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NPA COVID-19 Response Group - TechSolns Citizens Summary

In December 2019 there was an outbreak of the SARS-CoV-2; since there have been 107 million cases and 2.35 million deaths including 3.99 million confirmed cases and almost 115,000 deaths in the UK. Technology has played a key role in trying to combat this highly infectious disease in many aspects of Covid-19 management over the past 12 months; including the adaptation of existing technology, pivoting of companies/product and the creation of new innovative products. The *TechSolns* project assesses this impact that technology has had during the Covid-19 pandemic across the Northern Periphery and Arctic (NPA) region. Specifically, we examine a range of technology solutions that aim to address the physical/mental, economic, and social challenges that have occurred during the pandemic, especially challenges amongst the most vulnerable individuals. Peripheral region countries such as those in the NPA provide interesting case studies for successful innovative technology adoption given their track record of resilience and flexibility in response to the crisis. Resilience in peripheral regions is somewhat due to the close-knit community; closely aligned interests which often exist in (relatively) small peripheral regions and countries.

Through online searches, webinars, and engaging existing contacts in academia, industry, and health care systems we identified relevant companies who had provided COVID-19 technology innovations. In total, we interviewed 35 companies over the 9 partner countries of the NPA, namely Northern Ireland, Ireland, Scotland, Faroe Islands, Iceland, Greenland, Norway, Finland, and Sweden. Additionally, we spoke to a connected health company in Maine, New England. To the best of our knowledge, we accurately sampled the technology solutions developed in each country and provide a fair representation of the key innovations which occurred/were developed within the NPA area.

Our findings show that the products and services developed by companies fall under 6 recurring themes: 1) Communication Services 2) Predictive Modelling and Artificial Intelligence 3) Contact tracing systems 4) Social Assistance 5) COVID-19 Testing Facilities 6) Various supporting hardware. We found that many of the companies who had innovated had built on their previous expertise, applying it to assist during the COVID-19 pandemic. A large focus of the innovation was in response to the social problems encountered by COVID-19, with 39% of interviewed companies offering a solution to address these problems. COVID-19 testing facilities made up 19.44% of companies, contact tracing 16.67%, and supporting hardware and predictive modelling and AI (each) 13.89%.

The *TechSolns* report shows how NPA regions responded successfully to the pandemic; often quickly innovating due to country's small size and sense of community. In particular, this was observed in the Faroe Islands where, for example, food testing labs were quickly converted to COVID-19 testing centres. Telehealth solutions have been established in peripheral areas for some years already, making an expansion to health related technology a natural next step. This pre-existing trust and knowledge of technology evident in these communities helps explain the accelerated widespread deployment and uptake of technology solutions during the COVID-19 pandemic in the NPA region. Additionally, a general sense of trust, both in the public and from the public, helped countries like Iceland roll out successful contact-tracing applications and self-referral COVID-19 testing facilities. An interesting observation from the research has been the awareness companies have had of their target market in peripheral countries. Ageing populations in rural communities are one of the biggest challenges for technology adaption; by designing applications with this specific demographic in mind it is more likely that the uptake will be a success. End-user acceptability is very important in this user group.

Many of the companies featured in this report found success by leveraging their pre-existing market knowledge, however they may not represent the entities who completely pivoted their direction who may not have been as successful. We therefore recommend that companies use due diligence before changing their current business direction or focus. Businesses should not forgo their primary trade to focus on crisis innovation; rather this should come secondary.

The report has shown that similar technology innovations occurred between many of the NPA countries. Going forward, countries could more efficiently combat a crisis if interdisciplinary, multi-national teams worked on technology together rather than multiple countries producing the same product.