Imagined Solutions to Real Problems

How the Dutch government presented the corona-app as the solution to the COVID-19 crisis

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1. Abstract

Governments worldwide have enlisted technological solutions in the form of tracing apps to combat the pandemic. There is little proof of these apps actually working and contributing to ending the lockdown. The Dutch government has also suggested to start designing and implementing a corona-app. In doing so, the government has exposed a rhetoric of techno-solutionism in their press conferences, public documents and their first *appathon*. This research focuses on how the Dutch government frames the app as a solution to the "intelligent lockdown" while it was more so part of the political rhetoric. Using the concepts of techno-solutionism, technological imaginary and mediatisation, this research dissects the Dutch government's rhetoric surrounding the app. This was done through the methods of close reading and discourse analysis. The research concludes that the Dutch government approached the usage of the corona-app in the combatting of the pandemic as an urgent, intelligent, efficient and legitimate solution. The analysis has thereby shown that the Dutch government displayed a determined techno-solutionist approach to combatting the pandemic and had disproportionate expectations of the effectiveness of the app. This is problematic since there is a disregard for alternative solutions and key human values. This development fits in multiple ongoing debates, those of technological solutionism, critical data studies and technological determinism vs. social constructivism.

Keywords: pandemic, corona-app, imaginary, mediatisation, solutionism

Contents

2. Introduction

In the midst of the pandemic, governments worldwide are desperate to stem the spread of COVID-19. It is estimated that a vaccine for the virus will take considerable time to develop, the suggested wait time as of right now is one year up till 18 months.[1] Therefore, governments are looking for other ways to combat the virus whilst trying to normalise new public life and supporting economic activity, seeing as a definitive solution to beat the virus is not a realistic available option in the immediate future.[2] One of the new strategies to tackle the COVID-19 virus is the use of novel technologies. Governments have started the developments of mobile apps to inform people of the most common symptoms of the virus and to track the transmission of the virus by contact tracing.[3] One example of a new technology that is suggested to aid in contact tracing, is the app *TraceTogether* that has been implemented by the Singaporean government. The app currently has 1,100,000 users in a country consisting of 5,600,000 citizens.[4] *TraceTogether* uses Bluetooth to determine whether two people have been in close proximity to each other. If one of those people then gets diagnosed with COVID-19, the other person can be contacted by the one of the human contact tracers to discuss the appropriate follow-up measures. The data of people who have been in proximity to each other get sent to the Ministry of Health.[5] The app *TraceTogether* is just one of many different versions of the so-called corona-apps or tracing-apps, yet it seems to have been put on a pedestal for other apps to be made and shaped in their likeness.[6]

In their effort to contain the spread of Corona virus and to accelerate contact-tracing, the Dutch government suggested to implement a Dutch version of the corona-app. In their presentation of the to be developed corona-app, the Dutch government proposes the app as a general solution to the problems at hand. It is interesting to see how the implementation of the app is regarded as a solution to flattening the spread of COVID-19 while there is almost no proof or evidence that the apps are actually going to

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[1] At the time of writing this in April and as understood in: Roy M Anderson et al., 'How Will Country-Based Mitigation Measures Influence the Course of the COVID-19 Epidemic?', *The Lancet* 395, no. 10228 (March 2020): 931–34, https://doi.org/10.1016/S0140-6736(20)30567-5.

[2] Anderson et al.; Zunyou Wu and Jennifer M. McGoogan, 'Characteristics of and Important Lessons From the Coronavirus Disease 2019 (COVID-19) Outbreak in China: Summary of a Report of 72 314 Cases From the Chinese Center for Disease Control and Prevention' (Beijing: Chinese Center for Disease Control and Prevention, 7 April 2020).

[3] Xiaoyun Zhou et al., 'The Role of Telehealth in Reducing the Mental Health Burden from COVID-19', *Telemedicine and E-Health* 26, no. 4 (1 April 2020): 377–79, https://doi.org/10.1089/tmj.2020.0068; Hyunghoon Cho, Daphne Ippolito, and Yun William Yu, 'Contact Tracing Mobile Apps for COVID-19: Privacy Considerations and Related Trade-Offs', 30 March 2020.

[4] 'TraceTogether', accessed 26 April 2020, https://www.tracetogether.gov.sg/.

[5] Cho, Ippolito, and Yu, 'Contact Tracing Mobile Apps for COVID-19: Privacy Considerations and Related Trade-Offs'.

[6] For example, Berke et al. and Abeler et al. have made proposals for corona-apps based on the same technical principles as the *TraceTogether* app: Alex Berke et al., 'Assessing Disease Exposure Risk with Location Data: A Proposal for Cryptographic Preservation of Privacy', *ArXiv:2003.14412 [Cs]*, 8 April 2020, http://arxiv.org/abs/2003.14412; Johannes Abeler et al., 'COVID-19 Contact Tracing and Data Protection Can Go Together', *JMIR MHealth and UHealth* 8, no. 4 (20 April 2020): e19359, https://doi.org/10.2196/19359.

work.[7] Furthermore, the Dutch governments describes the corona-app as a "smart digital solution" that is urgently needed with total disregard for alternative solutions.[8] To be precise, the app is described as the "intelligent exit" to the "intelligent lockdown" that is currently in place.[9] What makes this technology intelligent? How does it become the solution to a pressing societal and political problem? The government's rhetoric of the app is seemingly technologically deterministic;[10] the app will guide the behaviour of people, will manage the risks and is supposed to free up some of the workload of healthcare employees. It symbolises the idea of swift and decisive government response, that action is being taken. However, implementing contact-tracing apps is a drastic measure that may have great impact on society as a whole, beyond the impact on privacy and security. As 60 Dutch academics have described in an open-letter to the Dutch government: a hastened implementation of a corona-app could impact other core values such as freedom, trust, personal rights and reliability.[11]

This research situates itself in two ongoing critical debates surrounding data, technology and solutionism. First, the ongoing debate about whether technology really is the sole answer to large, complex problems. This has been dubbed as "techno-solutionism" by Evgeny Morozov. Morozov argues that technology cannot be employed neutrally and be expected to work towards one's bidding. Technology is not to be regarded as a widely applicable solution.[12] Techno-solutionism is a phenomenon that closely relates to the *technological deterministic perspective* of media and society. Using technology and big data as the answer to large, complex societal and political problems is not something to think of lightly. This leads to the second ongoing debate surrounding *critical data studies*, a quickly emerging field of interdisciplinary research into the nature and social impact of data practices. As danah boyd[13]

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[7] 'Show Evidence That Apps for COVID-19 Contact-Tracing Are Secure and Effective', *Nature* 580, no. 7805 (29 April 2020): 563–563, https://doi.org/10.1038/d41586-020-01264-1; Rejo Zenger, 'We gaan door - maar dan wat minder opzichtig', Bits of Freedom, 12 May 2020, https://www.bitsoffreedom.nl/2020/05/12/we-gaan-door-maar-dan-wat-minder-opzichtig/; Kelly Servick, 'COVID-19 Contact Tracing Apps Are Coming to a Phone near You. How Will We Know Whether They Work?', *Science | AAAS*, 21 May 2020, https://doi.org/10.1126/science.abc9379.

[8] Ministerie van Volksgezondheid, Welzijn en Sport, 'Uitnodiging slimme digitale oplossing Corona', TenderNed, 11 April 2020, https://www.tendernened.nl/tendernened-tap/aankondigingen/192421.

[9] The Dutch government named their COVID-19 response and the regulations as the "intelligent lock-down" [sic] which in contrast to other nations and regions did not rely on invasive laws limiting civil liberties but relied largely on the citizens' responsibility and cooperation in complying with social distancing rules. Ministerie van Volksgezondheid, Welzijn en Sport, *Integrale Persconferentie met minister-president Mark Rutte en minister Hugo de Jonge* (Den Haag, 2020), https://www.youtube.com/watch?v=XoVCaTlCCOM&feature=youtu.be.

[10] Technological determinism is a theory that claims that technology structures and guides society and culture. See: Martin Lister et al., *New Media: A Critical Introduction*, 2nd ed. (New York: Routledge, 2008), 97, https://doi.org/10.4324/9780203884829.

[11] 'Wetenschappers En Experts Aan Kabinet: "Geen Corona-Apps Zonder Waarborgen Voor Grondrechten En Aandacht Voor Maatschappelijke Implicaties"', ALLAI, 13 April 2020, https://allai.nl/wetenschappers-en-experts-aan-kabinet-geen-corona-apps-zonder-waarborgen-voor-grondrechten-en-aandacht-voor-maatschappelijke-implicaties/.

[12] Evgeny Morozov, *To Save Everything, Click Here: The Folly of Technological Solutionism* (New York: PublicAffairs, 2013).

[13] danah boyd prefers her name to be styled in lowercase.

and Kate Crawford have explained in their "6 provocations for big data", data are not neutral and are prone to subjectivity. Likewise, a 'hit or 'match' in a corona-app concerning an infected and healthy person does not always reflect the truth. Furthermore, as boyd and Crawford have stated, bigger datasets are not always necessarily better than smaller datasets.[14]

Recognising these debates and challenges, this thesis uses the concepts of *technological imaginary, technological solutionism* and *mediatisation* to study the Dutch governments rhetoric surrounding the Dutch version of the corona-app. The research aids in an understanding of how the government projects this new technological tool to strengthen their crisis response and fill in for the lack of contact tracers. This has been accomplished through analysing the public documents released by the Dutch government concerning the app, analysing the press conferences, the so-called *appathon*[15] and its different responses from participants in this discourse. The research effectively focused on the period starting from the first announcement of the app until the *appathon* and its immediate responses. Using a method drawing from close reading and critical discourse analysis I propose an answer to the following question: *How is the proposed corona-app presented in the Dutch approach of combating the COVID-19 pandemic?* To answer this question, I have focused on the following subquestions:

1) What uses, tasks and benefits are attributed to the corona-app?
2) How does mediatisation shape the app in its public presentation and in its use for public health management?

I conclude that the proposed app presented by the Dutch government is an ineffective technical solution, it is not about the actual piece of technology itself, it is about the phenomenon or idea of an app that does not even exist (yet). The findings indicate that the app was more a feature of political rhetoric than an actual means of combating the crisis. My research investigates how the framing of the corona-app constitutes a technological imaginary and how it set into motion a process of broad societal discourse. I conclude that the Dutch government approached the usage of the corona-app in the combatting of the pandemic as an urgent, intelligent, efficient and legitimate solution. The Dutch government displayed a determined techno-solutionist approach to combatting the pandemic and had disproportionate expectations of the effectiveness of the app.

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[14] Kate Crawford and Danah Boyd, 'Six Provocations for Big Data' (A Decade in Internet Time: Symposium on the Dynamics of the Internet and Society, Oxford, 2011), 17.

