



# eduroam Everywhere Project

Bridging the digital  
divide in a pandemic



The objective of the eduroam Everywhere project, as the name suggests, is to enable eduroam at as many locations as possible. The project focused on locations that are easily accessible to students beyond the campus walls.



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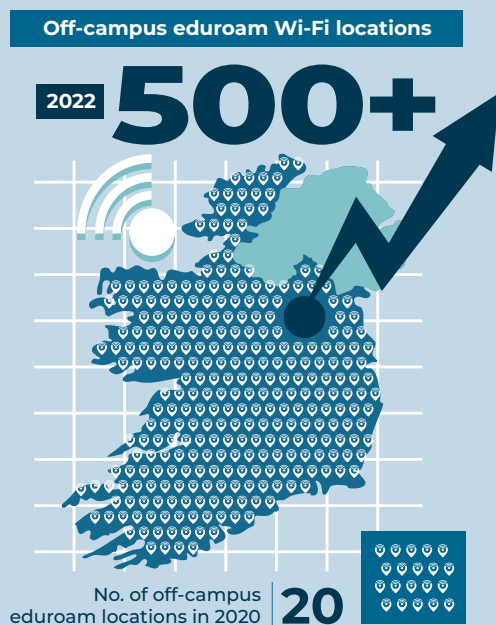
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# Executive Summary

eduroam is a Wi-Fi service which enables students, researchers and staff from participating institutions to securely access the internet at their college/university and whilst visiting other participating institutions.

eduroam Everywhere is a project managed by HEAnet with support from the Department of Further and Higher Education, Research, Innovation and Science, other government Departments and organisations, and the eduroam Everywhere advisory group.

The objective of the eduroam Everywhere project, as the name suggests, is to enable eduroam at as many locations as possible. The project focused on locations that are easily accessible to students beyond the campus walls.



eduroam Everywhere has been an enormous success thanks to the efforts of the HEAnet team and the strong support received from numerous agencies and organisations. Having dedicated resources in place facilitated a significant expansion of eduroam Wi-Fi hotspots.

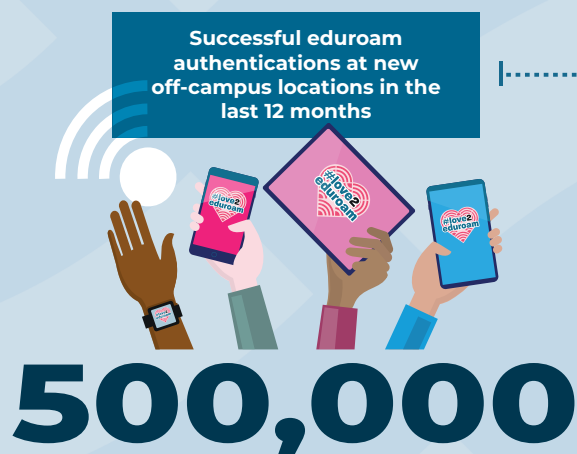
HEAnet will remain available to expand eduroam to new locations and will continue to promote eduroam to end users, especially the new cohort of students joining the higher education sector every year.



The key achievements of the project are:

1. Enabling eduroam Wi-Fi hotspots in almost 500 new off-campus locations such as libraries, transport, sporting venues, working hubs, community centres, town centres and many more.
2. Supporting access to safe, reliable Wi-Fi for students, staff and researchers with over 500,000 successful eduroam Wi-Fi authentications at new off-campus locations in the last 12 months<sup>1</sup>.
3. Helping to reduce the digital divide by focusing on enabling eduroam in Electoral Divisions where disadvantaged students live.

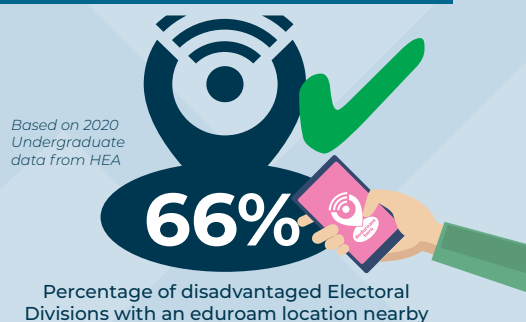
HEAnet will continue to seek to reduce the digital divide and ultimately enable Ireland to reach its digital ambitions by aligning their work with international and national initiatives.



