10/05/24

Design, Management & Operational Statement

urban
innovation
company

-pulse

Foreword

This document supports applications for Planning Permission and Advertisement Consent for Pulse Smart Hubs by Urban Innovation Company (UIC).

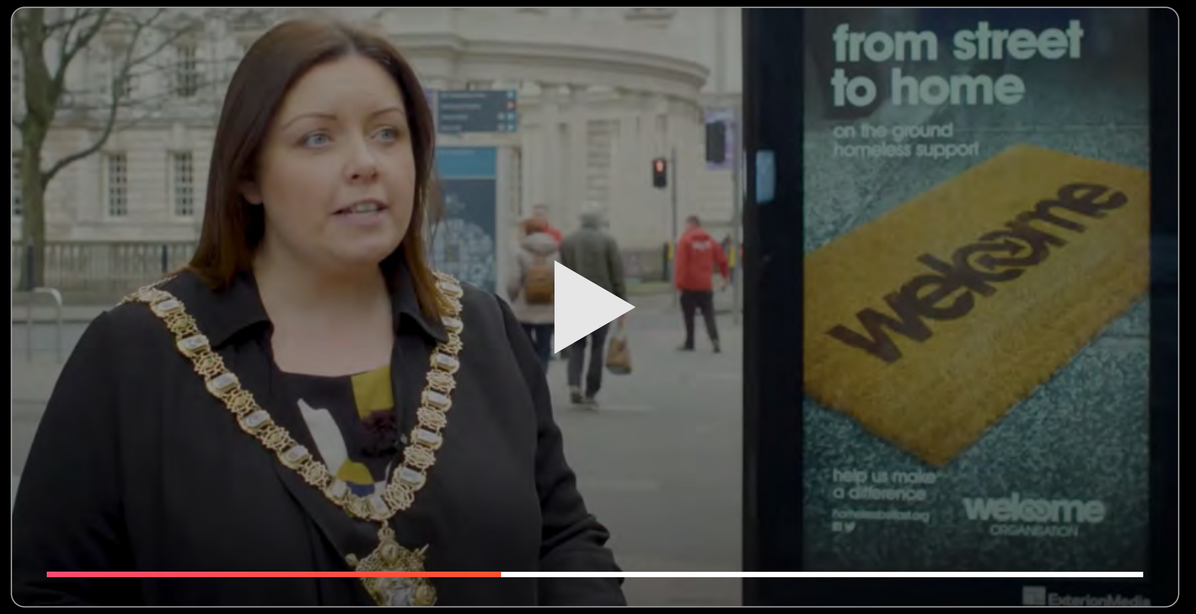
The Pulse Smart Hub is a modern-day piece of street furniture that supports the health and vitality of the communities we serve. The Pulse Smart Hub is free all-year round to the user, local stakeholders, and taxpayer.

Our Hubs provide improved connectivity, access to hyper local information and services, real-time data, and direct access to emergency lifesaving equipment. The Pulse Smart Hub actively removes barriers to entry and champions social inclusion for all.

We develop collaborative relationships with key local stakeholders to ensure that impactful solutions are delivered. Each area comes with its own local needs and through dialogue with stakeholders we can tailor the Hubs to create tangible and meaningful impact.

This document explains the evolution of the Pulse Smart Hub, the design and software detailing, installation, and long-term management and operation of the Hubs. This document also includes relevant technical appendices to support our applications.

Press play to watch the video



For more information about us and what we offer, check out our website or click on the video above.

→ www.pulsesmarthub.co.uk

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A snapshot of the problem

We live in an age where reliable internet connection, local services and life-saving equipment are a necessary part of daily life but access to them is not equal for all. This lack of connection stifles economic growth and socio-economic inclusion, and fails to alleviate pressures on public services.

In the UK alone, approximately 13-19 million people over the age of 16 are experiencing some form of digital poverty. It's important to support people who are not online.

The public payphone has become obsolete and needs to adapt to meet the expectations of modern society, where people desire both digital connectivity and safety on the streets.

Tightening of the public purse has placed a massive burden on local services, organisations and community networks, impacting vital information sharing and public safety protocols.

Current limitations

Communication, access to information, and safety through our towns and cities is erratic, inconsistent and unreliable. This impacts not only the individual but also the wider community.

1

The individual
People who need to use services or be able to communicate but have no access to a mobile phone, Wi-Fi, a dead battery or have no signal.

2

Councils inc., town and city management
Limited budgets to advertise events, and limited avenues to promote wider-council services or undertake important environmental monitoring.

3

Police and other emergency services
Spreading urgent messages across an area can be expensive, time-consuming, and difficult to do effectively.

4

Community safety
There is a lack of easily accessible life-saving equipment in the public realm, putting lives at risk and reducing the chances of survival.

5

Tourism and local businesses
As retail and businesses in town and city centres decline, there is a need to harness new technology to promote what's on and the visitor experience.

6

Charities and outreach organisations
Charities are facing rapidly increasing costs, limiting the quality and extent of their outreach which directly impacts those most in need.

The solution

Bridge the digital divide by creating state-of-the-art street furniture that incorporates digital services and life-saving equipment to make people feel better connected and safer in their communities

Our solution: The Pulse Smart Hub

.pulse

Say hello to the Pulse Smart Hub

Whilst having a substantially smaller footprint than a traditional telephone kiosk design, the Pulse Smart Hub provides a multitude of additional services in comparison. Each feature carefully considered and designed to serve a specific purpose for the local community.

Feature types	The Pulse Smart Hub	Telephone Kiosk
Keeping People Connected		
Paid calls	X	✓
Free phone calls	✓	X
Free charging for devices (including wireless)	✓	X
Small cell technology (to support mobile offloading - 5G)	✓	X
Free public WiFi	✓	X
LoRaWAN (long range wide area network) ready	✓	X
Smart City Platform		
Internet of Things (IoT) connectivity	✓	X
Open-source data collection and sharing	✓	X
Air quality monitoring	✓	X
Footfall counting - advanced (in development)	✓	X
Evolutionary technology – built to stand the test of time	✓	X
Saving Lives		
Public access defibrillator	✓	X
Nasal Naloxone opiate antagonists	✓	X
Specific 999 call function	✓	X
Emergency call button and emergency service protocols	✓	X
Built-in CCTV monitoring for evidentiary purposes	✓	X
Information Sharing		
Override protocols for policing purposes	✓	X
Public and emergency messaging	✓	X
5% + free community advertising	✓	X
Public interface and local information	✓	X
Local maps and wayfinding	✓	X
Digital advertising to modernise streetscapes	✓	X

Our vision

Our Vision is to provide everyone, free of charge, the ability to connect to information, communicate, feel safe and have access to emergency life-saving equipment.

We want to continue being the leaders of this space, driving real public and community benefits, saving lives, and connecting people in the areas we operate.

