

# Accelerating innovation in computing technologies

Last week, CERN openlab published [its latest annual report](#), outlining progress made in 2018 on [17 joint R&D projects](#) carried out between CERN and leading ICT companies.

CERN openlab is a unique public-private partnership. It was founded by CERN in 2001 to provide a way to collaborate with leading technology companies to tackle tomorrow's ICT challenges. Together, we are able to accelerate the development of cutting-edge computing technologies to the benefit of research in particle physics and beyond.

CERN openlab runs in successive three-year phases, making it possible for both CERN and the companies to take stock at regular intervals. 2018 marked the start of CERN openlab's sixth such phase, with work beginning on a series of new projects. These address key ICT challenges faced by our research community, as identified through an in-depth consultation process with experiments and teams across the laboratory. Today's projects are tackling challenges in three main areas: data-centre technologies and infrastructures, computing performance and software, and machine learning and data analytics.

Collaboration with industry through CERN openlab makes it possible for members of CERN's research community to assess the merits of new technologies in their early stages of development, to gain insight into planned developments by leading companies in the field, and to help shape the evolution of new technologies. The collaboration is also of great value to the companies, enabling them to test their latest technologies in CERN's uniquely challenging environment. In 2018, Oracle became the second company, after Intel, to have spent over 15 years collaborating with CERN through CERN openlab. The continuing appeal of this collaboration is also shown by new companies signing up. In 2018, Micron Technology, E4 Computer Engineering, IBM, and Google all joined.

CERN openlab is now exploring a range of emerging, disruptive technologies that offer the potential to change fundamentally ICT processes at CERN and beyond. For example, in 2018 CERN openlab began investigation of [technologies related to quantum computing](#). Initial investigations have already been launched with IBM and Google in this area. While quantum-computing technologies are still at an early stage of development, they hold significant potential, and CERN openlab is ideally positioned to help drive innovation in this area forward.

Of course, quantum computing is just one of many avenues being explored as a way to address future ICT challenges, both at CERN and beyond. In 2019, we will investigate a number of emerging technologies that have the potential to disrupt key computing models used by the high-energy physics (HEP) community. Members of CERN openlab's management team are continuing to work very closely with representatives of experiments and departments across CERN to ensure we continue to address [the latest, evolving ICT challenges](#) faced by the laboratory's research community.

We're always on the lookout for new ways in which to support CERN's research community. Visit our [website](#), dip into the annual report or feel free to [contact us](#)