[15] The Dutch Ministry of Health, Welfare and Sport organised a so-called *appathon* on 18 and 19 April of 2020 where seven participants presented their proposals and designs for the Dutch corona-app. This event was organised so that each participant could receive feedback from experts on their proposals on the first day and present a new version the next day.

3. A media critical approach

This research is supported by multiple theories from the field of new media. The following theories touch upon important aspects of technology, namely: imaginaries, solutionism and mediatisation. These aspects help shape the common perceptions of technology in the field of new media and where it can fall short. They also aid in understanding how technology may impact society. Key authors in these debates are, among others, respectively Jasanoff, Kim, Flichy, Couldry and Hepp. This thesis builds upon these debates, ideas and authors. Additionally, the theories situate themselves in the debate at the core of media studies: technological determinism versus social constructivism.[16] However, this is a nuanced debate neither theory is superior to the other. Technology is often not the only problem and not the only solution in political, cultural or societal problems.[17] Similarly, this thesis does not set out to defend or favour either side, but does attempt to provide clarity on the common conceptions of technology which are found in the presentation of the Dutch corona-app. This is done by focusing on both the imaginary and the mediatised discourse.

3.1 The technological imaginary and public discourse

> "Despite reality proving many utopian claims wrong, new communication technologies were and still are presented and perceived as providing opportunities for finally realising true democracy, cultural and social unification, the unlocking of all the world's knowledge, and so forth. It is what 'the new' does: it perpetually gives our technological imaginary, our yearning for wholeness and completeness that is projected upon technology, fresh impulses by portraying existing technologies as inadequate, and, in the same sweep, by introducing us to the 'next best thing' as a solution"[18]

The technological imaginary is a concept used to study how people project ideas, hopes and expectations on technology. A unique aspect about technologies, and media new and old, is that they have always been capable of improvement and innovation. The urge for improvement and innovation largely stems from the dissatisfactions that people experience in society and a lack of completeness. These dissatisfactions are then projected on new technologies and media as an argument that new media will cure and find solutions to the human, social and cultural lacking.[19] This is what Lister et al. describe

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[16] Where technological determinism is a theory that claims that technology structures and guides society and culture, social constructivism stands for the theory that humans act upon technology. Society and objects can be studied through this lens but will have different focus points, respectively: the medium or the human actions. See: Martin Lister et al., *New Media: A Critical Introduction*, 2nd ed. (New York: Routledge, 2008 97, https://doi.org/10.4324/9780203884829.

[17] Ibidem.

[18] Imar de Vries, *Tantalisingly Close: An Archaeology of Communication Desires in Discourses of Mobile Wireless Media* (Amsterdam: Amsterdam University Press, 2012), 200.

[19] Lister et al., *New Media*; Patrice Flichy, 'The Imaginary of Internet', *Invited Lecture at the 8th International Summer School of the European PhD on Social Respresentation and Communication: The Net and the Internet*, 2002, 1–53.

as the technological imaginary. Old media have historically been seen as limited and the imagining of what the new technology is like starts far before the technology is actually realised or designed. This is what can be seen with the development of the corona-app as well. Though, it is important to realise that this is not a historical cycle, since the social and cultural context in which the technology comes to be is always different. Furthermore, the new technologies have drastically differing aspects and characteristics than their predecessors.[20]

Sociologist Patrice Flichy has sought out to research the influence of the technological imaginary by studying the emergence of the internet and the surrounding discourse in the 1990's. His research focussed on these discourses that were a key factor in the development of the internet as it came to be. The imaginary can be found in the technological choices that were made, the discourse is widespread and consists of many public debates.[21] Multiple actors (developers, designers, politicians and individuals) became focused upon one technological dream, an utopia, that had to become a place where people shared information freely.[22] This "network ideology" was a result of the combined efforts and wishes of designers and users. Therefore, innovations on this scale are not the result of an inventor's brilliant epiphany, but are shaped by a collective of interests.[23]

This phenomenon can also be applied to the futures that states imagine ought to be attained. It applies to the design and fulfilment of new technologies or technological projects in a national context. This is described by Sheila Jasanoff and Sang-Hyun Kim as sociotechnical imaginaries. Sociotechnical imaginaries are able to reflect and shape the collective ideas on risk, public good and nationhood.[24] Furthermore, it is important to note that imaginaries are very implicit in that they are not tools or vehicles that can be deployed to legitimise certain technological tools or policies. They exist in collective discourse, norms, metaphors and culture. Imaginaries can be studied through the discursive framing and narrative of society and repackaged in exercises of state power. They are not static belief systems that guide the knowledge technologies in the space of democratic policy making.[25] Effectively, this translates to the casus of the corona-app as not being a narrative that justifies the investment and implementation of this new technology. What this imaginary does do, is help to construct the political and public will to

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[20] Lister et al., *New Media*., 68-73

[21] Patrice Flichy, *The Internet Imaginaire*, trans. Liz Carey-Libbrecht (Cambridge, Massachusetts: The MIT Press, 2007).

[22] The internet was predated by previous media such as the *Whole Earth Catalog,* which some argue is the predecessor of the Web ang *Google* as we know it today. This notion of the utopian internet is explored in: Fred Turner, *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network and the Rise of Digital Utopianism* (Chicago: The University of Chicago Press, 2006).

[23] Patrice Flichy, 'The Imaginary Internet: How Utopian Fantasy Shaped the Making of a New Information Infrastructure', *Business and Economic History On-Line* 2 (2004): 1–11.

[24] Sheila Jasanoff and Sang-Hyun Kim, 'Containing the Atom: Sociotechnical Imaginaries and Nuclear Power in the United States and South Korea', *Minerva* 47, no. 2 (26 June 2009): 119, https://doi.org/10.1007/s11024-009-9124-4.

[25] Jasanoff and Kim., 122-123.

attain a future where this technology exists and is supported. Yet, if the push for the new technology is too hard or fast, it might expose the possible risks and warnings of the innovation. Reality always proves that the future is not as near, and the change is not as easily made, as it might seem.[26]

The concept of the technological imaginary is relevant for this thesis because it exposes the collectively shared understanding of the purpose of the app and how the future ought to be shaped as projected through the app. This comes to fruition in the imagined functionalities and design of the app. To find and expose examples of an imaginative discourse, one must analyse multiple media forms and contents. These are regarded by media literates as texts that can be critically and closely read.[27] In doing so, one can look for manifestations of technological imaginaries in official government communication, media coverage and pitches about the corona-app. This helps identify in which ways technology is imagined in society as a solution, a risk, as something valuable or as a myth.[28]

3.1.1 Technical solutions for social problems

With his best-selling book *To Save Everything, Click Here: The Folly of Technological Solutionism,* Evgeny Morozov introduced the concept of techno-solutionism to a broader audience. It recently gained popularity in mainstream media due to the discussion surrounding corona-apps.[29] Morozov describes the ideology of technological solutionism as follows: "Recasting all complex social situations either as neatly defined problems with definite, computable solutions or as transparent and self-evident processes that can be easily optimized—if only the right algorithms are in place!—this quest is likely to have unexpected consequences that could eventually cause more damage than the problems they seek to address."[30] It is the idea of technology being able to solve any kind of problem, sometimes even before the actual problem has occurred, and it is at the heart of Silicon Valley sales pitches. Furthermore, it is a form of techno-optimism which can be garnered as a possible result of a technological imaginary as opposed to a form of dystopian imaginary.[31]

Researchers Gardner and Warren build upon Morozov's work and proposed four principle ideas that underpin this ideology. First, there is the presumption that the current situation and state of affairs is lacking and deficient. There is the will to change, for example to create greater economic wealth (or to stem the spread of a virus). Change is assumed to be inherently good. Second, there is the assumption

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[26] Lister et al., *New Media,* 68-73; Jasanoff and Kim, 'Containing the Atom', 122-125.

[27] Katherine G. Fry, 'Media Literacy Education: Harnessing the Technological Imaginary', *Journal of Media Literacy Education* 3, no. 1 (2011): 14–15.

[28] Lister et al., *New Media,* 68-73.

[29] Evgeny Morozov, 'Dat Big Tech een pandemie moet oplossen is het politieke probleem van deze tijd', De Correspondent, 20 April 2020, https://decorrespondent.nl/11146/dat-big-tech-een-pandemie-moet-oplossen-is-het-politieke-probleem-van-deze-tijd/16670845468068-b82823e2.

[30] Morozov, *To Save Everything, Click Here,* 5.

[31] Flichy, 'The Imaginary of Internet', 1-2.

that social phenomena can be understood as discrete processes with intelligible problematics. Third, likewise it is presumed that technological processes can also be understood as discrete interventions with predictable -and desired- outcomes. Fourth, it is assumed that desirable and undesirable social processes will be clearly delineable and discernible. So, it is assumed that the beneficial consequences of a technological intervention will easily become apparent to the involved stakeholders and partners.[32]

The notion of a "technological solution" has become more ubiquitous in recent years, especially so in Organization for Economic Cooperation and Development (OECD) countries. This can be seen in the strive for a digital revolution and digital transformation. While this goal is not inherently wrong, it is creating a strong rhetoric of technological optimism in creating efficient, innovative, optimised and interconnected "solutions" to mundane tasks and problems of everyday life. As Gardner and Warren describe, this notion goes paired with the Western assumption that individuals are autonomous and rational beings when it comes to cost-benefit decisions in for example healthcare.[33] The idea that people act independent from others is a deep rooted political philosophy in Western culture, seen in texts from Kant, Locke and Hobbes. As political scientist Barbara Prainsack puts it: "(…) in many areas of public life, the idea of the strategically rational, self-interested individual has remained the core unit that structures social and political space. This view is so deeply engrained in our social and political institutions and legal frameworks (including our understanding of human rights) that it is difficult to conceive of an alternative."[34] So, seeing how this idea of the individual self and the idea of technological interventions are combined in technological solutionism, it can be concluded that it is quite a strong rooted rhetoric in the public domain among others. It supposes that the user will decide for themselves without external influences to use technology if it will help them attain a better future.

Techno-solutionism is quite optimistic and might limit other ways of thinking, organising and problem solving in society, as seen in for example surveillance as part of tech "solutions".[35] Authors have criticised the assumption that technology is regarded as a solution that exists in its own reality free of influences from society. This is illustrated by Bruno Latour's hotel key example in which he explains how technology is influenced by multiple actors and vice versa. Latour uses the hotel key to argue how humans and objects can create a strong socio-technical network together, going as far as claiming that "society is technology made durable". In this example, the hotel manager tells guests to leave the key to

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[32] John Gardner and Narelle Warren, 'Learning from Deep Brain Stimulation: The Fallacy of Techno-Solutionism and the Need for "Regimes of Care"', *Medicine, Health Care and Philosophy* 22, no. 3 (September 2019): 363–74, https://doi.org/10.1007/s11019-018-9858-6.

[33] Ibidem.

[34] Barbara Prainsack, 'The "We" in the "Me": Solidarity and Health Care in the Era of Personalized Medicine', *Science, Technology, & Human Values* 43, no. 1 (1 January 2018): 21–44, https://doi.org/10.1177/0162243917736139.