What the Pulse Smart Hub offers (Our four pillars)

Keeping people connected

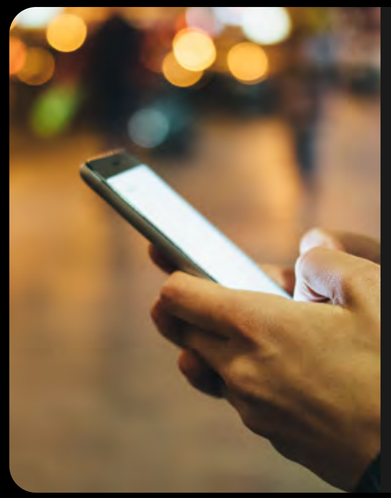
Saving lives

Smart city platform

Sharing information

Who benefits from the Pulse Smart Hub?

Pulse delivers a community-focused network of smart street furniture with life-saving equipment in towns and cities across the UK.



1

The individual
Delivering free phone calls, WiFi, phone charging and free access to real-time hyper local information, enabling people to feel connected and informed on the street and in the community.

2

Councils inc., town and city management
Free access to smart data including air quality monitoring, and free advertising space, enabling better management of our streets, greater support for local initiatives and a more informed community.

3

Police and other emergency services
Direct access to life-saving equipment and ability to override screen content if required to spread messages to the public in response to real-life scenarios.

4

Community safety
Provision of more defibrillators and life-saving equipment on the street along with emergency safety buttons to improve community resilience, public safety and security.

5

Tourism and local businesses
Public access to free live hyper-local mapping, local tourist attractions, what's on information, and free advertising for businesses providing a crucial role in promoting the local area to visitors.

6

Charities and outreach organisations
Free to use advertising and messaging space, direct access to hotlines to support the vulnerable and provision of life-saving equipment to better support the vulnerable in our society.

Belfast: A case study

Through our work in Belfast we have established partnerships with key local organisations to deliver a bespoke network of Hubs across the city.

This partnership working has directly influenced the improved functionality of the Pulse Smart Hubs in response to feedback.

1 The Individual

Our Hubs provide people with reliable connection 24/7 all year round. Using the simple public interface on the side of the Hubs, people have access to:

- Free phone calls.
- Free Wi-Fi provision.
- Free mobile device charging, including wireless charging.

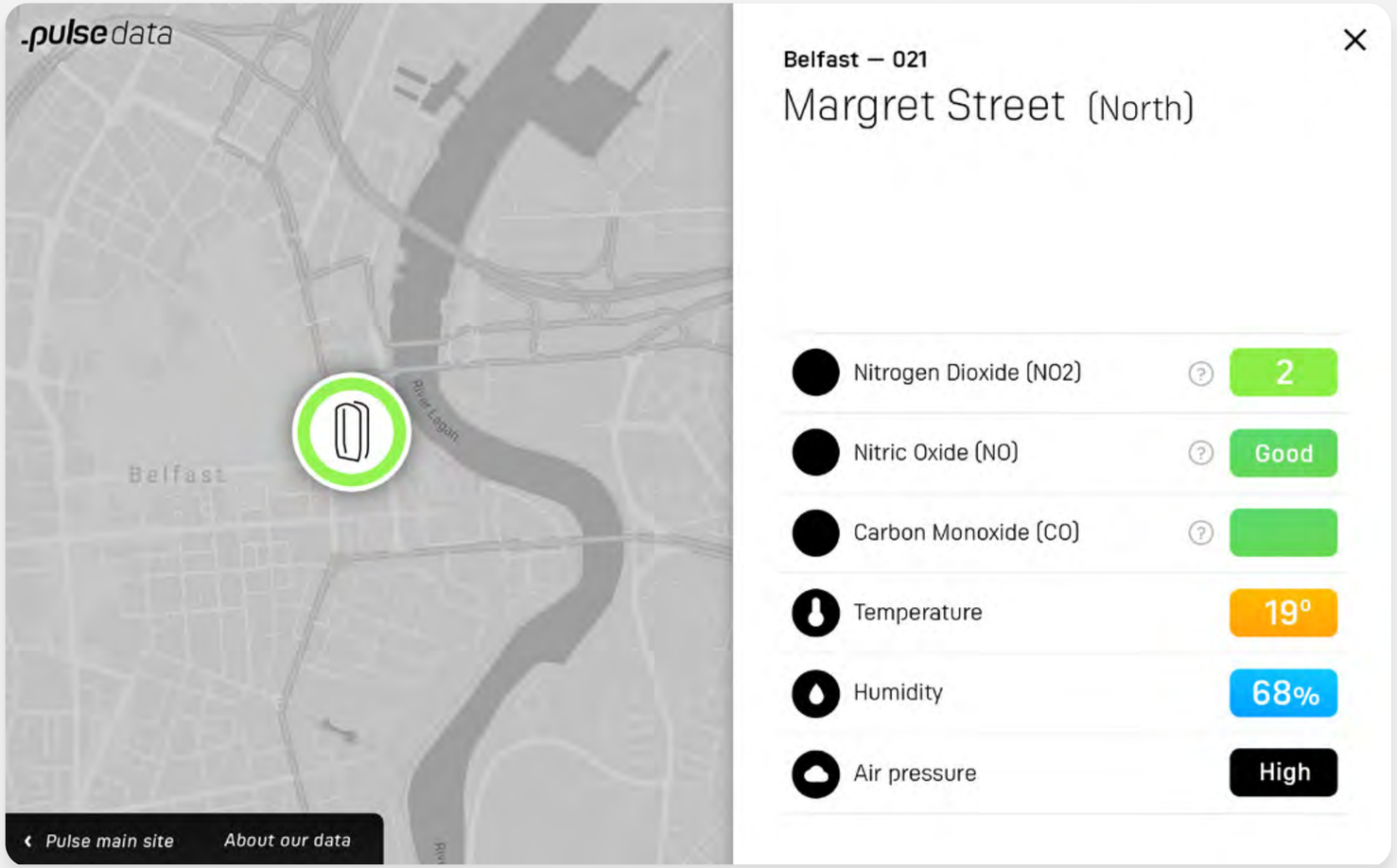
The Hubs also have additional space for other telecom technological advances. For example, the Hub is 4G and 5G small cell ready to support capacity for a wider telecoms and mobile network rollout.

4,000+ calls per year

- Homelessness charities are among the top 10 most called numbers

- Taxi services are the most frequently called landline numbers

2 Councils inc, town and city management



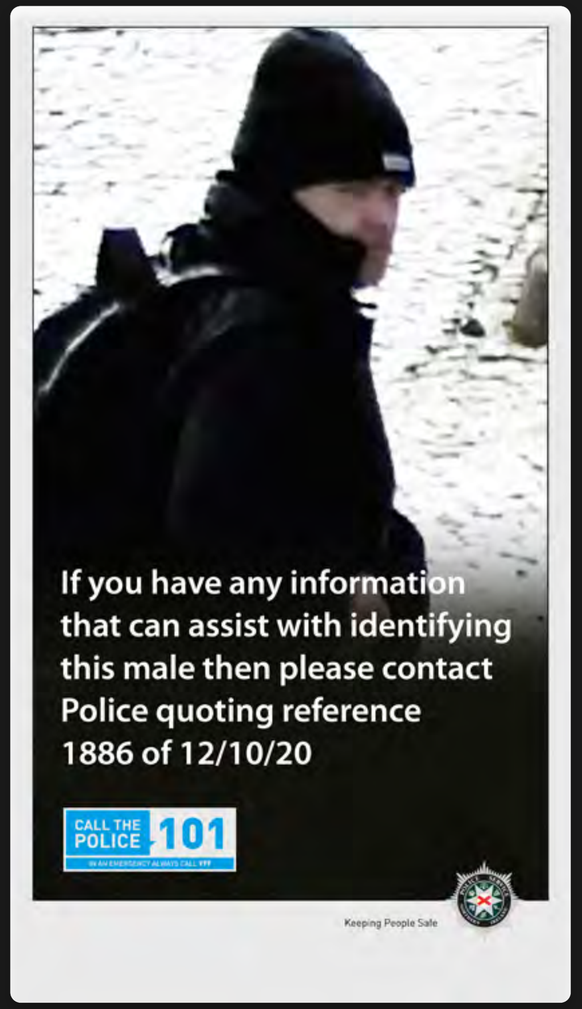
The Internet of things (IoT) is a network of devices and other technologies that connect and exchange data with other devices and systems over the Internet.

