Dáil Statement and Briefing for Minister Harris

National app for Covid-19

30th April 2020

Proposed statement

Our contact tracing operation is at the centre of the health service response to combatting covid-19 and protecting our communities. We want to support our health services as much as possible, and like many other countries we are looking to innovative technologies that can make a real difference in the weeks and months ahead.

Overview of the mobile app

As part of the national response to Covid-19, work is underway to develop a national app for contact tracing and real-time symptom tracking.

The primary purpose of the app is to enable the health services to improve the speed and effectiveness of contact tracing and to map and predict the spread of Covid-19 in support of the overall goal to flatten the curve and prevent the spread of Covid-19 to others in our community.

As well as supporting the government's overall efforts in the immediate fight against Covid-19, the app will have particular benefits in helping people return to normal life as restrictions ease.

Update on progress in terms of app development

Significant work has been carried out to date and the app development team are working very closely with the national contact tracing operations at HSE to ensure that the app is designed in a way that supports and augments current policy and practice in relation to contact tracing.

We are working closely with other countries and the Irish team is actively engaged with Google and Apple as part of our international efforts to develop an effective solution that supports all smart-phone users in

Ireland. Indeed, we have developed very constructive relations with these companies and are appreciative of the huge engineering efforts and urgency being applied to ensure effective contact tracing functionality across those two operating systems.

An extensive programme of research and development and testing will be completed before the App will be made available to the public. This programme involves user experience and behavioural research, large scale functional testing, and developing a model for utilising and analysing the anonymous data for contract tracing and public health planning. This programme reflects significant cross-governmental and cross-sectoral collaboration across HSE, the Irish Government Economics and Evaluation Services (IGEES), DPER, DoH, the Central Statistics Office, and the Economic and Social Research Institute – the ESRI.

The achievement of privacy and public health value

In developing this app, Ireland has been very conscious of the vital importance of data protection and privacy. This is essential given the concerns that have, at times, arisen in relation to the use of mobile technology globally and given the importance of data protection and privacy in the European context.

The Irish app is being developed to be compliant with recent EU recommendations and guidance documents published by the European Commission. It has been developed on the basis of privacy-by-design. Use of the app will be voluntary and data that is provided to the health services will be provided on the basis of consent and user preferences. There is significant value in being able to map and monitor symptoms in real-time at national level and this will be done in a way that completely protects the anonymity of all app users.

Communications

A significant proportion of the population are needed to download and use the app for it to make a difference to contact tracing and for

understanding the spread of Covid-19. Therefore, making sure that as many people as possible can take part in this national effort is an important goal. As part of the preparations, a national communications campaign is being developed which will make it as easy as possible for people across Ireland to start using the app.

Concluding remarks

In summary, Ireland is very active in the development of our Covid Tracker Ireland app and has shared its experience with other countries in recent weeks. EU member states have expressed the need for some level of interoperability between contact tracing apps developed in each country and Ireland will continue to be proactive in supporting that initiative.

Although this is a time of crisis, it is also a time of innovation and collaboration across our public services, which will have lasting value now and into the future. We now enter an intensive period of testing and trialling of the national app, following which further updates will be available as part of the national public-health led response.

As I have emphasised, it is essential that the necessary development and testing is fully completed and any issues or concerns comprehensively addressed in order to inform final decisions and ensure successful launch and uptake of any app. I will be happy to continue to update the House on progress prior to any implementation and public launch stage.

Questions and Answers

Core assertions relating to the App:

Ireland's objective here is to develop an app that is technically robust, that has a strong user focus, and that is effective across all mobile phone platforms.

Ireland is working actively within the EU and - in the development of our app, we are ensuring continuing alignment with the EU guidance on digital innovation and on data protection.

The development of contact tracing capability in mobile phones is a non-trivial engineering exercise that has been underway in Ireland and other countries over recent weeks.

The Irish team are working closely with EU counterparts and with the NHS to support the achievement of interoperability – recognising that no one country alone can resolve that.

In terms of the design architecture, we were initially pursuing a 'hybrid model', but following discussions with other countries and GDPR experts, have now opted to progress development on the basis of a more 'de-centralised' or 'distributed model'. This means that the matching of contact traces occurs on each individual's mobile phone and is not held centrally by the health services.

