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Article

COVID-19 Health Certificates: analysis of policy implementation, framings, and controversies in nine European countries

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COVID-19 Health Certificates represented a key policy in Europe during the COVID-19 pandemic and were introduced globally by the World Health Organization to strengthen pandemic preparedness. This article undertakes a comparative analysis of COVID-19 Health Certificate policies, and their underlying narratives and framings in nine European countries. Policies differed across European nations in timing, scope, and stringency of the measures entailed and were often subject to major controversies and heated public debates. By tracing their distinct policy narratives (providing emergency response, restoring social and economic activities, and incentivizing vaccination), we suggest that Certificates also served as a proxy for other, highly controversial measures (such as vaccine mandates). When this happened, they were met with intense pushbacks from citizens. Additionally, we show that scientific evidence was differently appropriated in national policy narratives, and that concerns commonly associated with novel digital health technologies (e.g. privacy) did not rise to prominence in public debates.

Keywords: COVID-19 Health Certificates; Digital COVID Certificate; COVID-19; policy narratives; framings.

1. Introduction

Policy responses to the COVID-19 pandemic differed significantly in timing, scope, and outcomes across European countries (Forman and Mossialos 2021; Jasanoff et al., 2021; Van Kessel et al., 2023). While such differences could be partially attributed to different epidemiological situations across European regions, they also owed to socio-cultural, economic, and political factors (Baum et al., 2021). Among the latter set of factors, policy narratives—defined as 'stories told to persuade key decision makers and their constituents to support specific policy choices' (Mintrom and O'Connor 2020)—have significantly influenced policy development and implementation (Mintrom and O'Connor 2020; Mintrom et al., 2021; Narlikar and Sottilotta 2021; Peci et al., 2023). All the while, issues of personal freedom, solidarity, democratic accountability, and legitimate uses of state authority triggered controversy and intense public debates around policy responses to the pandemic, particularly after the initial immediate emergency phase in the spring of 2020 (Marelli 2023; Zimmermann et al., 2023).

Once COVID-19 vaccines were available to the general population across Europe and in many other parts of the world (Karopoulos et al., 2021; Mills and Rüttenauer 2022), COVID-19 Health Certificates (henceforth: Certificates)

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became a common policy instrument to contain the spread of the SARS-CoV-2 virus and manage the social and economic fallout of the pandemic. Certificates provided digital (or paper-format) proof that a person had either been vaccinated against COVID-19, received a recent negative test result, or recovered from the disease.[1] The European Union (EU) originally devised such an EU-wide certificate to reinstall and preserve the free movement of people across European Member States (European Commission 2021a). However, upon national implementation, European countries also used the Certificate to regulate movement and social activities within national borders. As such, the Certificate represented a much-debated policy in the later stages of the COVID-19 pandemic in Europe.

On 1 July 2023, the World Health Organization (WHO) established the Global Digital Health Certification Network (GDHCN), an open-source platform to support the verification of health documents and certifications that built upon the experience with the digital European COVID Certificate (World Health Organization 2023). This development rendered Digital Health Certificate policies relevant far beyond the context of the COVID-19 pandemic.

To establish an evidence base that might inform implementation policies for future Digital Health Certificate applications, this article analyses policies and debates around the implementation of national Certificates in nine European countries: Austria, Belgium, France, the United Kingdom (UK) (limited to England), Germany, Ireland, Italy, Portugal, and Switzerland. It outlines relevant national policies around the Certificates, traces the underlying framings and narratives that have sustained their introduction, and compares them with an interpretive policy analysis approach (Wagenaar 2014). The questions it addresses are: What commonalities and differences can be traced around the implementation of Certificate policies across European countries? What normative and scientific rationales, values, narratives, and expectations informed policy implementation in each country? What were the main controversies that were triggered by such policies?

2. Analytical perspective

This article builds on frame analysis developed in interpretive policy analysis, Science & Technology Studies (STS), and associated social and political science disciplines. As shown for other COVID-19 policies (see, e.g. Mintrom et al., 2021; Narlikar and Sottilotta 2021), we suggest that national variations in the Certificates' implementation were primarily premised on distinct policy narratives and framings. In the widely used definition proposed by Entman (1993, 52), '[t]o frame is to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described'. Framing practices represent a crucial component in the making of policy narratives, which, in turn, are paramount to driving policy action and providing legitimacy to proposed policy (Rein and Schön 1996; Fischer 2003; McBeth and Lybecker 2018), also in the context of public health emergencies (see, e.g. Hume 2000; Berry et al., 2007; Wald 2008; Mintrom et al., 2021; Marelli 2023). In general terms, narratives function as a device 'to sharpen certain elements of reality while levelling others' (Jones and McBeth 2010). As further defined by Mintrom and O'Connor (2020), policy narratives are 'general story-lines that emerge and come to hold prominence in policy communities concerning particular phenomena', and are of relevance as 'they can condition the thoughts and actions of broader populations'. Furthermore, in scientific and technological governance and the formulation of public health policy, framing and narrative practices often inform the discursive strategies employed by policymakers to present proposed policy as science-based, thereby attempting to shore up its legitimacy (Wynne 2002; Roth et al., 2003; Irwin 2008).

In this article, we map policy narratives to trace (1) how the problems that Certificates intended to address were constructed, (2) the solutions proposed through their implementation, and (3) the discursive strategies used by policy actors to legitimize them. Moreover, studying Certificates improves our understanding of how EU policy discourses can shape national public policy narratives and how EU policies are distinctly appropriated, reframed, and enacted in European countries within and beyond the EU.

The article provides a qualitative comparison (Wagenaar et al., 2022) of countries with geographic proximity. All included countries featured national versions of a COVID-19 Health Certificate that were interoperable with other nations within the broader technical and legal framework established by the EU. Even though they were all European democracies, countries differed in their political systems in ways that affected the Certificate's implementation and public response to it. In Switzerland, for example, the possibility of People's Referenda led to public votes about the COVID-19 law (Swiss Federal Council 2021a, 2021b), which, as we will show, importantly influenced public debates about the Certificate. Austria, Belgium, Germany, and Switzerland represent federal democracies, leading to different regional policies. The UK is a unitary state divided into four distinct legal jurisdictions ('countries'). Each maintained significant autonomy in policy implementation, though this article will focus solely on England. All participating countries except for Switzerland and the UK are members of the EU. Portugal and, subsequently, Ireland held the EU presidency in 2021 when the Certificate was introduced.

