A Crisis of Governance – Or an Opportunity?

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ABSTRACT: The National Health Service Track and Trace Programme has been one of the most pivotal and controversial tools the UK government has deployed to combat the COVID-19 pandemic. This article reviews the challenges of the development and implementation of the NHS COVID-19 mobile application, and reviews these in the context of the following 3 key areas: outsourcing of public sector, organisational structure and leadership, digital framework and governance. The paper argues that the current pandemic has demonstrated weaknesses in each of the above-mentioned areas, and that is an urgent need to strategically address these in order to prepare for the next public health crisis.

KEYWORDS: track and trace, digital contact tracing, outsourcing, digital governance, NHS

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Background

On the 28th of May 2020, the United Kingdom (UK) Conservative government launched the National Health Service (NHS) Test and Trace (NHSTT) project. The project had the following objectives: to increase the speed of testing across the country; to identify and contain COVID19 outbreaks by tracking close contacts and to enable the government to respond to data in rapidly and strategically. However, this project has been heavily criticised as 'ineffective' in combating the current pandemic.[1]

Although the first UK case of COVID-19 was confirmed on the 31st of January 2020, the UK government response to the public health crisis has been hailed as 'sluggish'. The government outlined 4 phases as a response plan which included a containment phase, a delay stage, a research phase and a mitigate phase.[2] The containment phase ended on the 12th of March when the number of cases rose to 590 cases nationally.[3] The country's limited testing capacity (around 1500 tests per day) constrained contact tracing to high-risk settings, in particular hospitals and care homes.

On the 2nd of April 2020, the government outlined a 5-pillar strategy that was set to increase testing to 100 000 per day nationally by the end of the month,[4] and on the 12th of April, Matt Hancock announced the development of the NHSX app for contact tracing. The testing capability reached 100 000 tests daily on the 1st of May 2020.[4]

On the 4th of May 2020, the government announced that the NHS tracing system was ready to be trialled in the Isle of Wight. The residents would be asked to download a mobile application that would allow the NHS to monitor and identify outbreaks of COVID-19.[5] The test, track and trace programme were signalled as the mechanism that would allow the UK to lift the lockdown and initially was scheduled to be rolled-out to the rest of the country by the end of the month.

However, on the 18th of June, after successive delays on the national roll-out of the mobile application, Westminster announced that it would discontinue the application altogether,[5] and develop a new app that complied with the Apple-Google model.[6]

This paper argues that there has been a weak digital governance structure in the development and implementation of the track and trace programme, particularly the development of the COVID-19 mobile application, probably under the emergency policies regulations that bypassed the usual procurement and tender regulations.[7] There is an argument that a technological framework for health tech development is necessary, not only for the conscious and timely development of technology that enables the country to emerge from the pandemic, but for future public health crises.

NHSTT

The NHSTT programme has been designed to support the COVID-19 testing available to the wider public. Once a member of the public develops symptoms of COVID-19, they can order a test through the NHS. Contact tracking commences once the person tests positive for COVID-19, which in this case they are asked to isolate. However, this programme is heavily reliant on identifying individuals at risk and be able to track locations and other individuals that may have been exposed to the virus and to persuade them to self-isolate. For this purpose, the government needed to scale its operations and commission work to several public and private sector companies to deliver the NHS Test and Trace Programme.[8]

Roderick et al[9] argue that the government choice of outsourcing services to Deloitte, Sodexo, Randox, Amazon, AstraZeneca and GlaxoSmithKline have had a negative impact on the management of the public health crisis, that traditionally has relied on the cooperation between local public health services and authorities in terms of the statutory duties for reporting notifiable diseases in the Public Health (Control of Disease) Act 1984 and the Health Protection (Notification) Regulations 2010.[10] The same authors pinpoint failures in these contracts, for example the contract awarded to Randox, valued at £133m with the purpose to analyse home test kits

samples. In June 2020, 29 500 individuals had to have their tests redone because the results were considered invalid, and consequently the same tests were sent to the US due to technical issues in the Northern Irish laboratory that Randox operates.[11]