[35] Lina Dencik and Arne Hintz, 'Civil Society in an Age of Surveillance: Beyond Techno-Legal Solutionism? - Civil Society Futures', Civil Society Futures, 27 April 2017, https://civilsocietyfutures.org/civil-society-in-an-age-of-surveillance-beyond-techno-legal-solutionism/.

their room at the front desk before stepping out. The manager tries to amplify this by hanging up signs to communicate this and asking the guests to leave the key. As guests at times ignore the verbal and written instruction and keep losing the expensive keys, the message must be translated into the design of the key. The manager attaches the key to a bulky and heavy item. This makes it so that guests cannot easily fit the key in their pocket and it takes up a large amount of space in their bag. As a result, guests will start leaving the key at the desk, as it easier and more comfortable than carrying it around.[36] This solution came to be through innovation and actants working together. It was not simply realised by adding the weight, giving the key agency, but also by the oral and textual push of the manager. The technology on its own cannot reach that same goal. Yet, it does illustrate that when technology is given agency, it can in fact influence user behaviour.

If this same example is regarded from a techno-solutionist perspective, it might seem as if technology has the agency to impact society in a direct, immediate and effective manner. The same can be said about the corona-app, the app is expected to function as the hotel key does. Namely, the app is supposed to change behaviour without additional stimulation from other agents. Unfortunately, the measure of adding weight to the key to influence behaviour is not proportionate to implementing a contact tracing app. However, it is treated the same. This is an example of how alternative solutions to a large, complex societal and political problem may be pushed to the background. Additionally, social and contextual factors that may impact individual decision making are completely denied in these instances. This attitude can be identified in the Dutch government's solutionism rhetoric concerning the corona-app. Namely, the Dutch government called for the production of the app as it was deemed "intelligent" and "effective" without actual proof of how it would function in society.[37] This example shows traces of techno-solutionism. Recognising these instances helps in the critical analysis of technological inventions.

3.2. Mediatisation of governing the crisis

Similarly to how technological imagination shapes the future media and the surrounding discourse, the concept of mediatisation discusses how new media shapes and frames processes of political, cultural and societal discourse.[38] Friedrich Krotz describes the focus of mediatisation research as follows: "(…) the transformation of everyday life, culture and society in the context of the transformation of the media—which, in the long run, organises all symbolic operations of a society and culture in that digital

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[36] Bruno Latour, 'Technology Is Society Made Durable', *The Sociological Review* 38, no. 1 (1 May 1990): 103–31, https://doi.org/10.1111/j.1467-954X.1990.tb03350.x.

[37] Ministerie van Algemene Zaken, 'Letterlijke tekst persconferentie na ministerraad 17 april 2020', mediatekst, Rijksoverheid (Ministerie van Algemene Zaken, 17 April 2020), https://www.rijksoverheid.nl/documenten/mediateksten/2020/04/17/letterlijke-tekst-persconferentie-na-ministerraad-17-april-2020.

[38] Lister et al., *New Media,* 272.

computer-controlled infrastructure, consisting of networks of computers."[39] Mediatisation is regarded by media scholars as a process in which media can influence the behaviour of institutions and actors.[40] Likewise, users can shape the way technology and media is practiced, either in completely new ways or in ways that differ from the expected "normal" usage. As media scholar Andreas Hepp describes, pioneering users and user groups thereby effectively create a "horizon of *possibility*" to which the average everyday media occupation of others might start to orient itself. This results in a wave of mediatisation: "a 'metaprocess' of change, in which everyday practices increasingly rely upon media and become 'moulded' by them." This process evolves into deep mediatisation, this is a stage of mediatisation where the social world becomes closely intertwined with forms of media. Therefore, the transformation of society and culture can be critically studied through media and technology.[41]

Everyday life has become increasingly mediatised, the world is linked to technological systems in many differing ways. Such is described by Nick Couldry and Andreas Hepp in *the Mediated Construction of Reality,* that even the interactions between humans have become increasingly more difficult to separate from technology. Media also shape, present, and inform about everyday practices and communication. Mediatisation plays a constant role in our social world.[42] Consequently, the world and everything that happens is viewed or discussed through media and sociality is mediated in return. As Couldry and Hepp explain: "For the social is mediated, and that mediation is increasingly sustained by manifold technologies of communication: by 'manifold', we refer not just to the plurality of today's media channels and interfaces, but also to their interlinked nature, and to the many-dimensional order that results and that encompasses our whole media environment."[43] To sum up, one speaks of a mediatised cultural or social phenomenon if it can no longer be understood how the phenomenon works if the role of the medium is separated from it.[44] Drawing from this, one could argue that the process of datafication, the use of simulation programmes and data analysis is yet another stage of mediatisation.

The phenomenon of mediatisation is closely related to the implementation of the corona-app. The app mediatises certain aspects of everyday life. For example, the app changes the way contact tracing would be conducted and mediatises the image of safety and good health. In the grand scheme the solution to the "intelligent lockdown" becomes mediatised. Understanding the impact of these changes is key. Mediatisation can be interpreted as: "a concept used to analyze critically the interrelation

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[39] Friedrich Krotz, 'Explaining the Mediatisation Approach', *Journal of the European Institute for Communication and Culture* 24, no. 2 (3 April 2017): 103–18, https://doi.org/10.1080/13183222.2017.1298556.

[40] Bo Laursen and Chiara Valentini, 'Mediatization and Government Communication: Press Work in the European Parliament', *The International Journal of Press/Politics* 20, no. 1 (1 January 2015): 26–44, https://doi.org/10.1177/1940161214556513.

[41] Andreas Hepp, 'Pioneer Communities: Collective Actors in Deep Mediatisation', *Media, Culture & Society* 38, no. 6 (1 September 2016): 918–33, https://doi.org/10.1177/0163443716664484.

[42] Nick Couldry and Andreas Hepp, *The Mediated Construction of Reality* (Cambridge: Polity Press, 2017).

[43] Idem, 11.

[44] Krotz, 'Explaining the Mediatisation Approach', 107-108.

between changes in media and communications on the one hand, and changes in culture and society on the other."[45] How media changes society and culture is especially of importance here, since this thesis explores the rhetoric and imagination of technology, specifically of the Dutch corona-app. The corona-app is intended to craft and maintain new rules, to mediate the public's behaviour.[46] Specifically, it mediates aspects of everyday (social) life such as health and contacts. Therefore, the concept of mediation is used to study the various layers of where mediatisation takes place. The focus is not only on how the app mediates everyday life but also which media played a key part in the presentation of the app. These processes all contribute to the technological imaginary that is presented in the media.

3.2.1 The app as agent

The corona-app is not only a manifestation of technological solutionism, it also exemplifies how technology is given agency of its own, even before it is fully developed and launched. The app is expected to work in a large society of many different app-users. Furthermore, the app has a number of abilities and effects that were attributed to it by the government. Effectively, the app is regarded as an agent in relation to other relevant actors. This phenomenon can be further explained by Bruno Latour and Michel Callon's *actor-network theory* (hereon: ANT) that was developed from the field of science and technology studies. ANT concerns itself with the ontological studies of the relations of actors, being human and non-human entities, in natural or social networks. In ANT anything consists of networks, as long as the actors work and perform an action. Furthermore, anything that is as an actor is itself also a network of heterogenous elements.[47] As another contributor to ANT, John Law, puts it: "If we want to understand the mechanics of power and organization it is important not to start out assuming whatever we wish to explain. For instance, it is a good idea not to take it for granted that there is a macrosocial system on the one hand, and bits and pieces of derivative microsocial detail on the other. If we do this we close off most of the interesting questions about the origins of power and organization. Instead, we should start with a clean slate."[48] Technology is generally seen in popular discourse as innovative, solid, black-boxed and constructed such as machines and inventions. Though, there would not be technology such as the mobile phone without modern social influences, public institutions and practices such as engineering, corporations and users to shape and give meaning to technology.[49]

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[45] Nick Couldry and Andreas Hepp, 'Conceptualizing Mediatization: Contexts, Traditions, Arguments: Editorial', *Communication Theory* 23, no. 3 (August 2013): 191–202, https://doi.org/10.1111/comt.12019.

[46] This is reminiscent of Michel Foucault's theory on governmentality, where the government in this case, uses surveillance technology to manage and conduct the people in an effective manner.

[47] Bruno Latour, 'On Actor-Network Theory: A Few Clarifications', *Soziale Welt* 47, no. 4 (1996): 369–81.

[48] John Law, 'Notes on the Theory of the Actor-Network: Ordering, Strategy, and Heterogeneity', *Systems Practice* 5, no. 4 (August 1992): 379–93, https://doi.org/10.1007/BF01059830.

[49] Sheila Jasanoff and Sang-Hyun Kim, *Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power* (University of Chicago Press, 2015), 2. https://doi.org/10.7208/chicago/9780226276663.001.0001.

Understanding of agency is needed to contextualise and understand how technology functions in society and should be perceived in relation to other processes, objects and humans. ANT is studying *how* actors generate words, size, power or organisation.[50] Latour describes the need for acknowledging non-human actors as follows: "ANT is not the empty claim that objects do things 'instead' of human actors: it simply says that no science of the social can even begin if the question of who and what participates in the action is not first of all thoroughly explored, even though it might mean letting elements in which, for lack of a better term, we would call non-humans." If the study focusses on a social phenomenon, the study should consider all actants that have agency, thus the capacity to perform an action.[51] In this pandemic, for example, humans are not the only objects of interest, other objects perform actions in this network as well. The hospital beds provide places for people to be taken care of, one-way signs direct in which ways traffic should manoeuvre and corona-apps change human behaviour. Yet, this is not to say that all actants, human and non-human are equal. ANT only acknowledges that both are present in a network and that no a priori asymmetry is imposed on the actants.[52]

The corona-app is an actor in a broader network of users, app-builders, technological objects and governmental influences. Effectively, the app is becoming an actor in a society of human and non-human actors just as the previously mentioned hotel key was given agency in that network. Recognizing this position and the app's agency is crucial in this research. Even so, the app is not yet developed and open to the public. This can only happen if there is enough effort and if there are resources made available. This is necessary for the spread of ideas, producing of prototypes and to make sure knowledge does not get transformed in calculation chambers that become "obligatory points of passage".[53] So, the managing of a hotel key through adding a weight is not quite the same as managing a pandemic through a smartphone app. The hotel key weight was proven to be successful since it was a proportionate measure. However, the app is situated in a complex network with many different actors where its effectiveness remains speculative.[54] The thesis uses this concept of agency, but does not attempt to analyse the full network.

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[50] Idem., 380

[51] Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network-Theory* (New York: Oxford University Press, 2005), 72.

[52] Idem, 73-75.