3. Methodology

We developed an analytic template based on our research questions (available as Supplementary File). Each author performed a structured content analysis for their country of origin or residence. Relevant sources for the content analysis included policy documents, legislations, national and regional guidelines, relevant grey literature, media briefs, and media news related to the policies implementing the Certificate. Relevant documents were identified and accessed through online internet searches, specified by the analytic template and by using keywords such as 'COVID-19 Certificate', 'COVID-19 Health Certificate', or relevant synonyms. If applicable and necessary, further sources were identified and analysed based on these initial searches. Because grey literature is not systematically stored in databases, it was not possible to conduct a systematic search for relevant documents. Following a qualitative research design, country teams aimed to

[1] As discussed in what follows, some versions of the Certificates covered not all the aspects of vaccination, test, or recovery status.

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develop a maximum variety of perspectives as identified in grey literature. All researchers had relevant expertise on the national COVID-19 governance through their collaborative research about the societal impact of the COVID-19 pandemic as part of the 'Solidarity in Times of a Pandemic' (SolPan) Research Commons (Zimmermann et al., 2022).

Relevant sections of the selected materials were identified by each country team in individual memos based on the common analytic template. The content of these memos was discussed in joint meetings for comparative purposes. A core team of three researchers (L.M., B.Z., and H.M.) coded the memos to identify themes that were systematically contrasted to identify robust patterns for interpretation of the commonalities and differences in country-specific policy implementation of the Certificate. All co-authors then reviewed this analysis through the lens of their specific country and refined the analysis.

4. Results

The analysis is presented in three analytical sections that were predefined in the analytical memo. Part 1 includes a description of the national Certificate policies and how they developed over time. Part 2 presents the policy narratives and frames in a comparative manner. Part 3 then introduces the most salient public debates and controversies in the various countries.

4.1 National Certificate policies

In response to initial shortcomings in aligning international responses to the COVID-19 pandemic, discussions around the Certificate in Europe at the level of the EU aimed at ensuring freedom of international movement and avoiding policy fragmentation. Between November 2020 and January 2021, discussions were held between the EU Commission and Member States within the eHealth Network to lay out guidelines for interoperability requirements of digital vaccination certificates, which were issued in January 2021 (European Commission 2021b). In March 2021, negotiations between the EU Commission, the Council of the EU, and the Parliament developed a common framework for an EU-wide 'Digital COVID Certificate'. An agreement between Member States was reached on 22 April 2021, and a final agreement with the Parliament was in place by 20 May 2021. This led to the promulgation of Regulation EU 2021/953 on the EU Digital COVID Certificate, which entered into force on 14 June 2021 (European Parliament and Council of the European Union 2021). Meanwhile, on 1 June 2021, the EU Gateway enabling the interconnection of national systems was established. One month later, the EU Digital COVID Certificate was introduced throughout the EU, and from 1 July 2021, EU citizens and residents were able to have their Digital COVID Certificates issued and verified across the EU (European Commission 2021a).

National implementations of the Certificate were moulded on this EU-wide 'Digital COVID Certificate'. Countries such as the UK, France, and Italy, which had introduced national versions of COVID-19 Health Certificates before the EU Gateway was established, made their digital certificates compatible with the EU Digital COVID Certificate. Also non-EU countries, such as Switzerland and the UK, introduced national Certificates and rendered them interoperable with the EU Digital COVID Certificate to preserve free movement across the continent.

Yet, national Certificates were soon used beyond the scope of international travelling and were widely employed to regulate movement and social activities within national borders. The following sections describe the legislation trajectories related to the domestic use of the Certificates in each country included in this study. Figure 1 graphically illustrates the scope and stringency of national Certificate policies, demonstrating how these varied among the participating countries, despite the common initial purpose of facilitating international travels.

In *Austria*, the QR-code-based 'Green Pass' (*Grüner Pass*) was implemented on 10 June 2021. It facilitated proof of compliance with the so-called '3G rule' (*Geimpft*, *Genesen*, *Getestet*)—the requirement to be either vaccinated against, recovered from, or tested for COVID-19 to access certain public places and social activities. Until the measure was revoked on 16 April 2022, proof of compliance with the 3G rule was required to access leisure activities (e.g. cafes, hotels, restaurants, museums, and theatres), public events, health and care facilities (hospitals, care homes), universities, and shopping places, but not public transportation (Bauer 2021). From 15 November 2021 to the end of January 2022, Austria had a strict '2G rule' (*Geimpft*, *Genesen*—i.e. vaccinated or recovered) in place, which came to be known as the 'lockdown for the unvaccinated' (*Lockdown für Ungeimpfte*). During that time, people without a vaccine- or disease-acquired immunity were not allowed to leave their homes but for a limited number of reasons, including shopping for essentials, or working. The measure, whose effectiveness was contested based on empirical evidence (Kalleitner and Partheymüller 2022), was suspended for a few days around Christmas 2021. Throughout the entire time, due to the federal structure of the country, federal states (Länder) were allowed to enact stricter rules. The 'Grüner Pass' was available both digitally and as a physical hard copy. People could access it *via* a smartphone app or print it out after downloading it. The 'Grüner Pass' was gradually phased out as Austria moved to a phase of living with COVID-19 and lifted most pandemic restrictions. By the summer of 2022, the need for the Certificate in everyday life had largely been revoked, though it was still maintained for some international travel and specific settings for a while longer, depending on evolving policies.