<sup>1</sup>Data collected on 21 November 2022. This figure represents the total no. of unique user devices successfully authenticated to eduroam at new off-campus locations in the last 12 months



#### Disadvantaged students - coverage



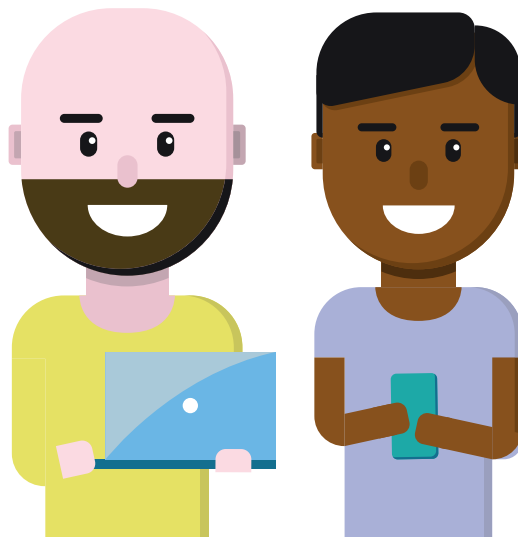
# Introduction and Background

## eduroam

eduroam (education roaming) is a Wi-Fi service which enables students, researchers and staff from participating institutions to securely access the internet at their college/university and whilst visiting other participating institutions.

eduroam is a global service for the academic community. Having started in Europe, eduroam has rapidly expanded throughout the research and education community around the world and is now available in more than 100 countries worldwide.

The national operator for eduroam in Ireland is HEAnet, Ireland's National Education and Research Network. HEAnet has helped enable over 500 eduroam hotspots, located in third-level educational and research organisations, libraries, town centres, healthcare settings and many more.



## Why eduroam?

The benefits of eduroam are immense for individuals, institutions and service providers.

For individuals, the ability to turn on a smartphone, tablet or laptop and immediately get secure Wi-Fi access at a nearby eduroam Wi-Fi location transforms the learning experience.

For institutions, there is no longer a need to provide insecure shared usernames and passwords or to respond to requests for access. For service providers, it attracts the educational community to their venue and enables participants to access wireless connectivity with minimal assistance.



*Safe & secure*



*Easy to use*



*500+ locations in Ireland*



*100+ countries*

Further information about eduroam and its deployment in Ireland can be found at [www.eduroam.ie](http://www.eduroam.ie)

## The eduroam Everywhere Project

The advent of the COVID-19 pandemic and its impact on teaching and education created an accelerated move towards online education, with students no longer able to attend their physical campus and access its connectivity. The resulting dependence on broadband represented a significant problem for many staff and student populations who are underserved by existing broadband solutions or where economic disadvantage prevails.

One of HEAnet's goals is to reduce the digital divide and ultimately enable Ireland to reach its digital ambitions. HEAnet want to help every student to have the opportunity to succeed. HEAnet's ambition is to make eduroam Wi-Fi available as much as possible to students everywhere, which is how the eduroam Everywhere Programme was born.



## Objectives of the project

The objective of the eduroam Everywhere project, as the name suggests, is to enable eduroam at as many locations as possible. The project focused on locations that are easily accessible to students beyond the campus walls. The focus was to leverage existing public and commercial Wi-Fi infrastructure. The project also explored options to enable eduroam on new infrastructure in public spaces where Wi-Fi was not available, however, the team found that the project would have much more impact by leveraging existing Wi-Fi deployments.

## Targets

The target set at the outset of the project was to expand eduroam availability to an additional 90 locations throughout the country in 2021 as announced by Minister Simon Harris in January 2021<sup>2</sup>. As part of the announcement, the Minister said the following.

“Education is changing and we must constantly change to adapt to these advancements. Further and higher education is increasingly about learning on the move; full-time learning and learning and part-time learning. COVID-19 has resulted in an increase in the use of remote learning but it is clear that access to modern technology and connectivity is essential. This is the start of a journey. It is not the end. We will continue to work with transport providers, local authorities, commercial organisations and others to do more to help support students with online learning.”



The initial target of ninety (90) new eduroam-enabled locations was subsequently revised upwards during 2021 and again in 2022.

These updated targets are set out in the table below.