[53] Bill Doolin and Alan Lowe, 'To Reveal Is to Critique: Actor–Network Theory and Critical Information Systems Research', *Journal of Information Technology* 17, no. 2 (1 June 2002): 69–78, https://doi.org/10.1080/02683960210145986.

[54] The app is still capable of having agency, however the successes of the app remain speculative and minor up till now, see: 'Show Evidence That Apps for COVID-19 Contact-Tracing Are Secure and Effective'; Servick, 'COVID-19 Contact Tracing Apps Are Coming to a Phone near You. How Will We Know Whether They Work?'; Robin Berger, 'Coronavirus Contact Tracing Apps – a Proportionate Response?', *LSE* (blog), 23 April 2020, https://blogs.lse.ac.uk/medialse/2020/04/23/coronavirus-contact-tracing-apps-a-proportionate-response/.

4. Method

The research was conducted from a data critical point of view and consists of an discourse analysis. Consequently, the research has been conducted by performing a close reading to discern common patterns and themes in the text. The texts were read with a critical data and technology perspective in mind. The following section discusses the corpus, limitations, discourse analysis and close reading. [55]

4.1 Corpus and limitations

The corpus for this research was formed by multiple texts related to the corona-app. These are press conferences, video pitches, rapports from assigned third party researchers and official governmental articles and transcripts. The corpus encompasses the period from the first announcement of a Dutch corona-app until the press conferences after the *appathon*. This means the thesis focusses on the period of 7th of April 2020 until 6th of May 2020. Critically analysing this period is feasible and results in a comprehensive analysis of the first draft of the Dutch corona-app and the governments rhetoric on technology. Occasionally, the research explored and referred outside of the corpus to analyse expert responses from, for example, academics. This corpus was chosen to analyse how the discourse changes over time between press conferences. For a complete overview of the corpus, I would like to refer to the appendix in chapter 8.

It is important to note that the thesis does not aim to conduct an actor-network analysis. Furthermore, the thesis does not study individual communities, be it on- or offline. Though, the subject does indeed live in these communities and could be interesting to analyse using ANT. However, by minimising the corpus and the timeline, the thesis does become feasible and concentrated on the matter at hand. Where an ANT method mostly focusses on identifying relations, discourse analysis looks more into the causes of those relations. The analysis does borrow from ANT in that it recognises non-human agency. Additionally, the thesis does not set out to analyse whether the corona-app actually functions

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[55] This methodological approach is derived from the field of Critical Data Studies and provides grip on the studying of data or data related projects and its criticisms. It critically studies the impact of (big) data on culture, politics, ethics and society. Further, it challenges the most common myths surrounding data. The recent surge in popularity of big data called for a critical perspective on data that is also open for critical and reflective discussion towards itself. This approach is used since the perspective applies to the corona-app which makes use of and might store large amounts of data which impact society. See for reference: Kate Crawford, Kate Miltner, and Mary L. Gray, 'Critiquing Big Data: Politics, Ethics, Epistemology', *International Journal of Communication* 8 (2014): 1663–72; Rob Kitchin, 'Big Data, New Epistemologies and Paradigm Shifts', *Big Data & Society* 1, no. 1 (1 January 2014): 2053951714528481, https://doi.org/10.1177/2053951714528481; Rob Kitchin and Tracey Lauriault, 'Towards Critical Data Studies: Charting and Unpacking Data Assemblages and Their Work', SSRN Scholarly Paper (Rochester, NY: Social Science Research Network, 30 July 2014), https://papers.ssrn.com/abstract=2474112; Crawford and Boyd, 'Six Provocations for Big Data'; Andrew Iliadis and Federica Russo, 'Critical Data Studies: An Introduction', *Big Data & Society* 3, no. 2 (December 2016): 205395171667423, https://doi.org/10.1177/2053951716674238.

correctly. These are all possible and worthwhile topics to analyse in a potential follow-up research.[56]

4.2 Discourse analysis

Discourse analysis allows the study of particular social behaviours that built a system of language. As Lister et al. describe it: "Ideas do not circulate in a vacuum but are bound up with forms of social practice and institutional power. Discourses, like the words and concepts they employ, can then be said to construct their objects because they lead us to think about them and know about them in particular ways."[57] Discourse analysis essentially is studying *what* is being said and focussing on semiotics. Norman Fairclough, professor of linguistics, proposed an analytical framework for critical discourse analysis (hereon: CDA) which consists of five steps.[58] This thesis uses a method drawing from CDA. It borrows ideas from Fairclough on identifying the social problem and its actors, the possible solutions and ways past the problem. This means there is special attention for representation of ideas, key actors in the story and the relationships between those actors.[59] Interactions, as Fairclough calls them, need to be gathered to analyse this thoroughly.[60] These interactions are analysed on language and semiotics. This is relevant since video as well as written text are analysed in-depth for this thesis.

4.3 Close reading

A close reading was conducted analyse the corpus. Close reading, as described by Jim Bizzocchi and Joshua Tanenbaum, "is a way of laying bare the faults and inconsistencies of a media artefact. However, close reading is at the same time a celebration of the many ways in which a text can create meaning. Through the act of close interrogation and explication, a theorist may use close reading to excavate previously hidden qualities of a media artefact."[61] Through close reading of the various media representations of the corona apps and the government communication about it, the thesis reveals what kind of technological imaginary the Dutch government is projecting. This is done by focusing on the metaphors, images, portrayals, terminology and associations that are used to describe the corona-app.

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[56] It could lead to interesting and fruitful follow-up research, especially since more information is being released about the process and results of corona-apps of countries worldwide. This could also potentially lead to an interesting comparative research of countries and/or cultures discussing the differences in technological decisions made in their respective corona-apps.

[57] Lister et al., *New Media,* 422.

[58] Norman Fairclough, 'Critical Discourse Analysis as a Method in Social Scientific Research', in *Methods of Critical Discourse Analysis*, ed. Ruth Wodak and Michael Meyer, Introducing Qualitative Methods (London: SAGE, 2001), 122–36.

[59] David Hesmondhalgh, 'Discourse Analysis and Content Analysis', in *Analysing Media Texts (Volume 4)*, ed. Gillespie Marie and Toynbee Jason (New York: McGraw-Hill Education, 2006), 120–56.

[60] Interactions are what media studies regards as *texts* or readable media objects.

[61] Jim Bizzocchi and Joshua Tanenbaum, 'Well Read: Applying Close Reading Techniques to Gameplay Experiences', *Well Played, 3.0*, 2011, 1–17.

So, the goal is to analyse how the app is being represented as an instrument of the government's Covid-19 response.[62]

The corpus was gathered, annotated and printed to analyse thoroughly using the previously mentioned theories of technological imaginary and mediatisation. The texts were examined and coded on themes, patterns and labels.[63] The reading of the texts is informed by the theoretical framework, specifically with an eye to technological imaginaries and mediatisation. Consequently, this resulted in four themes which help dissect the governments rhetoric of the corona-app, namely: promises, tasks, questions and reactions. This aids in analysing the apps agency and promised uses and functionalities. Furthermore, there were consistent patterns to be found in the texts which resulted in labels to help code the text. These labels are: efficiency, legitimacy, urgency, non-alternative, delegating and risk framing. The themes and labels aid in dissecting how the Dutch government approaches the corona-app as a solution to the pandemic. This analysis also exposes the values and hopes that are deemed most important in this approach. For the complete list of themes and labels I refer to the appendix (chapter 8.1).

5. Analysis

The analysis questions how the corona-app is used by the Dutch government to combat the pandemic. The following chapter is divided into two sections. First, the collectively imagined app that is presented in the shape of the corona-app is analysed. How is the app imagined and how is its proposed design seen as a viable solution? The attributed tasks and promises are identified here to analyse this new technological imaginary. Second, the mediatised society with regards to the corona-app is deconstructed. How is the importance of app presented by the government and how is the purpose of the innovation presented in the app's interface? What values does the app get prescribed and what aspects of everyday life become mediatised? This mediatisation is part of what feeds the technological imaginary and is therefore an important aspect of this imagined technology.

5.1 Imagined solution

The first part of the analysis focusses on the collective technological imaginary and the paired techno-solutionism that resulted from the Dutch governments discourse surrounding the corona-app. This analysis aims to dissect how the future is projected through the development of said app. So, it questions

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[62] As described in: Mirko Tobias Schäfer, *Bastard Culture! How User Participation Transforms Cultural Production*, MediaMatters (Amsterdam: Amsterdam University Press, 2011), 25-26.

[63] As seen in the method of this paper: Jonathan Gray, 'Antifandom and the Moral Text: Television Without Pity and Textual Dislike', *American Behavioral Scientist* 48, no. 7 (1 March 2005): 847, https://doi.org/10.1177/0002764204273171.

how this shared imagination is created. The close reading and discourse analysis are aimed at studying the way in which the government talks about and imagines the app, even before there is a cohesive design or before there are clear conditions set for the app. The press conferences, transcripts and *appathon* were watched, read and analysed with this framework in mind. In doing so, a couple of things stand out.

A techno-solutionist rhetoric can be identified in the Dutch governments press conferences and the *appathon.* First, Minister of Health, Welfare and Sport Hugo de Jonge announces the development for the Dutch corona-app for the first time on April 7th.[64] At this point, there is still talk of two apps, one for self-diagnosing and one that is supposed to aid in contact tracing. However, it is interesting how De Jonge describes the need for these apps, namely De Jonge puts emphasis on the helpfulness of technology and how that is the only alternative in aiding the intensive contact tracing. He introduces the idea without an explanation as to how technology is proven to be helpful in this situation. Though, it is clear that the app is supposed to aid the contact tracers in their work, since contract tracing on its own otherwise "would not do a lot". Furthermore, they hope to use the app to get back to business as usual as fast as possible.[65] This has also been mentioned multiple times throughout the *appathon*. So, in this discourse the first and second criteria of techno-solutionism is met, namely: the current state of affairs is lacking since the contact tracers cannot handle the workload anymore and they consider this technological change as something good. They want this situation to change for greater economic wealth and health.

Next, De Jonge introduces the first conditions that the government thinks should be met to make the app work: privacy and trust from the citizens. It is also striking that in this instance the comparison is quickly made with the development of neighbouring countries' apps.[66] But, this comparison with other countries apps is too simplistic since it ignores the societal context in which these apps are developed. Yes, they may have apps that are in a far stadium, but their countries are inherently built differently and have different social and political cultures.[67] It is like the hotel key, it is not an universal, stand-alone solution. Furthermore, there are no results of their apps successes available yet at this point in time,

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[64] Ministerie van Volksgezondheid, Welzijn en Sport, *7 april 2020*.

[65] Ibidem.

[66] Text retrieved from: Ministerie van Algemene Zaken, 'Letterlijke tekst persconferentie minister-president Rutte en minister De Jonge na afloop van crisisberaad kabinet', mediatekst, Rijksoverheid (Ministerie van Algemene Zaken, 7 April 2020), https://www.rijksoverheid.nl/documenten/mediateksten/2020/04/07/letterlijke-tekst-persconferentie-minister-president-rutte-en-minister-de-jonge-na-afloop-van-crisisberaad-kabinet.