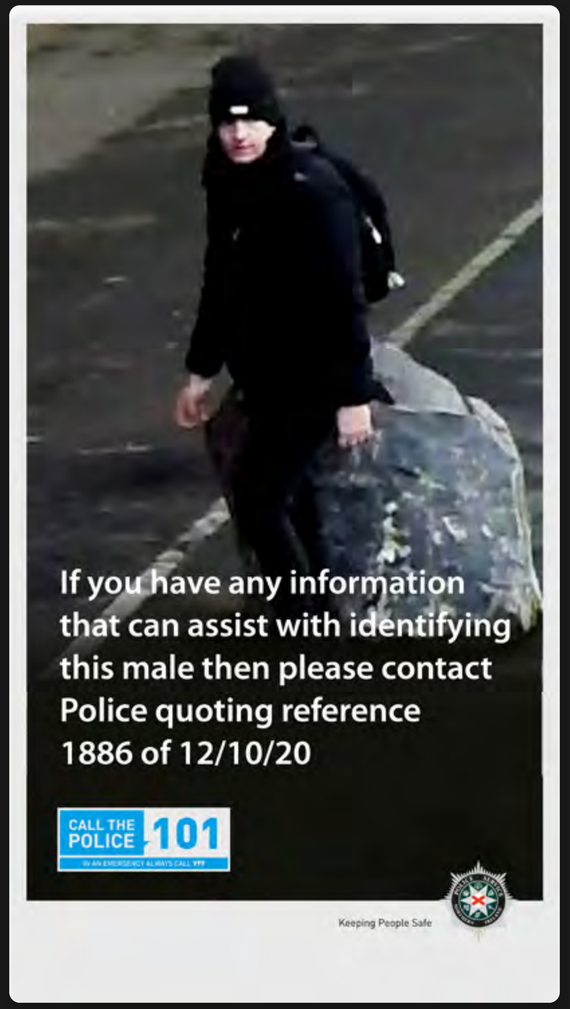
Our Hubs provide power, data and space for IoT technology to enable a better understanding of the environment around us. The Hubs are installed with environmental sensors to collect the following data:

- Air quality including:
  - + Nitric Oxide
  - + Nitrogen Dioxide
  - + Carbon Monoxide data

The information the Hubs collect is shared free of charge with local stakeholders providing invaluable information about an area and will assist in forming strategies to address concerns.

3 Police and other emergency services





Through collaborative working with Police Service Northern Ireland (PSNI) we have developed a series of protocols in the event of emergencies to protect the safety and wellbeing of people in Belfast.

PSNI have direct access to Pulse software enabling immediate override of the large screen content to respond to real-life scenarios such as:

- Pandemic information.
- Severe weather conditions.
- Major structural collapse.
- Major fire or explosion.
- War or terrorism.
- Major public disorder or criminal activity.

In 2020 the emergency override function was activated by PSNI to alert the public of a dangerous man on the loose. This led to his capture within hours of the messaging being placed on the screens.

4 Community safety

We are committed to improving public health and safety on our streets, and having easy and quick access to public life-saving equipment can mean the difference between life and death.