Project Implementation by Category	Targets		
	2021	2022	Total
Public Libraries	130	30	160
Broadband Connection Points (BCPs)	50	50	100
Commercial	50	30	80
Public Wi-Fi (e.g. Town Centres)	15	n/a	15
Student Accommodation	n/a	10	10
Connected Hubs	n/a	10	10
Transport	5	3	8
Sporting Venues	4	n/a	4
OpenRoaming	n/a	4	4
Museums	n/a	3	3
<b>Total no. of eduroam hotspots</b>	<b>254</b>	<b>140</b>	<b>394</b>

<sup>2</sup><https://www.gov.ie/en/press-release/241c3-minister-harris-announces-expansion-of-wi-fi-roaming-for-students-in-90-locations-across-the-country-in-2021/>



# Our Approach

The eduroam Everywhere project received tremendous support from the outset and throughout from Minister Simon Harris and his Department. Thanks to the support and introductions provided by the Minister, HEAnet was able to gain the support and close cooperation of multiple agencies to facilitate the expansion of eduroam Wi-Fi hotspots throughout Ireland.



*Minister Simon Harris and Ronan Byrne, CEO HEAnet*

At the commencement of the project, an advisory group was established. The purpose of the advisory group was to assist the project in an advisory capacity and to represent the views of all major stakeholders.

The main focus for the project team was to contact public and commercial Wi-Fi providers and engage with them to expand eduroam through their existing Wi-Fi infrastructure.

A Service Providers leaflet was created along with a short presentation explaining what eduroam is and the objective of the eduroam Everywhere project. The materials were used in discussions with various public and commercial entities. In addition to that, there were also various communication efforts to raise awareness of the project and eduroam service through a newly created website [www.eduroam.ie](http://www.eduroam.ie), PR and a social media campaign. This led to several new opportunities and an increase in awareness of the ambition of the eduroam Everywhere project.

## Public Wi-Fi Locations

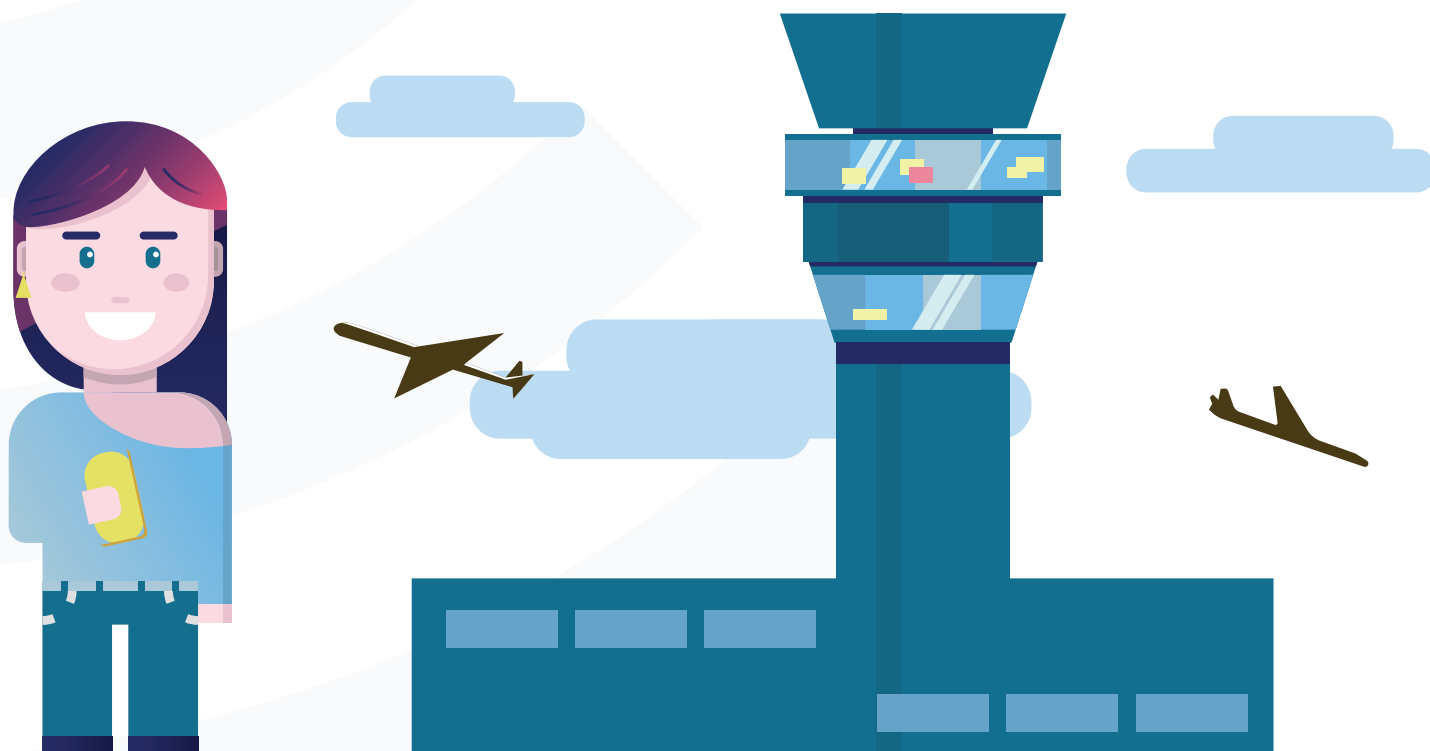
The eduroam Everywhere team collaborated closely with the Local Government Management Agencies (LGMA), the individual local authorities and their Broadband Officers to engage with public libraries on the provisioning of eduroam in target organisations such as airports.

