

# The Agile Edge

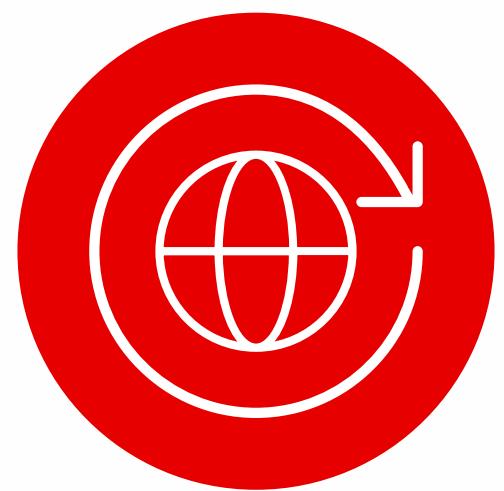
The digital transformation challenging  
the status quo in Defence

#TheAgileEdge



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A commercially  
agile portfolio



## > Section 2:

Tried and tested  
agile networks



## > Section 3:

Future-ready and  
agile innovation



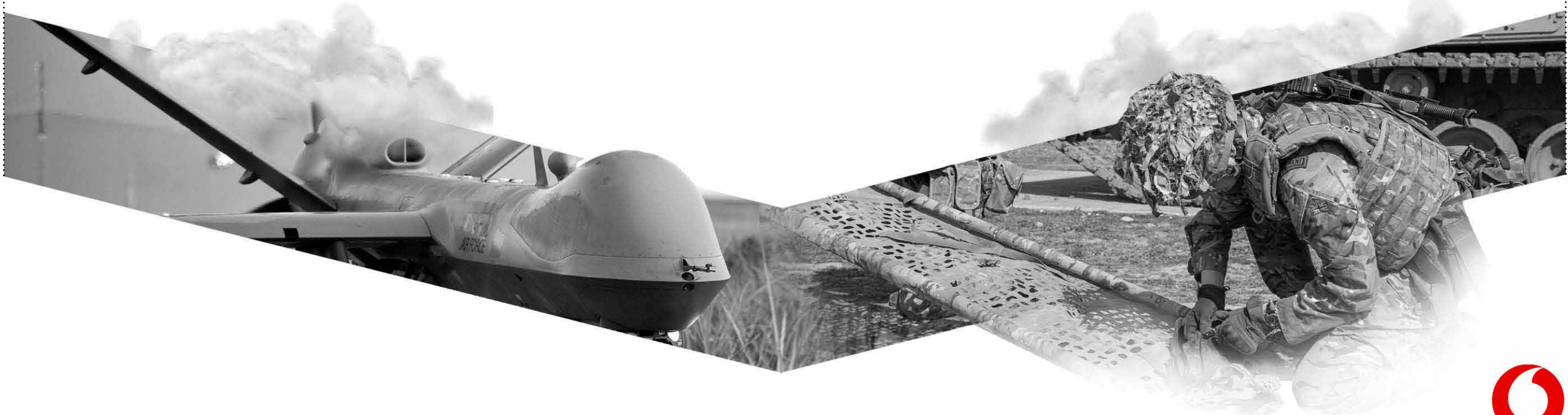
## > Section 4:

Being more  
agile together



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Why Vodafone  
for Defence?



# Making strides towards a more digital Defence

At Vodafone, we've got our eye on the future of Defence, and we want to help shape it. We're committed to using our knowledge of innovation in the private sector to further our work with the Defence sector to remain strategic, future-fit and resilient, using technology that delivers the operational edge.

## What can this digital toolkit offer you?

1

Understand our offering better – and unlock new opportunities for flexible strategies

2

Learn where your priorities lie when it comes to digital innovation

3

Find out which of Vodafone's products and solutions can help drive your organisation forward

## Make the most of this document

This toolkit is designed for you to navigate through to the areas where you need more information about our offering. There are links and navigation tools throughout to useful resources for more detail on each of the solutions. If you want to learn more about a specific area, simply click on the link, or wherever you see a sign, for more information.



# Finding new ways to digitise Defence

At Vodafone, we've taken what we've learned about digital transformation and we're committing to partnering with organisations to challenge the status quo, and digitise fixed environments, industrial space and deployed space to help Defence gain the edge.

We're realising this by focusing on four key areas:

1

A commercially  
agile portfolio

2

Tried and  
tested agile  
networks

3

Future-ready  
and agile  
innovation

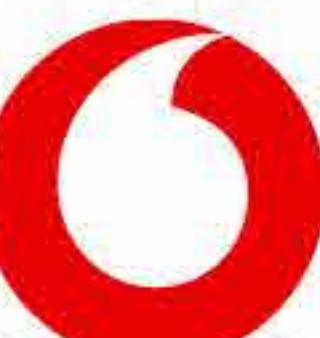
4

Being more  
agile together

All of this contributes to our competitive offering, built around Vodafone Defence **#TheAgileEdge** – our powerful advantage that enables us to deploy our solutions with flexibility, at speed.

“I have a vision of UK Defence where we're able to join the dots between space, air, surface and sub-surface, so that the sum of the parts means much more than the value of the individual parts, and where we can do this in real time, at the time and place of our choosing.”

**The Rt Hon Ben Wallace MP**  
Secretary of State for Defence



# Supporting Defence in the Information Age

The Defence sector in the UK is faced with the challenge of embracing the advances of the Information Age. This transition means exploiting the best of what already exists in the Defence sector, but also leveraging proven technologies from wider industries to overcome challenges. This is where we have the edge.

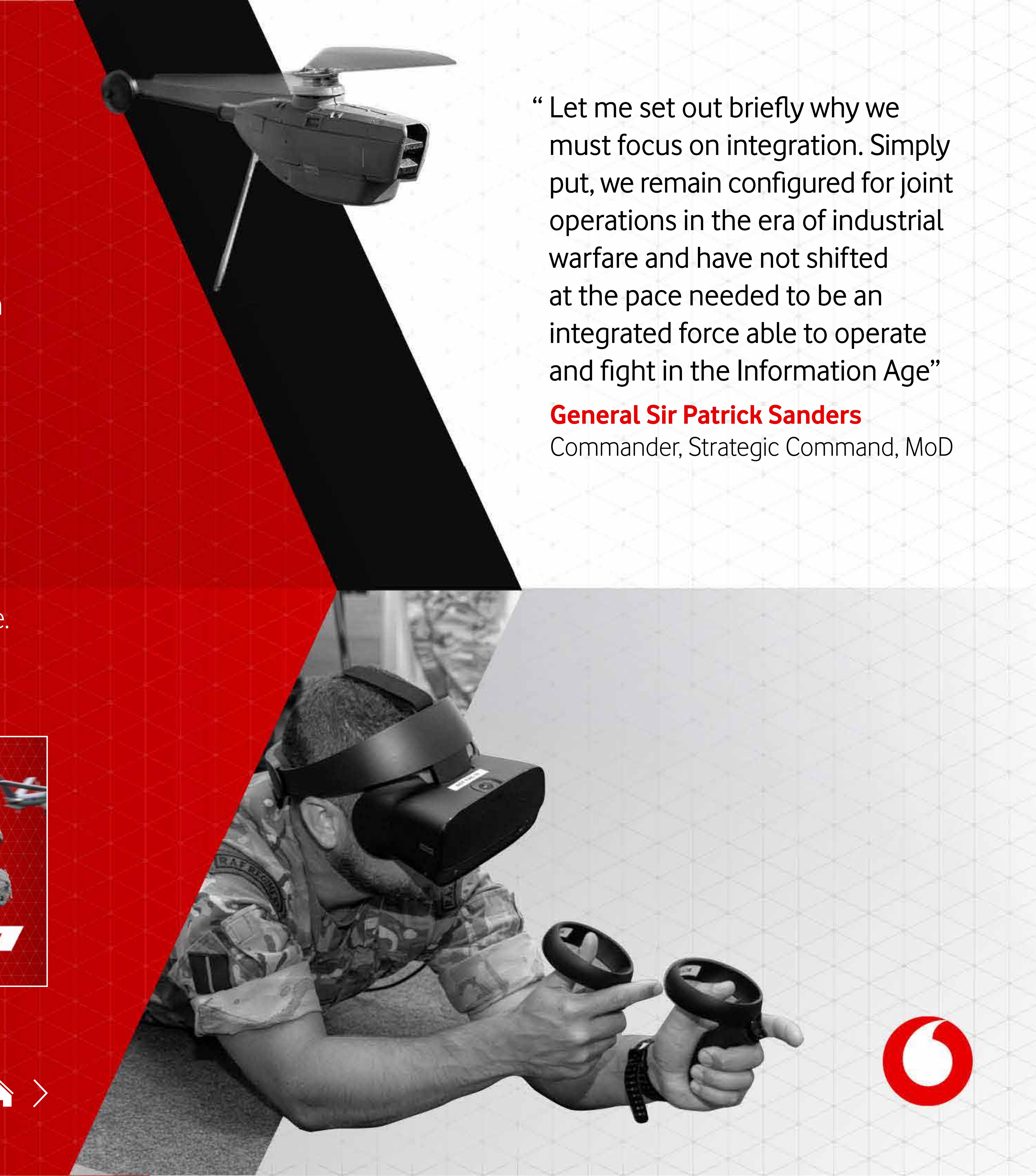
Vodafone's strategy helps to ensure that Defence can exploit proven technologies in a way that allows true integration into existing systems, processes and data.

This enables Defence to meet the changing digital landscape – providing enhanced security and securing advantage.

Vodafone for Defence is **#TheAgileEdge** - integrated thinking for competitive advantage.

## Technology that delivers the operational edge

Watch this video to find out how we're helping the Defence sector gain the advantage.

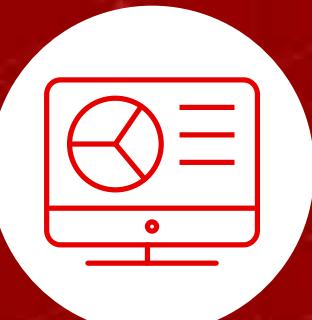


“Let me set out briefly why we must focus on integration. Simply put, we remain configured for joint operations in the era of industrial warfare and have not shifted at the pace needed to be an integrated force able to operate and fight in the Information Age”

**General Sir Patrick Sanders**

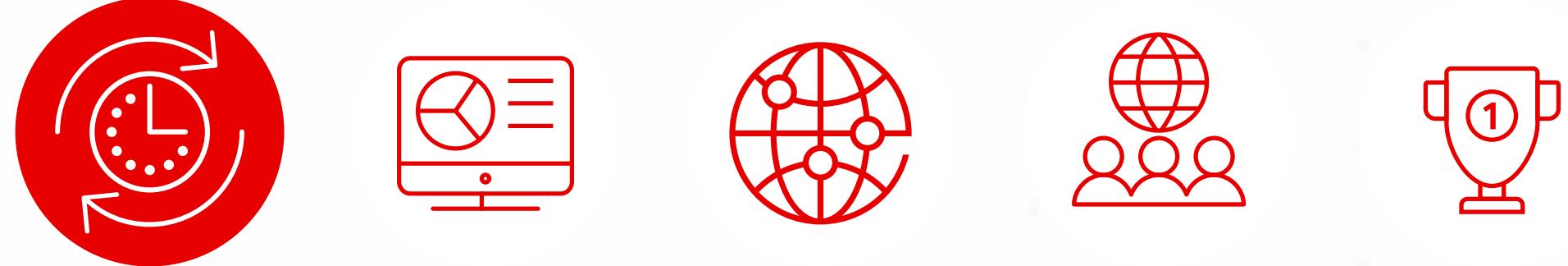
Commander, Strategic Command, MoD





# Section 1

A commercially agile portfolio

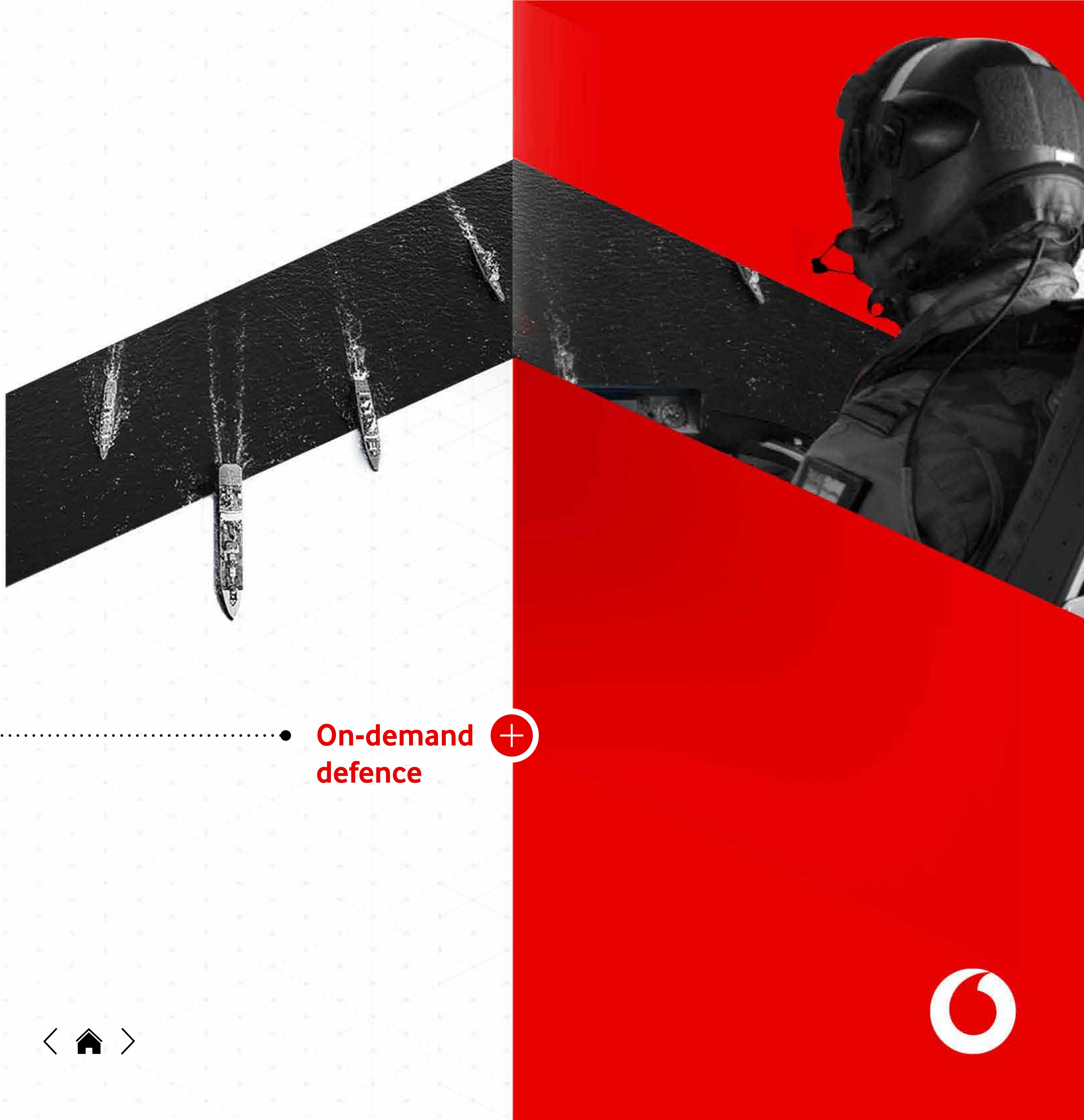


## Section 1: A commercially agile portfolio

Defence has historically been hampered by numerous challenges, including flexible operations and the ability to scale at speed. It's imperative for organisations operating in the Defence sector to be able to connect to highly available and resilient fixed or mobile networks. They need to ensure they can access services that enable data capture and consumption on the ground to give them a competitive advantage, without compromising security and safety.

### Lack of integrated solutions

Traditionally, information services within the Defence sector lack the level of integration and interoperability required to enable a truly joined up capability across operations. A complex landscape calls for accelerated transformation with tried and tested commercial-grade technology.

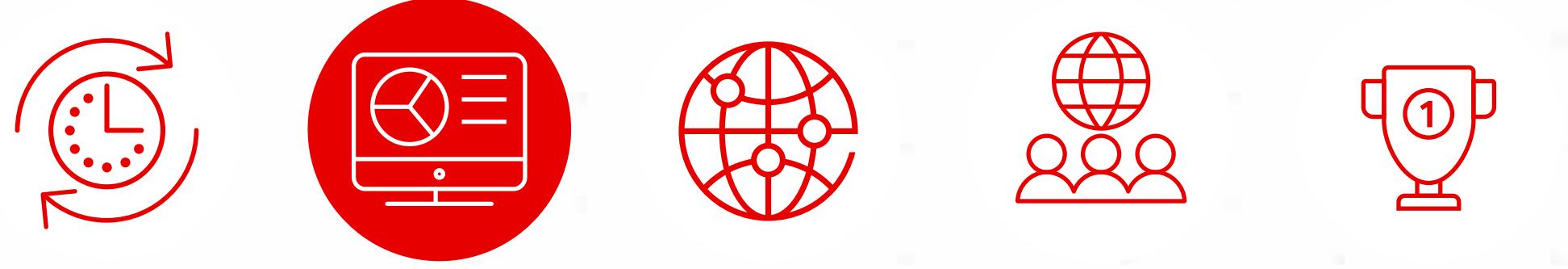




# Section 2

Tried and tested agile networks





## Section 2: Tried and tested agile networks

The Defence sector needs data-driven operations and a network that scales at speed in order to achieve information superiority. Adaptable solutions that prioritise appropriate levels of security, whenever and wherever you need them, is essential to remain at the leading edge.

### Risk of losing sensitive data

Information advantage is crucial – and at the heart of any system is data. Data that needs to be captured, stored, processed and visualised in real-time for commanders to achieve information superiority. A critical aspect of this is finding the right balance of information security based on type, timeliness and sensitivity, in order to maximise the value of commercial technology.

- **The strategic system** +

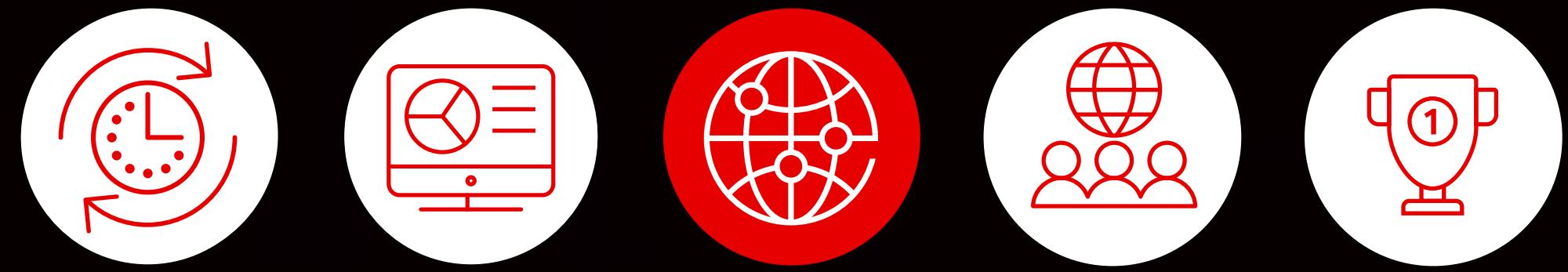




# Section 3

Future-ready and agile innovation





## Section 3: Future-ready and agile innovation

Speed of innovation has historically hampered Defence. Ready off-the-shelf innovation with the latest future-proof solutions for digital transformation are paramount for a world-class military.