Belgium implemented its own national Certificate, called the *Covid Safe Ticket* (CST) (issued in paper or digital format, and accessible through the CovidSafeBE app). The CST was first introduced in June 2021 by the Belgian Consultation Committee (*overlegcomité*, *comité de concertation*, or *beratungsausschuss*), and became deployed on 13 August 2021 for large outside events (Belgium.be 2021; Vermeulen et al., 2023). It attested proof of vaccination, negative test result, or valid recovery certificate. At the federal level, the CST was rendered mandatory for outdoor mass events in 2021. The use of the CST was extended on 1 September 2021 for indoor events with more than 200 spectators and outdoor events with more than 400 spectators. On 1 October 2021, the CST became mandatory for nightclubs, whereas the rules for events were slightly loosened. Afterwards, the Belgian regions (Flanders, Wallonia, and the Brussels Capital region) implemented their own measures regarding the CST. The obligation to carry the CST for accessing catering facilities, museums, concerts, cinemas, sporting events and

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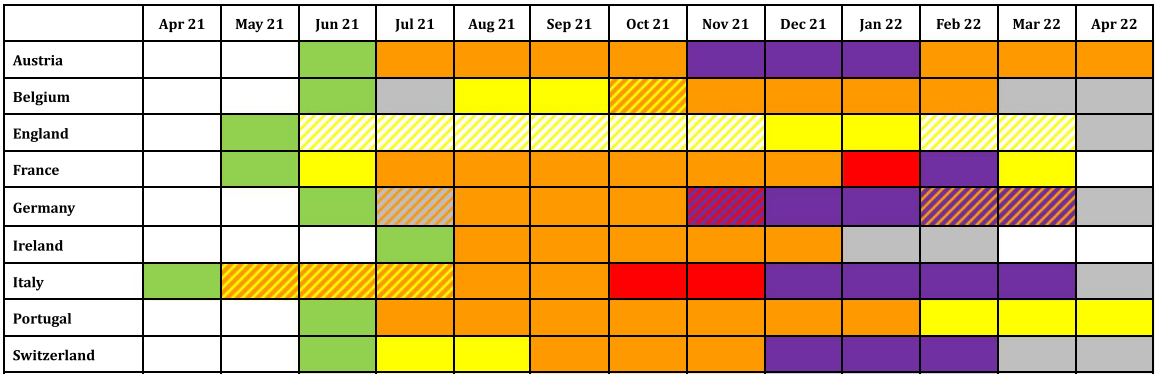


Figure 1. Scope and stringency of measures of the national COVID-19 Health Certificates over time. Green = introduction of Digital COVID-19 Health Certificates. Yellow = use of Certificate for domestic purposes considered at 'high risk': large gatherings for leisure activities (mass events, sports games, etc.) or to enter healthcare facilities. Orange = use of Certificate for leisure activities (e.g. going to restaurant, sport venues, and museums). Red = use of Certificate to access workplaces. Purple = vaccination or recovery from the disease required (negative COVID-19 test alone does not suffice). Grey = use of Certificate only for international movements (travelling, etc.). White = no Certificate in place. Dashed: regional differences within one country.

festivals was adopted, respectively, in Brussels on 1 October 2021, in Wallonia on 20 October 2021, and in Flanders on 1 November 2021. Later, a more structured approach was adopted, using parameters from the 'corona barometer' to determine the range of activities for which the CST was required. This tool, developed by the Belgian 'Evaluation Unit', CELEVAL, and introduced by the Belgian Consultation Committee during the press conference on 21 January 2022, was used to devise evidence-based policies according to a set of indicators (SPF Santé Publique 2021; Belgium.be 2022). In response to criticism from several experts on the effectiveness of the Certificate, Belgium discontinued the mandatory use of the CST as of 5 March 2022 (De Morgen 2022; Vermeulen et al., 2023).

In the *UK*, each of the four countries (England, Scotland, Wales, and Northern Ireland) had ample leeway in implementing Certificate policies. Specifically, *England* (the country on which this article focuses) introduced the 'NHS COVID-19 pass' on 17 May 2021 as either proof of vaccination, recovery, negative test results, or exemption status (related to medical reasons that ought to be assessed and approved). The digital NHS COVID-19 passes were used for travelling abroad and for domestic use (for access to public events and healthcare settings, and visitor access to workplaces) and required the creation of an NHS login. The NHS COVID-19 pass was also available on paper. As of 19 July 2021, it was possible to use the NHS COVID-19 pass to enter some domestic venues that were considered high-risk. The UK government revised its plans and stances towards the use of the domestic COVID-19 pass multiple times (Haddon et al., 2021). While the Government stated in August 2021 that vaccine-only Certificates would be implemented in the case of increasing infection rates in winter, this option was withdrawn by September 2021. From 15 December 2021 to 27 January 2022, a vaccination or test certificate was mandatory for accessing nightclubs and large gatherings. As of 4 April 2022, the COVID-19 pass was only being used for international travels, since domestic use has been discontinued.

France introduced its national version of the Certificate, the '*pass sanitaire*', in April 2021. From 20 April 2021, each test result was integrated in the national database SIDEP (*Système d'information national de dépistage populationnel*). Persons with a positive test for COVID-19 could get a certificate on the mobile app 'TousAntiCovid' (Ministère de la Santé et de la Prévention 2022). From 29 April 2021, the same system was applied to certify vaccination, linking one's app to the national vaccination database (Vac-SI). The state certificate was based on a QR code provided by the mobile app or a health professional (paper version). The 'passe sanitaire' was used to monitor border crossings and access to healthcare institutions and care homes. From August 2021, the certificate was mandatory to access places of activity and leisure (e.g. cinemas, zoos, and libraries), restaurants, clubs, bars, healthcare institutions and care homes, and big commercial centres. Between 24 January and 14 March 2022, only vaccination certificates proving a complementary dose of vaccination were accepted to access public places. From 2022 onwards, vaccination certificates were no longer required to access public places of leisure. Exceptions were made, however, for healthcare and other care institutions where certificates continued to be mandatory, for travellers coming from abroad, and for overseas territories (Service Public de la République Française 2022). The application has been suspended since 30 June 2023.