Another significant area of growth for new eduroam locations are Broadband Connection Points (BCPs). The team collaborated closely with the Department of Rural and Community Development (DRCD) who are managing the BCPs rollout as part of the National Broadband Plan.

## Commercial Wi-Fi Locations

The PR & marketing activities generated several incoming queries from organisations that included transport providers, coffee shops, airports, and museums.

Additionally, the project team have proactively reached out to various organisations, such as sports stadia.

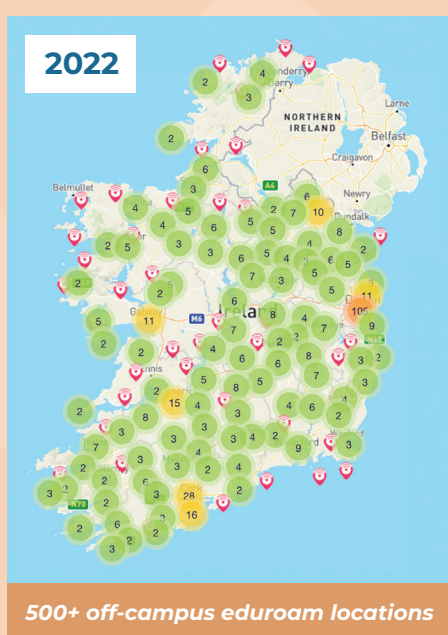


# Performance against Objectives

To date, the project has delivered 492 new eduroam hotspots throughout the country, as illustrated in the table below:

Project Implementation by Category	Targets			eduroam enabled	% of target
	2021	2022	Total		
Broadband Connection Points (BCPs)	50	50	100	268	268%
Public Libraries	130	30	160	175	109%
Sporting Venues	4	n/a	4	4	100%
Museums	n/a	3	3	3	100%
Transport	5	3	8	7	88%
Public Wi-Fi (e.g. Town Centres)	15	n/a	15	12	80%
Connected Hubs	n/a	10	10	8	80%
OpenRoaming	n/a	4	4	2	50%
Student Accommodation	n/a	10	10	2	20%
Commercial	50	30	80	11	14%
<b>Total no. of eduroam hotspots</b>	<b>254</b>	<b>140</b>	<b>394</b>	<b>492</b>	<b>125%</b>

There have been over 500,000 successful eduroam Wi-Fi authentications at these new off-campus locations in the last 12 months<sup>3</sup>.



## Geographic Coverage

eduroam is now enabled at over 500+ off-campus locations across the country, a significant increase from 20 off-campus locations before the eduroam project began.