Another example is the call centre that supports the contact tracing system. The service was awarded to Serco, a private company that operates internationally, and is responsible for contacting individuals that may have been exposed to the virus.[12] However, 2 months since the launch of the NHSTT programme, only 60% of the cases had been contacted, and out of those that were contacted, only 50% of these cases were advised within 24 hours, with 8% of the cases being contacted over 3 days.[1]

NHSX App

The NHSTT programme was launched on the 28th of May 2020, but the launch did not include the mobile application that had been developed by the NHS England Innovation unit, NHSX.[2] The idea behind the development of the mobile application focussed on the storage of clinical data that would allow to identify and contain outbreaks of COVID-19. Digital contact tracing had been pioneered in other countries, for example Singapore with the TraceTogether application and it was seen as the way-forward in tackling the pandemic in the UK.[13] However, countries such as Singapore and Australia soon faced issues with the mobile application development. The issue surrounded a centralised or decentralised approach to the operating system of the mobile application.

Both the operating systems use Bluetooth signals to identify locational proximity between users.[14] However, in the centralised operating system the data that is gathered generates an anonymous identification that is uploaded to a remote server which in turn will signal if there has been potential contagion, whilst the decentralised approach keeps the data on the phone, and it is the phone system that will conduct the contact matching and risk analysis and send alerts.[14] Although Singapore and Australia all preferred the centralised system when developing the mobile application, they soon faced technical issues with the mobile application and switched to a decentralised system approach.[13] Similarly, the NHS advocated the centralised model for the development of the NHSX in order to allow a greater amount of data to be collected and analysed in order to identify clusters and potential outbreaks.[15]

Although the app was presented to the public as a technological wonder that would allow the country to regain control of the public health crisis, the technical issues in developing this mobile application were complex. For instance, the performance of Bluetooth in mobile phones which can be unreliable and inaccurate.[15] Similar to Singapore and Australia, the UK development team also ignored that Apple and Google have developed a policy that blocks any application from constantly running Bluetooth scans and allow these same applications to send data to outside servers.[15]

Therefore, following the example of countries like Germany and Italy, the UK government commissioned a team to develop a mobile application, compatible with the Apple-Google framework and developed simultaneously as the NHSX application until its development was abandoned in favour of the decentralised application in June 2020.[6] This move also coincided with the appointment of Baroness Dido Harding, the former CEO of TalkTalk, to lead the test and trace operation.[16]

In September 2020, 4 months after the original planned date, the NHS COVID-19 mobile application was launched in England and Wales.[17] The total cost for the mobile application is estimated to be £36m, and nearly £11m was spent on the development of the NHSX application.[18] Whilst there have been recent publications that indicate that digital contact tracing can be effective in monitoring and identifying potential cases of contagion, it also notes that this is dependent on a successful communications campaign to encourage adoption and use.[19]

In the UK, a recent press release by the The Health Foundation[20] denoted that '*significant questions about the app's effectiveness remain which only further evaluation can answer*', and furthermore cautiously warned that '*our latest polling with Ipsos MORI* found a majority (61%) supported the government's use of the app, fewer supported it than in May 2020 (67%). There has also been an increase in the proportion of people who oppose the government's use of the app since May 2020 (from 12% to 19%) while around one in five (18%) remain indifferent. This overall wane in enthusiasm is perhaps unsurprising given the vacuum of information until now, while there has been an abundance of column inches detailing problems with the app – from the delays in its initial launch, to technical glitches and issues following its roll-out*'. The same press release also denotes that 48% of black and minority ethnic backgrounds support the app, in comparison with 63% of people from a white background.[20]

Public Services Outsourcing

A value system is the '*set of inter-organisational links and relationships that are necessary to create a product or a service*'.[21] In this sense, organisations interact with other organisations that are specialised in delivering an element that contributes to the overall system. This leads organisations to consider outsourcing and partnering as a mean to contract out services and lower costs.[21]

The outsourcing of healthcare provision has been driven by the adoption to rapid external changes,[22] but also by a need for organisational response, strategic alignment, regulatory requirements and technological development needs.[23] Today, healthcare organisations and non-governmental bodies adopt outsourcing and partnerships for similar reasons as the private sector: cost control, quality of patient care and efficiency of operations.[22]

However, the risks of outsourcing at times may outweigh the benefits. In general terms, outsourcing has been linked to

loss of control of suppliers, particularly in regard to the expected quality of products and services,[24] loss of core competences and lack of accountability[25] and loss of information and confidentiality issues.[22] It has been noted by several authors that outsourcing needs a robust performance monitoring approach in order to avoid quality issues and hidden costs.[26]

The negative risks of crises outsourcing activity outlined in extensive research resonates with the approach to the development of the NHSTT programme and in particular the development of the NHSX mobile application and its replacement the NHS COVID-19 app.