# Section 4

Being more agile together





## Section 4: Being more agile together

A robust, reliable partner that finds new ways to respond quickly and with flexibility to customers' needs is crucial for Defence organisations. Knowing providers are prioritising and investing in customer relationships can make all the difference when it comes to operational speed and agility.

### Inflexible contracts and rigid providers

It's a priority for the Defence sector to have a platform and partnership for ideas to be assessed and tested before being deployed. This has historically been hampered by a small number of large providers with rigid contracts reducing the opportunity for commercial-grade innovation at scale.





# Section 5

Why Vodafone for Defence?





## Realising Defence's ambitions with the latest technology

Take a look at some of the solutions already making a difference in Defence:

1

Enabling connected devices and centralised operations with IoT

+

2

Reimagining business possibilities with MPN

+

3

Transforming Defence with 5G

+

4

Improving resilience and security with the cloud

+



# Our Vodafone for Defence success stories

How can Vodafone's technology help you? Regardless of your operating environment, we've got a solution for everyone.



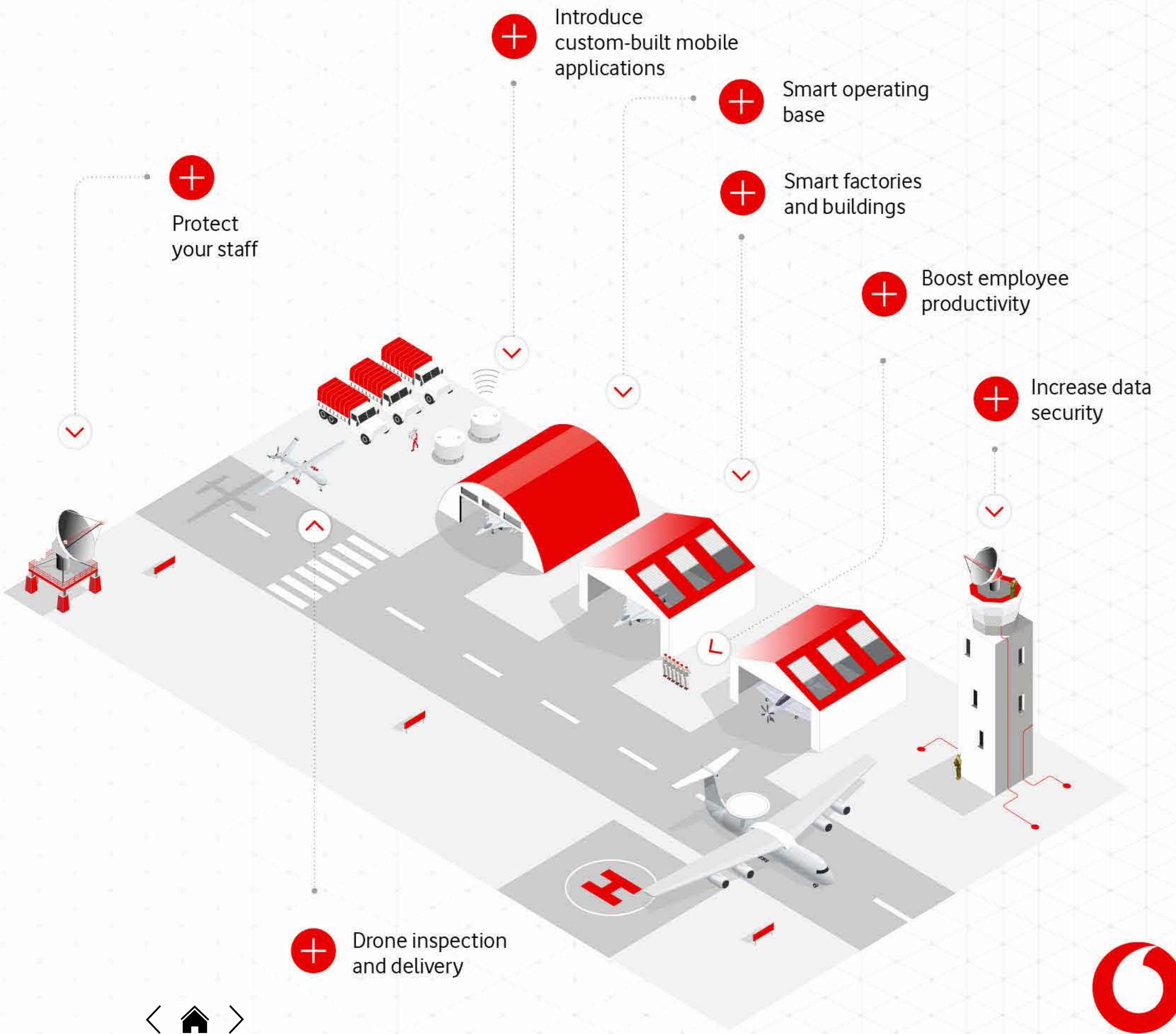
# How can Vodafone help? Inside Vodafone Defence in air

Protect airspaces and force elements, while increasing collaboration and visibility of operations.

“Everything you’re trying to deliver is a business outcome...you want to make sure the principles and environment you create around your capability enables you to hit your outcome, and mitigate risk where possible”

**Steve Knibbs**

Head of Secure, Vodafone



## Case study:

# How IoT increased efficiency at a smart factory

### The problem:

At Vodacom, part of the Vodafone group, various systems existed to monitor energy and water systems. These systems lacked a unifying layer showing building data in one place with centralised alert monitoring and management.

### The solution:

Intelligent gateways were integrated into the various existing systems. The information from these devices was filtered, analysed and then sent to a central platform giving building managers a complete and near real-time view of all available building data.

Alerts from the various sub-systems, including energy monitoring, water monitoring and fuel monitoring, alerted the building operator of any issues.

### The impact:

By monitoring water flow, energy consumption, HVAC and generator systems, the client can get a consolidated view of building operations. The proactive monitoring of these systems and metrics provide near real-time actionable information and alerts.

This assists with:

- Water leak detection
- Diesel fuel level measurements
- Energy consumption statistics.

### The improvement:

- Efficiency – Increased visibility into the company's operations highlighted inefficiencies that were resolved.
- Health and safety – The system monitors environmental conditions in real-time and alerts operators immediately when safe limits are reached, enabling problems to be resolved quickly.
- Visibility – Integration between disparate systems provides a single view, helping to have all the information needed in one place, ensuring operational information is consistent, reliable, and can be used to generate alerts and avoid operational issues.

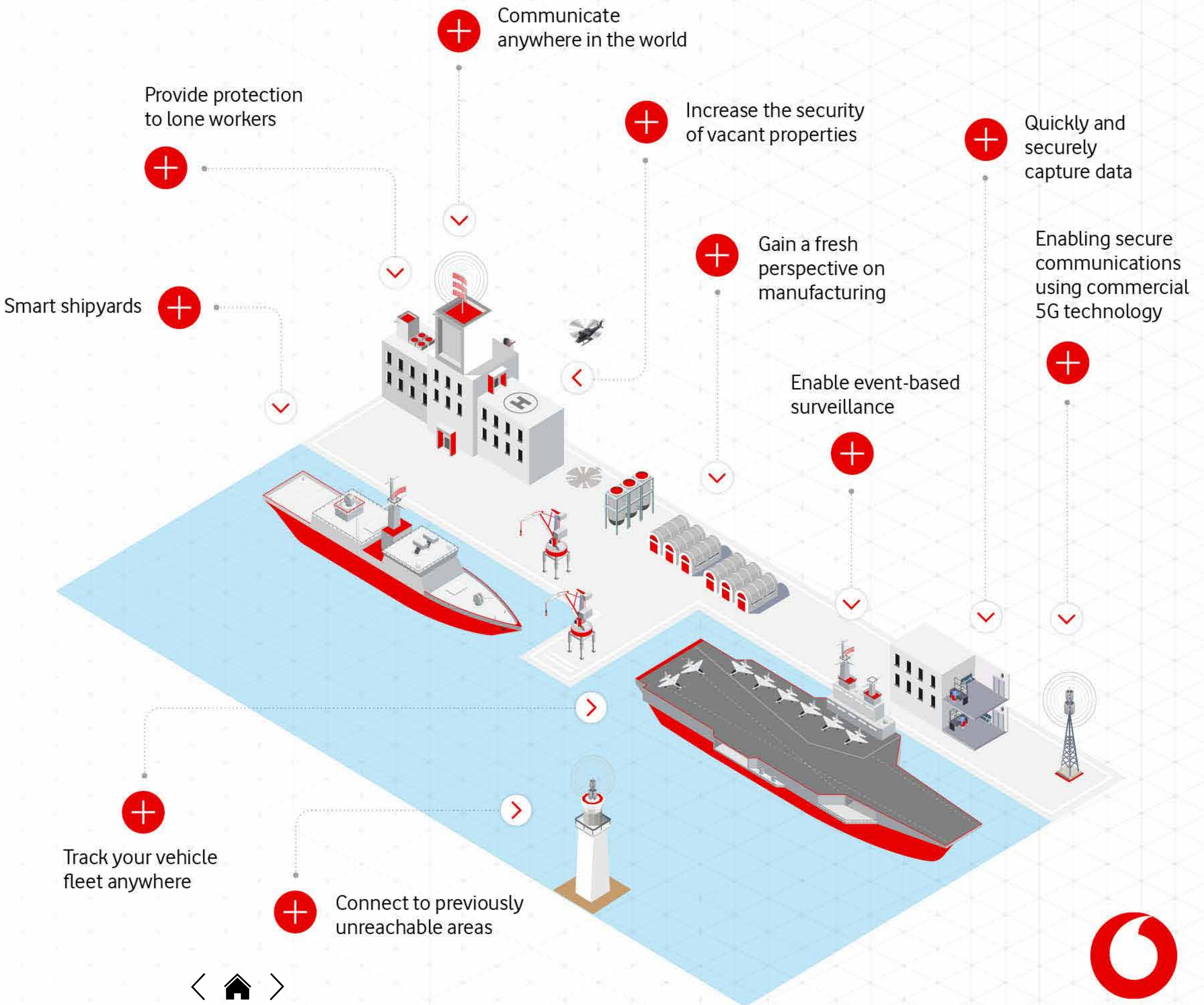


# How can Vodafone help? Inside Vodafone for Defence at sea

Enable a new level of collaboration and control on ships and in shipyards with smart technology.

"We're participating in a Mobile Private Network proof of concept with the Royal Marines under the Future Commando Force programme...it's great to see the MoD at the early stages of applying 5G technology within the UK"

**Scott Petty**  
CTO, Vodafone UK



## Case study:

# How MPN improved connectivity for a smart factory at Ford

### The problem:

Ford wanted to connect its shop floor, but was worried about the significant time and investment required to do so.

“The technology used is inflexible and bespoke. It can often be viewed as the limiting factor in reconfiguring and deploying reliable manufacturing systems.”

**Chris White**, 5GEM project lead at Ford

Ford was interested in the connectivity of the welding processes used in the manufacture of electric vehicles. Vast amounts of data are generated within each factory process, which needs processing fast in order to be useful, requiring a high-performance, low-latency network.

### The solution:

Vodafone solutions helped to create faster testing and share information quicker. It implemented a 5G Mobile Private Network to support a welding testbed, which was then shared by Ford’s welding and factory technology partners.

### The impact:

Ford was able to quickly enable designs ready for the shop floor, and improve time to market, while enabling a smart wireless factory.

### The improvement:

- Increased data processing
- Improved connectivity between the shop floor and head office
- Ability to keep up with demand, speed up production and adapt to change quickly



# How can Vodafone help? Inside Vodafone for Defence on land

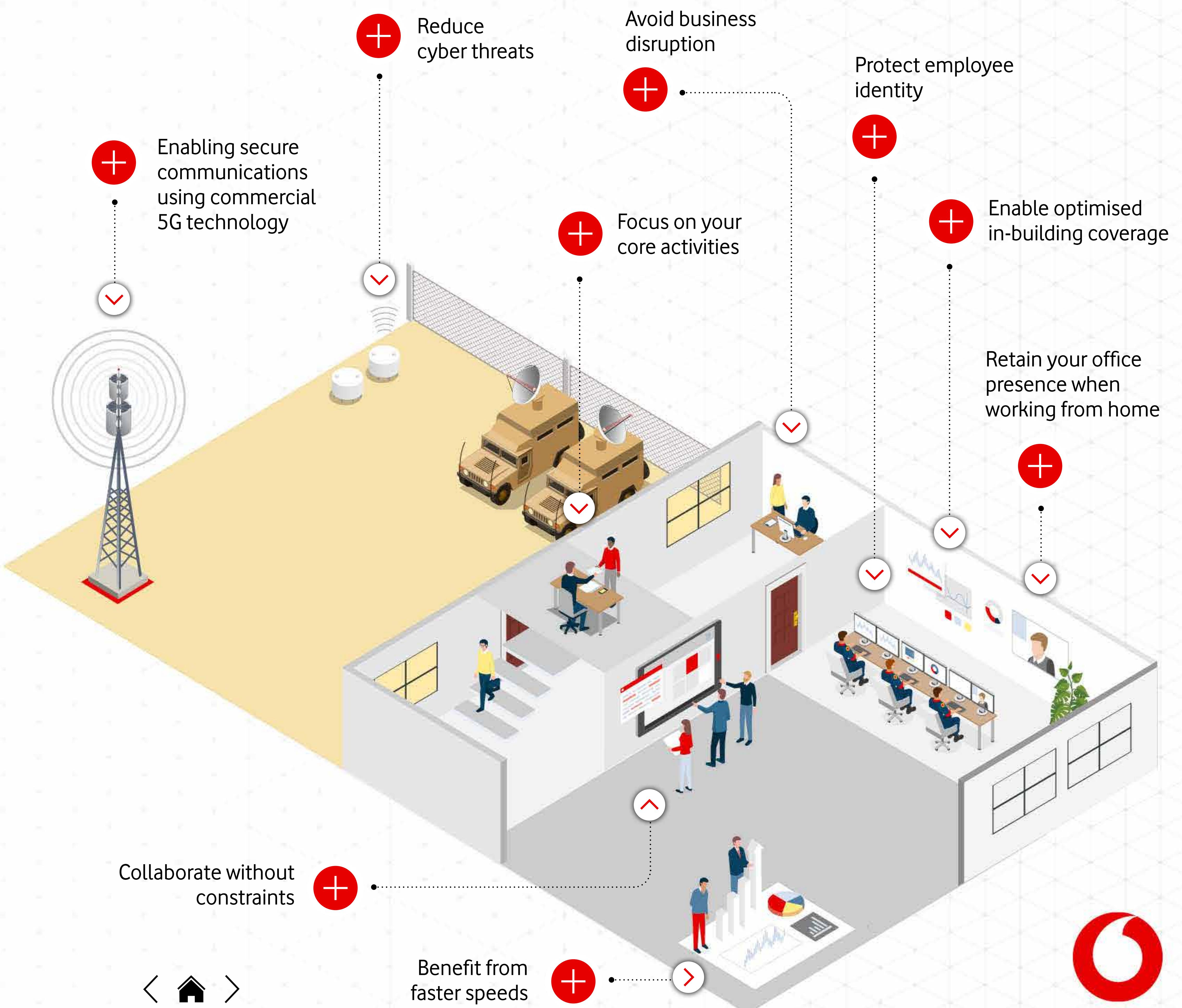
Protection at home bases and forward operations with increased security and productivity.

“How technology can be translated from industry into the Defence space is an area that’s of real focus for Vodafone. The challenge is how you strike the balance between retaining the agility and value that comes with leveraging those commercial capabilities without comprising security. That balance is what we call #TheAgileEdge”

**Jonathan Reid,**  
Sector Head, Defence, Vodafone

“Our networks must form the resilient ‘train tracks’ – the bearer for data flowing from sensors to effectors. We must then exploit the data that we collect, and not treat it as effluent like we currently do.”

**General Sir Patrick Sanders,**  
Commander, Strategic Command, MoD



## Case study:

# How leading-edge technology helped business continuity during Covid-19

### The problem:

During Covid-19, Premiership rugby clubs across the country had to close due to the nature of their contact training. Wasps Rugby Club was looking for a way to reopen non-contact training subject to social distancing, daily screening, cleaning and hygiene requirements.

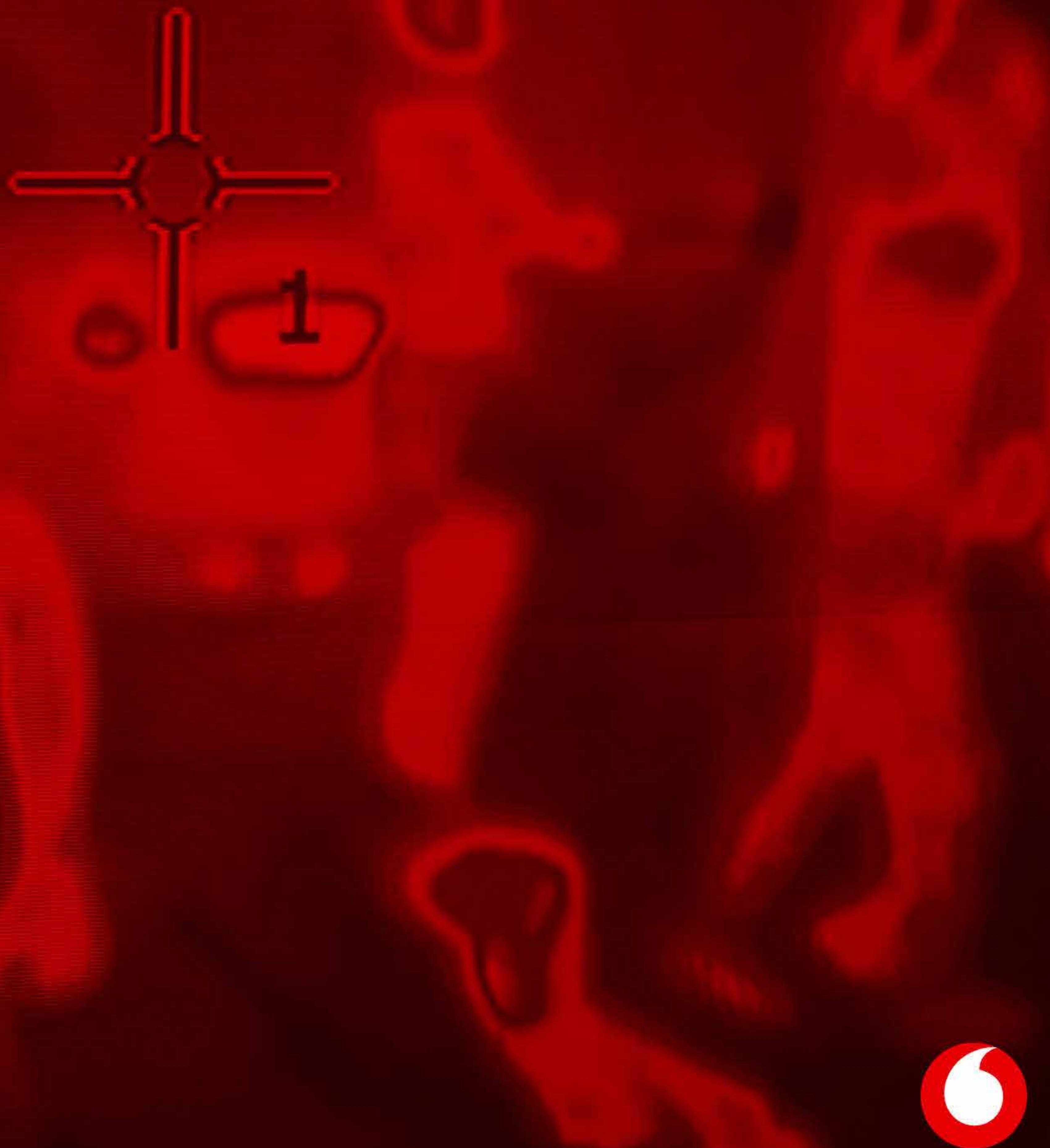
### The solution:

The club installed Vodafone's Heat Detection Camera in its Coventry training facility to help safeguard players as they returned to training. The Heat Detection Camera combines thermal imaging and IoT to screen the temperature of people as they enter buildings, and quickly analyse

the results. The camera can check the temperature of up to 100 people per minute, allowing players to return safely.