Through our own intensive work over recent weeks on product development, research and testing, we have concluded that the 'distributed model' best supports contact tracing for two main reasons:

1. It offers the best outcome in terms of the core functionality and effectiveness of contact tracing across all mobile phone platforms.
2. It demonstrably maximises the protection of privacy and this is vital for public trust and confidence in the app.

The Irish technical team are working closely with both Google and Apple in developing core contact tracing functionality that operates across both platforms.

The Irish approach is to align the app closely to the contact tracing requirements as outlined by NPHET and the contact tracing services - while fully supporting the data privacy rights of individual citizens.

The development of the app is advancing and the Irish app will be undergoing extensive testing and trialling in the immediate weeks ahead. The implementation

timeline will be determined by the NPHET on the basis of the technical progress and the results from the intensive testing.

Technical progress will be largely dependent upon the availability of the API being developed by Apple and Google. Our team is working very closely with them to align timescales and to ensure maximised interoperability.

Will children be able to access the App?

The App will be available for use by people who are aged 16 or older because this is the digital age of consent.

The app will ask people to declare their age when registering for the app. For those under 16 years of age, the digital age of consent will apply.

What is being done to ensure that the privacy of App users is being protected?

Privacy-by-design has underpinned all aspects of the App development. The overriding focus of the contact tracing services and the HSE is on proximity between two App users within critical windows of time so they can ensure that citizens are notified of close contact with confirmed cases and that citizens are supported as appropriate, and in accordance with their stated preferences. It is important to be clear that location data from the App is not of interest to the contact tracing services or the HSE. Furthermore, it is important to note that the identity of the index case is never disclosed via the app and the privacy of all app users is protected at all times.

What about the issue of location data and the implications that might have for privacy?

Location data is not of interest in terms of contact tracing and the identity of confirmed cases is always protected by the app. Location data is not necessary nor recommended for the purpose of contact tracing apps, as their goal is not to follow the movements of individuals. Automatically collecting an individual's movements in the context of contact tracing apps may violate the principle of data minimisation and create major security and privacy issues. In that context, exact location data will not be captured by the app.

However, location data will be an essential input into future policy and planning activities without compromising privacy, i.e. by utilising the symptom tracker capabilities on the app with the voluntarily supplier small statistical area location information. This would enable Public Health experts to map and monitor symptoms in real-time at national level. Consequently, the Department of Health is working with the CSO and with other relevant agencies to utilise data volunteered by citizens

accordingly. To re-emphasise, the purpose will be to deliver symptomatic intelligence that is valuable for the management and protection of public health in a manner that completely protects the privacy of all app users.

Can you explain about the symptom checker and the use of location data?

Our ambition is for data from the App to provide the national Covid-19 response with real-time citizen-data on symptoms so that the health services can respond in real time to the management of the virus.

Because the use of location data gives rise to privacy concerns, the COVID App will not record or collect exact location information. However, it is intended to give people the option of volunteering their general locality from which the symptoms are reported. This is of substantial value for public health by allowing mapping and modelling to monitor and manage the disease at population level and it is our goal to achieve this value in a manner that does not compromise the privacy of app users.

The value of the symptom tracker

While the symptom tracker has potential (as set out above) to generate valuable national data relevant to Covid-19 (on the basis of anonymous data provided voluntarily), it also has a more immediate benefit for app users in that it provides a way to maintain a personal record of recent symptoms. Some people find it hard to manage when they are unwell and people can also have difficulty in remembering the first onset of symptoms. This app gives individuals a personal record and reminder of their symptoms to help them if they are in contact with the HSE or speaking with a healthcare professional. The accurate reporting of the timing of the first onset of symptoms is used to frame the contact tracing window (e.g. symptom onset -48 hours) for current operations. The symptom tracker can help users recollect that date. This will enhance the current contact tracing effort and has potential to improve the speed and the accuracy of the tracing process.

Can you explain exactly how the contact tracing in the App actually works?