Northern Ireland Ambulance Service

extern

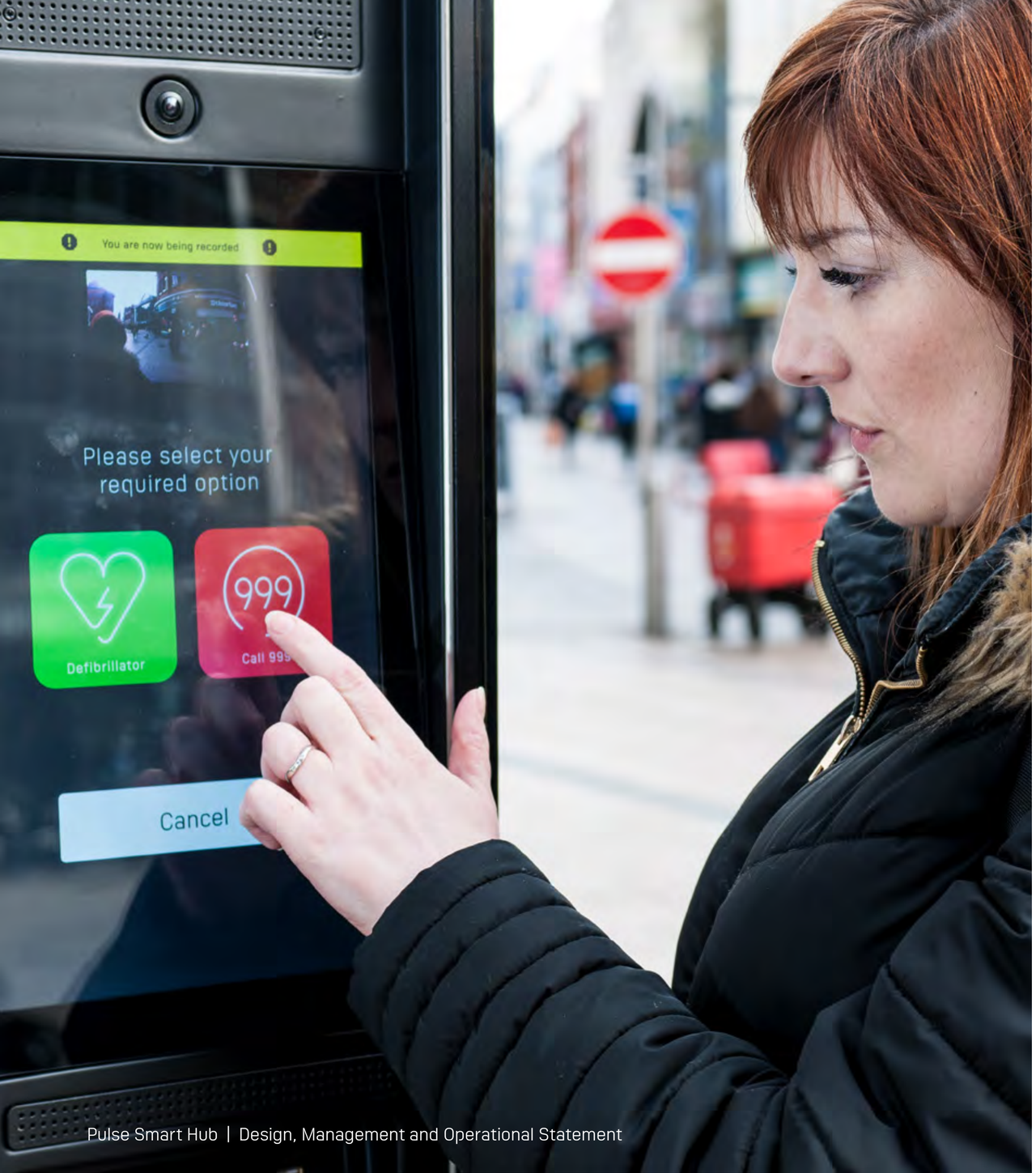
HSC Health and Social Care

Cardiac arrest survival rates are 70% if a defibrillator is used within five minutes. It is the number one intervention to increase the likelihood of survival out of hospital. Each Hub will be fitted with key lifesaving equipment:

- Public access defibrillator to respond to someone having a sudden cardiac arrest.
- Public access Nasal Naloxone to respond to someone having an opioid overdose.

We are working closely with Health and Social Care Northern Ireland and drug outreach organisations to continue developing such initiatives.

The Hubs are now a mainstay for protecting people on the streets of Belfast. On average, one defibrillator is deployed by Northern Ireland Ambulance Service each month across Belfast.



Community safety

We are fully committed to supporting and protecting anyone in need of help or in danger. Our Hub acts as a safety beacon for people in the community.

Working with the Police and local stakeholders across Belfast we have put in place safety protocols. In the event of an emergency, from the Hub people can:

- Call 999 Emergency Services.
- Activate an Emergency Button.

Our Hubs act as a place of safety for anyone who is in immediate danger due to domestic abuse, stalking, or any other imminent threat.

The Emergency Button can be pressed by anyone feeling vulnerable and by doing so, the Police are called, advertisement screens confirm the emergency services are enroute and CCTV cameras turn on for evidentiary purposes.

We are continuing to focus on delivering vulnerability initiatives and responding to ever improving technology to improve the safety and lives of people in the community.

5 Tourism and local businesses 6 and Charities and outreach organisations

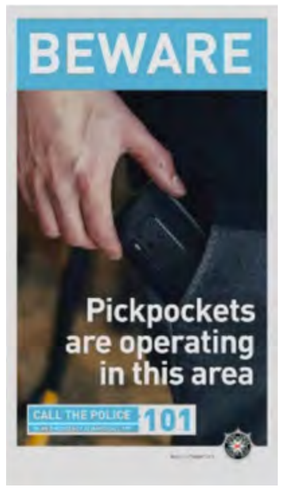
Our Hubs support and improve services and functions in the urban area.

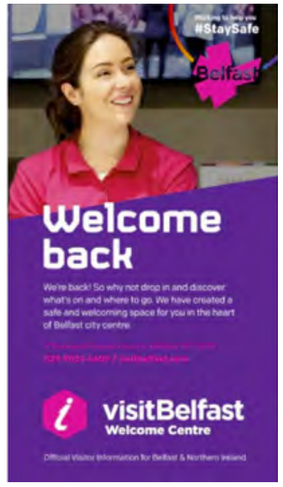
We support local organisations to keep the community and visitors informed.

Via the interactive screen, the Hubs provide free access to hyper local services including:

- Digital maps and way finding.
- Tourist and visitor information.
- Live ‘what’s on’ information.
- Live transport information.
- Information on Council services.
- Information on Charities.
- Local weather.
- Direct access to key telephone numbers to support the vulnerable.

Tourism and local businesses and Charities and outreach organisations





We commit to giving a minimum of 5% of screen time on the main advertising screens to the Council, local stakeholders and organisations to promote the area, local services, events and support networks. This equates to 650 free messaging slots per Hub, per day.

This provides a valuable channel to reach residents, workers, visitors and tourists with important public messaging and campaigns.

Our Hubs have enabled charities to extend their outreach to those in need. We have provided free messaging on the Hubs for charities including Welcome Organisation, MindWise, PIPS and the Rainbow Project.

Statistics from our network in Belfast (Operating since 2019)

Over 10%
of all display time has been given over to local organisations

3,500+
users of the free Wi-Fi

Over
20,000,000
free public messages shown

650
free public messaging slots available per Hub per day

Over £2m
of free advertising space given over to the local community

Environmental sensors collected Nitric Oxide, Nitrogen Dioxide and Carbon Monoxide data

Over 260 hours of direct stakeholder engagement including sitting on the nighttime volunteer steering group

1 defibrillator
deployed every month

We have run 15 hours of free public defibrillator training

2,000+ people per year
accessing information on local charities

4,000+
calls per year

Wayfinding used an average of 45 times per month

2,000+ people
accessing Council information each year

223
local event pages viewed per month

Working with the local community

We are passionate about community engagement.

We maintain regular dialogue with all stakeholders to ensure a seamless day-to-day operation and a constant look to the future to make sure our Hubs respond to technological changes as well as the needs of the community.

Our case study demonstrates that through relationships with Police Services, Public Health and Ambulances Services, Tourism Boards, Councils and City Centre Management we have been able to refine the functionality of the Hubs to respond to local matters. A perfect example of this has been the implementation of the Emergency Button to protect the public and help people feel safer on our streets.

Community-first approach

Patrick Fisher
Founder and CEO

View my LinkedIn profile

Connect →

“We’re proud to be paving the way for community-first smart street furniture and delivering communication, connectivity, and lifesaving equipment that’s specifically tailored to the local area it serves.

Unlike the big corporations, our team dedicates itself to working closely with the public, third-sector stakeholders, and partners to ensure each bespoke network maximises the benefits that it provides and addresses the needs of the local community, both now, and in the future.”

Our commitments

1. We are passionate about community engagement and listen and value the perspectives of others.
2. Our approach will be personable and sociable, echoing the voice of the community itself.
3. We are committed to maintaining and strengthening the community relationships we establish.
4. We are committed to ensuring seamless operation meaning our work doesn’t end when the Hubs are installed.
5. We will always look to the future to ensure the technology within the Hubs evolves with the needs of the community.
6. We maintain regular dialogue with all stakeholders to maximise the benefits of the Hubs to the community at all times.

Chapter 2
The Pulse Smart Hub experience

- → Key principles
- → The user experience
- → Design and functionality
- → Locating our Hubs and accessibility
- → Installation
- → Ongoing management
- → Addressing anti-social behaviour

Key principles

A quintessential British design brought up to the new age in terms of smart phones and digital technology. The Pulse Smart Hub represents the 21st century evolution of the telephone kiosk.

