

# Timeline of XR use by Police in England and Wales

First RespondXR is a SPRITE+-funded project which aims to map the social, ethical, technical, and legal vulnerabilities associated with the use of Extended Reality (XR) technology for police training.

2016

The first generation Oculus Rift is commercially released by Oculus (now Meta)<sup>1</sup>

West Mercia Police develop a virtual reality (VR) mobile application for 17-25 year olds on road safety and peer pressure<sup>2</sup>

2017

Norfolk Fire and Rescue Service use Samsung Gear VR Google to deliver a 360-degree "simulated car crash experience" to educate drivers about road safety<sup>3</sup>

Oculus Go is released: a consumer wireless VR headset that does not require a separate computer<sup>4</sup>

2018

Gwent Police use a 280 degree screen to create fully immersive training for police officers on how to deal with domestic abuse cases<sup>5</sup>

West Midlands Police develop an interactive house simulation to educate the public on crime prevention<sup>6</sup>

2019

Northumbria Police develop VR games using head-mounted displays to assist the public in identifying vulnerable people in different contexts<sup>7</sup>

Content spend on VR surpasses \$1 billion per year<sup>8</sup>

2020

West Midlands Police develop an interactive carpark using a 360 camera to educate the public on how to prevent vehicle crime<sup>9</sup>

Warwickshire police launch a project using individual headsets to show a 360 degree film with young people to discuss around underage drinking and personal safety<sup>10</sup>

Derbyshire Constabulary use a VR system to deliver taser training courses where officers were required to respond to a knife-wielding assailant<sup>11</sup>

12.5 million consumer VR headsets sold this year – VR now a low cost consumer reality<sup>12</sup>

2021

Essex Police trial a VR system for firearms training, including through a free-roam exercise<sup>13</sup>

West Midlands Police commission the production of a VR film to educate young people on knife crime<sup>14</sup>

Greater Manchester Police (GMP) introduce a VR training pilot to help officers understand and empathise with hate crime victims<sup>15</sup>

Metropolitan Police Service develop a VR training system to place officers in two immersive scenarios relating to domestic violence<sup>16</sup>

U.S. Army awards contract to Microsoft for HoloLens augmented reality headsets, worth up to \$21.9 billion over 10 years<sup>17</sup>

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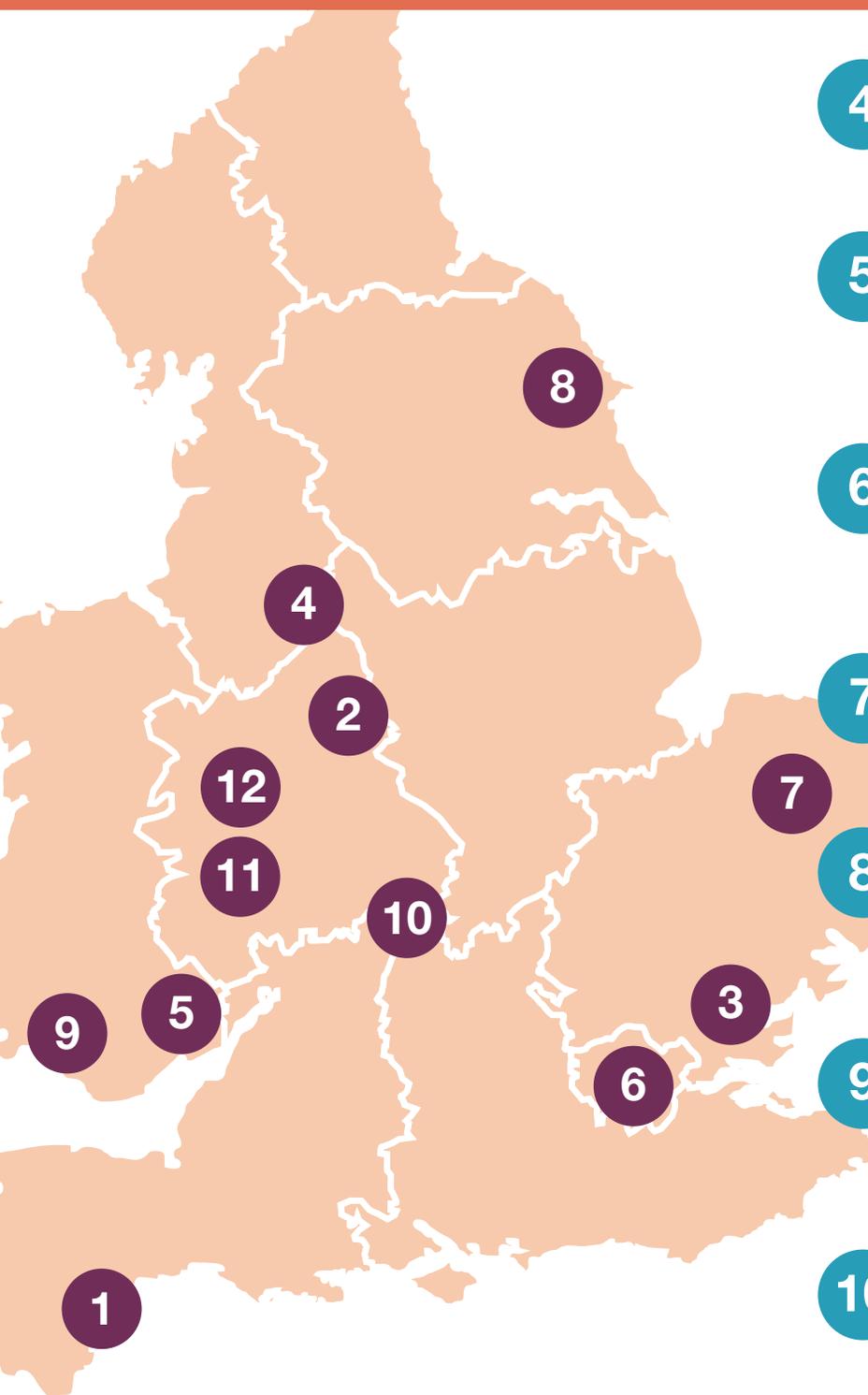
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# Geographical Depiction of known XR use by Police in the UK