Organisational Failure

Andrews et al[27] assert that '*mismanagement is at the heart of (public sector) performance failure*'. The authors outline a number of indicators for organisational failure. For instance, the absence or inability to set and communicate meaningful priorities, in particular in a highly structured, hierarchical organisational structure where there is a pressure for conformity and creates a cultural complacency that denies risk and fails to identify crisis proactively. As Dominic Cummings noted in spring 2020 '*you had a situation where the Department of Health was just a smoking ruin in terms of procurement and PPE and all of that*'.[28]

'*Furthermore, the lack of a robust performance management systems will lead the public sector organisations to pursue strategies that may be unattainable, unrealistic, or inadequate*'. (March, 1995 cited in Andrews et al)[27]

The authors also recognise that internal relations are of paramount importance, denoting that detached leadership from the rest of the organisation will lead to organisational failure (Kets de Vries and Miller, 1987 cited in Andrews et al).[27] This has been reinforced by the Audit Commission[29] and the Office of Public Service Reform[30] that promote organisational flexibility. However, the Audit Commission[29] also denotes the relevance of external stakeholders to effective management, in particular the engagement of those that use the service provided by the public sector. Andrews et al[27] note the importance of effective leadership during crises. The Audit Commission[29] posits that public sector excellence can be defined by transformational leaders that adopt service delivery to a changing landscape, take swift decisions and engage internally and externally with key partners. The Audit Commission adds that not only managerial leadership should be addressed but also political leadership capability in delivering an effective service. This is reinforced by the WHO Europe action plan to improve public health preparedness and response in the WHO European Region, 2018 to 2023.[31]

Digital Governance

There are varying degrees of confidence on the effectiveness of a track and trace app in containing the epidemic. A study in the Netherlands, with an estimated population of 17 million, found that the effectiveness of a digital track and trace app was lower than random testing and estimated that it would need an 80% rate of adoption by the population in order to be effective,[32] whilst Ferretti et al[33] with the analysis of track and trace in China and South Korea, with estimated populations of 1.3 billion and 51.7 million respectively, suggest that an adoption rate of around 60% of the total population. Partially, this penetration rate is due to the differing approach to the track and trace programme worldwide.

In China, the track and trace app used the centralised approach to the development of the mobile application. In this sense, the app relays data to a central database that uses an artificial intelligence algorithm that issues a colour coded message that allows public health to enforce restrictions on movement of people between quarters, public spaces and public transportation. The app was developed as a plug-in for the WeChat, the social media application developed by Tencent and Alipay, the online payment platform developed by the Alibaba Group. This approach has been criticised over privacy fears as it's considered a high-tech surveillance tool that enables governments to keep a watch over the movements of their own citizens.[34]

The UK approach to the development of the NHSX app followed a centralised approach and was piloted in the Isle of Wight where around 35% to 42% of the total population in the area downloaded and used the mobile application, which falls well below the previous indicators of 80% and 60% adoption rate.[16] However, similarly to the privacy fears exposed with the development of the Chinese application, there is a growing ethical concern over the use of these mobile applications in promoting a state-surveillance system in other nations, including the UK.

Ferretti et al[33] posit that the effectiveness of the track and trace app relies on '*commanding well-founded public trust and confidence*'. The same authors state that the development of a track and trace mobile application relies, amongst others, on the oversight by an inclusive and transparent advisory board, the agreement of ethical principles that guide the development of the technology, equity and access of treatment across the general population, the use of an algorithm that is transparent and auditable; oversight and protection on how the data is stored and used, and ensuring that management decisions are guided by moral respect, fairness and the importance of reducing suffering.[33] Furthermore, the democratic principle of free adoption of the mobile application by the general public, based on transparent and clear communication.