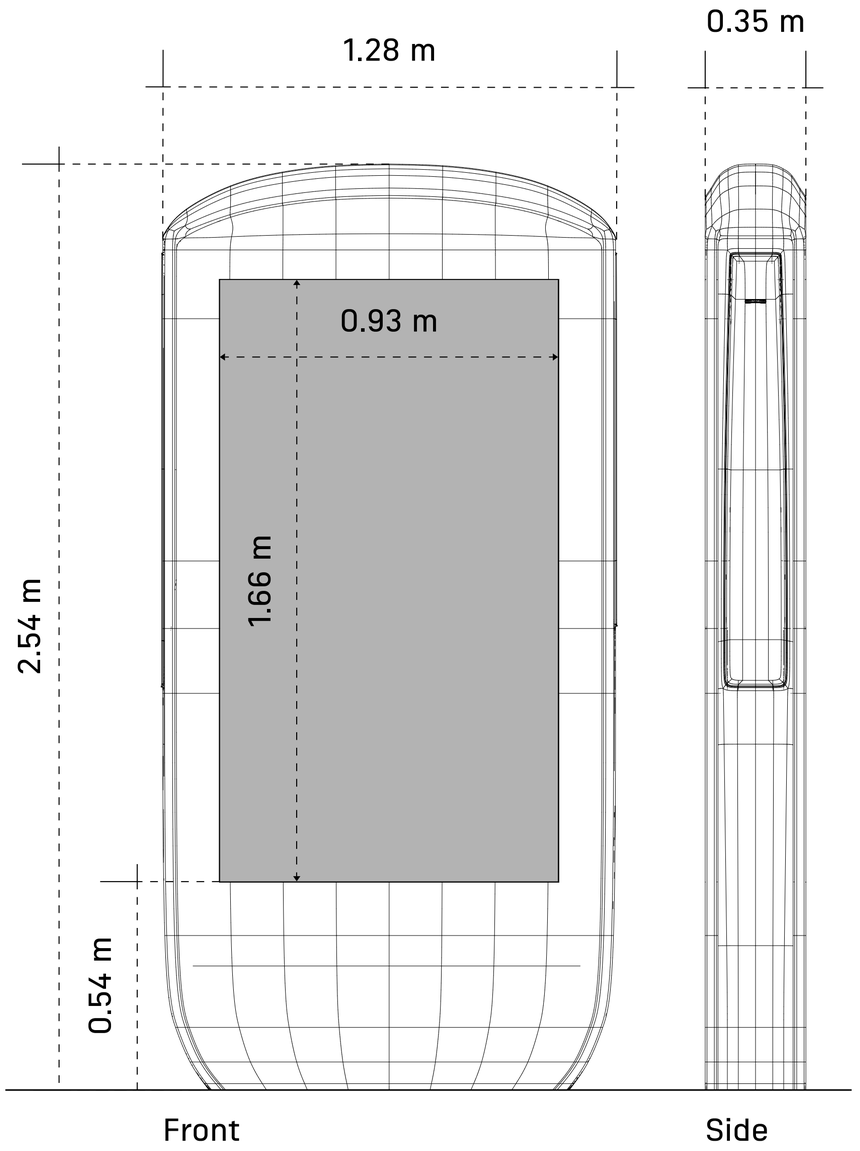
The Pulse Smart Hubs create a digital network across the public realm, enhancing the availability of modern infrastructure. Cross subsidised by advertising revenues, the Hubs provide the following benefits:

Connectivity
Meeting the demands of modern life with free phone calls direct from the device, phone charging (including wireless) and free public Wi-Fi.

Smart City Platform
Technology focused on improving people's lives and tackling local issues such as air quality monitoring.

Saving Lives
Equipped with emergency safety features along with a lifesaving defibrillator, and further innovations such as Naloxone medication to tackle opioid overdose.

Sharing Information
Promoting a thriving community through public messaging and advertising, plus an intuitive interactive touch-screen giving access to a variety of platforms – local wayfinding, charities, tourism, council information and events.



Routemaster bus
Glass and gloss red trim. Front and back profile.

Red Telephone Box
Totem in glass and gloss red finish. Iconic curved top.

Red letter box
High gloss red totem with similar profile and curved removable top cap.

Smartphone
Very similar shape and proportions. Curved corners. High gloss and glass. Cutting edge digital technology and display that covers the majority of the main outer face.

The user experience

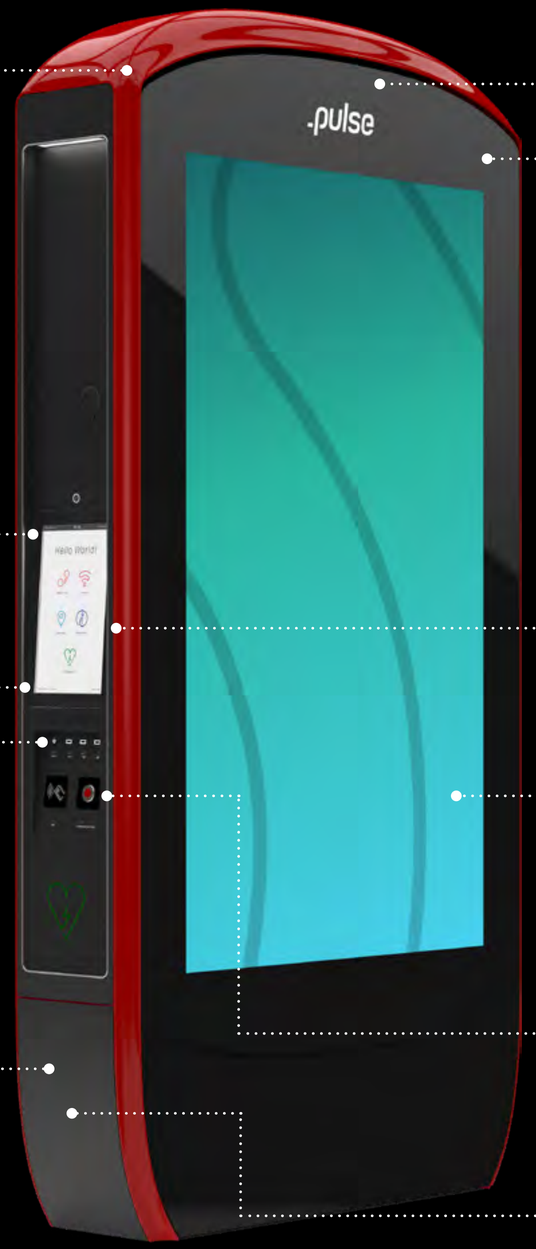
Space and power for 4G and 5G small cells, future telecoms and IoT devices

Hyper-local information for what's on as well as council, visitor and charity information services and helplines

Digital wayfinding and mapping

Mobile device charging, including wireless charging

Integrated Nasal Nalxone opioid antagonist medication to reverse narcotic overdoses



Public WiFi

Air quality and environmental sensors

Free phone calls via the built-in speaker and microphone

Public messaging and advertising

Emergency Button for vulnerable persons police protocol

Integrated public access defibrillator

Design and functionality

Exterior / materials

- Our Pulse Smart Hubs are free-standing structures featuring a fully accessible interactive tablet along with larger digital display screens on two sides.
- The dimensions of the Hubs are 2,540mm tall, 1,280mm wide and 350mm wide.
- Careful research and selection of materials has been undertaken to ensure that the Pulse Smart Hub maintains the highest quality standards while also being robust and durable.
- The exterior is made from dark grey anodised metal, black and clear laminated glass with a textured fiberglass coated finish. The materials are attractive and durable whilst being easy to service.
- The shape, form, scale and materials reference the iconic telephone kiosk and the modern mobile devices so that it is instantly recognisable whilst being modern and iconic in its own right.
- All data collection and signalling equipment will be housed internally within the unit, and space has been reserved to support multiple networks and additional upgrades without altering the external appearance.