The Government in *Germany* introduced the Certificate on 10 June 2021, 10 days after granting the general population access to COVID-19 vaccination (Bundesministerium für Gesundheit et al., 2021; Fiske et al., 2022). The EU Digital COVID Certificate (*digitales Covid-Zertifikat der EU*) contained a unique QR code and was issued *qua* vaccination or recovery certificate. Test certificates released by test centres and medical laboratories could be converted into EU certificates *via* the German digital contact-tracing app (Corona-Warn-App). German residents could show proof of valid certification on paper, digitally, or through the 'Immunity Card' (*Immunkarte*), a physical card available in pharmacies or online and developed by a private start-up as an alternative to the digital certificate. The implementation of restrictions related to the COVID certificate varied between the different German States (*Bundesländer*) and kept changing over time. From 23 August 2021, the '3G rule' (requiring proof of either vaccination, recovery, or negative testing) was implemented for health and care institutions, indoor catering, participation in indoor events (cultural, leisure, or sport), and indoor sports facilities. In November 2021, the Federal Government initiated compulsory vaccination for healthcare professionals and implemented the '2G' (vaccinated or recovered) or even '2G+'

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rule (additional negative COVID-19 test required) when infection rates would exceed a certain threshold. Moreover, the 3G rule was introduced to access workplaces (though employers also had to continue offering a free testing opportunity at least twice a week) and public transport. In December 2021, the 2G rule was applied nationwide in the retail sector (except for essential shops such as supermarkets or drugstores), to access cultural and leisure events, as well as events involving large gatherings (which, at some conditions, were also bound to the 2G+ rule). Strict contact restrictions applied to unvaccinated people, who, as of the end of the year, were only allowed to gather with people in their own household and two other people. In January 2022, the 2G+ rule was introduced in the catering sector, and private gatherings involving vaccinated or recovered people were allowed up to a maximum of ten people. From 20 March 2022 onwards, the measures were discontinued in a stepwise manner.

In *Ireland*, the EU Digital COVID Certificate (or EU DCC), attesting proof of vaccination, recovery or negative testing, was operational from 19 July 2021 and was implemented by the Irish Government. The EU DCC was rolled out nationally across the Republic of Ireland in both digital and paper format. From 26 July 2021 to 22 January 2022, the certificate was gradually rendered a mandatory requirement for accessing leisure and entertainment venues. For accessing indoor facilities such as restaurants and cafes, the Certificate was mandatory from 26 July 2021; on 30 September 2021, the Certificate was used for a pilot night club event (the first nightclub event in 18 months); from 18 November 2021, it was used for enabling attendance to theatres and indoor cinemas; and from 7 December 2021, gyms and leisure centres were added. From 22 January 2022, Certificates were only necessary for international travel, and from 6 March 2022 onwards, they were no longer required.

In *Italy*, the COVID-19 Green Certificate (*Certificazione verde Covid-19*, known as the 'Green Pass', provided in both paper and digital formats) was first introduced by the Italian Government on 22 April 2021, as proof of either vaccination, recovery, or negative testing status for accessing a limited set of activities involving public gatherings (fairs, congresses, and sport events). A first major extension of the Green Pass to most leisure and cultural activities (indoor restaurants, sporting venues and competitions, recreational and cultural venues, etc.) was enacted on 23 July 2021. Subsequently, the Green Pass was rendered a mandatory requirement for accessing schools, universities, and public transport (except for local mobility) on 1 September 2021, and public and private sector workplaces on 15 October 2021. At the end of November 2021, a 'reinforced' Green Pass based on vaccination or recovery certificates only was introduced and required for accessing a wide spectrum of social activities. In parallel, the 'basic' Green Pass was extended to local mobility. In January 2022, a vaccine mandate was introduced for workers above 50 years old and school personnel, while the Green Pass requirement was extended to accessing shops and malls. Measures were progressively phased out after the national state of emergency ended on 31 March 2022 (for a detailed overview of the policy evolution of the Italian Green Pass, see Marelli 2023).

In *Portugal*, the national Digital COVID Certificate (sometimes referred to as Digital COVID Certificate of the EU) was introduced by the national Government on 26 June 2021. It provided proof of either vaccination, recovery, or negative testing status. Until February 2022, the range of national uses for which the certificate was required included attendance to weddings and baptisms, access to leisure and cultural activities involving gathering (from hotels to restaurants, from gyms to discos), and access to health and care facilities (nursing homes, visits to inpatients). Subsequently, the certificate requirement was lifted for a range of leisure activities (such as tourist establishments and public events) and for entering the national territory (February 2022), and later for accessing hospitals and nursing homes (April 2022).

In *Switzerland*, the Swiss COVID certificate (*Covid-Zertifikat/certificate COVID/certificato COVID*) was introduced on 26 June 2021 to prove vaccination, recovery, and negative testing status ('3G rule'). It was made a mandatory requirement for undertaking a progressively wider set of activities (Federal Office of Public Health 2022). Being available both digitally and in paper form, the Swiss COVID certificate was compatible with the EU Digital COVID Certificate to meet the standards for international travelling. From June 2021, the Swiss COVID certificate was required for accessing large-scale events (1,000+ attendants) and discos at full capacity. In September 2021, its scope was extended for the first time to include a wide spectrum of leisure activities: restaurants and bars, indoor culture and sport activities and events (including zoos, museums, and cinemas), any indoor event, and outdoor events with more than 500 people. In parallel, academic institutions and employers were given the prerogative to autonomously decide on whether to introduce certificate requirements. From the beginning of October 2021, the costs of COVID-19 test to obtain a COVID certificate were no longer covered by the State—which was intended to incentivize vaccination. In December 2021, the scope of the certificate was extended twice, culminating in the introduction of the '2G rule': Only people with valid recovery or vaccination certificates were allowed to access events, restaurants, cultural, and sports activities. For activities that did not entail face mask usage, an additional negative test was required ('2G+ rule'). All domestic certificate requirements were finally lifted on 17 February 2022.

Differences in timing, scope, and stringency of Certificate policies were underpinned by distinct policy narratives and framings. Accordingly, we will now outline how national governments presented and justified their policies and trace the frames used in policy narratives to identify the problems at stake and propose the implementation of the Certificate as a suitable means for addressing them.

