

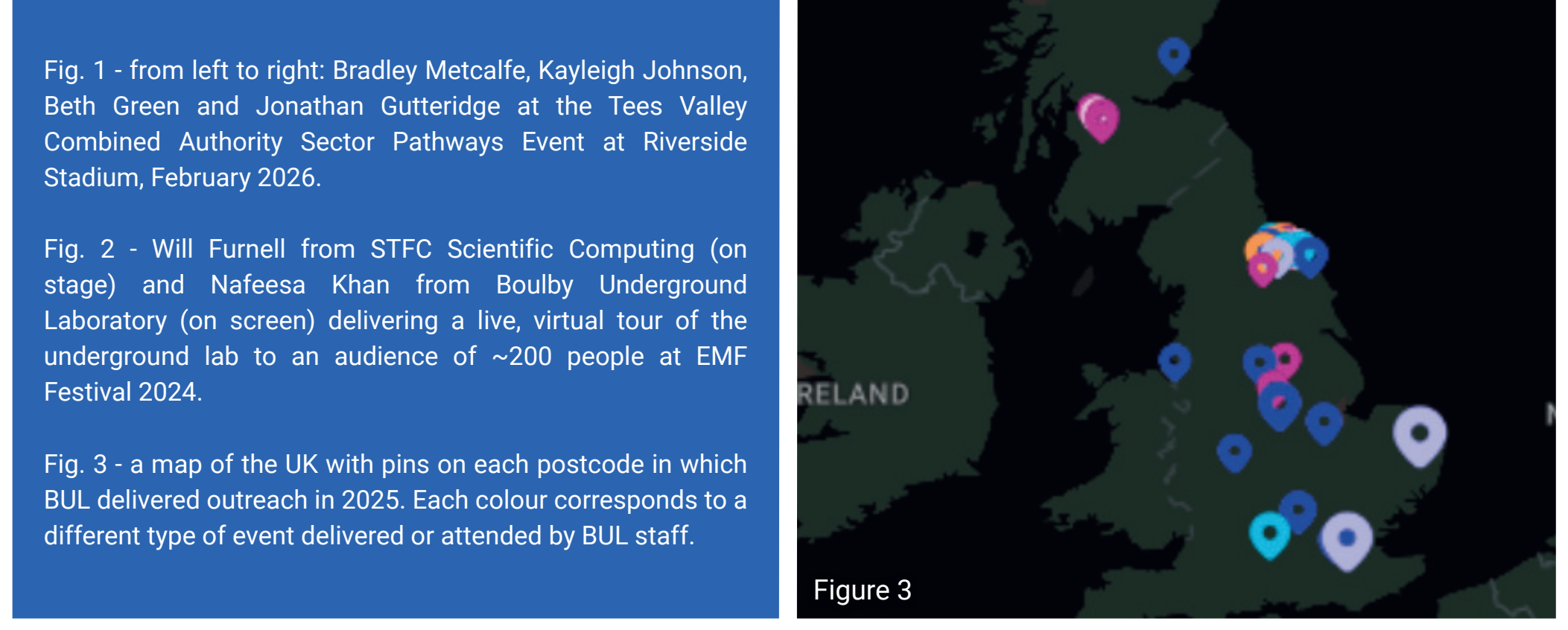
From Caverns to Classroom

Challenges, methods and conclusions from delivering Public Engagement at Boulby Underground Laboratory

Aims and Challenges

Public Engagement at Boulby Underground Laboratory (BUL) aims to satisfy two strategies, STFC's Strategic Delivery Plan and BUL's own Vision and Missions, by 'maximising the impact of our inspirational science programme to engage the public' and to 'encourage the next generation' to pursue careers in STEM. Aligning to the BUL Vision and Missions, we strive to be 'an internationally recognised centre for excellence [...] for multidisciplinary science, innovation, education and outreach' to 'educate and inspire' through delivery of public engagement to 'schools, general public and the science community.'