<sup>3</sup>Data collected on 21 November 2022. This figure represents the total no. of unique user devices successfully authenticated to eduroam

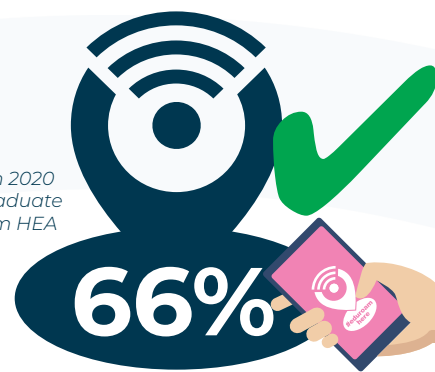


## Digital Divide

One of the objectives of the eduroam Everywhere project was to target students who had no access to broadband due to their geographic location or economic circumstances. The map on previous page shows that eduroam is now accessible in large parts of the country, including areas with poor broadband coverage.

When the project commenced, the team reached out to the Higher Education Authority (HEA) and received data highlighting the areas with the largest numbers of disadvantaged students. Based on that information, the project focused on areas highlighted in the HEA data. The project team managed to introduce eduroam Wi-Fi hotspots in many locations that are now within a maximum 30 minutes bus/driving distance from the vast majority of the disadvantaged electoral divisions and disadvantaged students.

*Based on 2020 Undergraduate data from HEA*



**Percentage of disadvantaged Electoral Divisions with an eduroam location nearby**

## eduroam.ie Website

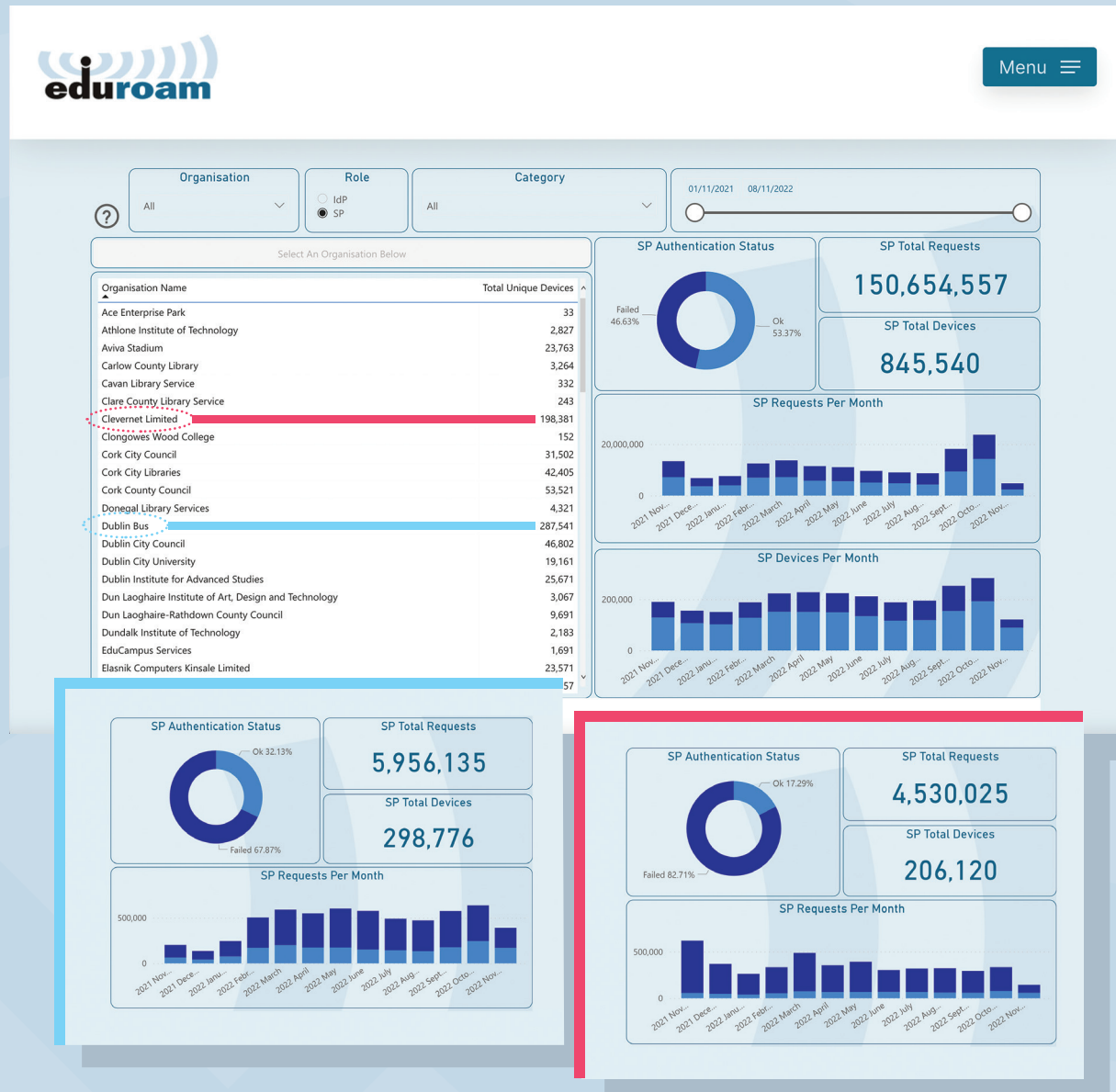
An objective for the project was to create an online space where students can easily find an eduroam hotspot that is close to them and learn more about eduroam. Additionally, the team aimed to provide clear information to potential eduroam Service Providers.