### The impact:

Following the government's green light for non-contact sport, the cameras enabled the club to reopen its facilities and also provide reassurance and prioritise safety during the pandemic.



# Why Vodafone for Defence?

We offer the most comprehensive portfolio of leading-edge technology for the Defence sector, all backed by our powerful advantage to deploy resilient solutions with flexibility, at speed. Vodafone is **#TheAgileEdge** for Defence, driven by:

- > The UK's number one network
- > Experience as a major supplier for Britain's critical national infrastructure
- > The latest technology from our Innovation Centre
- > A reliable, robust IoT platform built on years of experience
- > Defence-ready, disruptive and value-add solutions



# Ready to deliver on Defence?

Contact your Vodafone Account Manager

Go to website [www.publicsector.vodafone.co.uk/sectors/defence/](http://www.publicsector.vodafone.co.uk/sectors/defence/)

Or contact



**Jonathan Reid**

Sector Head Defence

Jonathan heads up the UK Defence Sector providing mission critical services to MOD, both directly and indirectly via key Defence primes. Prior to taking on this role Jonathan ran the Government Overseas Sector with the FCO as the prime customer.

[www.linkedin.com/in/jonathanreid/](http://www.linkedin.com/in/jonathanreid/)

# Finding new ways to digitise Defence



At Vodafone, we've taken what we've learned about digital transformation and we're committing to partnering with organisations to challenge the status quo and digitise fixed environments. We believe that by working together, Defence can gain the edge.

We're realising this by focusing on:

A commercially agile portfolio

1

## A commercially agile portfolio

We have a range of fixed and mobile solutions, including Software Defined Networking, Unified Communications, 4G and 5G commercial and private networks, cloud services, edge computing, and a comprehensive smart technology portfolio, which are fit for purpose regardless of the operating environment, from fixed to deployed operations.



All of this contributes to our belief in Vodafone Defence #TheAgileWay, which enables us to deploy our solutions with flexibility, at speed.



# Finding new ways to digitise Defence



At Vodafone, we've taken what we've learned about digital transformation and we're committing to partnering with organisations to challenge the status quo and digitise fixed environments. This will help Defence forces and organisations in Defence gain the edge.

We're realising this by focusing on:

A commercially agile portfolio

2

## Tried and tested agile networks

Our adaptable network solutions are deployable when, where and how they're needed, offering low latency and resilient data capture at speed, helping customers across all government security classification levels.



All of this contributes to our belief in Vodafone Defence #TheAgileNetwork, which enables us to deploy our solutions with flexibility, at speed.



# Finding new ways to digitise Defence



At Vodafone, we've taken what we've learned about digital transformation and we're committing to partnering with organisations to challenge the status quo and digitise fixed environments. This will help Defence forces and organisations in Defence gain the edge.

We're realising this by focusing on:

A commercially agile portfolio

3

## Future-ready and agile innovation

Our robust, reliable and commercially proven solutions, including 5G, IoT and MPN, act as a force multiplier for agility and innovation, delivering digital transformation in the Defence space.



All of this contributes to our belief in Vodafone Defence #TheAgileWay, which enables us to deploy our solutions with flexibility, at speed.



# Finding new ways to digitise Defence



At Vodafone, we've taken what we've learned about digital transformation and we're committing to partnering with organisations to challenge the status quo and digitise fixed environments so Defence can gain the edge.

We're realising this by focusing on:

A commercially agile portfolio

4

## Being more agile together

Our longer-term agreements, world-leading connectivity and expertise as a provider for some of the world's largest multinational companies and central government departments, are designed to deliver commercial and competitive advantage for any Defence organisation.





# On-demand defence

Section  
A commercial

Defence has history of innovation, including flexible solutions that are imperative for our customers to be able to connect their people and networks. They enable data capture and analysis to give competitive advantage.

Traditionally, Defence services have been interoperable, but the need for capability and security has called for accessible, reliable and tested solutions.

We're helping to set up a more cohesive, capable function with effective IT services, thanks to our agile commercial portfolio.

We have a range of solutions, which are fit for purpose regardless of the operating environment, from fixed to deployed environments.

1

## Disruptive solutions

We have a range of fixed and mobile solutions, including Software Defined Networking, Unified Communications, 4G and 5G commercial and private networks, cloud services, edge computing, and a comprehensive smart technology portfolio. These are all fit for purpose regardless of the operating environment, from fixed services to deployed operations.

2

## Integrated solutions

We have a ground-up security-by-design approach to new services, with proven commercial-grade technology at its core.

3

## £1 billion network investment each year

Our next generation networking is underpinned by continuous investment in fixed and mobile.

4

## Leading technology specialists for Defence

Our expertise has grown from being the UK's leading military radio specialists in the 1980s. For past 25 years we have provided solutions to the Defence industry at all government security classification levels.





## Section 2

### Tried and tested

The Defence sector needs a network that secures our military superiority. Adapting to different levels of security and resilience is essential to remain competitive.

### Risked but rewarded

Information advantage is data. Data that is visualised in real time gives us a strategic advantage. A critical part of our information security strategy is to ensure that we have the right systems in place in order to maximise our potential.

## The strategic system

Our adaptable solutions are secure and deployable when, where and how they're needed. We're enabling a more responsive and resilient capability with the latest tech, all underpinned by our tried and tested agile portfolio.

1

### Speed at scale

Our network carries 12Tb of customer data per second.

2

### Leading edge technology

Customers can benefit from our technology of over 77 million IoT SIM connections around the world, our low-cost connectivity options and intelligent connectivity from Vodafone Software Defined Network (SDN) solutions.

3

### Trusted supplier

We're a major supplier for Britain's critical national infrastructure. One-third of the UK's central government users are connected on Vodafone One Net Enterprise.

4

### Information advantage

We offer speed and resilience at scale, capturing data in real time with low latency using edge computing.



Section 3:  
Future-ready a

Speed of innovation  
when it comes to  
innovation with  
transformation a

## Future force innovation

We're digitising fixed environments, industrial space and deployed space with information-led business transformation, backed up by our applied and agile innovation.

Our resilient and commercially proven solutions act as a force multiplier for Defence transformation, delivering tangible results.

1

### Innovative products and tech

Customers can benefit from our leading-edge 5G network, IoT performance, and MPN technology.

2

### Tomorrow Street Innovation Centre

We fast-track the latest products and tech from our Tomorrow Street Innovation Centre, which incubates solutions from SMEs and start-ups.

3

### Global tech partners

We collaborate with global tech vendors – like AWS, Google, Microsoft and Cisco – to deliver the right solutions to customer challenges.





Being more ag

A robust, reliable  
quickly and with  
Defence organis  
and investing in  
difference when

## The powerful partner

1

### Proven credentials

We're known as a trusted partner in Defence and the emergency services, with over 1 million public sector customers in the UK alone.

2

### Heavy investment in customer relationships

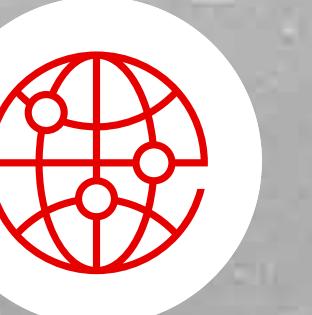
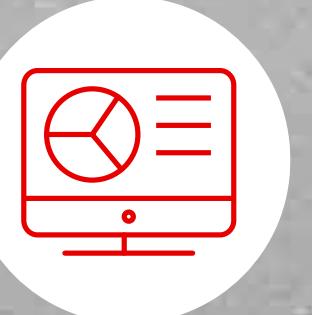
We are passionate about investing in customer partner relationships in order to maximise the value we bring to growth efforts.

3

### Experienced provider

We work with 2,000 of the world's biggest multinational organisations and 70% of companies in the Fortune 500.



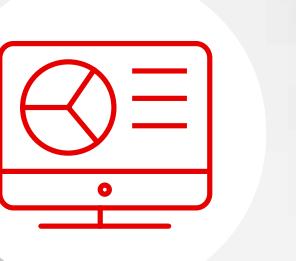


1

## Enabling connected devices and centralised operations with IoT

Track and manage your assets from anywhere in the world with Vodafone's IoT solutions.





2

## Reimagining business possibilities with MPN

Deliver new potential for next-generation businesses with Mobile Private Networks – without limits on location.

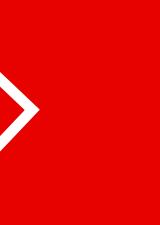




3

### Transforming Defence with 5G

Improve your information gathering and sharing with a secure and cost-effective network.



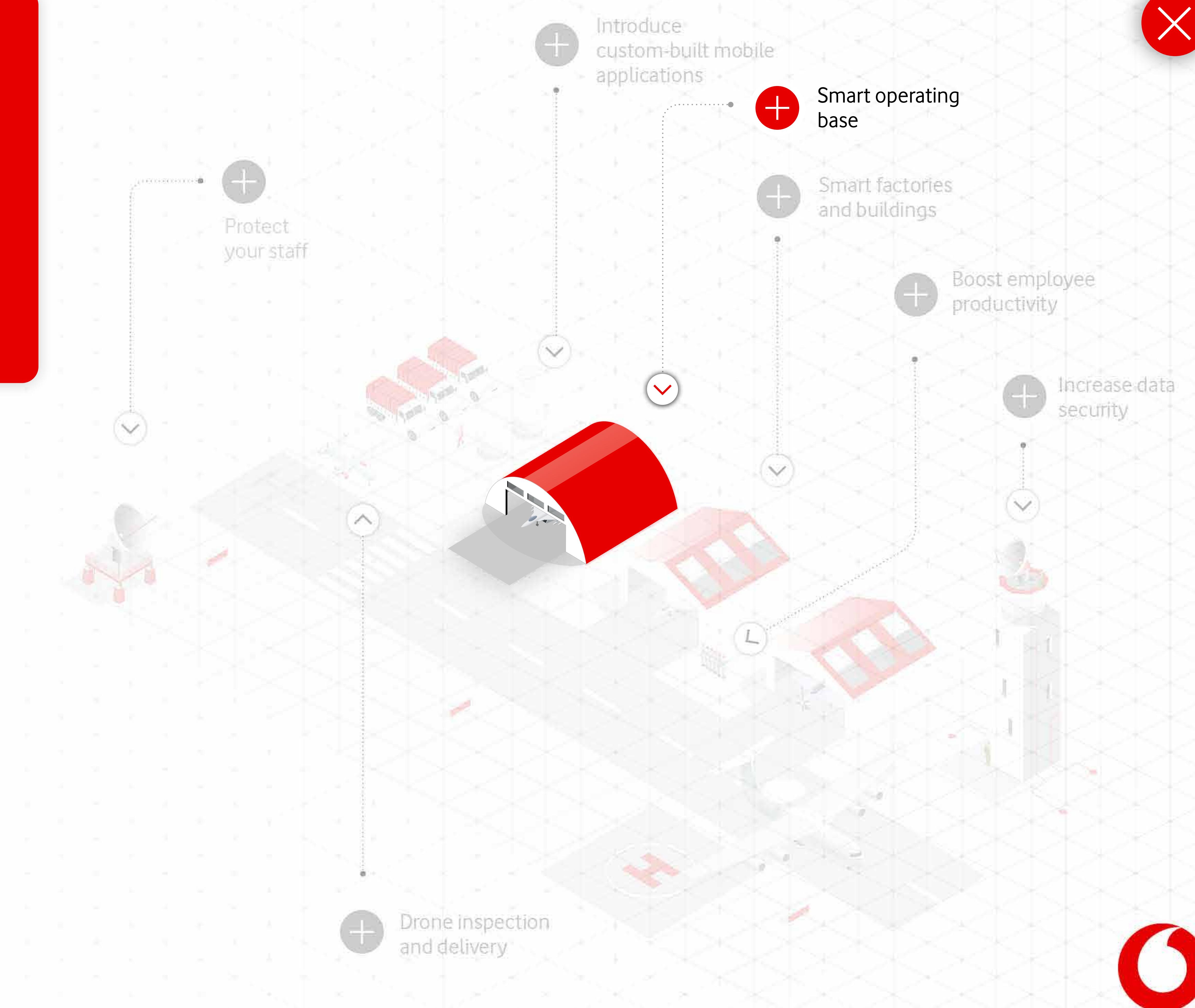


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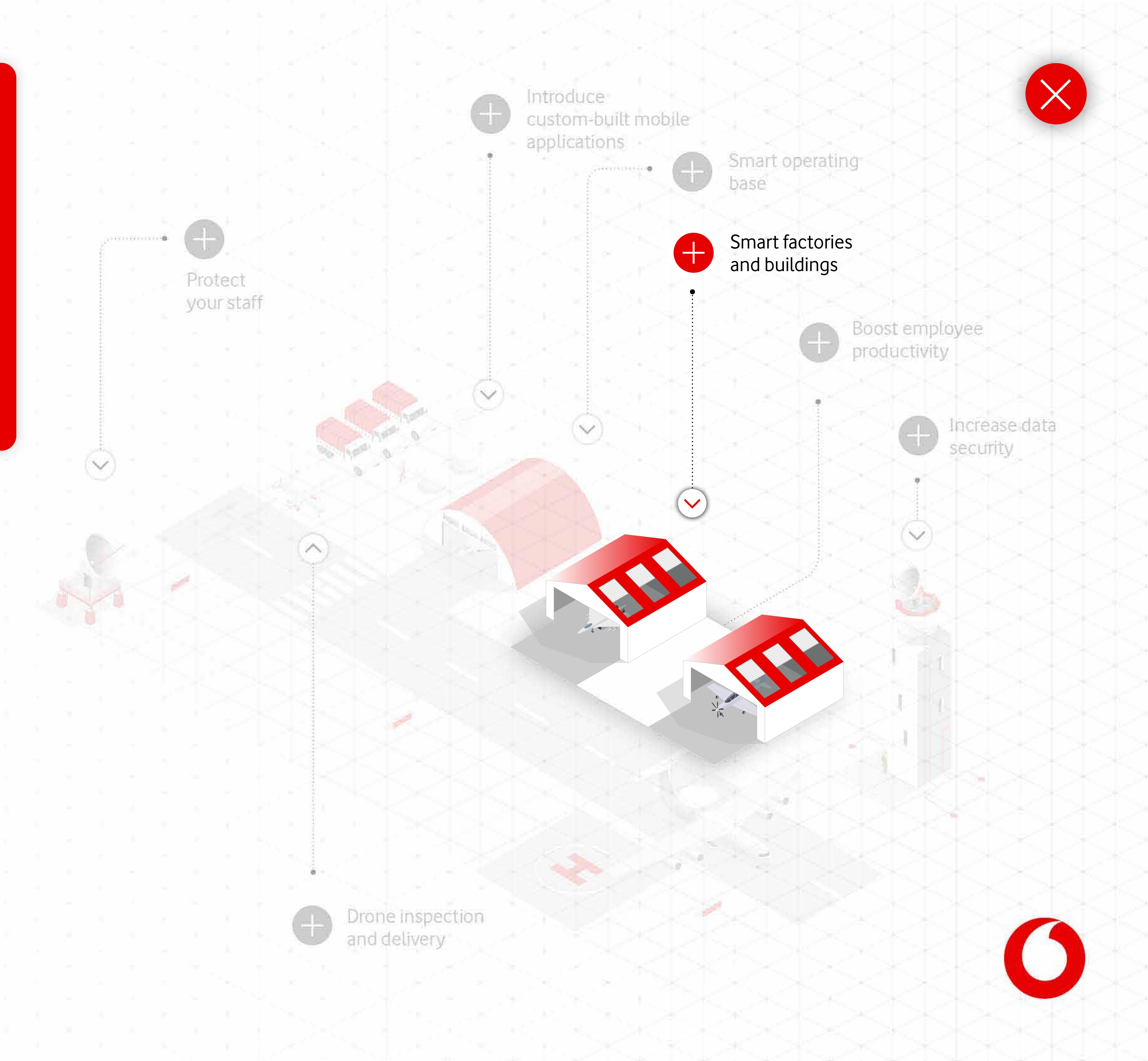
**Improving resilience and security with the cloud**  
Accelerate digital transformation with cloud-ready IT and cyber security.



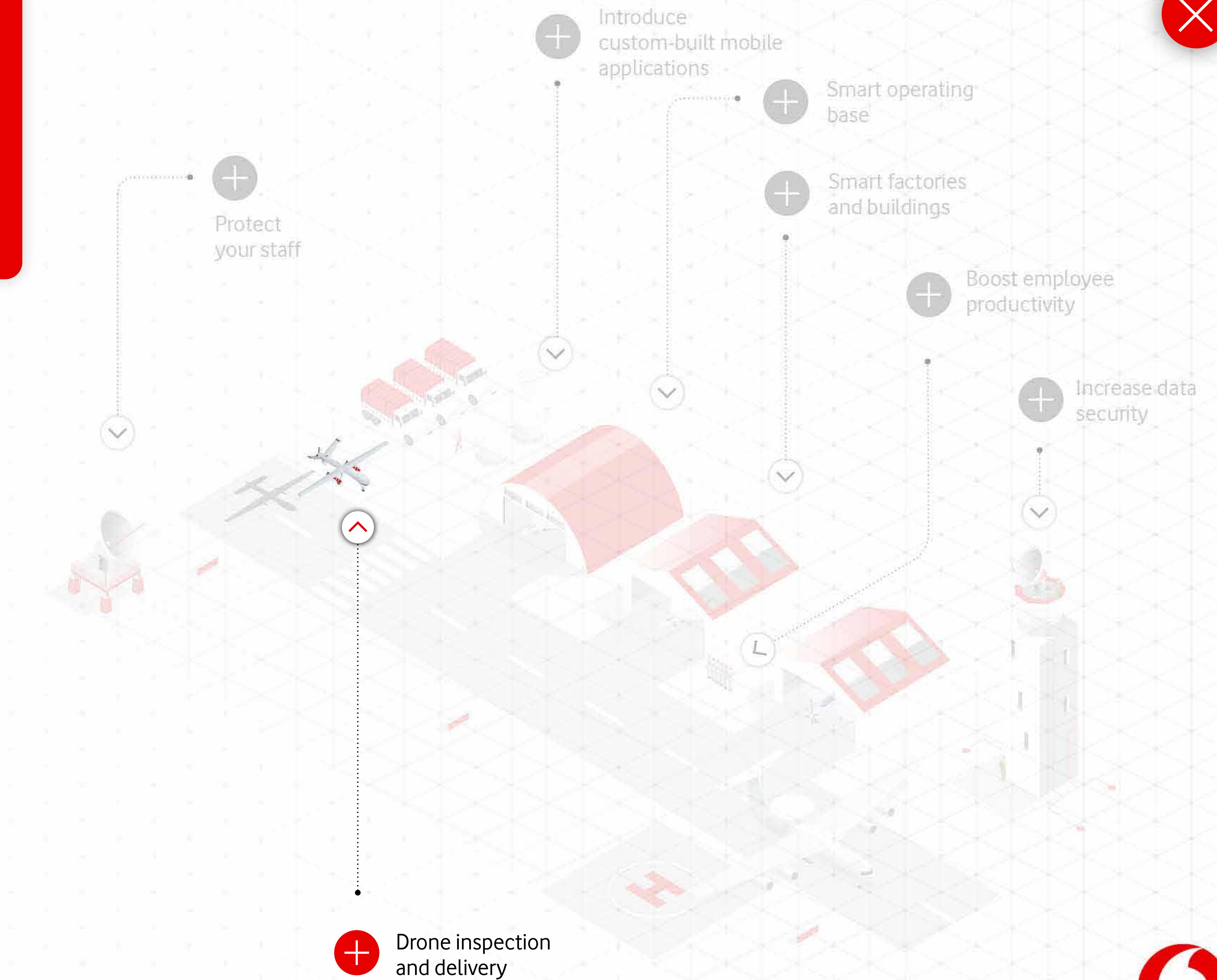
Our IoT portfolio enables a complete end-to-end solution to automate the airfield, driving improvements in efficiency savings and safety. Machine learning algorithms can analyse visual data to support preventative maintenance tasking, and critical safety issues such as failed deployment of landing gear.