The nature of the science projects that we host at BUL introduces a unique set of challenges when designing public engagement programmes:



Methods

Boulby Underground Laboratory employs a variety of methods for delivering high quality, cost-effective public engagement. This often involves taking the science of the lab out into the world as opposed to bringing visitors to site.

STFC Wonder Initiative

BUL's public engagement efforts aim to fulfill STFC's Wonder initiative, a programme which targets the 40% most economically disadvantaged areas of the UK (as determined by multiple indices of deprivation data). BUL strives to align with the initiative by aiming to ensure a minimum of 40% of our audiences are from a Wonder postcode.

Remote³

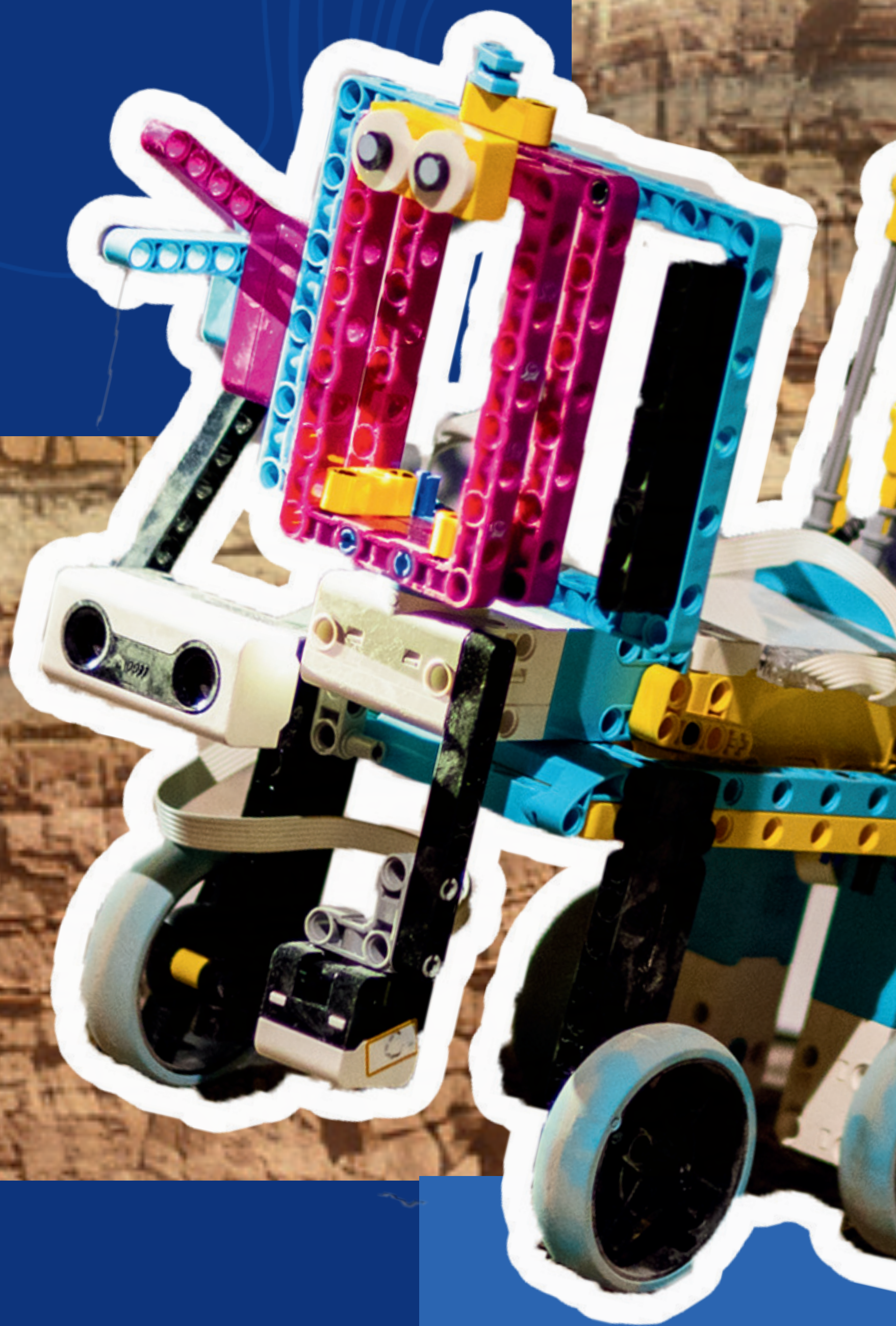
An STFC Spark Award funded programme jointly ran with the University of Edinburgh and STFC's Rutherford Appleton Laboratory to mentor student groups from remote parts of the UK in the design, construction and programming of LEGO Spike Prime Mars rovers. The programme engages with remote Scottish schools as well as schools in economically-disadvantaged areas.