4.1.1 Emergency response. Many governments framed the introduction of their Certificate as a direct response to the crisis. Once technically available, the Certificate was framed as a means to contain the spread of the pandemic, thus avoiding the collapse of the healthcare systems and protecting those most vulnerable to COVID-19. This frame was particularly pertinent in those countries where the use of the Certificate was contingent on the severity of the pandemic. For example, the *British* Government stated in the summer of 2021 that vaccine-only pass mandates would be introduced only in case other measures proved insufficient to limit infection rates, and in mid-September revised this policy by announcing that vaccine certificates would only serve as an emergency 'Plan B' if pressure on the National Health System became unsustainable (Haddon et al., 2021). Similar rationales were presented by the *German* Government on the expanded use of the Certificate in Autumn and Winter of 2021: the policy rationale was mainly

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grounded in the epidemiological emergency due to crowded hospitals and sharply increasing case numbers. The *Belgian* Prime Minister De Croo also argued that the Certificate would only be used when necessary due to the evolving severity of the pandemic, as captured by relevant indicators of the national corona barometer (Belgium.be 2022). As stated in policy documents, the main rationale for the implementation of the CST hinged on the 'protection' of the population from the virus, as well as the 'protection' of both the healthcare system and the economy (Gegevensbeschermingsautoriteit 2021; Vermeulen et al., 2023).

4.1.2 Resuming social activities. Especially in the first phase of the pandemic, the restrictions (e.g. lockdowns) in place to contain the spread of SARS-CoV-2 severely limited individual freedom to travel and engage in social activities. A prominent explanation and justification of the Certificate was thus the 'return to normality', as contended, for instance, by the *Austrian* Foreign Minister Schallenberg (Lmoosbrugger 2021). This return to 'normal life' was conceived as the unhindered free movement of people within and across national borders and the resumption of social life, including large gatherings. In *Italy*, for example, Prime Minister Mario Draghi argued that 'the Green Pass is not an arbitrary measure. . . It is a measure through which Italians can continue to carry on their activities, have fun, go to restaurants, participate in outdoor and indoor shows, with the guarantee, however, of finding themselves among people who are not contagious' (Presidenza del Consiglio dei Ministri 2021). In *Switzerland*, the introduction of the Certificate was combined with the reauthorization for large events (Aschwanden and Gerny 2021). In *Ireland*, the Certificate was made a mandatory requirement to attend specific nightclub events from 30 September 2021 for the first time after 18 months (Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media 2021). Likewise, the *Portuguese* Government claimed the Certificate represented a solution for facilitating international travels and national circulation in a 'secure' (from the virus) and 'free' (from previous pandemic-related restrictions) manner (Press conference by Prime Minister António Costa 2021).

4.1.3 Restoring the economy. The 'return to normality' narrative also included the (re-)opening of economic activities affected by restrictions and lockdowns. This was also one main rationale of the EU when issuing the EU Digital COVID Certificate (European Commission 2023). Some governments particularly emphasized the prompt implementation of the national Certificates as vital for preserving national economic interests. In *Portugal*, the EU Digital Health Certificate was perceived as in line with national interests: Enacted just prior to the start of the summer tourist season, the Certificate was framed by government officials and the media alike, as a means to 'save the summer' and ensure that 'tourism can be a source of revival for the economy' (Lusa 2021). In *Ireland*, a country which maintains strong international economic links in innovation-intensive sectors, the foremost rationale for introducing the Certificate was to 'facilitate a return to international travel [within the EU] in accordance with clear safety protocols' (Martin 2021). Soon after its introduction, the Certificate was framed as an important tool for the hospitality industry to be able to open again. In *Switzerland*, economic actors (e.g. major business associations) first supported and pushed for the introduction of the Certificate but became more critical when applications of the Certificate were extended to restrict access to restaurants and other businesses (Schweizer Radio und Fernsehen 2021a).

4.1.4 Incentivizing vaccination. Another rationale for the introduction of the Certificate was to incentivize people to get vaccinated against COVID-19. In *Switzerland*, the policy and public discourse on the Certificate thus assumed a more explicit moral undertone, shifting to narratives of rewarding those willing to vaccinate (Projer 2021). In both *Switzerland* and *Germany*, the offer of free rapid COVID-19 tests was discontinued in autumn 2021,[2] making it costly for non-immunized individuals to get a valid certificate. In *Italy*, the Certificate was explicitly framed by policymakers as a means of increasing COVID-19 vaccination rates. In a press conference on 22 July 2021 announcing the first major extension of the Green Pass, the Italian Minister of Health, Roberto Speranza, stated: 'The basic message that I believe as a government we want to give, in the firmest and most convinced way, is to get vaccinated, get vaccinated, get vaccinated'; the Prime Minister, Mario Draghi, further contended that 'The appeal not to get vaccinated is, basically, a call to die—you do not get vaccinated, you get sick, you die—or you make someone die—you don't get vaccinated, you get sick, you get infected, he/she dies' (Ministero della Salute 2021). The moral framing of the discourse triggered significant debates and contestation (see below). Like in Italy, policy narratives bled into discussions of vaccination mandates in *Austria* and *Belgium* during the Autumn and Winter of 2021, when Certificates were mandatory to access public events and venues. In Belgium, both the Advisory Committee on Bioethics and the National Health Council have argued that the choice to vaccinate should be an individual choice but also implies elements of solidarity towards public health. By implying that the Certificate represented a proportionate measure, they concluded that vaccination mandates should only be a last resort that could only be imposed with solid scientific evidence. It should not give a false sense of security or be used to indirectly pressure vaccination (Belgisch Raadgevend Comité voor Bio-ethiek 2021b; UNIA 2021b; Superior Health Council 2022; Vermeulen et al., 2023).

4.2 Public debates and reactions

The introduction of national Certificates led to push back from various stakeholders and heated public debates in several countries. In this section, we will outline the differences among countries in terms of (1) the intensity of pushbacks and (2) the salience and types of arguments brought forward in the debates.

4.2.1 Intensity of pushback. The implementation of the Certificates resulted in intense public debates across all countries. In some countries, these debates formed part of polarizing controversies and public protests. In *France*, the Certificate became a symbol for controversial vaccination policies. It was the primary focus during weekly anti-vaccination demonstrations in various French cities. In *Italy*, the Certificate was at

[2] Aside for some categories such as pregnant women or children, for which no vaccination recommendation was in place.