[67] For example, the South-Korean approach to combating corona is radically different to ours, since there is an overwhelming believe in science as opposed to the belief in their politicians. As is explained in this article: Remco Breuker, 'Zuid-Koreaans collectivisme in aanpak coronavirus is een hersenspinsel', ScienceGuide, 18 March 2020, https://www.scienceguide.nl/2020/03/zuid-koreaans-collectivisme-in-aanpak-coronavirus-is-een-hersenspinsel/.

being April 2020.[68] This presentation of the app is already a form of techno-solutionism. This can also be seen in the way the Dutch government normalises implementing the corona-app for the citizens of the Netherlands. The app is presented as an urgent, needed solution to the current state of affairs, as becomes apparent in multiple official documents and press conferences.[69] Furthermore, it is expected that any undesirable outcomes will be easily identified and resolved by tech experts. Dutch prime-minister Mark Rutte communicated this on live television by answering a question about safeguarding privacy. He implied that app builders will surely take this issue into account, which later turned out to not be the case.[70] These are examples of how alternative solutions to a large, complex societal and political problem are pushed to the background and how the collective imaginary is given shape by the government.

These reasons for developing and implementing the app correspond with the third and fourth presumptions of techno-solutionism. In this example, Rutte demonstrates the believe in technological processes as being discrete interventions with predictable outcomes. Also, Rutte assumes that desirable and undesirable social processes will be clearly delineable and discernible. Yet, it turned out that these processes were not at all straightforward as none of the *appathon* contestants succeeded in presenting a reliable and feasible app design. There was more thought put into the app design than the impact it would have on society.[71] Still, Rutte, De Jonge and the Ministry of Health, Welfare and Sport remained optimistic about the implementation of the app and continued to deem it as a crucial part of the solution.[72] This consistent rhetoric from the Dutch government illustrates how their hopes and dreams for the future are projected on a new form of technology. It is clear that they hope the app will fill in for the human lacking in the current pandemic. The following section focus on how exactly this imaginary is given shape.

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[68] 'Show Evidence That Apps for COVID-19 Contact-Tracing Are Secure and Effective'; Robin Mansell, 'Coronavirus Contact Tracing Apps – a Proportionate Response?', *LSE* (blog), 23 April 2020, https://blogs.lse.ac.uk/medialse/2020/04/23/coronavirus-contact-tracing-apps-a-proportionate-response/.

[69] Ministerie van Volksgezondheid, Welzijn en Sport, *7 april 2020*; Ministerie van Algemene Zaken, 'Letterlijke tekst persconferentie na ministerraad 17 april 2020'; Ministerie van Volksgezondheid, Welzijn en Sport, 'Uitnodiging slimme digitale oplossing Corona'.

[70] Ministerie van Algemene Zaken, 'Letterlijke tekst persconferentie na ministerraad 17 april 2020'.

[71] Ministerie van Algemene Zaken, 'Terugblik appathon', Rijksoverheid (Ministerie van Algemene Zaken, 18 April 2020), https://www.rijksoverheid.nl/onderwerpen/coronavirus-app/tijdpad-proces-coronavirus-app/terublik-appathon.

[72] Ministerie van Algemene Zaken, 'Letterlijke tekst persconferentie minister-president Mark Rutte en directeur Jaap van Dissel (Centrum Infectieziektebestrijding) na afloop van crisisberaad kabinet', Rijksoverheid (Ministerie van Algemene Zaken, 21 April 2020), https://www.rijksoverheid.nl/documenten/mediateksten/2020/04/21/letterlijke-tekst-persconferentie-minister-president-mark-rutte-en-directeur-jaap-van-dissel-centrum-infectieziektebestrijding-na-afloop-van-crisisberaad-kabinet; Ministerie van Algemene Zaken, 'Letterlijke tekst persconferentie minister-president Rutte en minister De Jonge na afloop van crisisberaad kabinet (6-5-2020)', Rijksoverheid (Ministerie van Algemene Zaken, 6 May 2020), https://www.rijksoverheid.nl/documenten/mediateksten/2020/05/06/letterlijke-tekst-persconferentie-minister-president-rutte-en-minister-de-jonge-na-afloop-van-crisisberaad-kabinet.

5.1.1 Tasks and goals

Throughout the press conferences, official documentation (such as the tender and open invite for the *appathon*) and the *appathon* pitches, it becomes clear that there are certain promises and tasks that the app is expected to live up to and goals that ought to be attained. First and foremost, what are the tasks that are assigned to the app, what solutions should the app deliver? The most apparent task the app has got attributed by the government is aiding the contact tracers. This has been named as the prime reason for implementing the app in multiple press conferences, the open invitation and in the *appathon*. It has been argued that the workload for the contact tracers has become far too heavy and the contact tracers were not able to keep up. Therefore, the implementation of a corona-app would be the prime solution.[73] Furthermore, the contestants even proposed apps during the *appathon* that would have the app tasked to replace the contact tracers all together. This happened because the Dutch government did not set a clear outline of their wishes and conditions for the app. The open invitation and tender called for "smart digital solutions for corona" and let the app developers free in their proposals. The only clear conditions were that the app must aid the contact tracers, must be available quickly and must adhere to privacy and safety standards.[74]

Some contestants attributed additional tasks to the app, such as delivering news, warning yourself or keeping others safe. Additionally, the monitoring and expert parties such as AP, KPMG and the concerned academics suggested the app had other tasks attributed to it. For instance, 60 academics wrote about the possibility that the app would be tasked with (unwanted) control over the citizens. Plus, the academics doubted whether the app would be able to effectively carry out its tasks.[75] Further, the AP and KPMG prescribed data protection as a main task for the app, since most apps failed in completing the condition for safety and privacy during the *appathon*. They wish for the app to comply with those standards that are set for privacy and safety via the AVG or GDPR laws.[76] Their independent research found, however, that the urgency and the effectivity was not proven in the documentation from the contesting apps.[77] Yet, the following press conferences still had De Jonge stating that the app was still

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[73] Ministerie van Algemene Zaken, 'Letterlijke tekst persconferentie minister-president Rutte en minister De Jonge na afloop van crisisberaad kabinet (6-5-2020)'.

[74] Ministerie van Volksgezondheid, Welzijn en Sport, 'Uitnodiging slimme digitale oplossing Corona'.

[75] 'Wetenschappers En Experts Aan Kabinet', 13 April 2020, https://allai.nl/wetenschappers-en-experts-aan-kabinet-geen-corona-apps-zonder-waarborgen-voor-grondrechten-en-aandacht-voor-maatschappelijke-implicaties/.

[76] The law *Algemene Verordening Persoonsgegevens* (AVG) is a Dutch law in which the most important rules for the treatment of personal data are recorded. It is the same as the English GDPR or General Data Protection Regulation.

[77] 'Onderzoeksrapportage bron- en contactopsporingsapps' (Den Haag: Autoriteit Persoongegevens, 20 April 2020), https://autoriteitpersoonsgegevens.nl/sites/default/files/atoms/files/onderzoeksrapportage_bron-_en_contactopsporingsapps.pdf; KPMG, 'Securitytest potentiële Corona-apps' (Amstelveen: KPMG, 18 April 2020), https://www.rijksoverheid.nl/binaries/rijksoverheid/documenten/publicaties/2020/04/19/rapportage-veiligheidstest-potentiele-corona-apps/Finale+rapportage+Ministerie+van+VWS+Corona+Apps+19042020+definitief.pdf.

very much needed and a crucial part of combating the pandemic. This is curious, since De Jonge does not mention the potential risks of the app that came to light after the *appathon* and the following reports.[78] This form of risk framing is common in the constructing of sociotechnical imaginaries. The risks are acknowledged but mostly downplayed. This is described by Jasanoff & Kim in their research covering how the United States attempted to contain the atom back in the 1950's. Their attempt at containing the atom was presented as an objective for peace. The risks of nuclear war were acknowledged but downplayed by saying that there would be occasional "high explosives" amongst other reasoning such as damage coverage. Logically, the people remained scared of the risks so the American government kept looking for ways to curb the public's anxiety. This was done by a variety policy actions such as laws, legislations and risk assessment. All in the hope to ease the public's fear for nuclear weapons. This imagining of the state seeks the high ground over the public's democratic rights.[79] While the introduction of a corona app is nowhere near as destructive as nuclear weapons, it does have a high impact on the everyday (social) lives of citizens. Especially so, since the *appathon* lead to the uncovering of high risks of data leaks and unnecessary invasive action.[80] Additionally, considering that the government accelerated the design for the app to be finished in two days, it would lead to less support for this imaginary.[81] Consequently, research from the Technical University of Delft did indeed conclude that approximately two thirds of the Dutch population would not want to download this proposed app.[82] Furthermore, in the following weeks after the *appathon,* the Dutch government tried to pass a new law which would state certain conditions for the corona-app. However, this law was met with backlash since it was deemed disproportionally invasive on safety and democracy. De Jonge still pushed for this proposed law even after the council of state refuted the proposal twice.[83]

These forms of risk framing and assessing play a core part in the construction of the Dutch imaginary. It places the app in a discourse of necessity, effectiveness and efficiency without presenting actual proof. In short, the government puts full focus on the creating and implementation of this new technology with almost total disregard towards the end result: will the app complete its task? The app can be created to be a solid piece of technology, however that does not mean it will be supported by the

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[78] Ministerie van Algemene Zaken, 'Letterlijke tekst persconferentie minister-president Rutte en minister De Jonge na afloop van crisisberaad kabinet (6-5-2020)'.
[79] Jasanoff and Kim, 'Containing the Atom', 128-129.
[80] KPMG, 'Securitytest potentiële Corona-apps'.
[81] Jasanoff and Kim, 'Containing the Atom', 130.
[82] Niek Mouter, Roselinde Kessels, and Marion Collewet, 'Nederlanders zijn het niet eens over de wenselijkheid van de corona app' (Delft: TU Delft, 8 June 2020), https://d1rkab7tlqy5f1.cloudfront.net/TBM/PWE/Cases/Corona%20app/Beleidsrapport%20over%20de%20hoofdresultaten%20van%20het%20corona%20app%20keuze-experiment%20definitief.pdf.
[83] 'Raad van State tegen kabinet: huiswerk voor coronawet moet over', NOS, 19 June 2020, https://nos.nl/l/2337789.

public if they are not convinced of the necessity and helpfulness of this solution. It would then, at best, remain a display of technology theatre.[84]

5.1.2 Uses and benefits

There were additional aspects to the imagining of the app, besides attributed tasks, that were more in the form of promises and benefits. Basically, they can be regarded as additional features that were built in as a part of the main solution that the app presents. This becomes clear during the *appathon* ending pitches from the contestants. For example, the app developers promised that their app would be faster and more secure than the regular contact tracing. Efficiency is a key driver in this discourse.