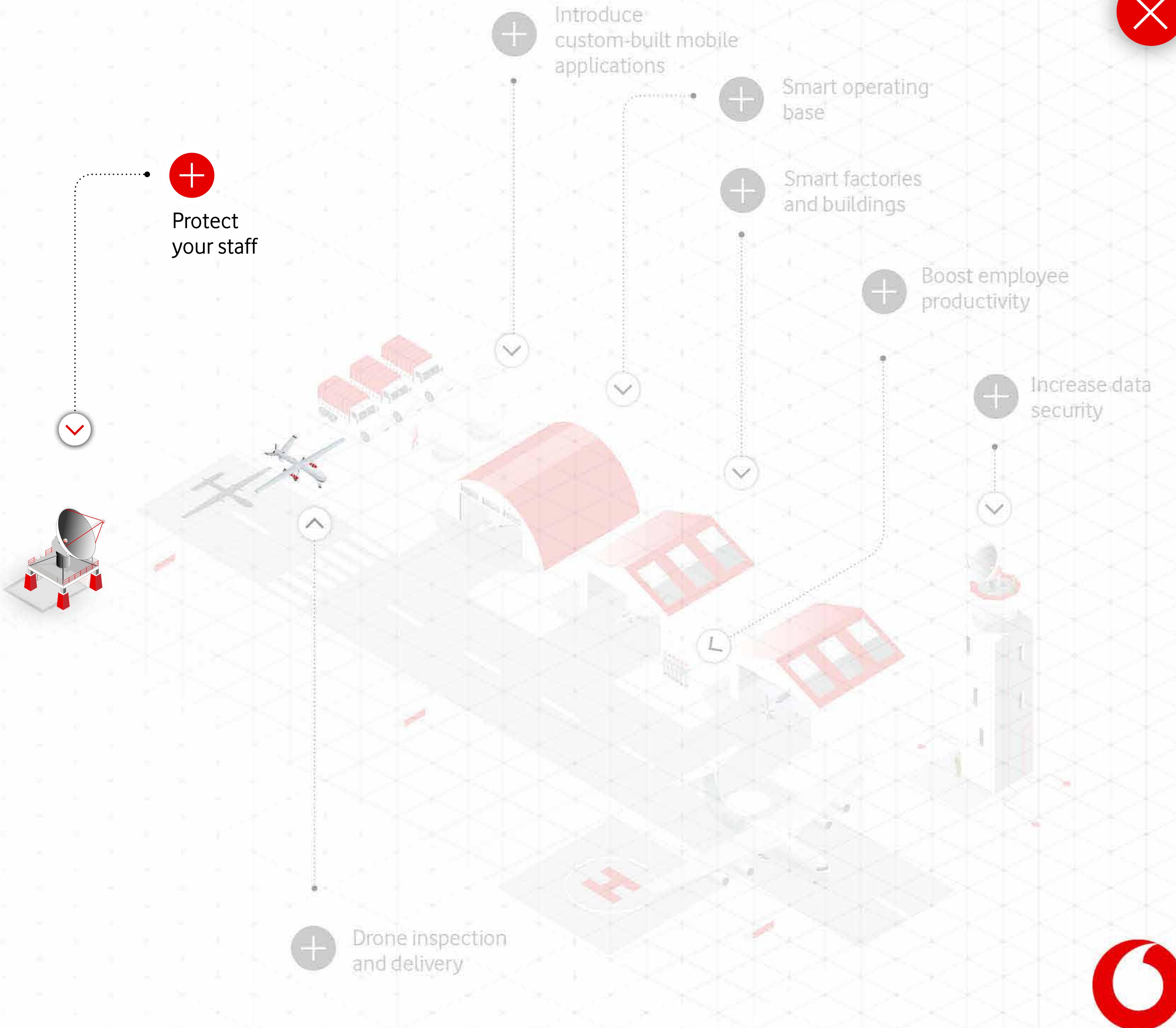
Our IoT portfolio enables a complete end-to-end solution to monitor and manage critical building infrastructure including factories, staff accommodation and office space. With Vodafone's IoT technologies, you can turn your buildings into smart buildings and track occupancy details. This will improve safety and reduce disruption.



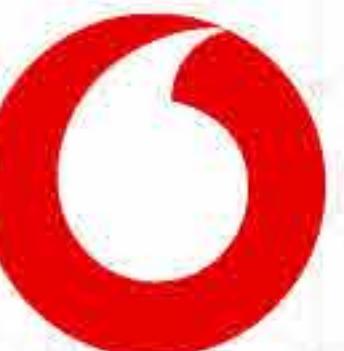
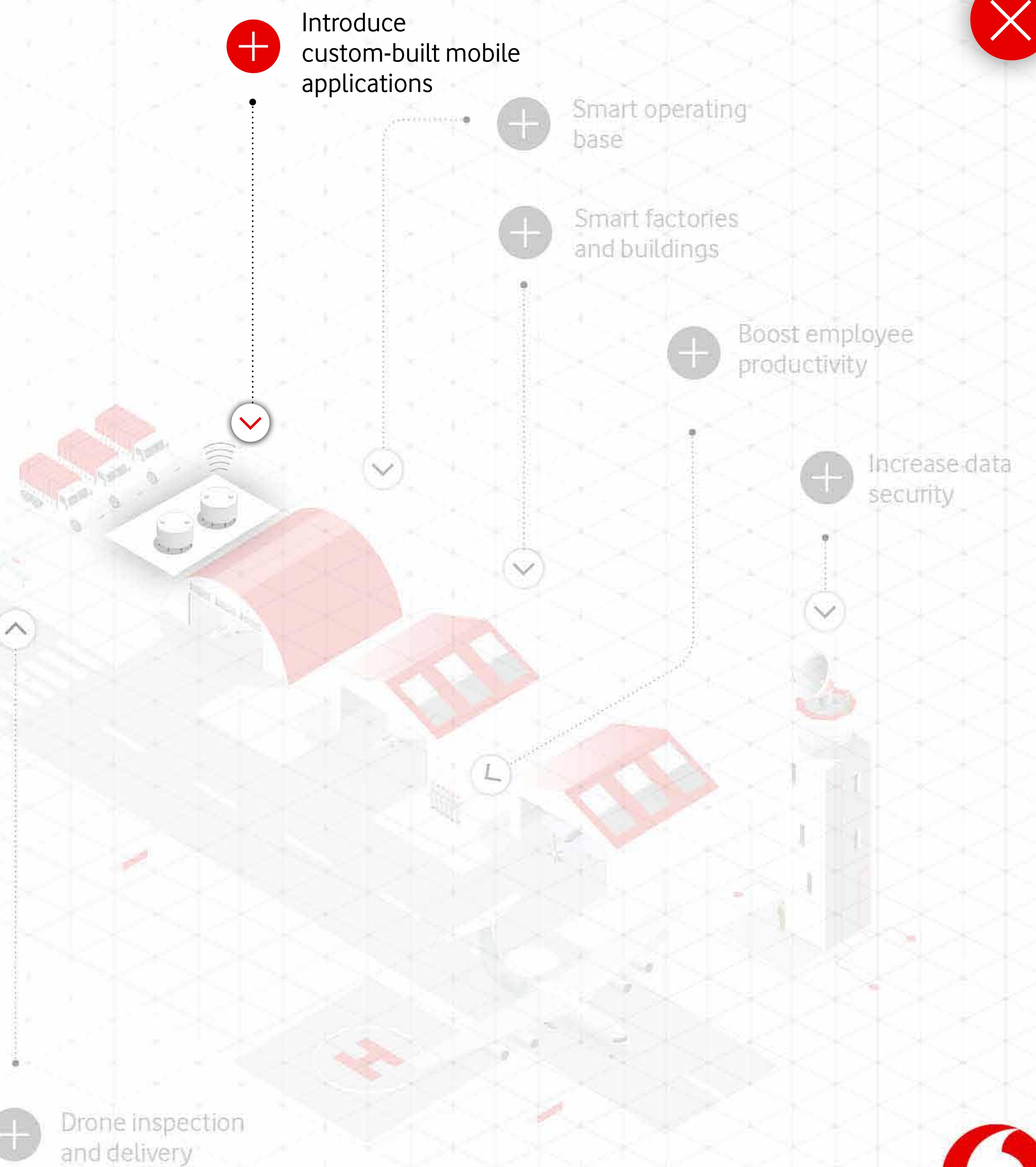
Our drone technology and partner ecosystem enables full end-to-end drone solutions to lower the cost of data capture platforms. Multiple use cases apply to the smart airfield requirements.



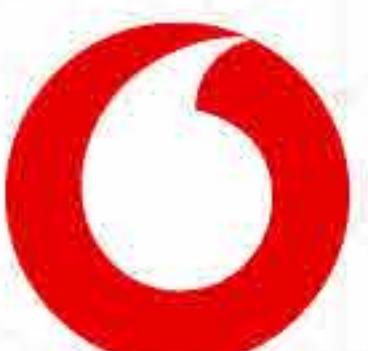
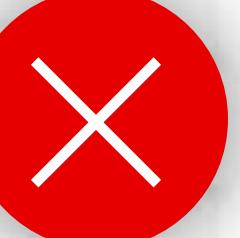
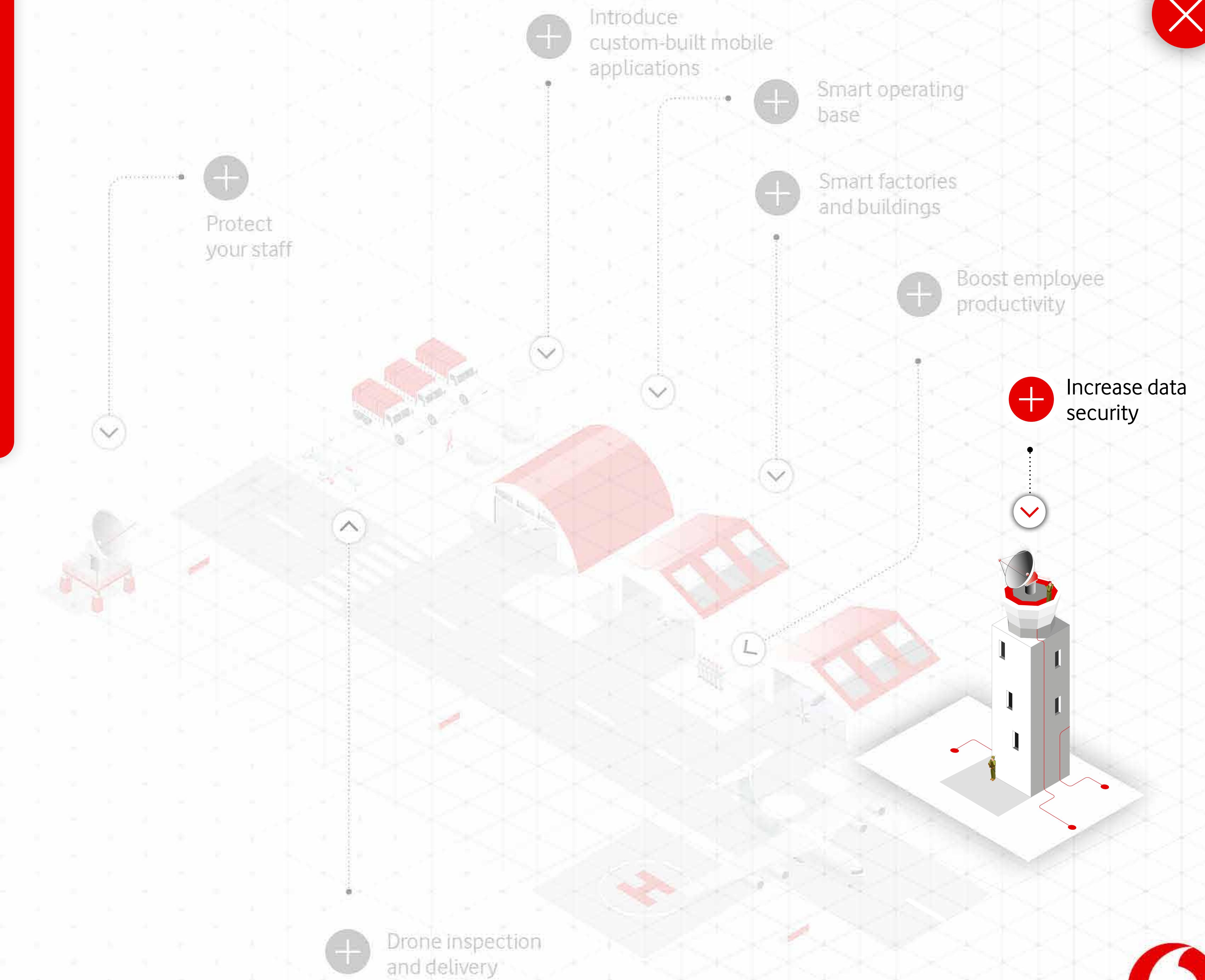
Our IoT technology enables heat detection cameras, which can help to rapidly determine whether employees are well enough to enter the workplace or not. Our heat cameras can monitor eight people at once, and 100 people per minute. With Vodafone Smart Vision, you can also ensure PPE compliance by transforming your existing CCTV cameras into a wireless, connected monitoring system that helps you keep on top of worker safety.



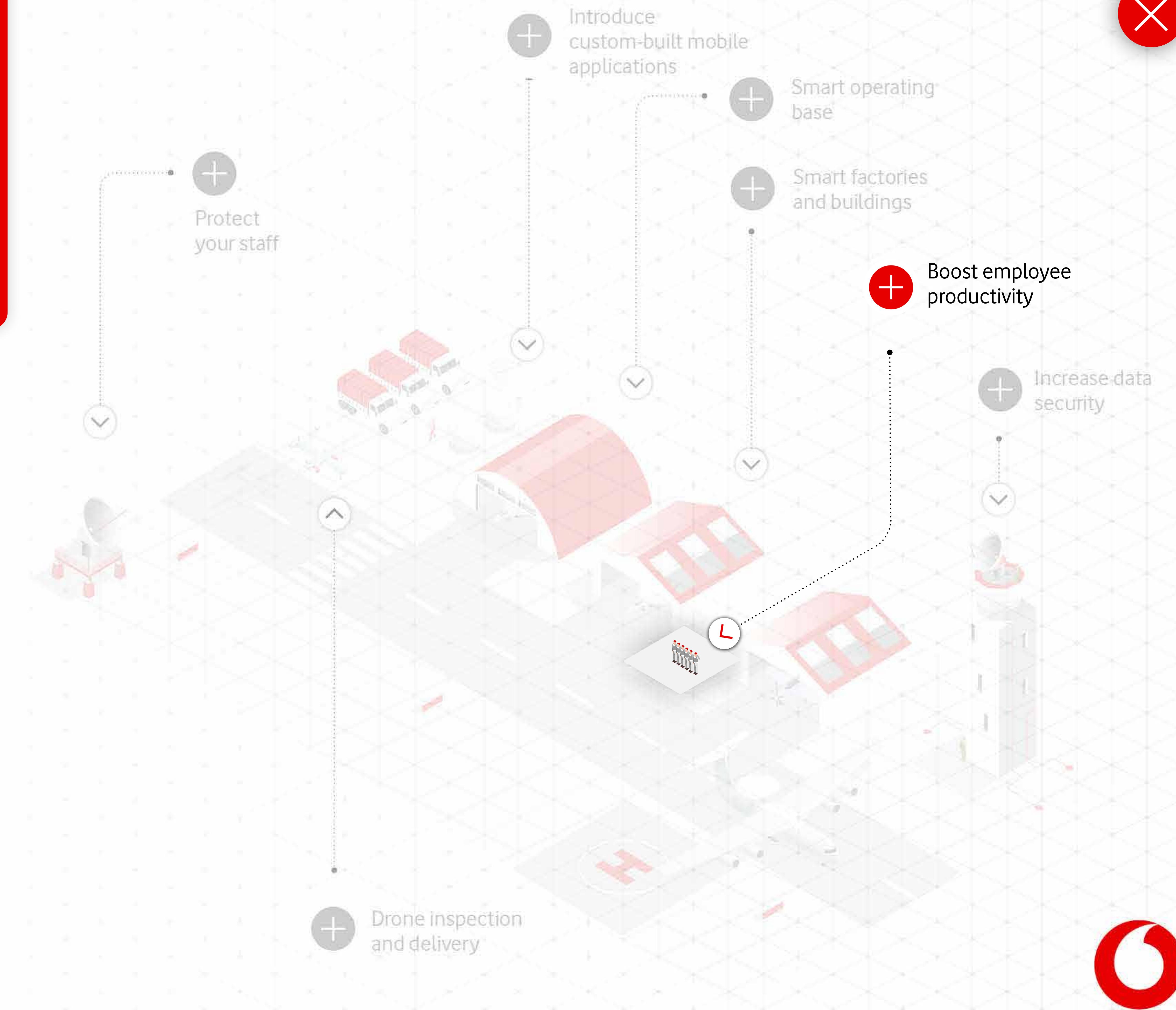
From increased secure interactions to greater operational efficiency, to new business models – we develop bespoke applications to improve business productivity and opportunities through role-based apps and new digital tools. Revolutionise how mobile workers interact with data wherever they are.



