# Exploring sex, sexual orientation and gender identity through interactive visualisations

The 2021 UK census introduced questions on sexual orientation and gender identity, which were presented in various orders and with slightly different wording in different countries. These new questions were clearly marked as voluntary, potentially sensitive and voluntary responses are not likely to be reported in fine detail. This complicates the analysis and means discussion on places with the highest proportion of non-straight people, trans people or other novel group identifications may not be especially useful for comparison. Thus, these questions represent a novel but complicated way to understand the UK population. At the same time, interactive visualisations are increasingly popular way to illustrate data in ways that are engaging and potentially very illuminating. Dynamic or interactive data representations do not use a few static images to illustrate complex conclusions, but instead allow audiences to test intuitions, double check understanding, and focus on comparisons in otherwise impossible ways. For example, an interactive map created in R means that users can quickly move from between aggregates values at different levels of detail, can track changes over time, or both at once. Advancements in geospatial analysis have proven effective for the safeguarding of novel groups, so interactive visualisations of the spatial and temporal patterns of sexual orientation and gender identity can also support policy development. Combining this novel census data with mental health statistics, deprivation statistics and rural/urban classifications or other demographic and environmental correlates allows us to better understand how sexual orientation and gender are represented across the UK. In this context, we present the novel 2021 UK census data on sexual orientation and gender identity data through three different interactive visualisations. This combination of novel data and modern, interactive visualisations maximises clarity and minimises potential misunderstandings in the exploration of social and physical vulnerability through sensitive and voluntary questions.