Environmental performance

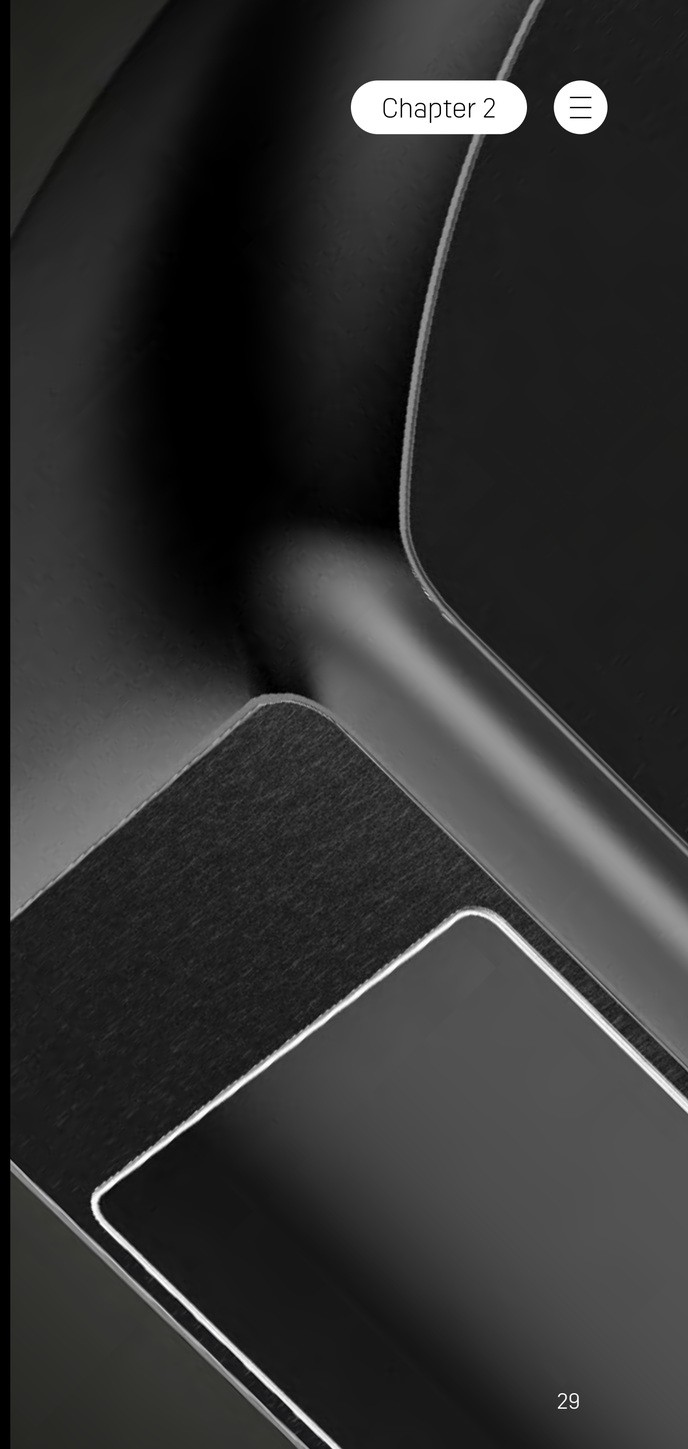
- Our objective is to contribute as little as possible to non-recyclable waste and we are striving towards all energy used to come from 100% renewable sources.
- We are also working with advertisers who are committed to reducing the carbon impact of advertising to net zero by the end of 2030.
- Our Hubs are manufactured from sustainable and recyclable materials.
- 80% of all metals used are sourced from recycled materials whilst we install energy efficient screens to reduce power usage.

Light and noise

- The screens automatically adapt to the ambient light. More details on light and noise levels are set out in the Technical Appendix.
- The two main advertising screens can also be powered off between midnight and dawn.

Messaging screens

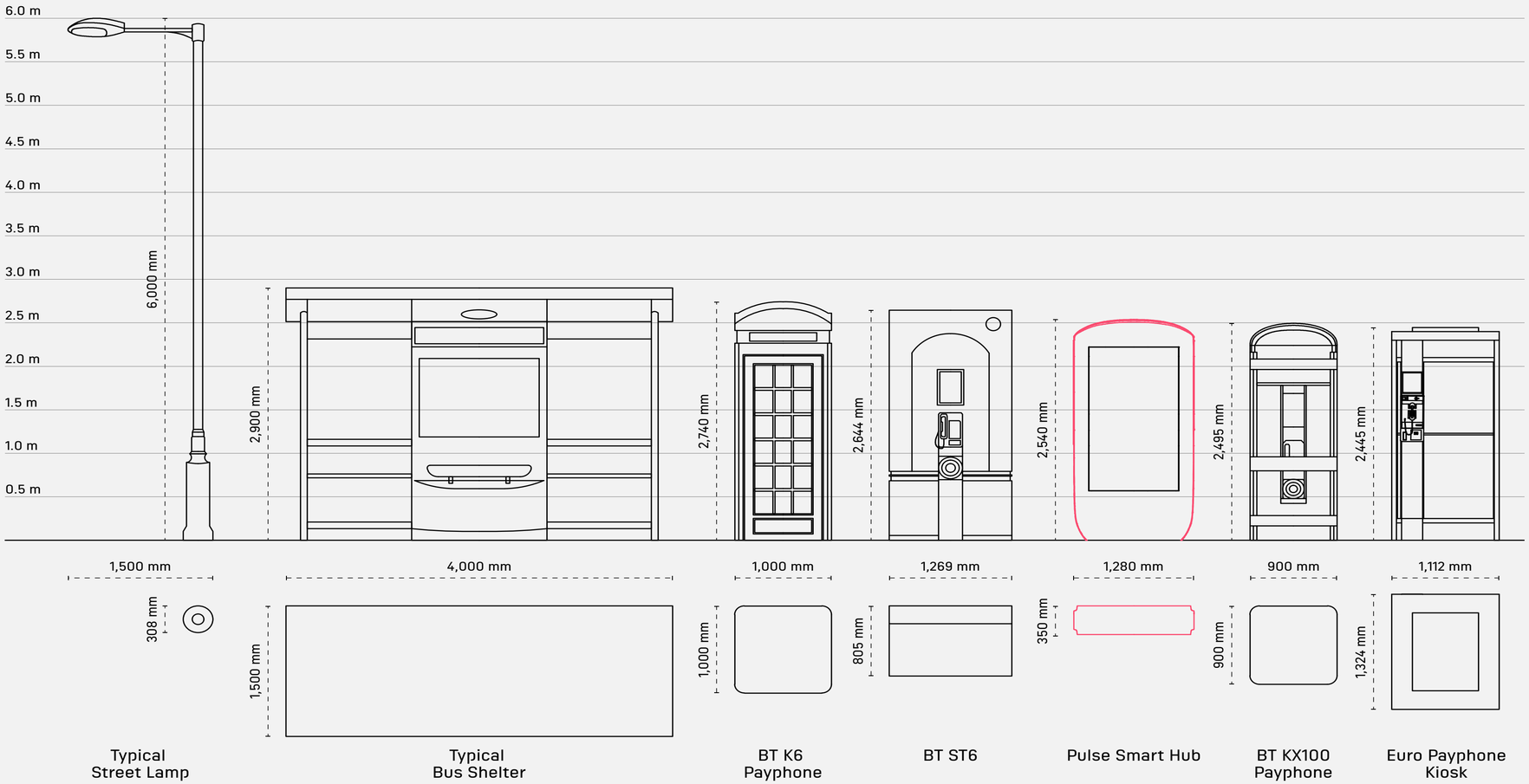
- The two associated advertisement displays on the sides of the Pulse Smart Hubs provide revenue to ensure there is no capital or costs to the Council or public for the provision of the benefits and services the Hubs provide.
- The screens display content at 10-second intervals. This includes the commercial advertising along with local content provided free of charge.