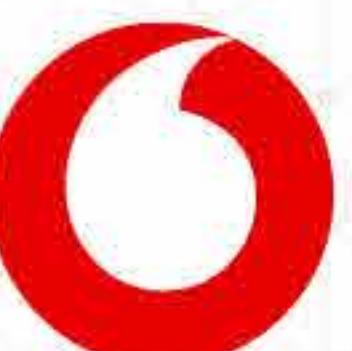
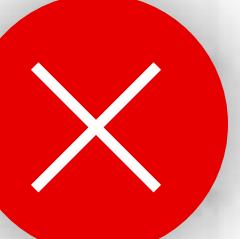
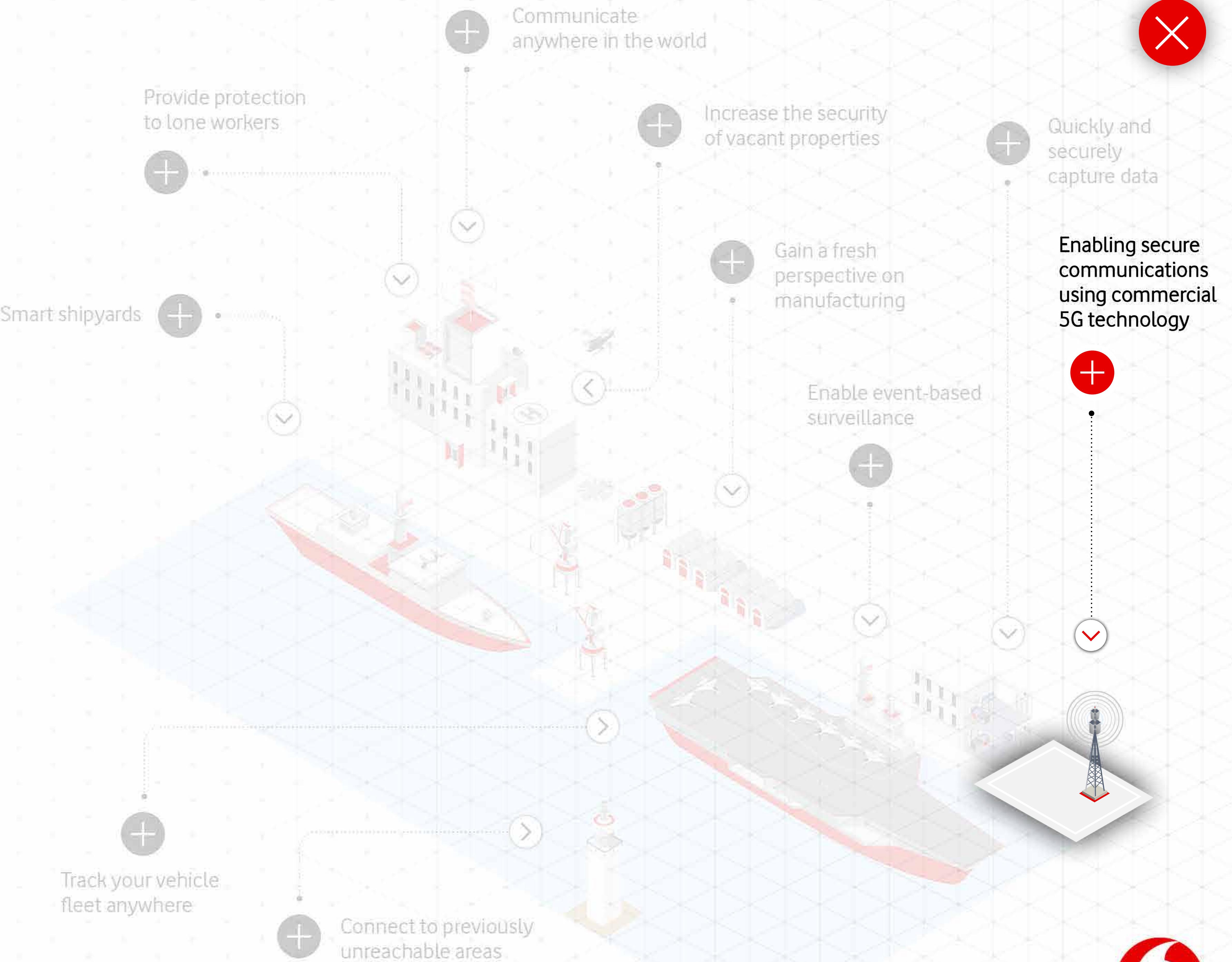
Vodafone's cloud and security services and solutions can help to lower your operational costs and reduce complexity in line with fluctuations in volume and mix. Flexible infrastructure and multi-cloud management means you can free up your core IT staff to focus on driving the business forward, while integrated service operations in the cloud can help to increase efficiency across your organisation.



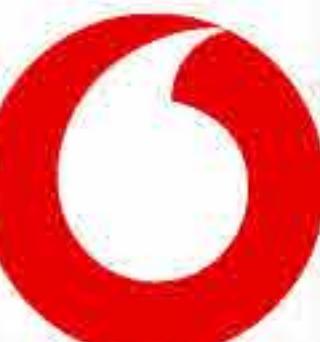
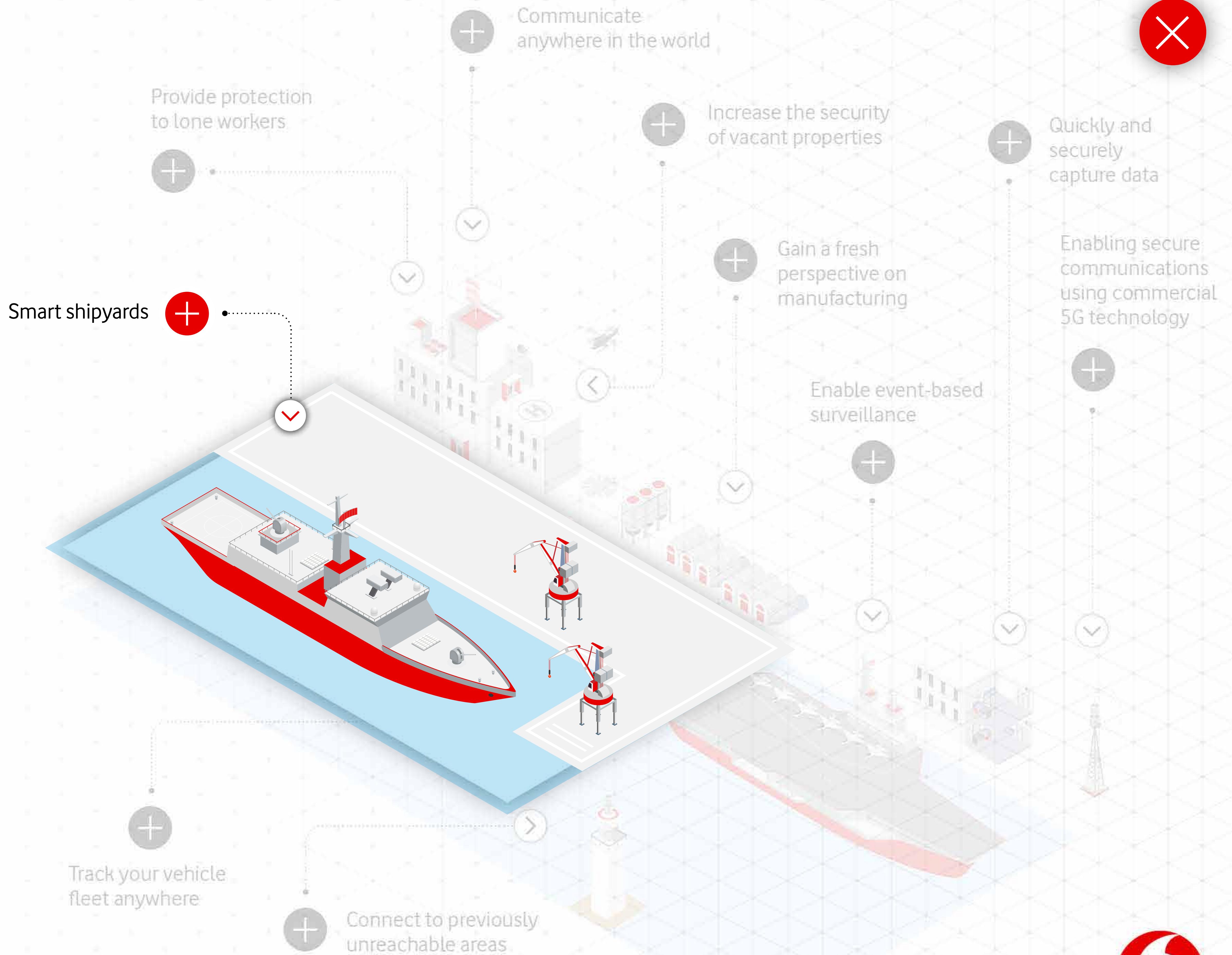
By equipping workers with wearables, you can provide them with near real-time information and enable them to view complex instructions without having to waste time scrolling through paper manuals – helping them to boost productivity and speed up the engineering process.



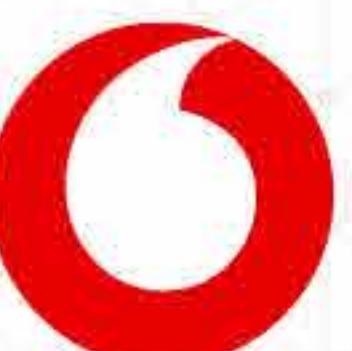
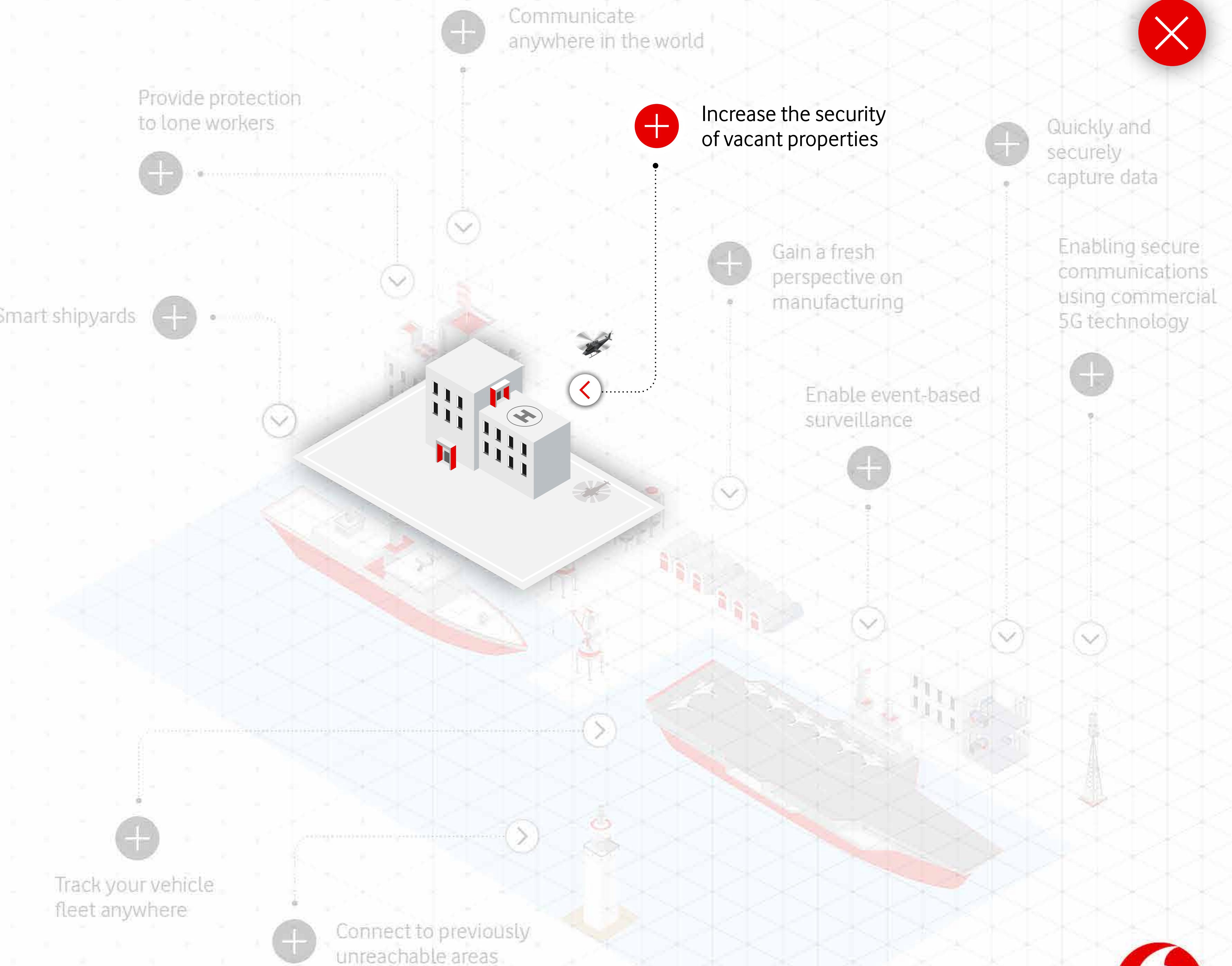
Our 5G Mobile Private Network (MPN) enables you to connect multiple force elements from land to sea with rapid and robust device connectivity, resulting in improved productivity and efficiency. Containing data within an MPN will also help to increase security by reducing the risk of data breaches – put simply, no-one will know your network is even there.



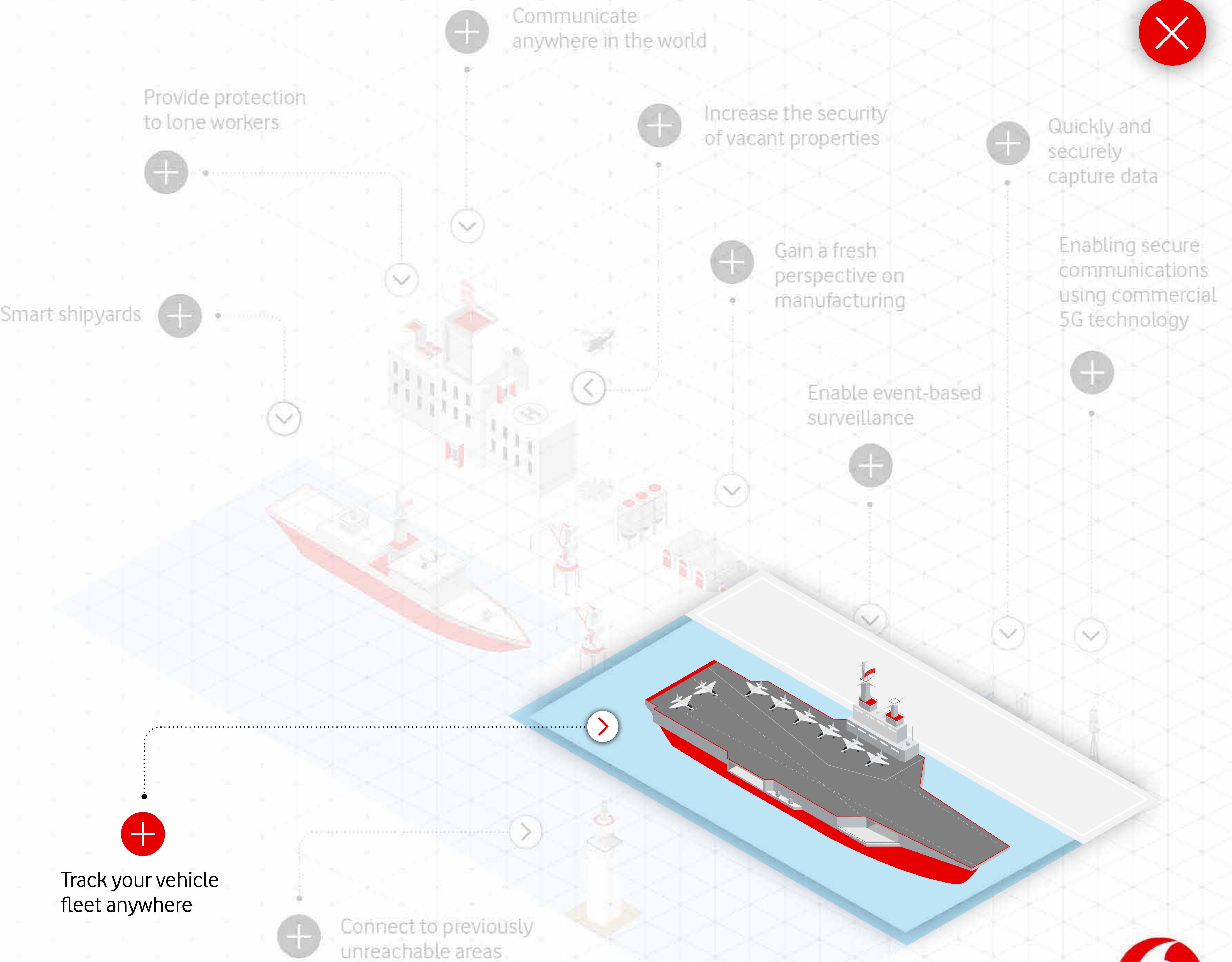
Our IoT portfolio enables a complete end-to-end solution to monitor and manage shipyards. Optimisation of building controls, and manufacturing processes delivers cost and environmental efficiencies.



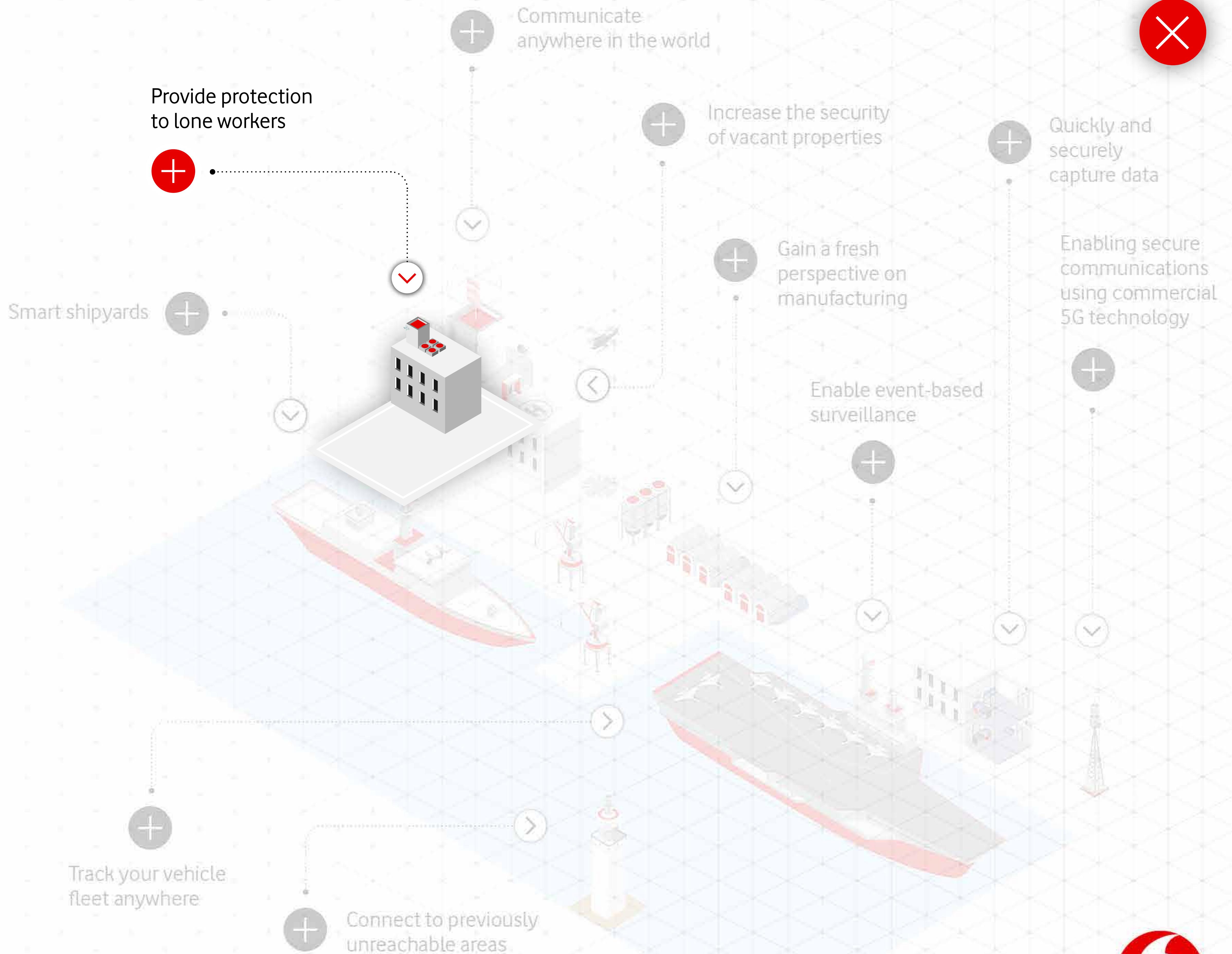
Gain better visibility of your vacant or unsupervised assets with Vodafone Mobile Asset Tracking and Smart Cameras, which are wireless and easy to install. Equally, with Vodafone Smart Vision, you can transform your existing CCTV cameras into a wireless, connected monitoring system that helps you keep on top of security and worker safety.