In technological terms, two phones that have the app installed will use their Bluetooth signals to make a fully anonymous phone-to-phone 'handshake', and will start to measure how close they are, and for how long. A close contact event is logged on each phone if they are within 2 metres of each other for more than 15 minutes. This matches the ECDC definition of a close contact. In this model, privacy preserving non-identifying "tokens" can voluntarily be made available by the

diagnosed person's app to other app users. This is then used to determine if a person has been in close contact, never revealing the identity of the positive person.

The app and resulting data will enhance the efficiency and accuracy of contact tracing procedures and provide a pathway to automated contact tracing (if required by NPHET).

How will we be sure that the App works?

There is an extensive programme of research and development underway, to ensure that the app is fully operational. There are three parts to this programme.

STREAM 1: User Experience and behavioural research

The ESRI Behavioural Research Unit (BRU) will conduct a study on behalf of the Department of Health and HSE. Participants will use the App, and through live testing and feedback, the study team will gather information on real-time experience that will be used to inform a final user-centric app.

STREAM 2: FIELD-TESTING AT SCALE

The objective of field testing at scale is to determine how well the app performs in real-life environments, and how best to integrate this information to contact tracing operations. This study, which will be led by the HSE team, aims to involve a group of up to 2000 volunteers who will install and use the app for a period of time.

STREAM 3: DATA AND ANALYTICS

The objective of the data and analytics work stream is to generate real data flows from the field-testing stream so that the HSE, Department of Health, NPHET and the CSO can begin a process of preparing the epidemiological modelling and public health analytics for the anonymous app data.

What's going on at EU level in this area?

EU Member States have been examining ways in which technology can assist in the fight against Covid-19. Most countries are experiencing a rapid deployment of technical solutions and many of these relate to the streamlining of processes such as electronic requests for Covid-19 lab tests, and solutions that reduce physical exposure between patients and clinicians– such as telehealth consultations.

On 8th April, the European Commission published recommendations on a common Union 'toolbox' for the use of technology and data to combat and exit from the COVID-19 crisis and this included mobile applications and the use of anonymised

mobility data. A subsequent paper on 15th April specifically related to mobile Applications designed to support contact tracing in the EU's fight against Covid-19.

Because of concerns that such apps could potentially affect the privacy of EU citizens, a further paper was published by the European Commission on 16th April with guidance on data protection and apps developed to support the Covid-19 response in Member States. The key messages from these documents are:

• Use of contact tracing apps should be voluntary

• Data privacy rights for EU citizens must be respected, even during the pandemic

Most EU attention is currently focussed on the contact tracing app. Other 'tools' in the toolbox have either fewer privacy concerns and/or can be developed separately for use in each Member State without cross border considerations.

What is Ireland doing in terms of interoperability?

Whilst contact tracing apps are being developed separately by each Member State, there is considerable debate now on how interoperability can be achieved so these apps can 'talk to each other' so that citizens can travel freely between members states in the future, in the knowledge that protections offered by their contact tracing app will work as they cross EU borders. Apps are being developed separately because time is short but more importantly because they must support the way in which public health authorities manage the spread of the virus and specifically, the app must integrate with how the contact tracing process is designed to work in each member state.

While focussed on the development and deployment of our national app, Ireland is actively engaged in the work at EU level to share progress and to ultimately achieve interoperability internationally within the EU and between Ireland, Northern Ireland and the UK.

Cross Border use of apps

The primary focus of the development team is to ensure that the app is robust and reliable. Interoperability between EU member states and use of the app across the border presents specific technical challenges which have yet to be addressed. Cross border interoperability is a particular area of interest for the EU to support free movement of citizens as Covid-19 related restrictions on movement are lifted. In this context, the specific challenge of North South travel in Ireland and across the Irish Sea has been highlighted in EU meetings convened to discuss eHealth and app

related matters for Covid-19. It also forms part of our engagement with health counterparts in Norther Ireland and with the NHS, which is ongoing to maximise the alignment of the public health measures in place in response to Covid-19. The app solution proposed for Ireland ensures privacy by design and is aligned with the recommendations and guidance notes issued by the EU in recent weeks.

Who is involved in this work?

There is a dedicated team in place, led by the Assistant Secretary for R&D and Health Analytics at the Department of Health, the Chief Information Officer at the HSE and the Government Chief Information Officer (OGCIO). They are supported by technical expertise from across the public services and their industry partners and have engaged a number of companies in the app development and testing.