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the centre of heated debates and the subject of significant public protests, representing the main controversy in the public discourse since the Certificate's first major extension at the end of July 2021, and until the end of February 2022 (Marelli 2023). In *England* and *Austria*, public criticism was also fuelled by speculations that the use of the Certificate could pave the way to a vaccination mandate, which was indeed the case (a general vaccination mandate was passed in parliament but never implemented). A study by Imperial College London traced a positive correlation between COVID-19 vaccine hesitancy and the perceived constraints entailed by the introduction of vaccination passes (Bardosh et al., 2022). Controversies also surrounded the restrictions on the rights of unvaccinated people, which led to petitions to parliament not to roll out COVID-19 vaccine passports (UK Government and Parliament 2021). In *Switzerland*, opponents of the Swiss COVID-19 Act initiated a referendum against the act's extension that served as a legal basis for the Swiss Certificate. The vote regarding this referendum took place in November 2021, rendering the Certificate at the core of the public debate. It was the main issue mobilized by opponents of the COVID-19 Act Revisions (Schweizer Radio und Fernsehen 2021b).

In other countries, national discourses aligned with the EU policy discourse and priorities related to the implementation of the Certificate, which emphasized overcoming restrictions on international travel. In such countries, the mainstream public debate was rather uncontroversial; criticism was not extensively heard. In *Portugal*, for instance, the Government was criticized for not consulting with the national data protection authority (CNPD) prior to the rollout of the Certificate, but this criticism was barely covered in the media (Séneca 2021). In *Ireland*, criticism came from an opposition political party targeting government policies on vaccines, lockdowns and mask wearing (Kierans 2021; ONeill 2021). In *Germany*, mainstream media mainly supported the extended use of the health certificate in the Autumn and Winter of 2021. Criticism was directed primarily at politicians and the Government in light of the election (Schiller 2021; Slavik 2021) and whether the measures taken were sufficient to prevent a 'collapse' of the healthcare system (Der Spiegel 2021). Protests tended to be linked to small but vocal anti-COVID protest movements such as *Querdenker* (Schmid 2021).

4.2.2 Salience and types of debates. Controversies mostly revolved around matters of political legitimacy and social desirability of the Certificates, while also touching upon whether scientific evidence on COVID-19 vaccines legitimized (or not) the implementation of such policy.

4.2.2.1 *Undue restrictions of fundamental rights.* One major controversy revolved around fundamental rights, such as personal freedom, autonomy, and privacy. In some countries, debates were particularly intense shortly before and after the Certificates were implemented. In *Austria*, early debates mainly revolved around issues of data privacy and governance, particularly concerns about undue state surveillance that could be fostered by use of the Certificate (Parlament Österreich 2021a). Also in *Germany*, the Federal Commissioner for Data Protection and Freedom of Information (BfDI) criticized that there was no 'final technical concept' for the implementation of the Certificate (Der Bundesbeauftragte für den Datenschutz und die Informationsfreiheit 2022). In *France*, the national Data Protection Authority (CNIL), whose mission is to 'protect personal data, support innovation, and preserve individual liberties', drew up several reports during the period on digital tools in the fight against the coronavirus, with a critical view on the 'TousAntiCovid' application, whose main purpose was initially to track contacts (Commission nationale de l'informatique et des libertés CNIL 2021). In *Belgium*, Privacy International and the league for human rights pointed to certain concerns about 'function creep', namely, that data could be used for the wrong purposes, making it necessary to explicitly list permitted purposes by law (Dossier Coronapaspoort n.d.). Another concern addressed by the Data Protection Authority (GBA) related to the risk that the certificate could be a first step towards a 'control society' ('*pasjesmaatschappij*'). Therefore, it is deemed important to draw a clear line between social order and individual freedom to prevent the infringement of the individual freedom (Selleslagh 2021; Verheyden 2021). In *Switzerland*, controversies related to fundamental rights came up later, when the range of applications of the Certificates expanded in the Autumn and Winter of 2021. Opponents of the Certificate criticized it as an instrument to coerce people to get vaccinated. They also raised concerns about privacy and a slippery slope towards state surveillance (Bärlocher 2021; Santoro 2021). In *Ireland*, the Irish Council for Civil Liberties (ICCL) 'called on the government to commit to ending the use of vaccine passports. . . [as] the system does not conform with human rights law. . .' (Irish Council for Civil Liberties 2022).

These types of 'freedom-based critiques' were raised not only by data activists, legal experts, and civil society groups but were also taken up in mass media and public demonstrations, particularly in those countries where debates were most heated (see above). Yet, our comparative analysis also reveals that in some countries where debates were particularly heated (e.g. *Italy*), data protection issues never represented a salient topic in the public discourse. In these countries, critiques related to injustices, particularly discrimination of those without immunity or vaccination, were more pertinent.

4.2.2.2 *Stigma and discrimination (of unvaccinated people).* Additionally, critiques pointed to the risks of stigma and discrimination based on vaccination status. Particularly in debates prior to the introduction of Certificates in *Belgium* and *France*, concerns were raised around social exclusion owing to the lack of digital access, literacy, or lack of prioritization in the vaccination campaign (Secours populaire 2020). The *Belgian* UNIA, the Interfederal Equal Opportunity Centre (*het Interfederaal Gelijkekansencentrum, Centre interfédéral pour l'égalité des chances*, or *Zentrum für Chancengleichheit und für Rassismusbekämpfung*), attempted to make sure that anti-discrimination laws were in place to protect people who had medical reasons not to get vaccinated (UNIA 2021a; UNIA 2021b). Digital exclusion was cited several times in the Belgian news, as the result of the digitization of the CST (Verheyden 2021).[3] A study on the opinions around the CST in French-speaking Belgium also shed light on the public concerns around a possible social divide or polarization as a result

[3] Even though it was possible to use a paper version of the Belgian Certificate, the benefits of a digital format were significant, and digital tools were often required to get to the pass.