A screenshot of the eduroam website. The header features the eduroam logo on the left and a 'Menu' button on the right. The main banner has a background image of hands typing on a keyboard and the text 'study.research.connect.'. Below the banner, the section 'What is eduroam?' is displayed. It includes a definition: 'eduroam stands for education roaming.' and a description: 'eduroam is a Wi-Fi service which enables students, researchers and staff from participating institutions to securely access the internet at their college/university and whilst visiting other participating institutions.' To the left of the description are four icons with text: a shield for 'Safe &amp; secure', a thumbs up for 'Easy to use', a location pin for '500+ locations in Ireland', and a globe for '100+ countries'. To the right is a video player showing a woman using a smartphone, with the title 'EDUCATION ROAMING' and a subtitle 'Whether you are on the move, on campus, or at your local library.' A 'Copy link' button is in the top right corner of the video player.

A sub-project was created to address this objective and as a result, an updated [www.eduroam.ie](http://www.eduroam.ie) website was created. The website is user-friendly, has a new, easy-to-navigate eduroam hotspot map and a modern look and feel.

# Usage Statistics Graphs

A sub-project delivered a new solution for graphs and reporting to query eduroam Wi-Fi usage within Service Providers (SPs) and Identity Providers (IdPs). This is now integrated into the eduroam website, providing valuable insights for both SPs and IdPs and can be accessed by visiting [www.eduroam.ie/graphs](http://www.eduroam.ie/graphs).



# Deployment Summary

## Public Infrastructure

### Public Libraries

Broadcasting eduroam at library locations throughout the country has been one of the project's major successes. It is now enabled in one hundred and seventy-five (175) libraries throughout the country, with at least one library broadcasting eduroam in each of the thirty-one (31) local authorities.

### Public Wi-Fi

eduroam has been enabled at fifteen (15) locations where public Wi-Fi is available in the local authorities, ten (10) in Cork City and County and five (05) in Kildare. Additionally, the project team worked with a local IT company in Kinsale to enable eduroam throughout the town.

### OpenRoaming

The EC suggested that the eduroam Everywhere team work with the Wireless Broadband Alliance (WBA) as an alternative way to allow eduroam users to access public Wi-Fi hotspots using WiFi4EU infrastructure. The mechanism used is called OpenRoaming.

The team has successfully tested using two (02) OpenRoaming hotspots in Dublin, which are being set up as part of the Smart City initiative by Dublin City Council.

### Sporting Venues

eduroam has been enabled at Croke Park, the Aviva Stadium, the national training centre in Abbotstown, and Páirc Uí Chaoimh in Cork. Additionally, eduroam has been enabled at thirty-eight (38) GAA Clubs/County Centres of Excellence as part of the eduroam Wi-Fi hotspots rollout with BCPs.



### Transport

eduroam has been enabled on seven (07) bus routes in Dublin and at Ireland West Airport in Mayo.

### Museums

eduroam has been enabled at the Archaeology Museum in Dublin, the Museum of Country Life in Castlebar, and the National Museums Resource Centre in Swords, County Dublin.



## Commercial Infrastructure

### Commercial locations

eduroam has been enabled at hotels, coffee shops, and also in Kinsale Town Centre in partnership with a local IT Services company.

### Broadband Connection Points (BCPs)

eduroam has been enabled at 268 BCPs throughout the country, as illustrated in the table below.