Figure 1: Still from Capgemini pitch putting emphasis on a "smart" solution, user friendliness and privacy.[85]

Furthermore, the app promises (according to press conferences and the *appathon*) a secure and controlled exit out of the "intelligent lockdown".[86] This became apparent in multiple instances. For instance, this argument was used in the pitches of Capgemini and DDT consortium. Where they doubled down on the promise that the corona-app is a smart, safe (privacy-proof [sic]) and easy to use solution (see figure 1). Additionally, the pitches put quite the emphasis on achieving this "together". The

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[84] Technology theatre is a term to describe a process where the public is more concerned with the technology itself than focusing on a holistic solution that will address the complex policy issue at hand. See for reference: Sean McDonald, 'Technology Theatre', Centre for International Governance Innovation, 13 July 2020, https://www.cigionline.org/articles/technology-theatre.

[85] Stills taken from the *appathon* playlist: Ministerie van Volksgezondheid, Welzijn en Sport, *Corona apps resultaat zondag*, Pitches corona app (YouTube, 2020), https://www.youtube.com/c/minvwsnl/playlists.

[86] Ministerie van Volksgezondheid, Welzijn en Sport; Ministerie van Volksgezondheid, Welzijn en Sport, *7 april 2020*.

common narrative of the pitches was one of unity and charity, because without it the app would not be able to keep its promises. The supposed user-friendly app design was an important promise in this narrative, to ensure that everybody would be able to use it. Yet, the public has had a minimal voice in the debate and imagining of this solution.[87] This is alarming since this means more emphasis is put on the technology instead of engaging the end users. As Sean McDonald describes it in his article 'Technology theatre': "Ultimately, apps, much like the government policies designed to regulate technologies, are instruments designed to reflect and support the will of the public. They do not change the public's mind, compel adherence or conjure effective systems by themselves." Basically, the app could be secure and functioning, that does not mean that the technology is going to achieve its promises, it needs the support of the public.[88]

Another common discourse in the pitches was the promise that users would be able to take control of their own data. The apps promise to be safe, secure and privacy-proof. Yet, as said before, the apps did not meet that promise. However, there was an intent behind this promise, namely to attempt to legitimise its existence and usage. It alludes to safety. Some contestants present the apps as a layered choice: the choice to download the app and the choice to add onto the basic necessity of the app. There were multiple contestants who added the "benefit" of having an actual track and trace app on their phone if they wanted to. Figure 2 illustrates the example of DDT Consortium who repeatedly stated in their pitch that users can add as much data and additional functionalities as they wanted to the app. This was a feature that Covid19 Alert also promised. These possible features go against the conditions set for the corona-app, because this is by no means data minimalization nor is it necessary. This promise does not add onto the solution, because people do not need to be precisely tracked for contact tracers to do their work accurately. Furthermore, this goes against the privacy standards. Yet, seeing as some present this as an option, it does say something about the ideal technological future that is imagined. The government explicitly stated not wanting to be able to track and trace people, they wanted to trace the infection. But, as can be seen, some promise and regard this feature as a beneficial choice anyway. This fits in with the populist techno-solutionism discourse of technology inherently being democratic and free. Some regard technology as something free from political discourse, but this is not the case. Decisions would be imposed anyway.[89] Clearly, the contestants of the *appathon* hold faith in the technology but disregard the effects it may have on the public in doing so. In sum, this proposed promise is an individual solution instead of a societal solution.

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[87] One example of this is the *appathon* that could only be watched through a YouTube livestream. But, the comments were disabled, both in the livestream and the pitches that were uploaded afterwards.
[88] McDonald, 'Technology Theatre'.
[89] Elisabetta Ferrari, 'Technocracy Meets Populism: The Dominant Technological Imaginary of Silicon Valley', *Communication, Culture and Critique* 13, no. 1 (29 April 2020): 121–24, https://doi.org/10.1093/ccc/tcz051.
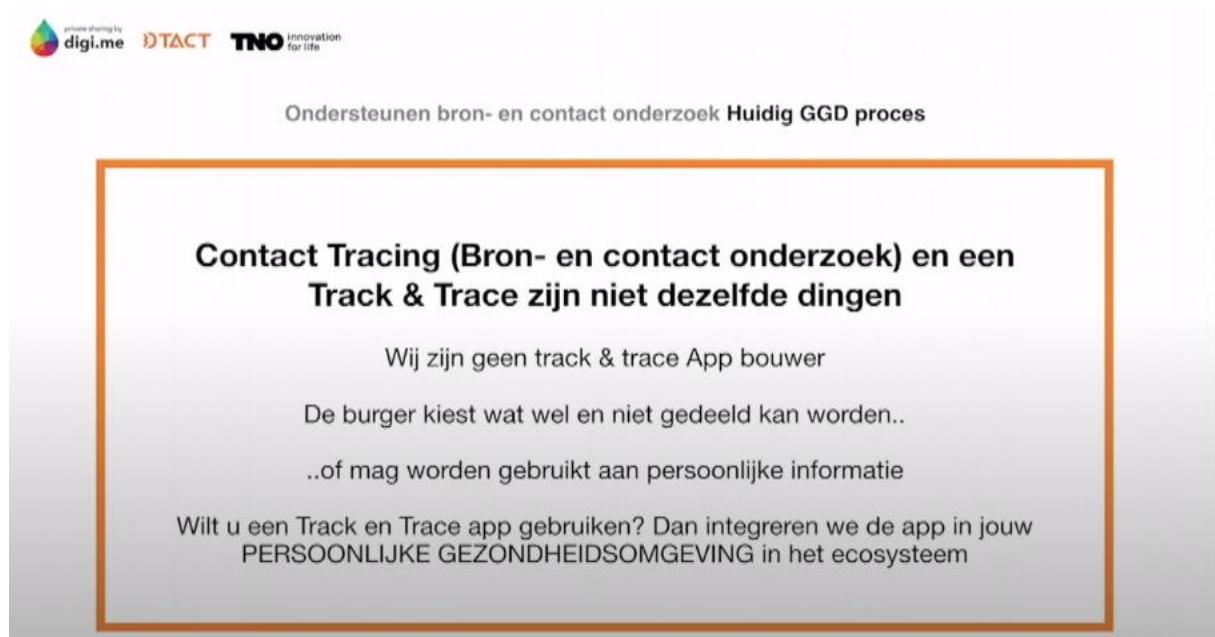
Figure 2 Still from DDT Consortium ending pitch ensuring that users can decide for themselves if they want to be tracked

5.2 Mediatised society

The proposed corona-app design and its discourse has brought insight on what the government expects from technology and how they portrayed it as a solution. This discourse sheds light on the impact of media on the portrayal of a public debate but also on how health, security and overall everyday life in times of crises can become digitised. Effectively, what happens by mediatising this process is that it brings sociality and media even closer together. This can be split up into two parts, namely: the media debate surrounding the corona-app and how the corona-app mediatised the solution to the pandemic.

The Dutch government communication and the debate surrounding the potential implementation of the app was broadly featured in the media.[90] The discourse became mediated through its press conference broadcasts, its YouTube livestream, the incorporation of TenderNed and the Dutch government's official site. Through this media coverage, the story or the purpose of the app as told by the government and other influential actors takes shape. Media are the primary source of information in this discourse and cannot easily be separated from it.[91] The announcement of the development of the app took place during a live broadcasted press conference. The messages that politicians send during large scale events, such as press conferences on the pandemic, play a big part in the constructing of a

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[90] As seen in the open-letter from academics that was directed to the government after the first initial announcement: 'Wetenschappers En Experts Aan Kabinet'.
[91] Couldry and Hepp, *The Mediated Construction of Reality,* 24.

political rhetoric. This has always been true, even before mass media entered the scene.[92] This makes word choices and framing quite crucial for the delivery of an idea, a solution or an approach.

There were noteworthy terms and word choices uttered by the Prime Minister that form a core part of the mediatised solution all throughout the press conferences.[93] This discourse lays bare the key values that construct the new political images of health and social life (which will be discussed more in-depth in 5.2.1). In turn, the social becomes mediated, for instance through the proposed app and the political discourse. This can be seen in the first half of the "intelligent lockdown", around the month of April. For example, the live broadcasted press conferences are needed to communicate the urge for this solution and why it is needed in the first place. The broadest public is directly reached through this medium of live press conferences.[94] This is a delicate platform since the government tends to refrain from negative phrasing and scaring the public in their speech. Though, they do want to spread a message. First, one apparent important value in this discourse is the desire for intelligent decisions and actions. The Prime Minister and the Ministry of Health, Welfare and Sport argue that intelligent solutions to the "intelligent lockdown" can be created with technology. So, in their argument they construct a new image for technology and specifically for the "intelligent" technology that they picked. Second, another important value is the necessity and urgency to return normal everyday life. Here technology is portrayed as an aid to the contact tracers but also as a necessity for continuing the "new normal" society.[95] The "new normal" became the ultimate end goal. The Prime Minister phrased this as the app "simply being needed for contact tracing." Furthermore, this decision is rationalised by arguing that "experts" have advised the government to use technology turning the corona-app into an almost inescapable quest.[96] The Prime Minister noted during the press conference that he did not have any knowledge in the app building department and continually refers to other experts. Experts being a black boxed term for the professionals that will design the app. These are some phrases and terms that are consistently used to argue for the app, consistently in a mediated way through broadcasts and the government's website. These terms indicate the key values of intelligence, necessity, urgency and delegation in these

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[92] Angelos Kissas, 'Ideology in the Age of Mediatized Politics: From "Belief Systems" to the Re-Contextualizing Principle of Discourse', *Journal of Political Ideologies* 22, no. 2 (4 May 2017): 197–215, https://doi.org/10.1080/13569317.2017.1306958.

[93] Prime Minister Mark Rutte is known for having mastered a particular set of political lingo consisting of 'odd' word choices and metaphors, which is jokingly referred to as 'Ruttiaans'. See for reference: Nicole Besselink, 'Ruttiaans: de taal van een huis-tuin-en-keuken-premier', Trouw, 21 September 2018, https://www.trouw.nl/gs-b155708f.

[94] The press conference reached 7,8 million viewers in their height: Redactie Adformatie, 'Persconferentie Rutte goed voor 7,8 miljoen kijkers', Adformatie, 22 April 2020, https://www.adformatie.nl/media/persconferentie-rutte-goed-voor-78-miljoen-kijkers.

[95] The "new normal" is a term introduced in the press conferences by Mark Rutte to indicate the new society in which keeping 1,5 meters distance is crucial to keeping the virus at bay.