Design and functionality

Street furniture comparison

- The Pulse Smart Hub has a 66% smaller footprint than a standard kiosk design and is much smaller in depth yet provides a multitude of services.
- The scale and footprint of the Pulse Smart Hub is the minimum required to accommodate the telecommunications and smart city equipment.
- The design sits comfortably within the streetscape, with either a modern or historic backdrop. For example, in Belfast, a Hub is located directly next to the famous Grade B1 listed Old Town Hall.



Locating our Hubs and accessibility

The design and location of the Pulse Smart Hubs is carefully considered and prioritises inclusivity and accessibility for all.

- In the current economic climate, those who are unable to access digital devices or do not have the skills to use them are the ones who are left behind. Having access to digital devices is not always the solution and must sit alongside the provision of usable platforms to breakdown barriers.
- A thorough site selection process ensures that the installation of a Pulse Smart Hub does not obstruct individuals with disabilities.
- To assist individuals with visual impairments, the public interface, including the telephone, features high contrast colours to aid navigation.
- The Pulse Smart Hub incorporates a Radio Frequency Identification system (RFID) to assist blind or partially sighted persons to navigate around the area.
- Additionally, an audio induction loop is incorporated to amplify sound for individuals with hearing aids, promoting inclusivity for the hard of hearing.
- All Hubs are located a minimum of 450mm back from kerb edges to ensure visibility lines for both pedestrians and road users are maintained.
- The public interface of the Hub is positioned at a height of 1,000mm from the ground, meeting accessibility guidelines specified by the British Standard for wheelchair users.

Installation

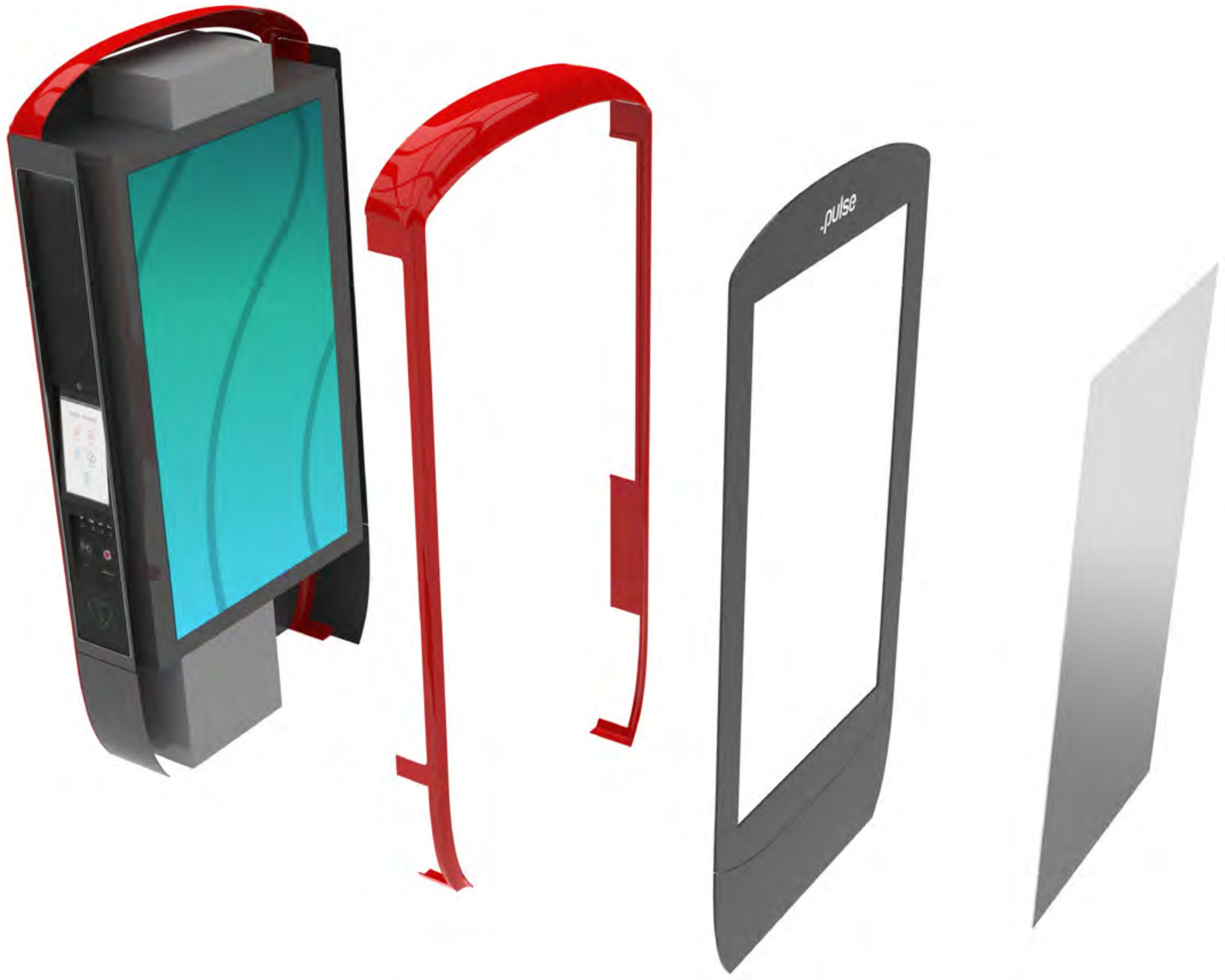
We are committed to a safe, quick, and tidy installation. We pride ourselves on ensuring each Hub is carefully installed by our specialist contractors. Most installations take a maximum of one week to complete.