BCP Category	No. of eduroam Locations
Community Centres	161
GAA Club or Centre of Excellence	38
Heritage/Tourism	31
Leisure	10
Education	9
Hub	8
Co-Op	4
Library	2
Airport	1
Golf Club	1
Mart	1
Theatre	1
Nursing Home	1
<b>Total no. of eduroam locations</b>	<b>268</b>

It is envisaged that eduroam will be enabled at new BCPs as they are established in the future.

### Connected Hubs

ConnectedHubs.ie is operated by The National Hub Network, a Government of Ireland initiative that provides a vehicle for individual work hubs to come together under a shared identity to maximise the economic opportunity of remote working.

eduroam has been enabled at eight (08) connected hubs (one in Cork, three in Dublin, one in Laois and three in Offaly). The project team is currently working with the Western Development Commission (ConnectedHubs.ie programme) to expand eduroam coverage to more connected hubs throughout the country.



### Student Accommodation

The take up of eduroam among student accommodation providers has been low as it has only been enabled at one (01) off-campus location in Tralee, County Kerry, and one (01) on-campus location in Waterford. Students are well served by the Wi-Fi in place at student accommodation premises with no compelling case to enable eduroam at these types of locations.

# Conclusions and Next Steps

**eduroam Everywhere has been an enormous success thanks to the efforts of the HEAnet team, strong support from The Department of Further and Higher Education, Research, Innovation and Science, other Departments, agencies, organisations, and the eduroam Everywhere advisory group.**

The project's success demonstrates that by working together, we can address significant challenges, such as the digital divide and make a positive difference for all in the education sector. It also demonstrates that having dedicated resources in place facilitated a significant expansion of eduroam hotspots. Importantly, having detailed usage statistics helped the team to make data-driven decisions.

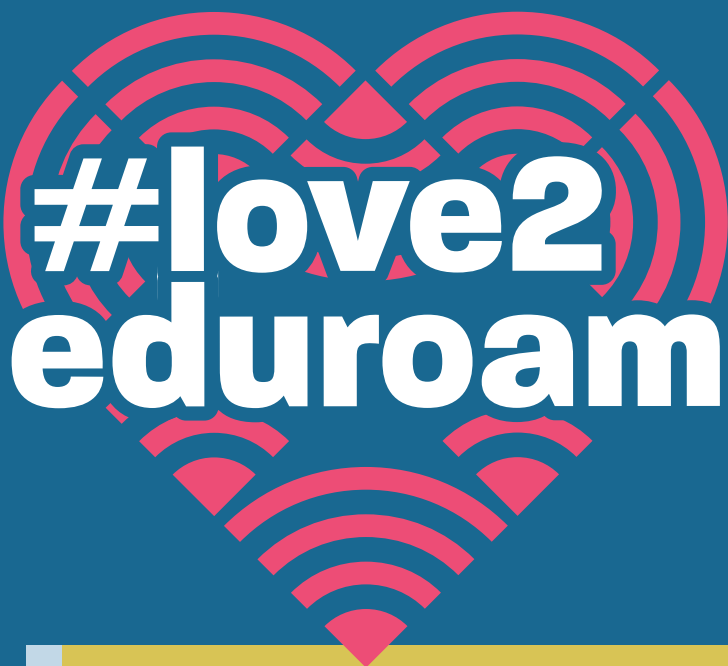
HEAnet will remain available to expand eduroam to new locations and will continue to promote eduroam to end users, especially the new cohort of students joining the education sector every year. To ensure ongoing eduroam availability in off-campus locations and future expansion and promotion of eduroam, sustainable funding will need to be identified and secured.

HEAnet will continue to seek to reduce the digital divide and ultimately enable Ireland to reach its digital ambitions by aligning their work with international and national initiatives, such as the digital strategy "*Harnessing Digital - The Digital Ireland Framework*"<sup>4</sup> launched by the Department of the Taoiseach in February 2022. HEAnet will also continue to explore opportunities to roll out additional eduroam Wi-Fi hotspots in collaboration with its clients, The Department of Education, The Department of Further and Higher Education, Research, Innovation and Science, other Departments and governmental agencies, and European programmes via its membership of GÉANT.



<sup>4</sup><https://www.gov.ie/en/press-release/3a922-online-launch-of-harnessing-digital-the-digital-ireland-framework/>





To learn more about eduroam, visit [www.eduroam.ie](http://www.eduroam.ie)



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