[96] Ministerie van Algemene Zaken, 'Letterlijke tekst persconferentie na ministerraad 17 april 2020'.

broadcasts. This leads to a mediatised discourse centred on technological solutions instead of political solutions that involve the public.[97]

5.2.1 Everyday life

The app itself mediatises and constructs certain images of life through different functionalities. To study this adequately, one must look at the corona-app and question what the consequences are for different areas of life in which the app is going to be appropriated and used. It means that one must look at patterns, important actors and common (political) argumentation. What steps are taken to transform certain actions in everyday life and under what conditions does the transformation take place?[98] The app had prescribed tasks and uses, as discussed earlier in chapter 5.1. Now, those tasks and uses mediate aspects of everyday life and sociality. For instance, one clear example of mediatisation is the way in which the app mediatises one's contacts. Regular contact tracing is done manually by contacting the infected person, listing and tracing the people they have been in close contact with over the past two days before they started showing symptoms and then taking appropriate measures.[99] In contrast, digital contact tracing through a corona-app is commonly done by collecting data of the people that have been deemed to have been in close proximity of the infected user, regardless of context. In this case it does not matter where exactly those people have met, since their identities cannot be traced. This concept has been explained in the pitches of the *appathon.*[100] The figure below illustrates how contacts become mediatised through data collection. Additionally, the contact one seeks with healthcare officials has also becomes mediatised, since some app designs proposed that one must report illness in the app to seek contact with healthcare workers and other apps allow one to always send their data regardless of symptoms. This could make the work of contact tracers obsolete, since they are no longer mediators between people. The patient only needs a code from the doctor to verify their positive test result.[101]

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[97] McDonald, 'Technology Theatre'.

[98] Krotz, 'Explaining the Mediatisation Approach'.

[99] 'Protocol bron- en contactonderzoek COVID-19 | LCI richtlijnen', accessed 12 July 2020, https://lci.rivm.nl/COVID-19-bco.

[100] Ministerie van Volksgezondheid, Welzijn en Sport, *Corona apps resultaat zondag.*

[101] One example of such an app design is the app design by ITO, who were a part of the *appathon.*
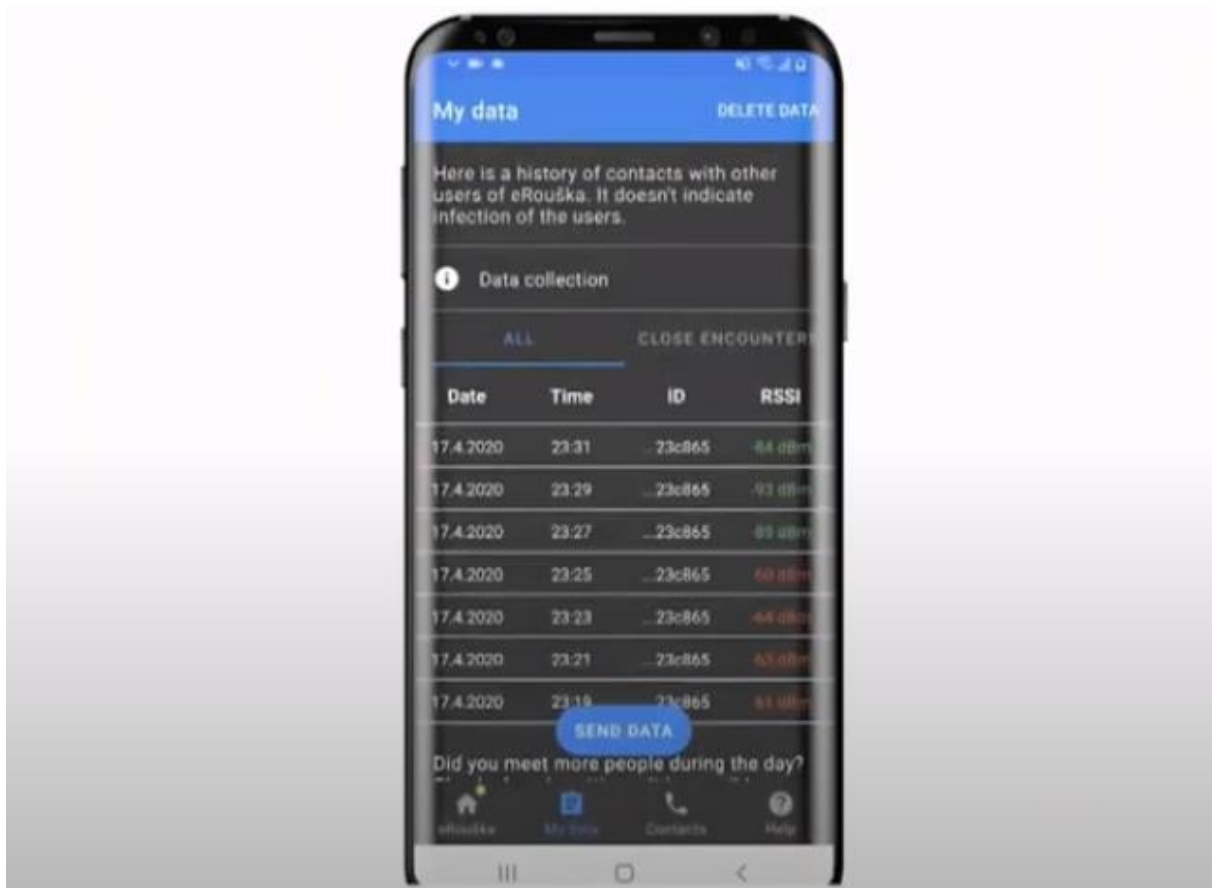
Figure 3 Still from Capgemini app pitch showing that dates, timestamps, user-ID's and distance is tracked and visible

Another result of the digitalisation of contact tracing is the mediatisation of the image of good health. The idea of good health is morphed into a digital image or reduced to numbers and graphs. One prime example of this is the proposed app *Covid19 Alert* which uses a meter to indicate whether your health is at risk or not (see figure 4). The meter assigns either low, medium or high risk of being infected based on the amount of infected people you have been in contact with. In that sense, health in the context of Covid-19 is no longer perceived as something solely experienced in the offline world.[102] Though, the data on screen is not an accurate depiction of real life, but it is a form of mediatisation that transforms the act of selfcare and health. The app does not tell the user about the context of the contact with other users, but it does potentially impact the user's behaviour. This is assuming that the user uses the app to stay healthy, as is its intended purpose. Logically, a user with an app assigning a high risk of being infected to that user would move radically differently compared to a user with a low risk of being infected.[103]

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[102] This is reminiscent of the quantified self-movement, where the purpose is to attempt to closely and objectively monitor health through quantified activities. See for reference: Linda Cambon, 'Health Smart Devices and Applications…towards a New Model of Prevention?', *European Journal of Public Health* 27, no. 3 (June 2017): 390–91, https://doi.org/10.1093/eurpub/ckx019; Hepp, 'Pioneer Communities', 920-921.
[103] One could question what low, medium or high risk is supposed to entail in terms of health, but that is not relevant here.

Figure 4 Still from the Covid19 Alert app depicting an infection meter and the implementation of a news and tips feature

Some other app designs even proposed other changes to actions that take place in everyday life and sociality, such as the option to check in and out of certain buildings. This effectively mediates the user's movement and activity, since the user has to have the app ready when, for instance, going shopping for groceries (see also figure 5). The app essentially becomes an integral part of day to day life, new life cannot continue without the app. The app would in this instance also collect more data than was deemed necessary. It traces the user's exact location and duration instead of the contact between users. Furthermore, most app designs required the app to stay open on the phone, otherwise they would not function properly. The app is clearly able to mediate multiple aspects of everyday life whilst remaining a black box itself. The apps' safety, security and trustworthiness is legitimised through technical terms instead of an actual thorough explanation. For instance, Covid19 Alert portrays the app as secure and effective through the usage of blockchain technology (commonly used for securing financial transactions) and "SDK" (or Software Development Kit such as *Java*). The pitch does not contain additional information on why these usages of technology lead to a secure app, the terms are intended to speak for themselves. This risk framing of this proposed app was a form of technology theatre to distract from the fundamental issues concerning privacy, safety and necessity as were described by AP and KPMG.[104] Furthermore, the app communicates on screen with the user to mediate behaviour. For instance, multiple app design proposals contained texts on the home screens indicating that "You are helping keeping Covid-19 at bay" or "You are helping others stay safe". This makes transforms the act of social distancing or self-quarantining to something that takes place on a medium as well. Additionally, some app designs display the message "Don't panic!" or a variant when the user

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[104] KPMG, 'Securitytest potentiële Corona-apps'; 'Onderzoeksrapportage bron- en contactopsporingsapps'.

gets a notification that they might be infected with Covid-19.[105] In short, the proposed corona-app mediates multiple acts that take place in everyday life, namely: behaviour, social contacts, health and contact tracing.
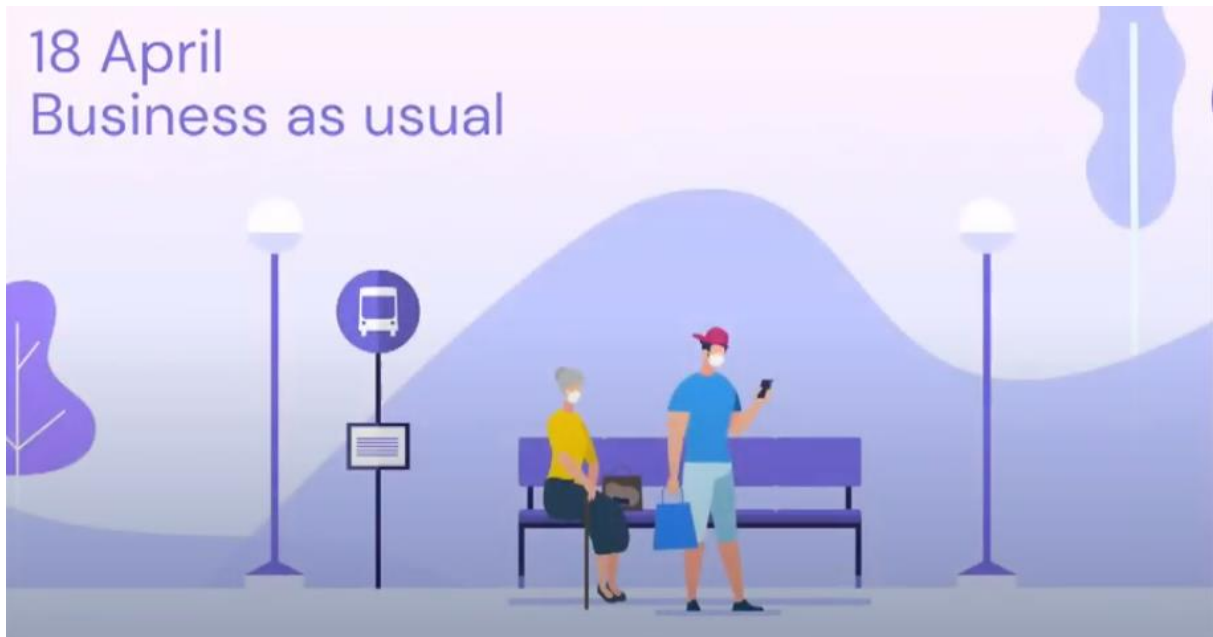

Figure 5 Still from Covid-19 Alert implying that the app helps to quickly return to business as usual

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[105] Ministerie van Volksgezondheid, Welzijn en Sport, *Corona apps resultaat zondag*.