The mobile application in the UK has been riddled with controversy over privacy concerns. In July 2020, the UK government admitted that the track and trace programme was rolled-out without conducting a data protection impact assessment, and therefore as it was reported by Marsh and Hern[35] that there were 3 data breaches involving personal data being mishandled and disclosed. More recently, openDemocracy, a non-for-profit, and Foxglove, a technology rights advocacy

group, have sued the NHS and Palantir Technologies Inc., the software company that has been behind the development of the data analytics for the COVID-19 app,[36] due to concerns regarding transparency.[37]

Digital Framework

The evident flaws of the track and trace system are symptomatic of ineffective management of public resources in a public health crisis. The roll out of the NHS COVID-19 app has been steeped in controversy over failures in the development, cost, security and effectiveness of the application. The programme has ineffectively addressed stakeholder expectations, decision-making was centralised and devoid of integral communication with NHS trust and local government and the communication strategy to the general public was a weak effort that didn't address concerns over lack of transparency and digital privacy. Therefore, this paper argues that there are 2 key criterion that underpins a successful implementation of a rapid change process in healthcare management, and in particular that is relevant as a lesson in tackling the next public health crisis: corporate governance and technology as a supporting and enabling strategy.

Corporate governance '*is concerned with the structures and systems of control by which managers are held accountable to those that have a legitimate stake in an organisation*'.[21] Governance of organisations should be transparent and clear in order to encourage accountability. In 2019, Matt Hancock, the Secretary of State for Health and Social Care, published the NHS long term plan and announced the emergence of NHSX, a unit designed to reduce the burden on the healthcare workforce, empower individuals to access information and services directly, ensure that information can be accessed securely, improve the safety of health and care systems and improve the productivity by enabling leading-edge technology.[38]

However, the healthcare digital landscape is not solely the responsibility of NHSX which is accompanied by NHS Digital, and the NHS England/Improvement regional teams, also tasked with similar roles in enabling delivery of healthcare provision. In October 2020, Hancock commissioned a review with McKinsey and Company, and spent around £588 000, to review how the 3 bodies work together to drive innovation and improvement in the health and social care sector.[39] The existence of multiple organisations with similar purpose contradicts the purpose of a transparent governance framework. This also accounts for the weak collaboration of internal departments and external bodies.

A critical factor in governance is that of risk and crises anticipation and management. The government had published a UK Influenza Pandemic Preparedness Strategy 2011[40] based on pandemics such as the Spanish flu in 1918, Asian flu in 1957, Hong Kong flu in 1967 and swine flu in 2009 but did not adequately anticipate a coronavirus pandemic. The Asian SARS outbreaks from 2003, and middle eastern MERS outbreaks were largely ignored as national threat to the UK.[41] This suggests that crisis preparedness goes beyond the creation of contingency plans but rather creating resilience as a way of synthesising and extending preparedness through governance across different public sector organisations and defining integration with private sector capabilities and the supporting governance structures through which to address emergencies and crises.[42] The development of this resilience suggests that the government needs to learn how to work with partners across boundaries and coordinate different actors and to integrate new stakeholders within the governance structures.[43]

Conclusion

The issue of governance underpins the development of enabling technology in healthcare settings. The development of the track and trace programme, and in particular the contract tracing application could have been dealt differently if there was an effective liaison between internal and external stakeholders that could have developed jointly the mobile application. The decentralisation approach to the development of the application is a prime example to the lack of consultation with key technology partners, like Apple and Google, and key stakeholders, such has the local governmental bodies and NHS trusts. Furthermore, data management and security of data have not been extensively considered which has fundamentally eroded public trust.

The impact of COVID-19 in the UK and the lives that have been lost speak for the urgency of crisis and of effective decision-making. However, this paper argues that a crisis cannot overhaul fundamental principles that underpin a democracy, and there are significant concerns over privacy and data protection of individuals, transparency rights and dignity and access rights. Furthermore, this paper argues that resilient digital governance structures need to be developed as similar public health crisis develop in the near future.

Author Contributions

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