1

## Devon and Cornwall Police

Investigating CSI training application<sup>1</sup>

2

## Derbyshire Constabulary

Trialed a taser training application<sup>2</sup>

3

## Essex Police

Trialed a VR system for firearms training, including through a free-roam exercise<sup>3</sup>

4

## Greater Manchester Police (GMP)

Introduced a VR training pilot to help officers understand and empathise with hate crime victims<sup>4</sup>

5

## Gwent Police

Used a 280 degree screen to create fully immersive training for police officers on how to deal with domestic abuse cases<sup>5</sup>

6

## Metropolitan Police Service

Use VR training for domestic violence response,<sup>6</sup> terrorism awareness, investigative skills, racial bias awareness and drone familiarisation<sup>7</sup>

7

## Norfolk Fire and Rescue

Created a 360-degree "simulated car crash experience" to educate drivers about road safety<sup>8</sup>

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## Northumbria Police

Developed VR games using head-mounted displays to assist the public in identifying vulnerable people in different contexts<sup>10</sup>

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## South Wales Police

Developed several VR scenarios to familiarise officers with different contexts (custody, house entry and tactical pursuits)<sup>10</sup>

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## Warwickshire Police

Launched a project using individual headsets to show a 360 degree film with young people to discuss around underage drinking and personal safety<sup>11</sup>

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## West Mercia

Developed a VR mobile application for 17-25 year olds on road safety and peer pressure<sup>12</sup>