6. Conclusion

This research focussed on the Dutch version of the corona-app and how the Dutch government presented their corona-app to combat the pandemic. This was explored through two different lenses, namely that of the technological imaginary and mediatisation. These perspectives help dissect how the app design was imagined and how the discourse surrounding the app was constructed. The press conferences, *appathon,* governmental articles and independent research over the period of 7th of April 2020 until 6th of May 2020 was analysed using the methods of close reading and discourse analysis. The analysis concluded that the imagined corona-app was more focussed on the technology itself than on creating an actual solution to combatting the pandemic. This was the result of certain assumptions, risk framing and discourse and shows how the technology was perceived as helpful and necessary in this crisis.

The imagining of the apps design and functionalities started with the government's tender and the *appathon.* The imagining of the app laid bare the tasks, goals, promises and benefits that were attributed to the app. First, the tasks and goals that were attributed to the app by the government were aiding healthcare and the contract tracers, keeping others safe and adhering to privacy and safety standards. However, the *appathon* and the research reports based on the proposals quickly revealed that the app could not live up to those tasks. Furthermore, the necessity and successfulness of the app were not proven. Second, the app usage was also attributed certain uses and benefits. These uses and benefits were not necessarily requested in the tender but were presented as proposals anyway. Most proposals framed the app as a safe and secure exit out of the "intelligent lockdown". Additionally, some app proposals promised that the app would be faster in contact tracing than the health care officials. Other app proposals would allow user to enable a tracking functionality or the option to add personal data to create a more complete overview for the contact tracers. These additional proposed functionalities show how the *appathon* contestants designed their apps in correspondence with the techno-solutionist assumptions and disregarded the impact on society in their designs. Furthermore, the government still wanted to design and implement a corona-app even though these apps were proven in this point in time to be disproportionally invasive, not secure, unnecessary and unhelpful.

The mediatisation of the discourse surrounding the app showed how the government handled the corona-app debate and what aspects of everyday live would be mediatised through the implementation of the proposed app. First, all official governmental news surrounding the corona-app and relevant measures were almost exclusively announced through official press conferences, YouTube, their website and related broadcasts. This means that this presentation of the app is effectively mediatised. The presentation contained words such as "intelligent lockdown", "intelligent solution" and "new normal". This re-contextualisation, where words are given new meaning, strengthened the political rhetoric that presents the corona-app as the solution and was consequently being framed as urgently needed, intelligent and as a necessity. Second, throughout this discourse, it becomes apparent that the

app mediatises certain actions that take place in everyday life. The app constructs a new perception for health, health care, social contacts and behaviour. Health care becomes mediatised and datafied through heightened selfcare reminiscent of the quantified self-movement. Contacts become mediatised in the sense that contact tracing is mediated through the app. One button click sets it all in motion, instead of the doing contact tracing manually. Last, behaviour in everyday life becomes mediated through the app. Push notifications and the functionalities of the app mean that the app becomes an integral part of everyday life. Bringing the social and technology closer together.

Concluding, I argue that the Dutch government presented the usage of the corona-app in the combatting of the pandemic as an urgent, intelligent, efficient and legitimate solution. The analysis has thereby shown that the Dutch government displayed a determined techno-solutionist approach to combatting the pandemic and had disproportionate expectations of the effectiveness of the app. Therefore, the proposed app was more part of political rhetoric than an actual solution. The government invested a large amount of time in an app which is not yet proven to be successful or effective and did so without presenting an alternative. Also, the app mediates aspects of life that are quite intrusive which might lead to a drastic alteration of everyday life. Additionally, the thesis has contributed to the debates surrounding techno-solutionism and Critical Data Studies. First, the thesis has proved that a techno-solutionist perspective was present in the discourse of the Dutch government. Second, the thesis has shown that a critical perspective towards data projects is an effective methodological approach that helps review the impact of data projects on society, politics and culture. Moreover, the analysis has shown that the impact of the technological imaginary on the designing of the app through the imagining off the actors involved. Last, the thesis has focussed on highlighting the process of mediatisation in a crisis. These have proven to be useful concepts in the studying of a new medium and the combining of the two has lead to a critical approach to study new media, technology and society.

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8. Appendix

In this chapter the entire corpus and timeline, identified themes and labels concerning the Dutch corona-app are listed.

8.1 Corpus description

In its totality the corpus consist of five press conferences, one *appathon* consisting of 14 pitches and two additional research reports. These are all part of the information that is being sent by the Dutch government. Additionally, I would occasionally look beyond the corpus by analysing open letters and feedback from academics. This corpus was used to identify the tasks and functionalities that were prescribed for the app. Furthermore, this corpus helped identify which promises the app would fulfil and what questions and reactions arise from this discourse.

8.1.1 Timeline

Press conference April 7th

The Dutch government announces that they want to start developing a Dutch version of the so-called corona-apps. The prime minister calls the app a "intelligent exit" to the "intelligent lockdown" that is in place.

Public invitation for proposals "Smart digital solutions for Corona" April 11th

The Dutch government posted a public invitation on TenderNed (the platform where the Dutch government places their tenders). It was a call for citizens and organisations to submit their smart solutions for Corona. This invitation was used to pick the contenders for the first draft of the corona-app which would be presented on the *appathon*. The invitation received more than 700 reactions and from those reactions they selected seven contesters. They were selected on the completeness of their proposals and how they aim to aid the track and tracers with their app.

Press conference April 14th

Interviewers took the opportunity to ask about the corona-app in the questioning round of the press conference on April 14th. Prime minister Rutte answers to this question by summing up some conditions that the app would have to meet. This conditions are: voluntary usage, open source, data minimalization, temporary usage, transparency and keeping up with the corona-apps of neighbouring EU countries.

Appathon April 18th and 19th

There were seven contester to take part in the *appathon*, namely: Covid19, DDT Consortium, Accenture B.V., Capgemini Nederland B.V., ITO, DEUS BV and Sia Partners. The contesters each had to make the source code for their app public beforehand. The *appathon* took two days in which the contesters presented their pitches before and after feedback and worked together with experts and the public. The whole *appathon* was livestreamed to the public on YouTube and the government's site. The analysis of this thesis took special interest in the starting and ending pitches of the seven contesters.

Technical expert report from KPMG April 19th

KPMG was enlisted by the Ministry of Health, Welfare and Sport to deliver advise with regard for their technical expertise. KPMG conducted a research on whether the safety, technical and privacy conditions where met by the seven contesters. They were not able to conduct a completely in-depth research due to time constraints. One of the contesters was not able to deliver their proposal and source code and others did not always deliver a complete proposal.

Research report *Autoriteit Persoonsgegevens* (AP) April 20th

The *Autoriteit Persoonsgegevens,* or Authority Personal Data, conducted research on whether the proposed apps kept to the privacy laws that are in place. The Ministry of Health, Welfare and Sport enlisted AP as a supervisor on this front. The AP concluded that they could not deliver a full in-depth judgement on the apps since a lot of delivered documentation and information from the *appathon* was incomplete.

Press conference April 21th

An interviewer noted in the questioning round that the development of the app was not going awry. The prime minister answered by saying that he thought it was not as bad as it might seem. He noted that this was a complicated process and that they, the government, are now going to determine the specific epidemiological conditions for the app according to the contact tracers. Furthermore, they are going to work on safeguarding the previously mentioned conditions for the app.

<u>Press conference May 6th</u>

In this press conference the app was once again discussed in the questioning round. This time minister of Health, Welfare and Sport answered to the remark: "U noemde het bron- en contactonderzoek. Eerder zei u dat daarvoor de inzet van een app cruciaal was. Daar hoor ik u geen van beiden vandaag over." Or "You mentioned the track and tracing research. Earlier you mention that the deployment of an app would be crucial. Today I did not hear you talk about either." The minister assured that the app was still urgently needed, but as an *addition* to healthcare and contact tracing. The app would be quicker and completer combined with contact tracing.

8.1.2 Themes

There were several recurring themes in which the corona-app was described and imagined to the public. Those themes are listed in the table underneath. Each theme was analysed through the key actants in the public discourse surrounding the corona-app. This means that for each actant the most apparent promises, task, questions and reactions that they have prescribed to the app are listed below. Each actant perceive the app through a different perspective. Be it for governance, monetary gain, academics or expertise.

	Promises	**Tasks**	**Questions**	**Reactions**
Press conferences	Controlled exit lockdown, efficient way of tracing new infections	Support health care and contact tracers, make contact tracing less time intensive	Technical questions cannot be answered and are delegated to 'experts'	Still hopeful for successful version of corona-app, design continues but is pushed to the background
Appathon	Controlled exit lockdown, efficient way of tracing new infections, self-diagnosing, additional functionalities	Support/replacement of track and tracers, delivery of news and information, warning, self-diagnosing, protecting yourself and others	App builders had to fill in for the questions they have surrounding specific demands for the app and filled in by implementing extra functionalities	As a response to the task to build the app, the app builders put emphasis on privacy, safety and user friendliness
Academics (open letter)	Academics are uncertain as to what the app should promise besides safeguarding of values and rights	(Unwanted) control on citizens, fearful for function creep, aiding healthcare	Questions about the urgency and efficiency of the app, questions with regards to the safeguarding of human rights	Academics put the focus on the urgency of decent conditions and interdisciplinary teams for the development of the app
Monitoring parties (AP/KPMG)	Monitoring parties have been unable to conclude if the apps met their promises since they identified to many flaws	The main task of the app would be to protect the data and safety of citizens through app	Monitoring parties had many questions about the legitimacy and safety of the app	The proposed apps were deemed unsafe and inappropriately build for the situation

8.1.3 Labels

In the analysis of the discourse surrounding the app there are multiple recurring patterns that can be identified and labelled. These labels were derived from the most important conditions that were set for the app. There were certain conditions set by multiple parties to which the app should comply in their perspectives.

Labels:

- Efficient
- Legitimate
- Intelligent
- Urgent
- Only alternative
- Delegating
- Risk framing

Conditions app as framed by Prime Minister in press conferences:

- Temporary
- Voluntary
- Data minimalization
- Safe
- Privacy proof
- Aiding contact tracing
- Transparent
- Open source
- User friendly
- Compatible with other countries

Conditions app as framed in *appathon*:

- Privacy
- Safety
- User friendly
- Anonymous
- Transparent
- Quickly available

Conditions app as framed by AP:

- Safe
- Privacy secure
- Data protection
- Non-invasive
- Effective
- Target binding
- Necessary

Conditions app as framed by KPMG:

- Privacy
- Justice
- Data protection
- Technical expertise

8.2 List of figures