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of the CST (Vermeulen et al., 2023). A Belgian medical law professor countered these concerns, stating that the Certificate would not violate any anti-discrimination law 'because the distinguishing criterion is pertinent and the higher goal is legitimate' and that, on the contrary, it would be unethical to keep people locked up, even if they are vaccinated (Dossier Coronapaspoort n.d.). The *Italian* implementation of the Certificate was also considered by some critical voices to introduce forms of discrimination and stigmatization for unvaccinated people (Cacciari and Agamben 2021). Particularly as a mandatory requirement to access workplaces, Certificates were likened to the Health Code system adopted in China (Perrrone 2021). It was contested as conflicting with other fundamental rights, such as the right to work as enshrined in Article 1 of the Italian Constitution (Cerrina Feroni 2021).

In *Ireland*, the political opposition (Irish Freedom party) criticized that the COVID Certificate symbolized division and discrimination and created a divided society. The Government's decision to only allow Certificate holders to access indoor dining restaurants and public houses meant that the younger segment of the population, who were still waiting to be vaccinated, would be denied access to such venues. This interfered with the 'we are all in this together' trope widely used across the country, which had led most people, irrespective of age, to comply with rules and guidelines. Similarly, *Swiss* opponents contested that the Certificate would lead to a 'two-class society' and 'discrimination of the unvaccinated' (Bärlocher 2021; Santoro 2021).

4.2.2.3 *Insufficient scientific evidence shoring up the effectiveness of the policy.* A final theme that was salient in the policy and public debates concerns discussions around whether available scientific evidence legitimized (or not) the implementation of the Certificate. In *Italy*, the implementation of the Certificate to incentivize COVID-19 vaccination was driven by the frame that vaccines were paramount to reduce the viral spread in the country. In the words of Italian PM Mario Draghi, the Certificate was framed as a 'guarantee' for Italians 'of finding themselves among people who are not contagious' (Presidenza del Consiglio dei ministri 2021). Yet, critics argued that this narrative neglected existing scientific uncertainties and emerging evidence pointing to the waning effectiveness of COVID-19 vaccines (see, e.g. Wilder-Smith 2021) in preventing transmission of the virus. In other words, while vaccines could considerably lower the risk of suffering complications or a severe illness for vaccinated individuals, they could not be said to effectively protect from interpersonal contagions. While these stances were discussed in public debates in Italy (Marelli 2023), other countries had different (and more cautious) framings around scientific evidence and its role in providing an evidentiary base for the normative objectives that Certificates were intended to achieve.

The *Portuguese* Government presented the Certificate as a tool for allowing 'a level of confidence regarding the low risk of its bearer being an active COVID-19 patient', thus 'ensuring a low level of risk for disease transmission' (Presidency of Ministers Councils 2021). While the conclusions were similar to the narrative of the Italian Government, attesting the Certificate to be an effective tool to mitigate viral spread, the wording was chosen more cautiously, accounting for scientific uncertainty. In *Austria*, Health Minister Rudolf Anschober explicitly called for a cautious approach in March 2021 based on the contention that 'reliable scientific evidence is needed that vaccination also significantly reduces the risk of the virus being passed on' (Parlament Österreich 2021b).

Uncertainty about the effectiveness of the restrictions related to the Certificate also informed ethical evaluations of advisory committees and commissions in *Belgium* and *France*, illustrating the normative relevance of evidentiary standards for shoring up the political legitimacy of the Certificate. The *Belgian* Advisory Committee on Bioethics expressed concerns regarding the necessity of the Certificate to manage the pandemic, as it would violate the legal requirements. They also concluded that a mandatory vaccination would be justified from an ethical standpoint only if based on scientific grounds and aimed at lowering the health risks and managing the pandemic in the long term (Belgisch Raadgevend Comité voor Bio-ethiek 2021a). In a statement from May 2022, the *French* National Commission for Information Technology and Liberties (CNIL) retrospectively questioned the effectiveness of the French Certificate in the fight against the coronavirus, due to the unequal use of smartphones in the French population and to the irregular, if not seldom, use of the application (Commission Nationale Informatique et Libertés 2022).

5. Discussion

Through an interpretive policy analysis, we compared national policies regarding COVID-19 Certificates and the policy narratives, public debates, and reactions surrounding them in nine European countries. The scope of implementation differed among countries and often changed considerably over time, owing to different national epidemiological situations (or the political assessment thereof) and the diverging framing and narratives underpinning policy enactment.

5.1 Neutralization of epistemic uncertainty and normative disagreement

Prior to their introduction, Certificates were scrutinized by scholars within the scientific community. Possible public health benefits envisaged through their deployment included (1) isolating infectious individuals from the rest of the population; (2) reducing the likelihood that infectious people enter higher-risk settings or situations; and (3) decreasing the transmission risk in any given environment (Gostin et al., 2021; International Bioethics Committee and World Commission on the Ethics of Scientific Knowledge and Technology 2021). For the most part, policy narratives echoed these analyses of the envisaged benefits, focusing on the effects of these benefits on social life and the economy.

Yet, even though the implementation of Certificates was associated with a subsequent rise in vaccination rates (Oliu-Barton et al., 2022), they did not seem to address existing vaccine hesitancy *per se*, as in *France*, for instance, many people who eventually got vaccinated still held doubts about the vaccine (Ward et al., 2022).

Furthermore, concerns and critiques revolved around the lack of evidence on the effectiveness of COVID-19 vaccination and immunization regarding viral transmission at the time of implementation (Osama et al., 2021; World Health Organization 2021). Even though it became clear that COVID-19 vaccines provided no complete protection from infection and viral transmission, particularly for later variants of SARS-CoV-2 (Eyre et al., 2022), we found that many

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policymakers neglected this circumstance in their narratives. Another common concern raised in the scientific literature was that the Certificate might exacerbate existing social inequalities—for example, in groups where there is so-called 'vaccine hesitancy', groups for whom it could be difficult to access tests or groups who may face higher levels of digital exclusion (Gostin et al., 2021; Osama et al., 2021; Sharun et al., 2021; Jansen van Vuuren and Jansen van Vuuren 2022; Jecker 2022). Again, our analysis indicates that these concerns were not sufficiently addressed by the policies implementing the Certificate and, indeed, led to considerable pushbacks in some countries, where public protests (e.g. in Italy) and societal polarization between pro and anti-Certificate camps (e.g. in Switzerland) came to the fore (Vermeulen et al., 2023).