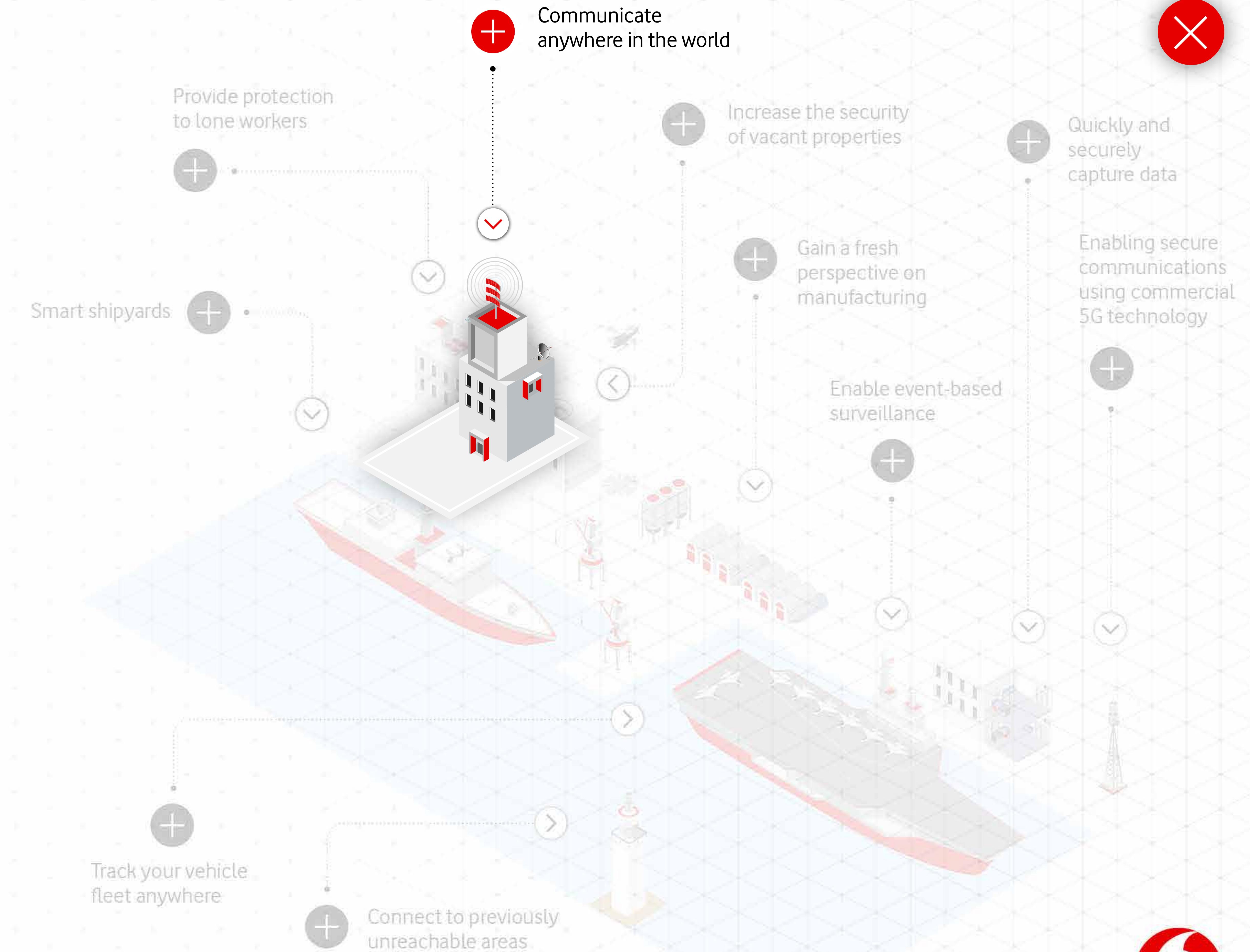
Vodafone Smart Hub technology enables a secure Wi-Fi connection in your vehicles, making the transport of vital parts or sensitive information more secure than ever.



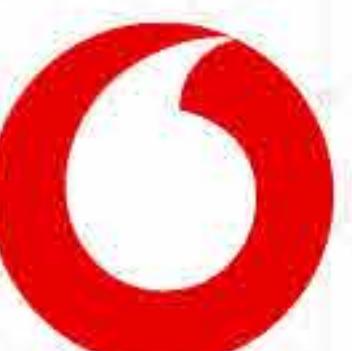
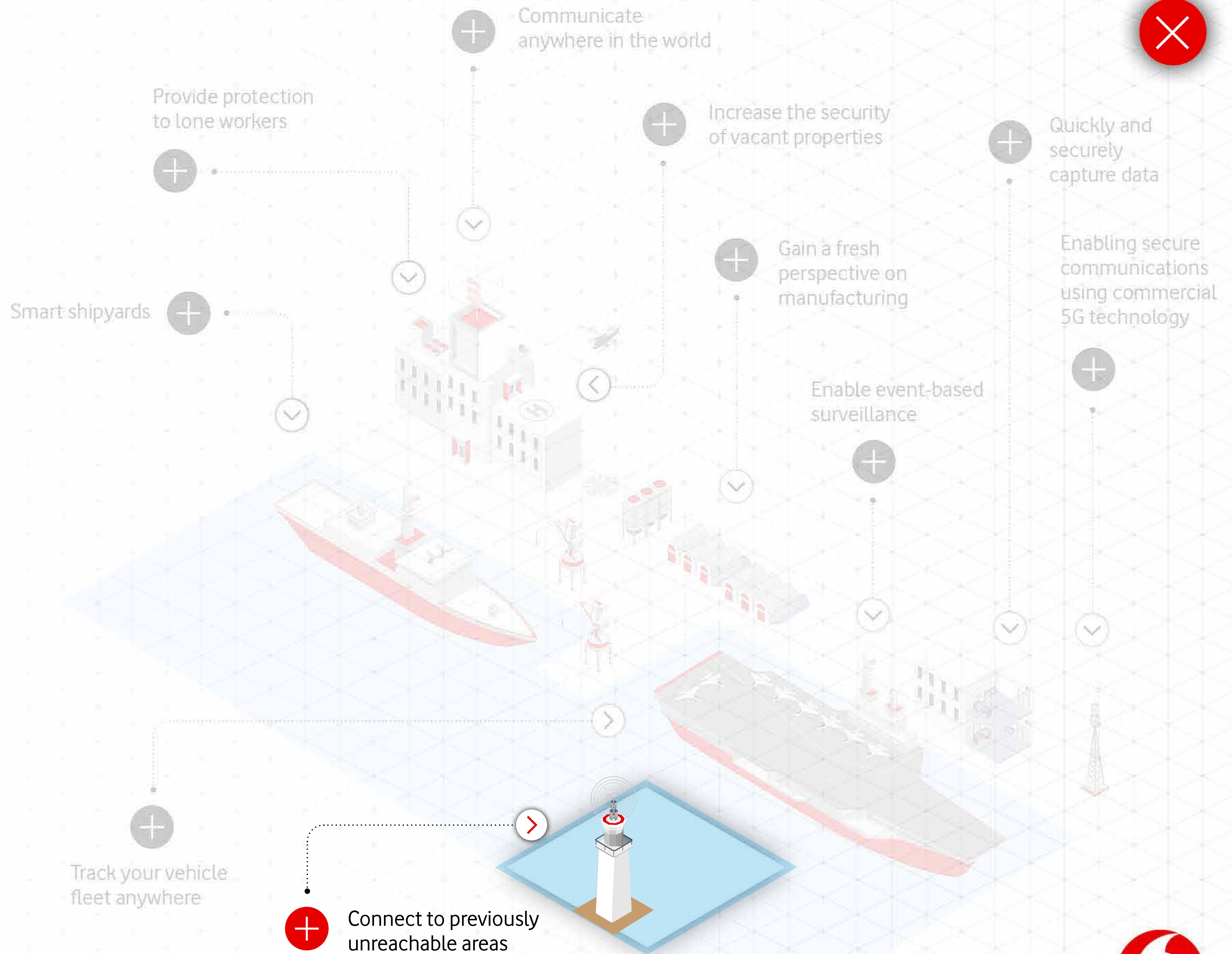
Bodyworn cameras, enabled by Vodafone's IoT platform, can help improve lone worker safety in the field. These cameras can record any incidents that may occur and upload the footage instantly to the cloud – helping to provide evidence for Police investigations.



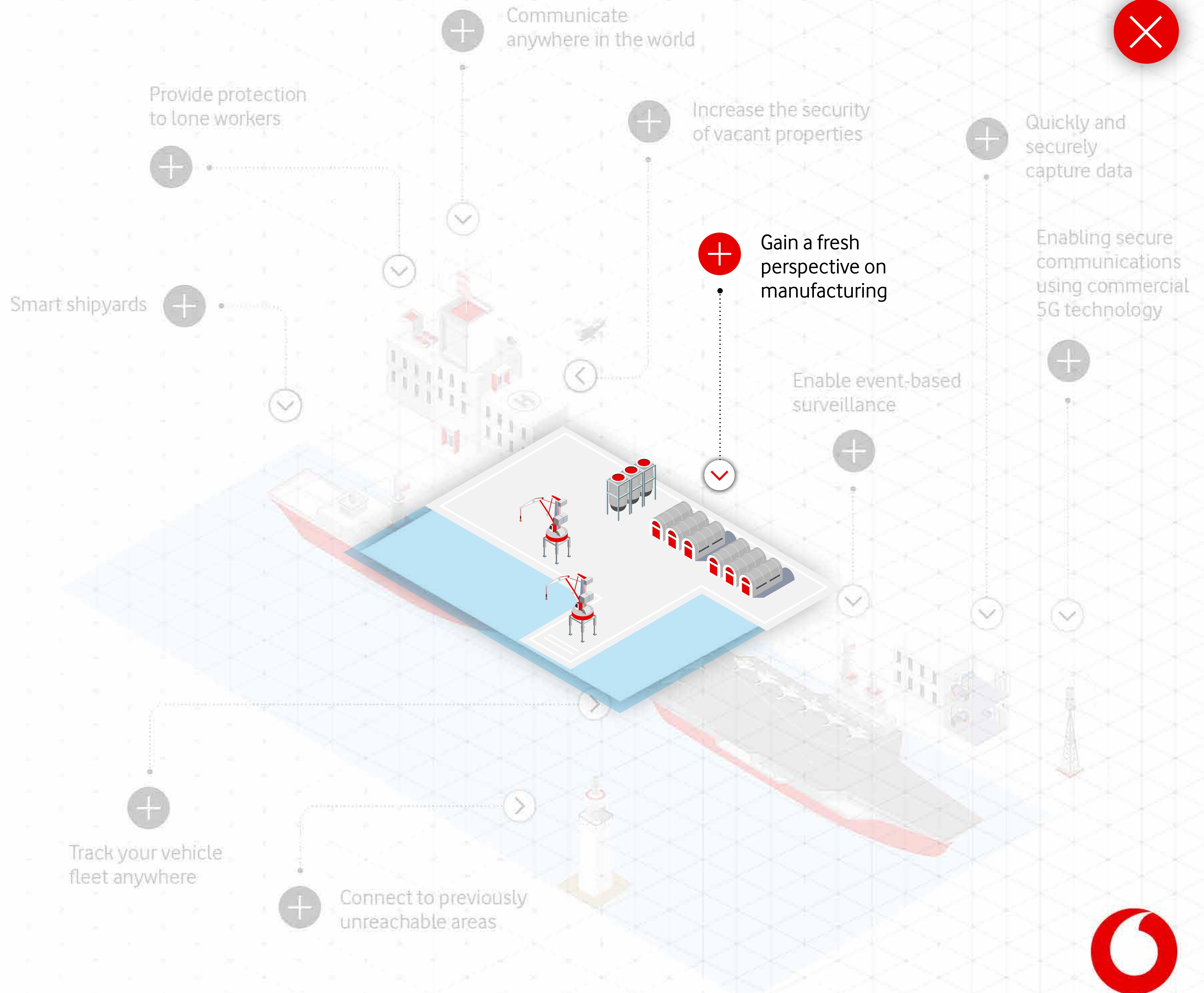
Connect to your team globally with fixed, portable and mobile terminals. These terminals provide a fully integrated and remotely managed deployment solution that you can rely on.



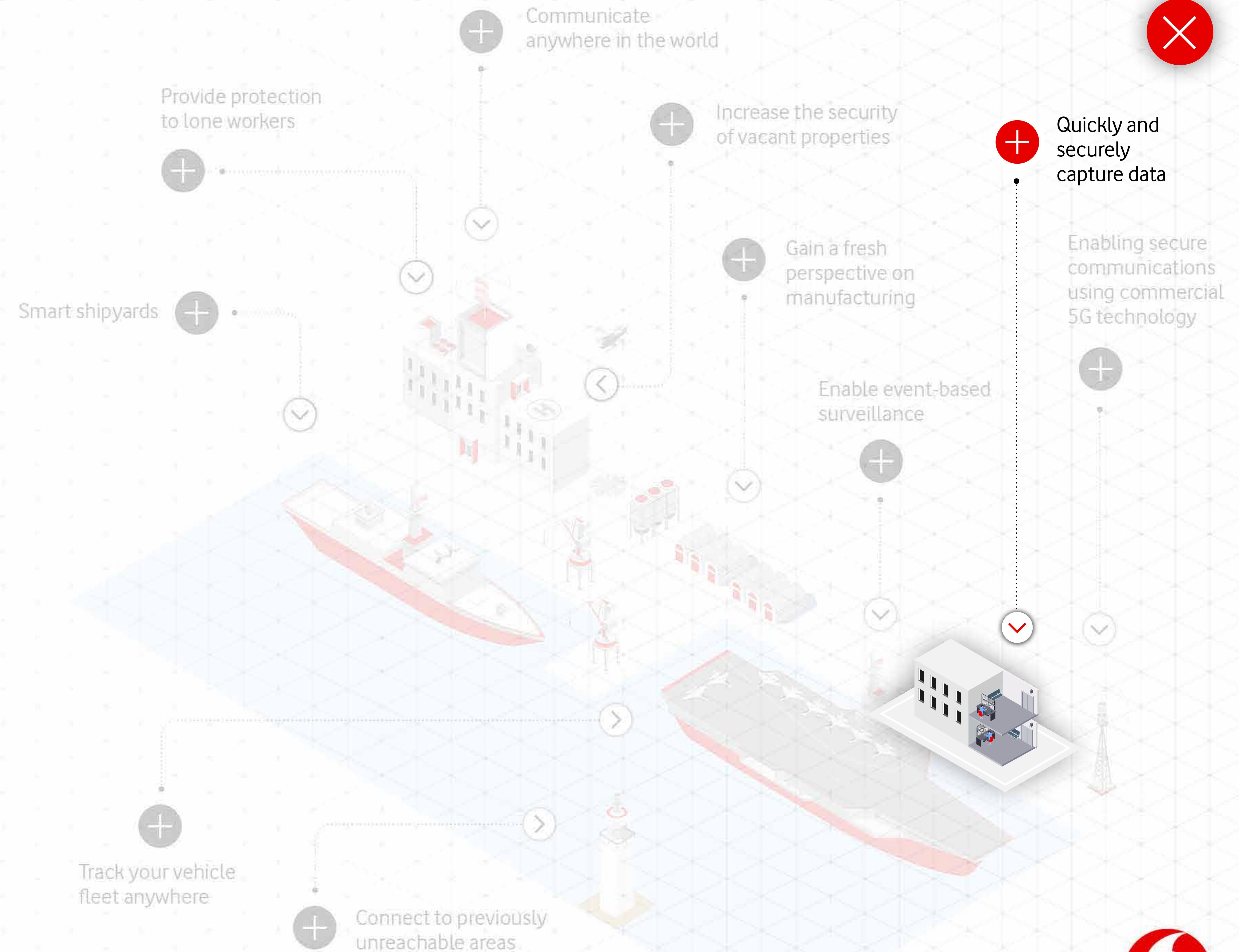
Smart Hub technology can be placed in submarines to give you secure and reliable connectivity in an otherwise hard-to-reach area. Smart Hubs may also be particularly useful in certain phases of ship building – along with 5G MPN – to provide private connections within restricted areas of the building.