- The design and scale of the Pulse Smart Hub means that only limited foundations are required. This ensures that the Pulse Smart Hub can be installed with minimum disruption to the public realm and footway.
- We use contractors with the necessary accreditations to install the Hubs on the public highway. Each area will be safely closed off to the public using protective fencing.
- The existing paving is cut to seat the unit fixings. Each Hub sits on a base plate, part of a concrete foundation. Once the power and services have been connected, each Hub is lifted onto the base.
- Each Hub is lifted by a Carry Deck Crane from a flatbed truck onto the metal baseplate about 1-3 days after the building of the foundation. Once this is complete, any remaining barriers are removed.
- Once installed, our technical department arranges testing and configuration to go live.

Ongoing maintenance and management

Well maintained street furniture creates a sense of community, a safe public space where people want to meet and socialise.

- The Pulse Smart Hubs have been designed to make it easier to maintain and clean and are constructed using robust materials to withstand life in the public realm.
- Our internal operating software allows us to monitor the status of each Hub 24/7 all year round.
- Where any errors are identified, the Hub is immediately prioritised for repair. Most times this can be done remotely but we also have a team of operatives who schedule both reactive and scheduled maintenance visits to ensure the network is in good order at all times.



Addressing anti-social behaviour

We are working hard to bridge the digital divide to make people better connected across their community. We take our responsibilities in the community seriously.

We work closely with all local stakeholders to ensure that each Pulse Smart Hub and network becomes a positive contribution to the area. Where specific concerns are raised about the misuse of the Hubs, we have the ability to adapt the technology and software to mitigate this. Where anyone identifies anti-social behaviour associated with our Hubs, we can be contacted directly to respond accordingly.

Fly posting, spray paint graffiti and glass etching

- Our Hubs are cleaned every 2 weeks. This includes deep cleans and / or repairs where there is damage identified to the Hubs.
- Our operatives also check the functionality of the Hubs, including an inspection of the life-saving equipment to ensure full working order at all times.
- People can contact Pulse directly to report any issues. Where urgent issues are reported, we have a resolution protocol of 24 hours.

Mitigating any misuse of free public Wi-Fi

- The provision of Free Public Wi-Fi can sometimes attract excessive use during unsuitable hours. In these areas for example, we have been able to stop this functionality during certain hours.

Mitigating against the misuse of free phone calls

- Our software has call restriction capabilities. It identifies where calls are made to the same number multiple times and immediately blocks this number. This prevents the misuse of Hubs for criminal activity.
- Users are able to consult with us and the local police where they consider they've been mistakingly blocked.

Mitigating any misuse of the 999 and emergency buttons

- When either of these buttons are pushed, cameras and notifications appear on the Hub to inform the user that the Hub has begun CCTV recording and that the Police are on their way.
- This technology significantly improves the safety aspect of the Hub but also deters misuse and ensures the Hubs do not become a burden for emergency services.
- We continue to collaborate with all stakeholders to refine our technology and day-to-day operations so that we can remain at the forefront of preventing street crime.

Chapter 3
The business and how we operate

→ Who is the Urban Innovation Company?

→ Who founded Pulse?

→ How are we funded?

Who are Urban Innovation Company?

Why did UIC develop the Smart Hub?

- UIC is a telecommunications operator and developer of smart technology.
- UIC was previously called Europayphone. They were responsible for delivering and operating traditional telephone kiosks across Northern Ireland.
- UIC designed, developed, and engineered the Pulse Smart Hub which has revolutionised the humble telephone kiosk.
- The first Pulse network was implemented in Belfast in 2019. We are now in the process of bringing forward a network of Hubs across towns and cities more widely across the UK.

urban
innovation
company

Who founded Pulse?

Patrick Fisher
Founder and CEO

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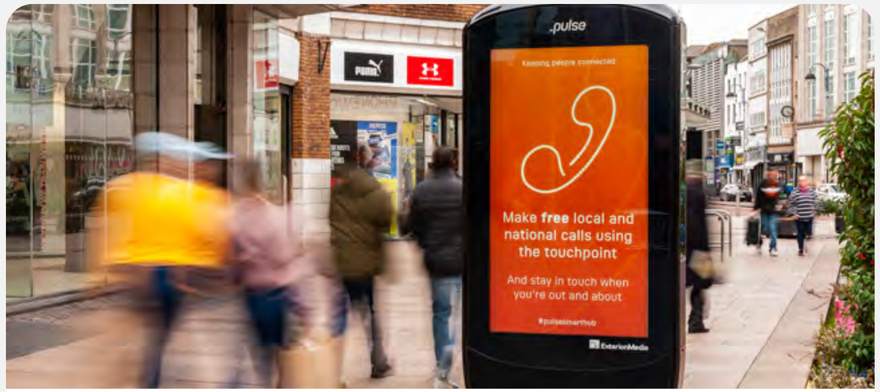
Wildstone

Patrick Fisher previously co-founded Wildstone Capital who specialised in out of home advertising. Many of the sites developed by Wildstone deliver positive social value beyond their purpose as advertising platforms.



.pulse

Recognising the power of an advertising funded model to deliver social value, Patrick took this approach to the next level by establishing UIC and its first service, the Pulse network.

How are we funded?

We have long-established partnerships with national advertising companies.

The revenue generated from the advertising allows us to deliver all of Pulse's features and benefits free of charge to everyone. There is no cost to the user, public organisations or the taxpayer.

The revenue also ensures that the Hubs will be appropriately managed and maintained in perpetuity. We do not rely on the performance of the advertising itself to maintain the Hubs.

Technical appendices

Power Supply

- Connection to the mains grid
- 20A RCCB - 30 mA circuit breaker

Internal CPU operating temperatures

- Minimum temperature: 30°C
- Maximum temperature: 65°C
- Ventilation is achieved via an air-cooling system that manages the internal temperature

Outdoor operating conditions:

- -12°C to 50°C

Noise levels

- Our Hubs are situated in the public realm with already high background noise levels. Traffic noise can vary between 70-95dB.
- A whisper is about 30dB, normal conversation is about 60dB, a motorcycle engine running is about 95dB, and a loud rock concert is about 120dB.
- In general, sounds above 85bB can be harmful depending on the length and frequency of the exposure.
- The volume of the Hub speaker is at conversation level so as not to be disruptive in the public realm.
- The sound of the Hub temporarily increases where emergency services are called to support the user on the end of the line.

Lighting levels

- LCD main screens
  - The maximum brightness will always be within the guidelines as set by the Institute of Lighting Professionals (ILP) Technical Note 5 which is a daytime limit level 2000Cd/m^2 (2000 nits) and nighttime limit level 600Cd/m^2 (600nits).
  - The screens will be controlled by light sensors to vary the brightness of the screens according to the brightness of the day.
  - During the daytime, the maximum brightness may increase to make the screen visible during bright sunlight. This will ensure that the level of luminance of the advertisement is sensitive to the change in daylight from sunrise to sunset and from summer to winter.
  - The advertisements displayed will not change any more frequently than once every 10 seconds. The Hubs will not display any moving images. And any change in advertisement display shall be instantaneous.

- LCD interactive touch-screen display
  - The inset digital displays will have a maximum luminance that does not exceed 600cd/sqm at nighttime.

Communication is at the heart of everything we do. The relationships and partnerships we establish are for now and the future.

We’d love to hear from you

Got a query? Please contact us on hello@pulsesmarthub.co.uk and we will be happy to answer your questions!

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