Virtual Tours ('Live Links')

Tours of the underground lab are too resource intensive to be used as a public engagement tool, so instead we deliver high-quality virtual tours which we call 'Live Links.' Live links are the lab's most versatile outreach package - the BUL team is well-versed in adapting the live link delivery style on the fly to suit a wide array of audiences and events. Such events include British Science Festival, countless school classes from around the UK, a joint link with the Australian underground lab SUPL, and STEM Learning's 'Mars Hour', the latter of which reached roughly 53,000 people.

Early Careers Events

A big portion of BUL's public engagement effort is dedicated to debunking the myth that all those who wish to work in science and technology must attend university and study a STEM subject. As evidenced by STFC's sites, particularly BUL, this is not the case. During apprenticeship season (typically January - March) we work closely with local education providers and regional authorities (notably the Tees Valley Combined Authority) to promote early careers and apprenticeship opportunities within STFC that go beyond the usual science route.



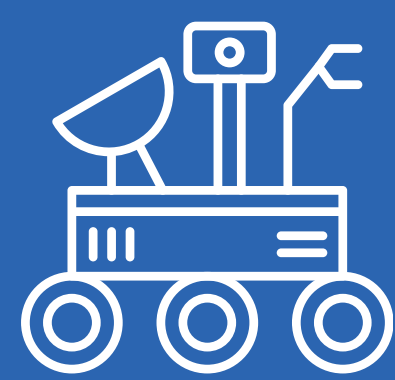
6,200 people engaged throughout 2025...



... across 68 different events...



... 23 live links, reaching ~1600 people



11,531 total reach from the Remote³ programme across its lifetime, with students from 355 schools