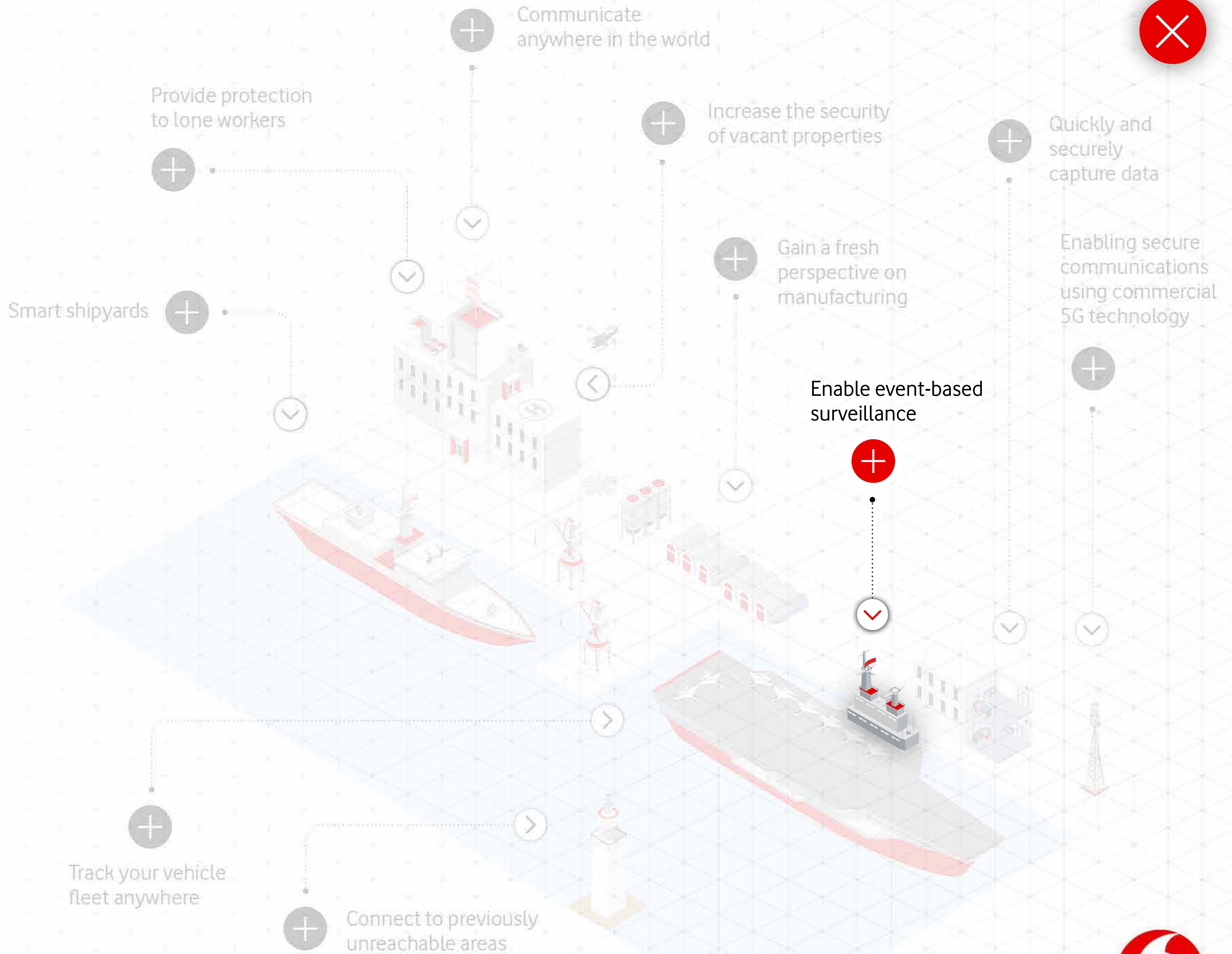
Once thought of as being an innovation for the distant future, the implementation of drone technology is here – and it could help to revolutionise the manufacturing process. For example, site managers are able to see the top of a ship's construction from above, gaining an entirely new perspective.



Our enhanced connectivity and tracking could allow the rapid and secure transfer of data from ships coming into dock, or planes coming into land. This would help to reduce reliance on paper-based process, significantly improve security, and increase the productivity of employees – freeing them up to concentrate on your core operations.

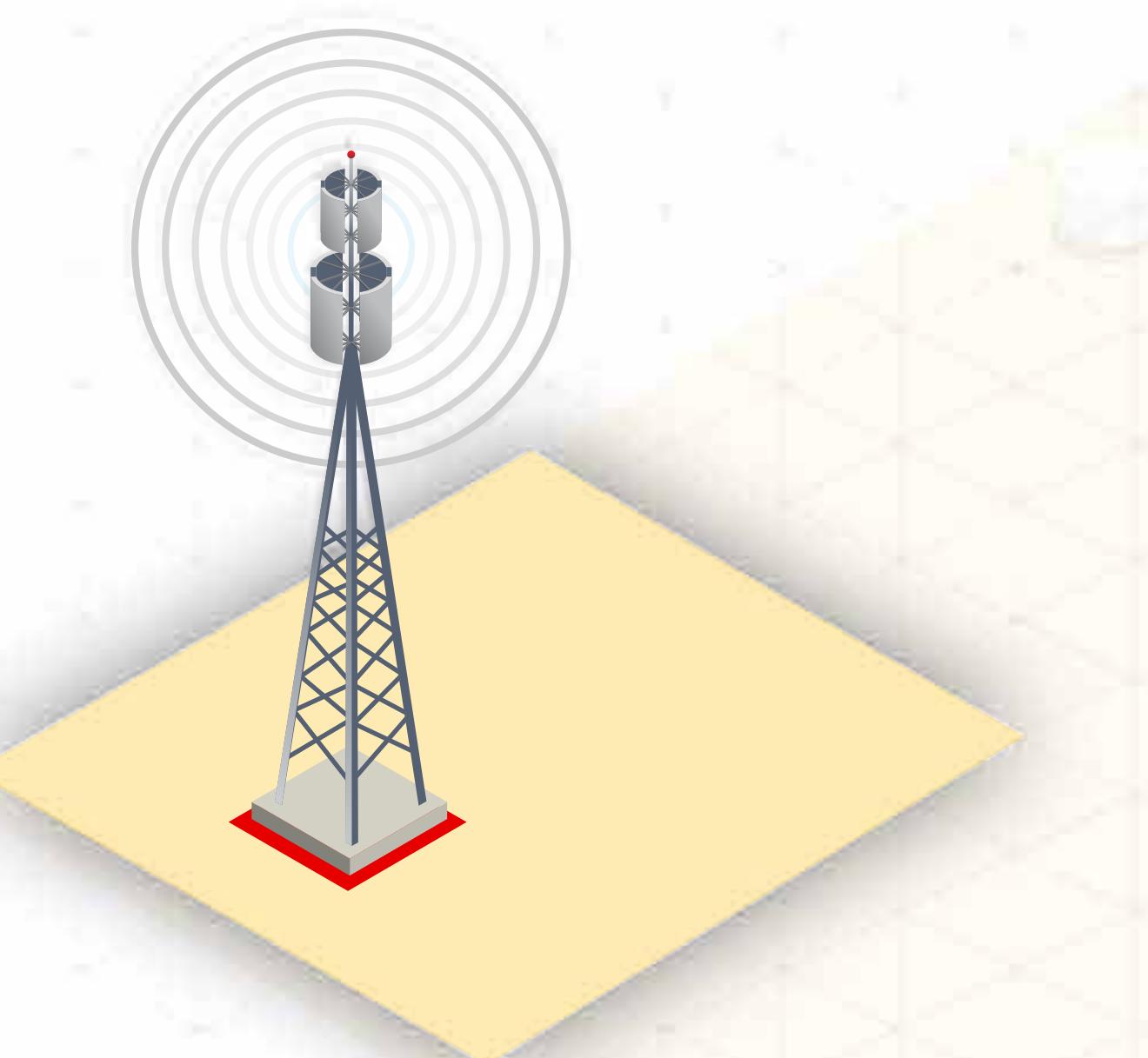


Bring your video to a central point for easy monitoring and management. Smart capabilities mean that false alarms don't have to be handled by operators – the technology provides high quality analytics to enable event-based monitoring that saves you time and money.

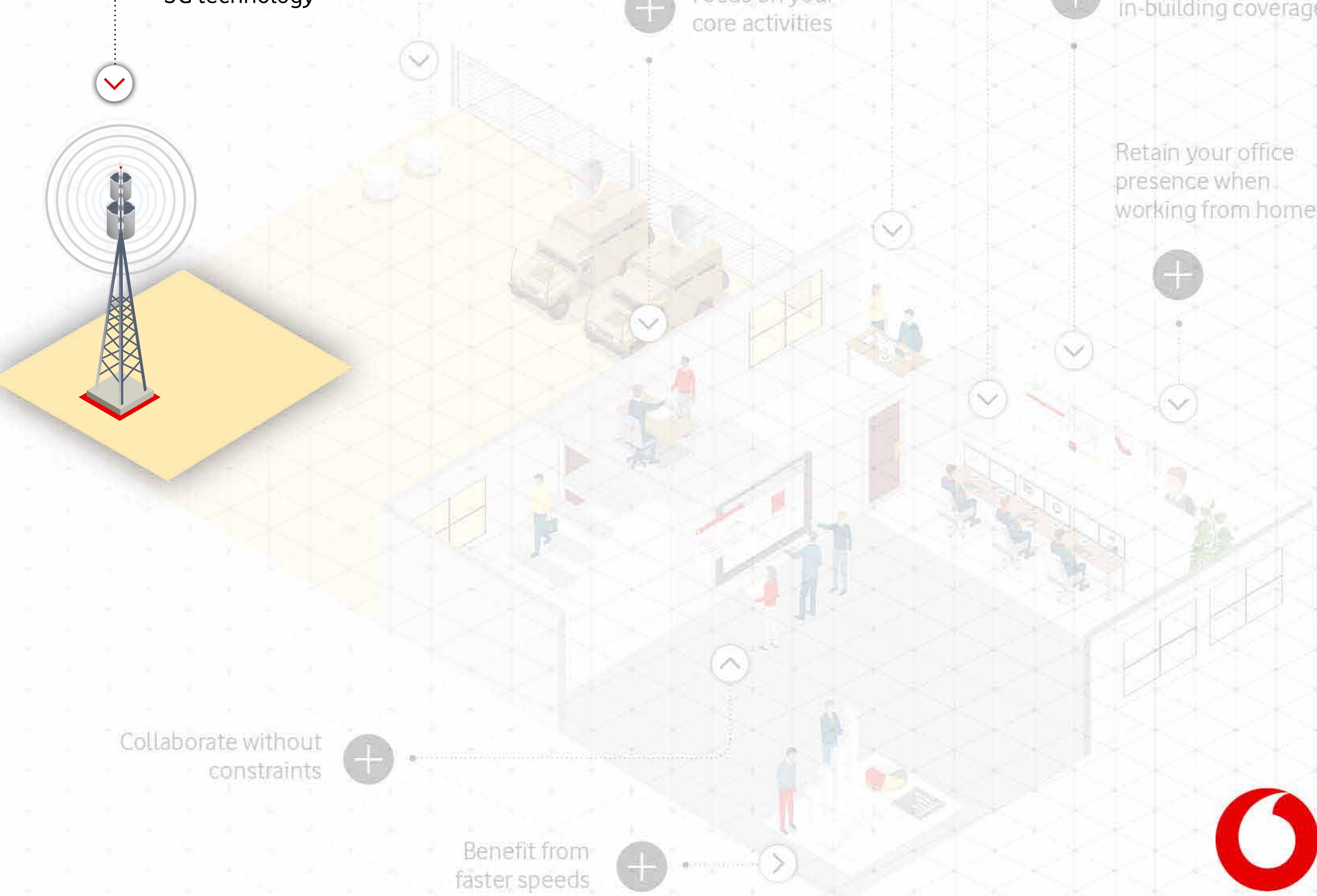


Our deployable 5G Mobile Private Network (MPN) enables you to connect technology for head office and military deployments on land with rapid and robust device connectivity, for improved agility, cost efficiency and safety.

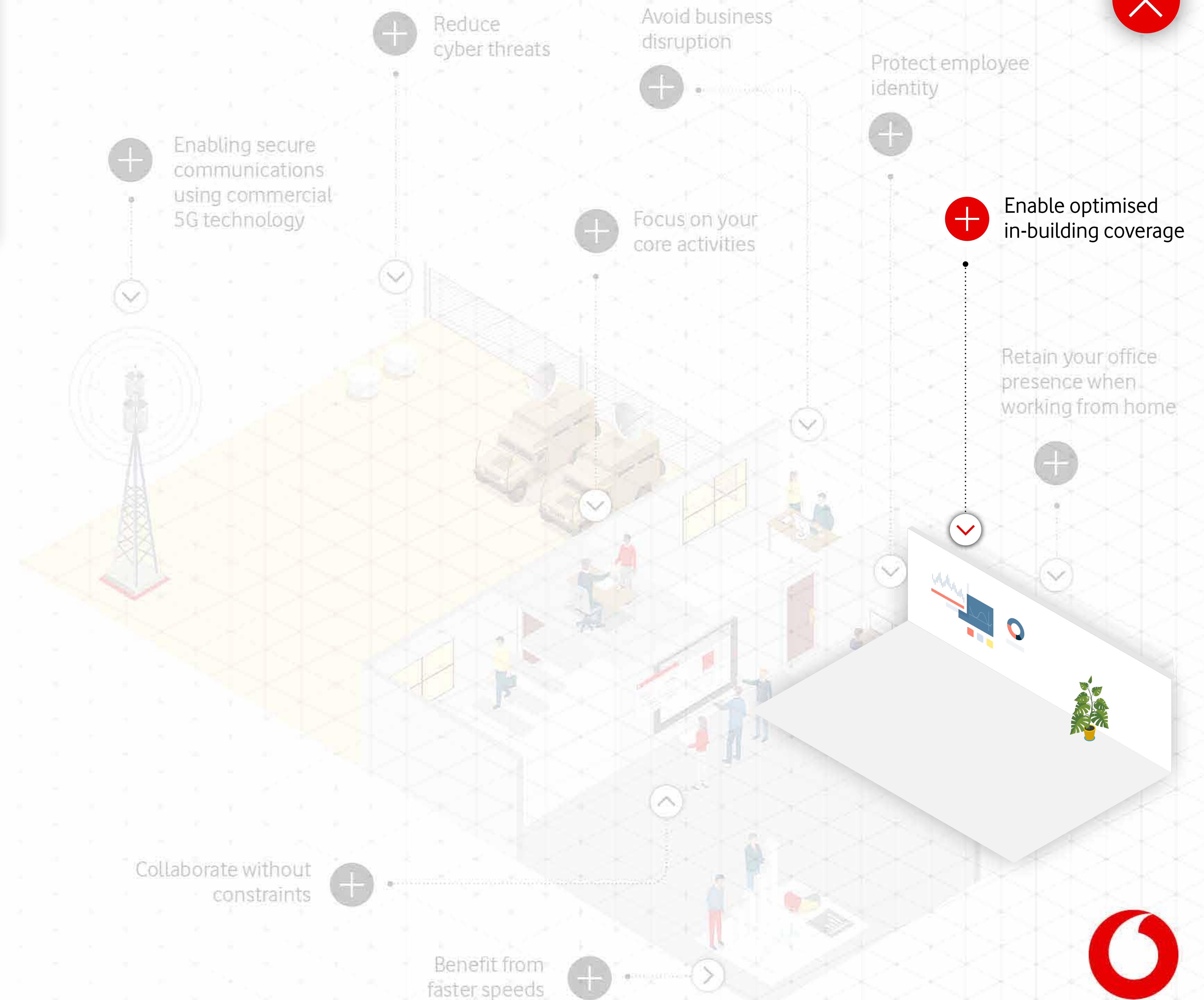
+ Enabling secure communications using commercial 5G technology



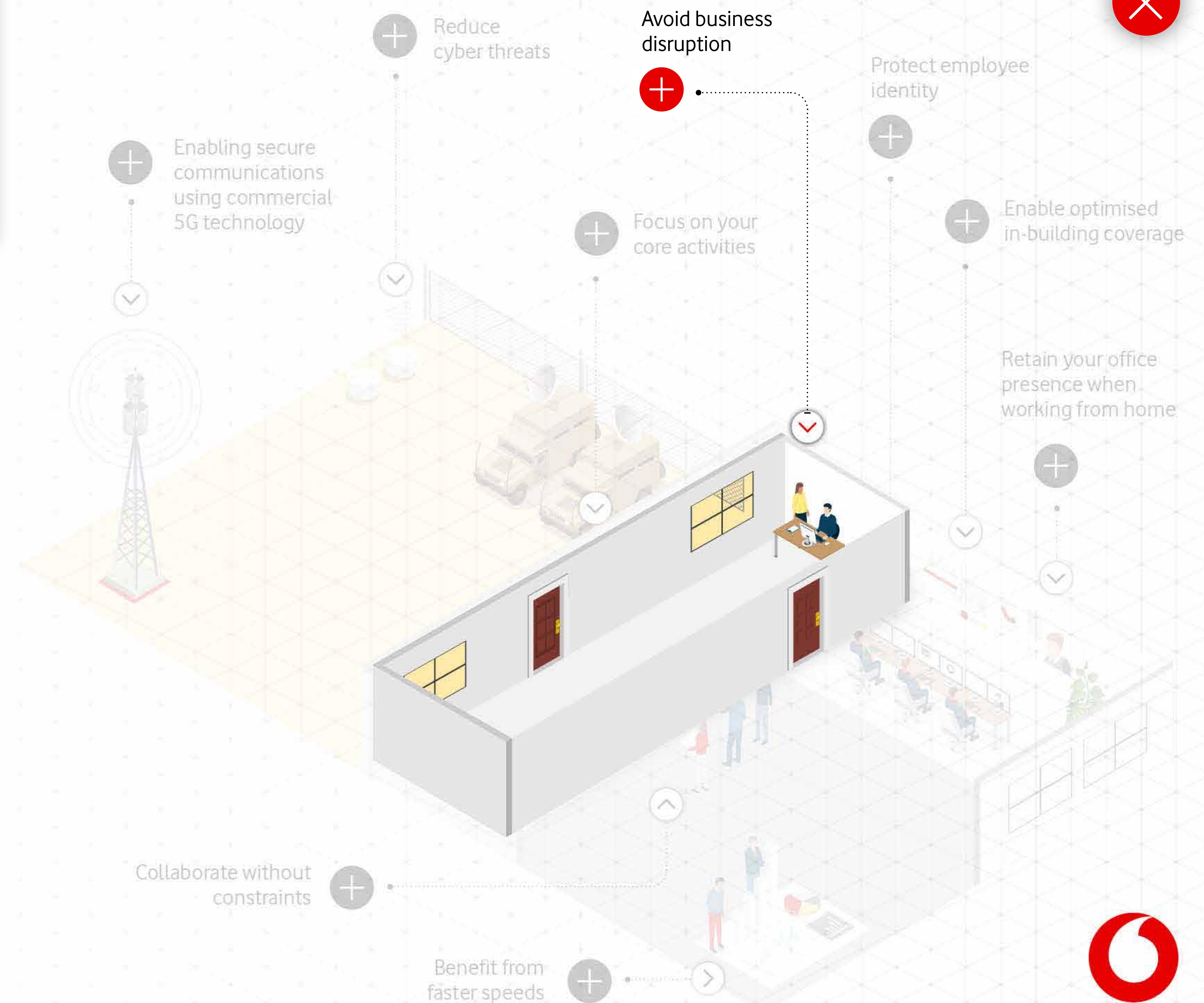
+ Collaborate without constraints



Satisfy operational requirements with a range of secured in-building coverage solutions. And access cloud services such as AWS, Office 365 and Azure securely.

