected and provide real-time monitoring information back to the GP or hospital. Asset tracking ensures the provider knows where the equipment is.





## Virtual consultations in the home

People can provide non-critical healthcare information regularly and consultations can also be accessed in the home.