Results and Conclusions

Efficiency and Impact Analysis

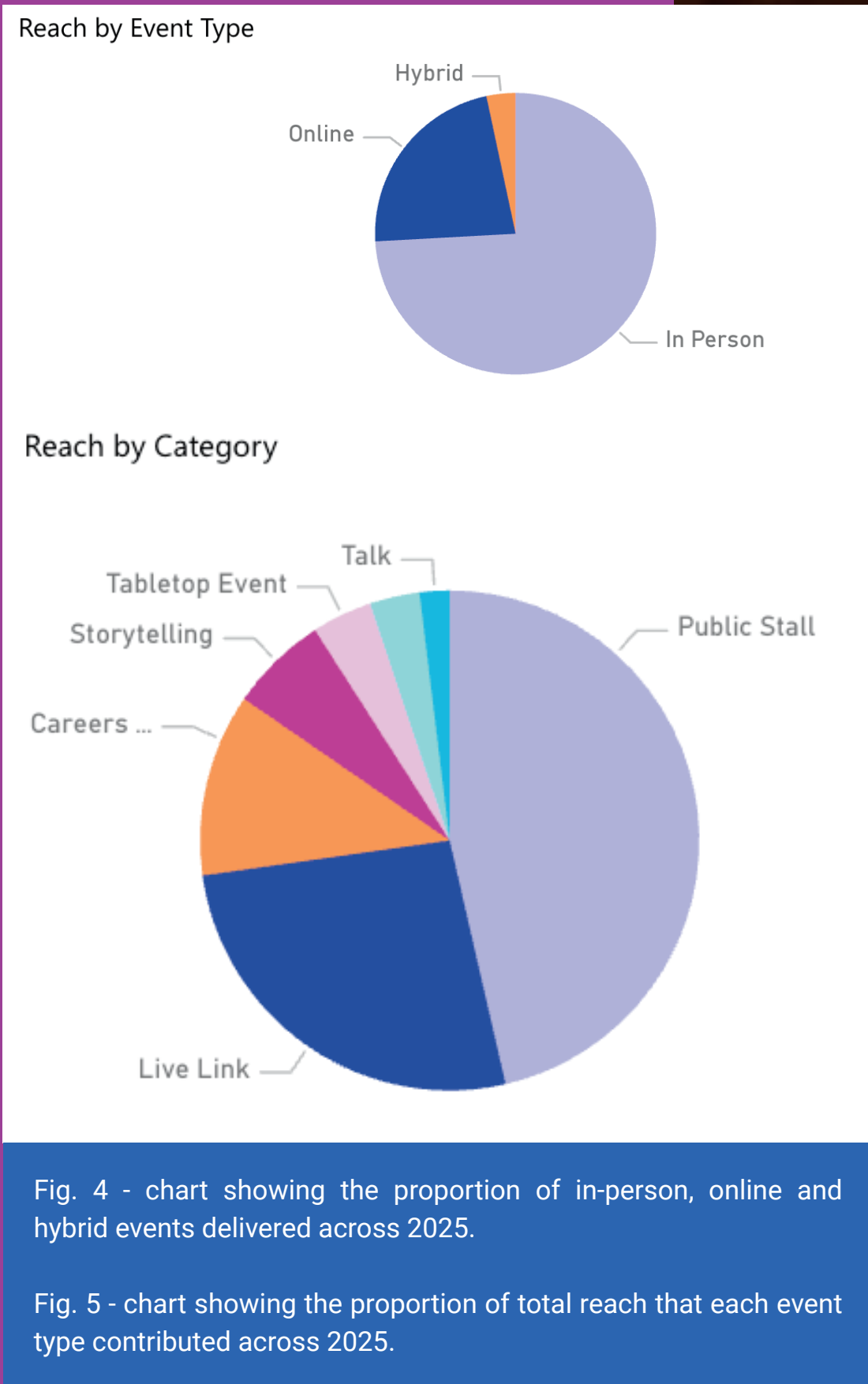
Work has been conducted to analyse the time and cost efficiency of the different public engagement event types that make up the BUL PE offering in the interest of maximising the lab's impact and cost effectiveness. Early results show that live links and public stall events (such as New Scientist Live and Norwich Science Festival) have the largest potential for a high engagement-per-staff-hour metric, whereas primary school storytelling sessions show lower efficiency, though discussion can be had regarding the value of each event type.

Apprentice and Early Careers Training

The BUL public engagement programme gives apprentices and other early careers staff valuable opportunities to promote STFC science to students, the science community, key stakeholders and members of the public. Early careers staff at BUL are given the opportunity to be Remote³ mentors for local and remote schools, trained up to deliver virtual tours, talk about their STFC apprenticeship at careers events with local education providers, and participate in primary school coding and storytelling workshops, boosting confidence in public speaking and discussion of science.

Conclusions

The public engagement offering at Boulby Underground Laboratory allows the innovative and inspiring science hosted at the lab to be translated and taught to a wide variety of audiences within a range of contexts. Efficiency and impact analysis enables the BUL team to adhere to the targets laid out by the STFC Wonder initiative and understand the lab's regional and national visibility. BUL's outreach efforts also provide ample learning and development opportunities for early careers staff, such as apprentices and graduates.



References

[1] - STFC Strategic Delivery Plan (2022 - 2025)
[2] - Boulby Underground Laboratory Vision & Mission (2023)