A Covid App Oversight Group has been established from senior officials from the HSE, DOH and DPER (OGCIO) for the purposes of:

- Advising the HSE implementation team in the development of the app
- Oversight of project operations
- Review and consideration of version updates
- Consideration and integration of the national approach with the emerging international context for digital contact tracing
- Strategic and ongoing engagement with HSE contact tracing services and with the NPHET.

A core team of staff from across the public service are driving the project. This team are augmented by technical specialists with specific skillsets and are following an agile development methodology. There are a number of technical and research partners collaborating on the project bringing a range of expertise from data privacy, device level functionality and research as well as app development. Technical partners include Apple, Google and Amazon. Research partners include Science Foundation Ireland and the ESRI. NearForm are involved in the technical development of the app.

Who are Nearform?

Nearform are a Waterford based company that have a strong track record of delivering high tech solutions for companies such as Uber, Microsoft and McKinsey. They were engaged based on specific skillsets not only in app development but more importantly because of their expertise in Bluetooth technologies. Early work on the app revealed a critical reliance on the use of low power Bluetooth functionality and

particular issues in relation to how this might interface with the operating systems from Apple and Google. This work subsequently led to the joint announcement by Apple and Google that they would issue software updates (APIs) to help address this issue. Whilst two companies were identified with the requisite skillset, only Nearform were able to mobilise a team within the requisite time-frames.

Can everyone use the app?

The App can be used by anyone with a smartphone that is generally less than 5 years old. The app has been designed with users in mind, and it is important to note the research and development programme involves members of the public so we can make the app as easy to use as possible. There are other important steps, like following the HSE communicating clearly guidelines for how information is presented to users.

We do know that many of our citizens can struggle with health information and with technology, and that is a challenge for the app and for eHealth in Ireland. We are particularly mindful of those with physical and sensory disabilities, or intellectual disability. The team are already considering future versions, which may support different types of users such as a carers or family members who could use the app to support someone else in the household.

In terms of language, the app will available in English in the first version. Further versions may be made available in Irish and other languages. The team will carefully plan these updates and how they are sequenced and will engage stakeholders in this important work.

It is important to note that the existing contact tracing operation will remain at the heart of the operation and everyone is included in that process. The app is intended to augment that and, as set out above, considerable attention will be directed to supporting the broadest possible take-up of the app across the population.

What about marginalised groups and the digital divide?

Designing technology for inclusion is first and foremost about recognising exclusion: who might struggle to use the app as part of their daily life and why? Meeting this challenge is about working closely with stakeholders and citizens in the development stages: solving for one and extending to many, and learning from diversity. The team are working hard to make sure that the app can meet the special needs of groups who may be the most vulnerable in a technological sense, so that everyone can take part in this national effort.

The team also recognise that some of our citizens may have phones that cannot download the app and some may not have phones at all. We are continuing to look at potentially viable solutions to maximise inclusion in use of this important tool.

Will the information gathered on the app be made available to the public?

Insofar as the information can inform heat maps of the actual and possible future spread of the disease, this information will be provided in an aggregated way in the future. Many of those heat maps are already available – the information provided by the app could simply help improve their accuracy.

A public information campaign is being co-designed by HSE and DOH and will be embedded in the national approach to Covid-19 communications.

Anonymous and aggregate data will be made available to the public through familiar national Covid-19 communication channels and will follow the same approach to reporting other national Covid-19 statistics. This is a format that citizens are familiar with and includes national graphs, maps, and dashboards.

How many people need to download and use the app?

A review of available research and published international reports has found that the target adoption rates that have been quoted for apps like this vary a lot (from 40-60% of the population), and the use of evidence-informed targets is mixed. A recent and robust modelling study of a comparable app in the US estimated that a minimum target adoption rate of 25% in the population would be needed for there to be a significant impact on the rate of infection in the population.

The fact is that for contact tracing operations, every additional contact that the app can identify will enhance our existing contact tracing processes. The more people that use the app, the more effective it will be.

As part of the development process, user experience research has been conducted to identify factors that lead to drop-off and the team plan to monitor uptake and drop-off when the app is rolled-out. A public engagement plan is being developed to address these challenges with the support of the Behavioural Change Sub-group of NPHET.