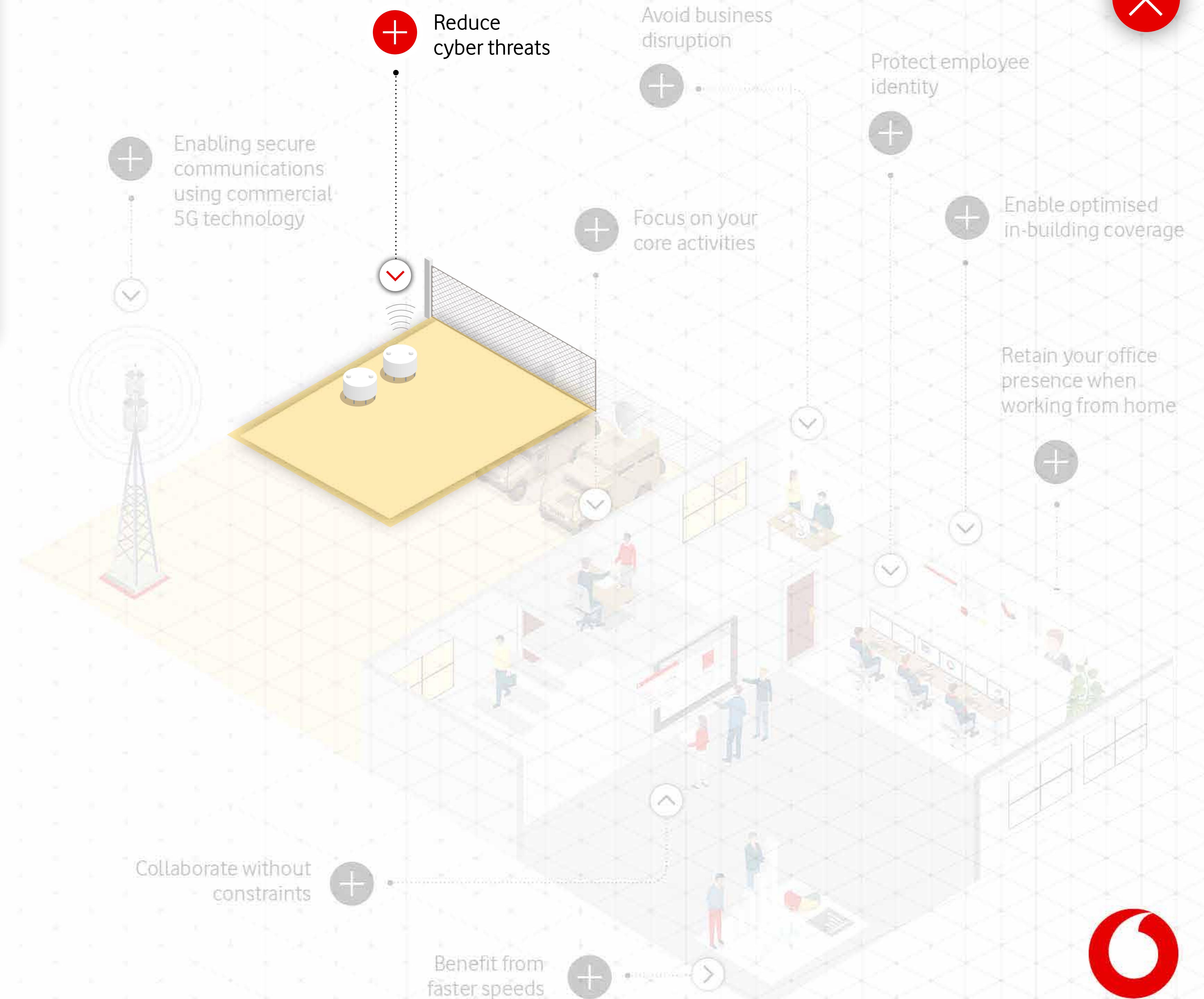


With Vodafone Smart Hub technology, you can turn any device, location or vehicle into a Wi-Fi hotspot. Use it in an office environment to deliver reliable, secure Wi-Fi that won't let you down.

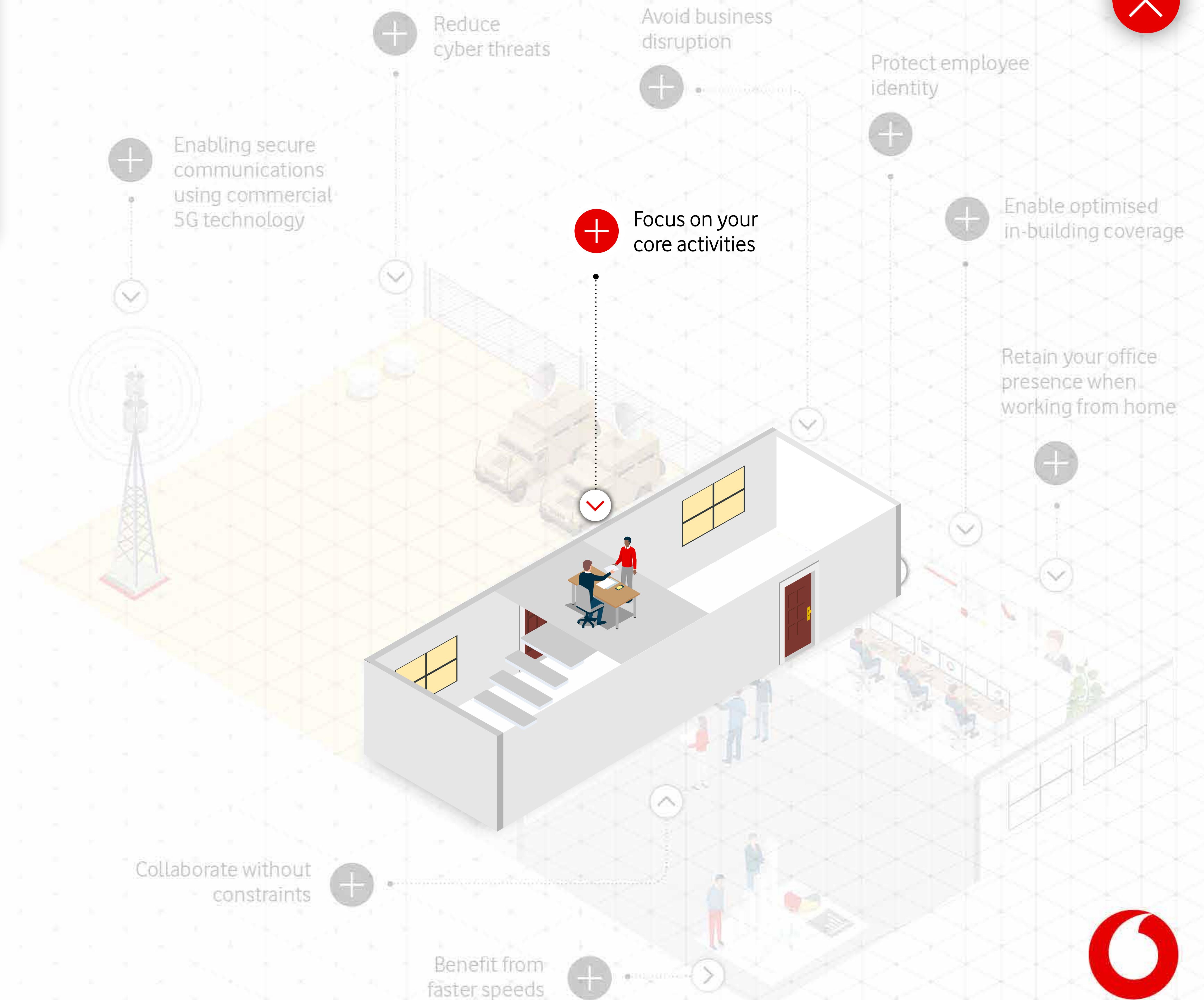


Help to prevent increasing and evolving cyber threat with Vodafone Cloud and Security solutions – including class-leading encryption for secure communications.

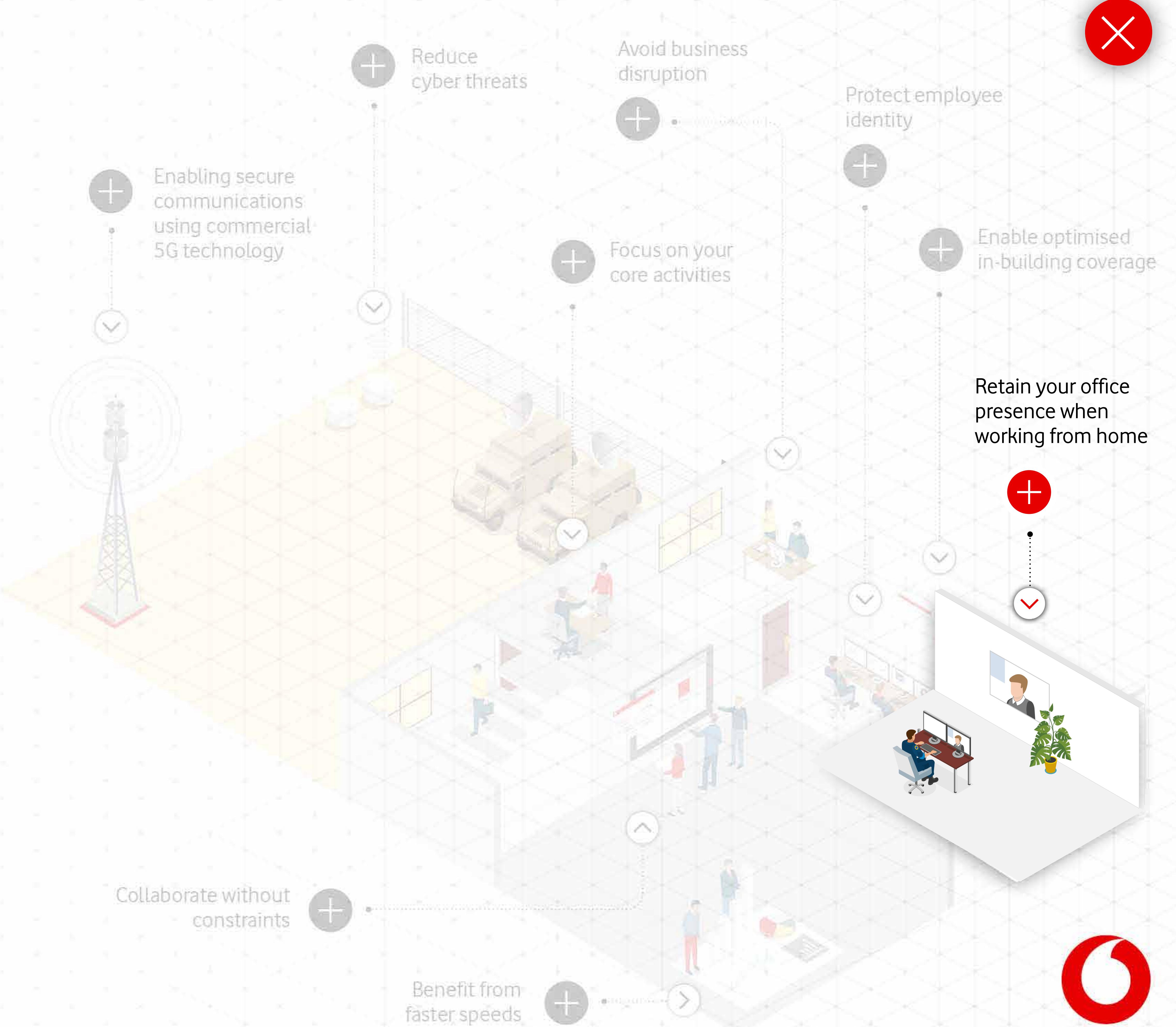
And avoid the overhead of key management, and device management and maintenance.



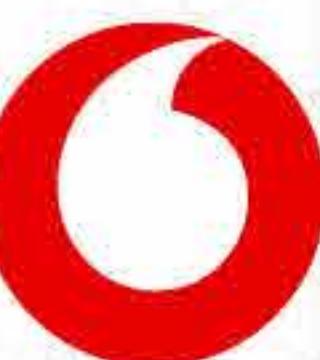
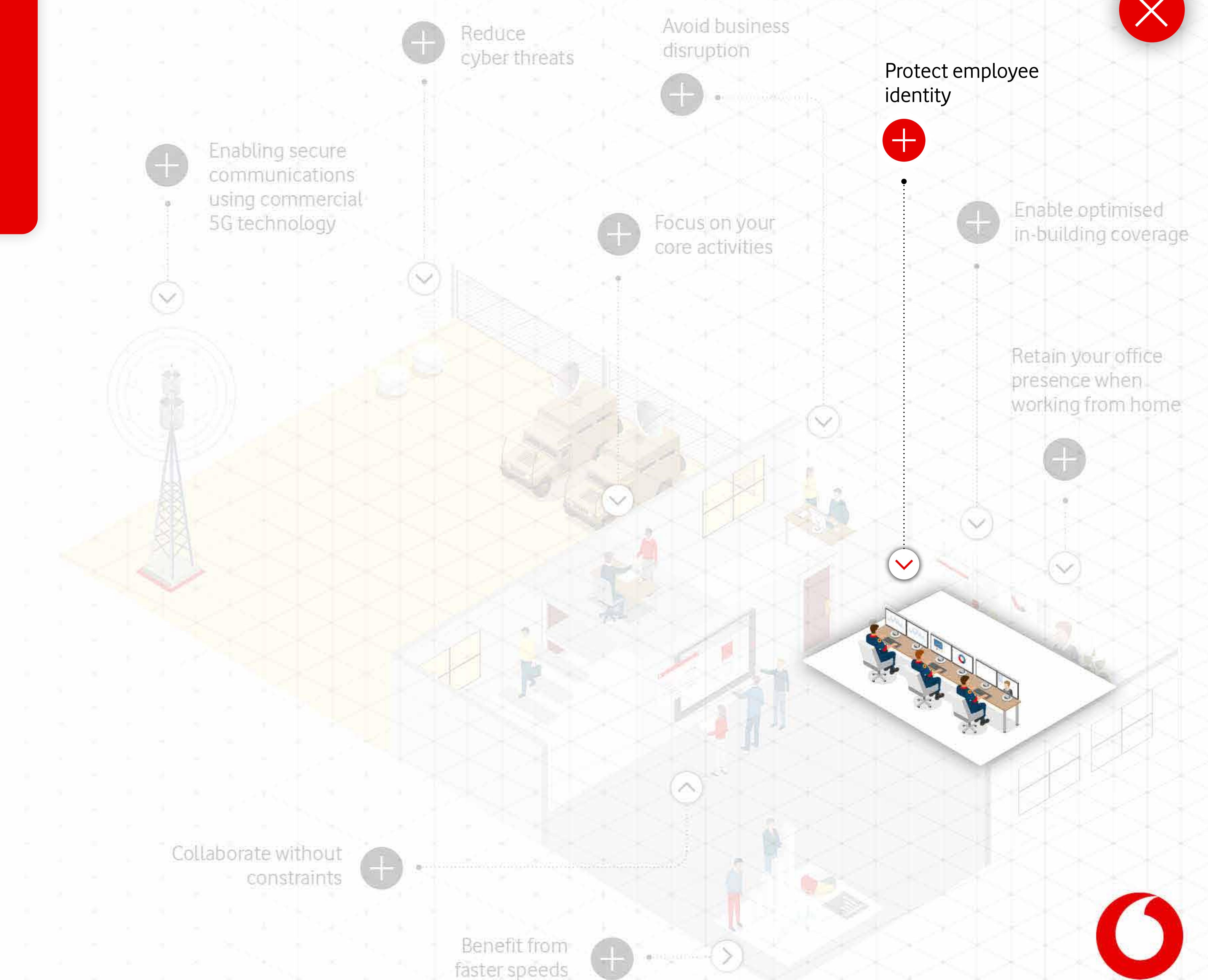
Vodafone hosting, infrastructure and co-location solutions enable you to focus on your core activities with secure management – based on-site or in Vodafone secure data centres.



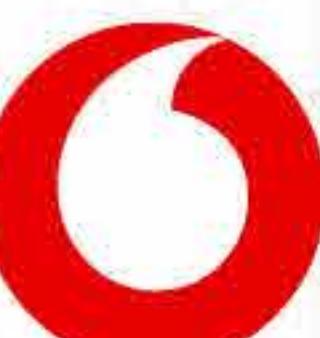
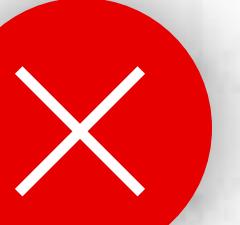
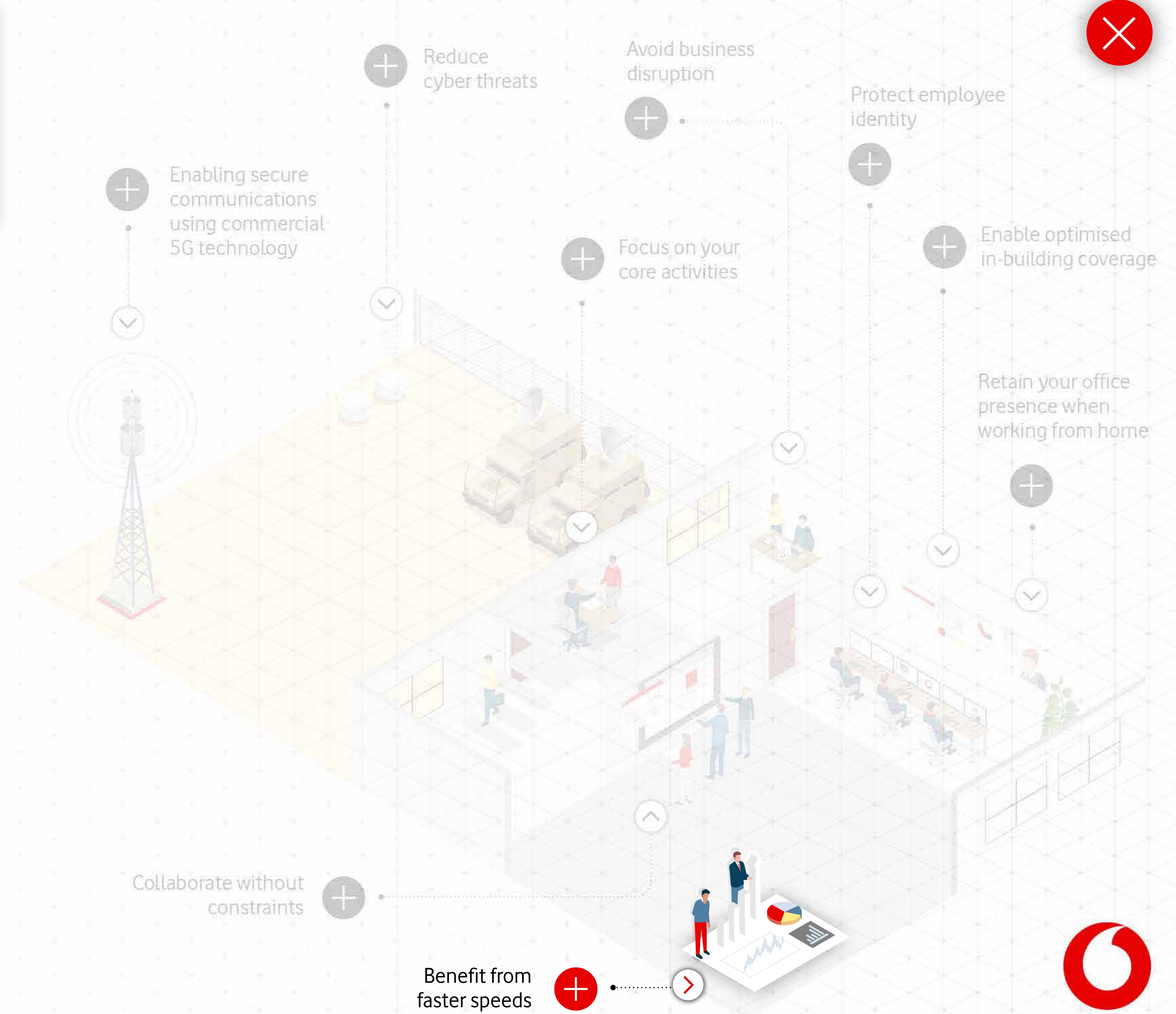
Vodafone One Net joins up your landline and mobile communications so that you're always connected. You can easily move all incoming call traffic to your remote teams for seamless operations and minimal disruption.



With secure mobile you can protect identity and benefit from a range of packages and tariffs. We also offer specialist apps for particularly sensitive calls and data.



Our secure optical networks connect sites and data centres with secure high bandwidth circuits from 10Mbps to 200Gbps.



Communicate across your divisions and gain access to critical services with secure MPLS networks. And defend your environment by monitoring 24x7 for security events in the SOC, backed with comprehensive threat intelligence and an allocated lead security analyst.