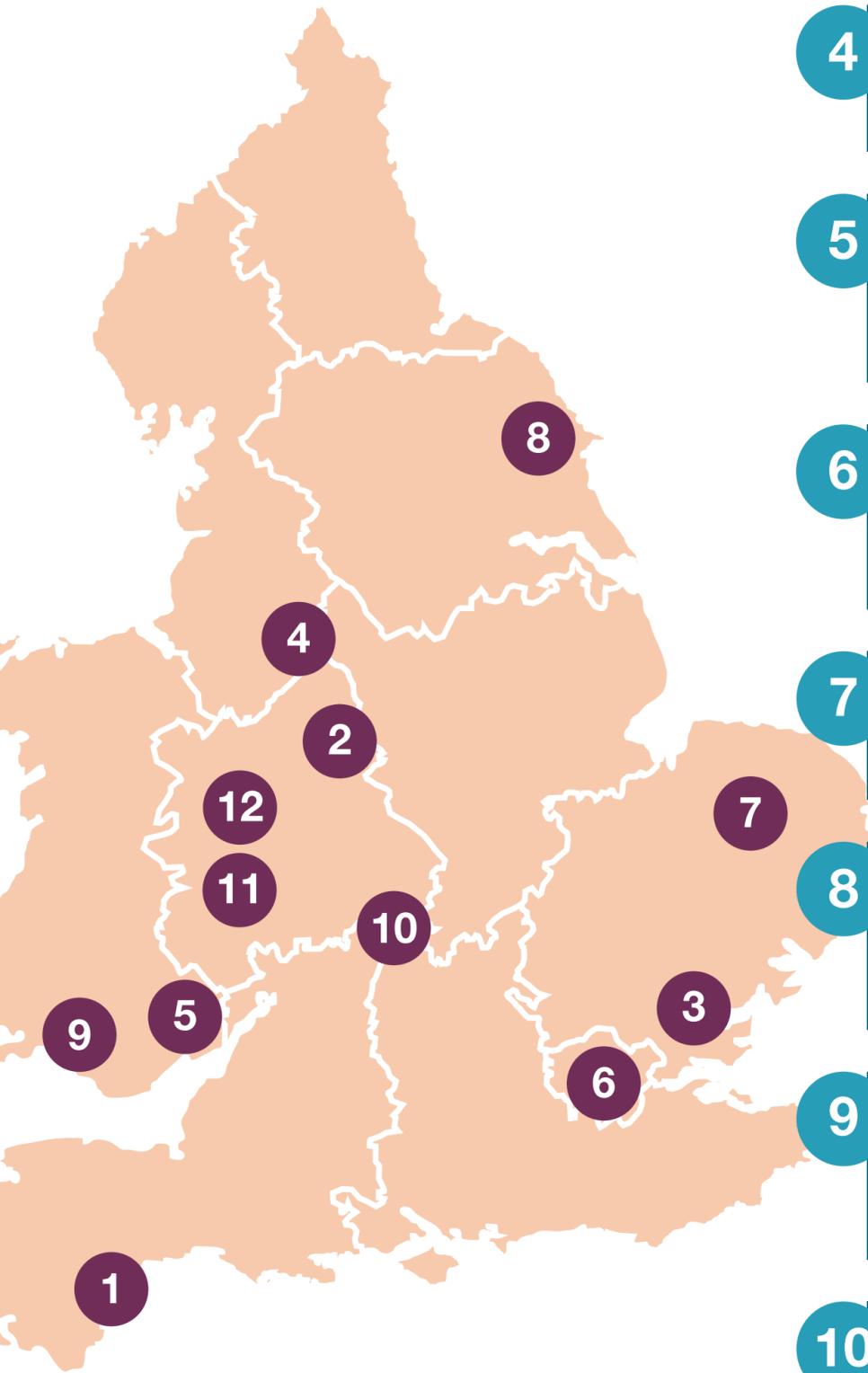
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## West Midlands Police

Developed a house simulation, interactive carpark and VR film to education the public on crime prevention<sup>13</sup>

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# First RespondXR

## Digital vulnerability of immersive training for first responders

### Our Research

In their role as first responders, police services in England provide immediate assistance to individuals at a scene of emergency and/or potential criminal event. However, the significant reduction in policing resources since 2010 has demanded officers to work more broadly in response to the diverse range of incidents. Therefore, training needs and settings must be not only varied, but efficient as well as effective.

Extended Reality (XR), including both virtual and augmented reality, is becoming prominent in many sectors for training and operations. Yet, in the rush to exploit the benefits of XR for immersive training, the potential digital vulnerabilities that may be exposed have yet to be properly examined.

First RespondXR is a research project funded by SPRITE+ which, for the first time, mapped the vulnerability space (i.e., its social, technical, legal, ethical risks and impacts), from the perspective of (a) those delivering the training, (b) the first responders who will be undertaking this training, and (c) the technical teams bringing forward new training methodologies in XR. The project explores the socio-technical challenges posed by the adoption of this technology, providing the foundations for further research on the safe, secure, and ethical use of immersive training technology for enhancing the response of policing in England.

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### Our Team

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# Geographical Depiction of known XR use by Police in the UK



# First RespondXR

## Digital vulnerability of immersive training for first responders

### Our Research

In their role as first responders, police services in England provide immediate assistance to individuals at a scene of emergency and/or potential criminal event. However, the significant reduction in policing resources since 2010 has demanded officers to work more broadly in response to the diverse range of incidents. Therefore, training needs and settings must be not only varied, but efficient as well as effective.

Extended Reality (XR), including both virtual and augmented reality, is becoming prominent in many sectors for training and operations. Yet, in the rush to exploit the benefits of XR for immersive training, the potential digital vulnerabilities that may be exposed have yet to be properly examined.

First RespondXR is a research project funded by SPRITE+ which, for the first time, mapped the vulnerability space (i.e., its social, technical, legal, ethical risks and impacts), from the perspective of (a) those delivering the training, (b) the first responders who will be undertaking this training, and (c) the technical teams bringing forward new training methodologies in XR. The project explores the socio-technical challenges posed by the adoption of this technology, providing the foundations for further research on the safe, secure, and ethical use of immersive training technology for enhancing the response of policing in England.

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