Political and public discussions on matters of normative as well as epistemic disagreement are a central part of functioning democracies (Jasanoff 2005). However, as in the case of other pandemic-containment technologies, the enactment of Certificates has been at times driven by a (techno-) solutionist approach (Marelli et al., 2022), which could be understood by some as erasing contextual factors and marginalizing other values, policy rationales, as well as alternative scientific understandings of the problem at stake (Paul et al., 2022; Marelli 2023; Zimmermann et al., 2023b). Ultimately, this approach restricted space for a more open deliberation under the claim of protecting public health, and, in the end, significantly contributed to creating societal divides and exacerbating social tensions (most notably in Italy, Switzerland, and Austria).

5.2 Certificates as a proxy for other (controversial) COVID-19 policies

Our analysis indicates that the Certificate was a controversial policy instrument in some European countries but unequivocally accepted in others. Although our analysis does not allow us to identify causative factors explaining differences among countries, we observed that the Certificate stirred more controversy when policy narratives tied their implementation to matters of deep moral and political disagreement, for instance, in Switzerland, where the Certificate was subject to a public vote, or in Italy, where the Certificate was used as a means to incentivize people to get vaccinated against COVID-19. Notably, in these countries, Certificates assumed the role of a discursive proxy for other, even more controversial aspects of pandemic policy, such as (direct or surreptitious) vaccine mandates (e.g. Austria, Belgium, and Italy) or bans preventing unvaccinated people from accessing public events and gatherings (e.g. Italy, Switzerland, and UK). Conversely, in countries where the Certificate was not framed as a proxy for contentious issues such as vaccination policy (e.g. Portugal, Ireland), Certificates received less social pushback.

5.3 Alignment with EU policy narrative

A further notable element emerging from our analysis revolves around the way the EU policy narrative played out differently in the countries considered in this study. As we have remarked, the main rationale of introducing the EU Digital COVID Certificate was to ensure freedom of movement within the EU during the COVID-19 pandemic by avoiding policy fragmentation and aligning requirements for border access. However, individual countries aligned with and reproduced this narrative to different degrees. In some countries, including, for instance, Ireland and Portugal, the trope about preserving international movement was dominant and went largely uncontested in the public discourse, perhaps because national economic interests (e.g. attracting international tourism) aligned with the aim of enabling international travels. Conversely, in other countries considered in this study, policy narratives were not closely aligned to this EU narrative, as national implementations of the Certificate were mostly geared to segment and regulate the public space *internally*. For instance, in Italy, where the most stringent national restrictions were issued, the focus on international travels was largely absent from policy and public debates.

5.4 Downplayed debates: Certificates as digital tools

In the scholarly debate anticipating the widespread deployment of the Certificate, concerns were also raised focusing on its *digital format*, which was said to potentially entail risks of privacy violations (Osama et al., 2021; Voo et al., 2021), falsification (Gostin et al., 2021; Sharun et al., 2021), as well as lack of suitable legal basis for data processing (de Miguel Beriain and Rueda 2022). Like in debates surrounding the introduction of new digital technologies such as COVID-19 digital contact-tracing apps (Marelli et al., 2022), these issues were further accompanied by mistrust about the role of governments as well as Big Tech corporations in the digital age, and envisaged tensions between safeguarding data protection and fundamental rights, on the one side, and achieving public health goals, on the other side (Newlands et al., 2020; Drury et al., 2021; Osama et al., 2021; Beduschi 2022).

However, while digital contact-tracing apps, in spite of the privacy-preserving and decentralized data storage solutions adopted (Salathé et al., 2020), attracted a lot of criticism in political and public debates and were associated with state surveillance and diminished privacy (Zimmermann et al., 2021; Lucivero et al., 2022), the Certificate was not subject to the same type of scrutiny. Even though data protection groups in various countries (e.g. Austria, Germany, and Portugal) criticized the lack of discussion regarding data protection issues (broadly conceived), the latter were not salient in the public debates in these countries.

We suggest two possible reasons for the relative neglect of this kind of criticism in the context of debates around the Certificate—whose use, it should also be noted, was *mandatory*, rather than voluntary (as were contact-tracing apps), and thus had a much more significant impact on European societies. First, the use of the Certificate as a tool to allow the resumption of social and economic activities in fatigued European societies—i.e. its perceived *utility*—might have outweighed potential remaining concerns related to data protection aspects. Second, framings of the Certificate as a proxy for more controversial COVID-19 policies contributed to overshadowing concerns related to data uses and governance, particularly in countries where public debates on the normative consequences of their implementation were particularly heated (e.g. Italy, Switzerland).

6. Strengths and limitations

By analysing the Certificate policy trajectory from nine European countries, this study provides empirical evidence that allows us to distil important similarities and differences between countries. However, this qualitative study design

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is not suitable to assess the quantitative effects of the various national Certificates on COVID-19 vaccination or infection rates. Our study cannot provide a quantified measure on the levels of controversy or a quantitative representation of how salient the presented aspects were in the participating countries, either. Therefore, no ranking is possible. Additionally, country selection and analysis was limited to nine European countries and some regions of Europe are not represented in our analysis. Accordingly, while this provides valuable insights, it means that our findings cannot be generalized beyond the specific contexts represented in our sample. The absence of Scandinavian and Eastern European countries, for instance, reflects pragmatic considerations, such as existing research collaborations within the SolPan consortium. As such, our conclusions are specific to the selected countries and do not claim to represent 'Europe' as a whole.

7. Conclusions

Following the initiative of the EU, COVID-19 Health Certificates were employed in all European countries considered in this study—even beyond the EU—as a coordinated measure to mitigate viral spread in the context of the COVID-19 pandemic. Our analysis shows how the domestic scope of these Certificates, their underlying policy narratives, as well as the way available scientific evidence was used to shore up its employment, differed among countries and changed over time. Also, we show that their implementation received varying levels of public scrutiny and pushbacks, sometimes leading to major controversies and public protests.

We suggest that in countries where major controversies on the implementation and scope of the Certificate occurred, this could have been due to the fact the Certificate was framed as a proxy for—and was the main means for implementing—other, even more controversial measures, such as vaccination mandates or bans from public events and gatherings for non-vaccinated individuals. This might also be one reason why concerns commonly debated in the context of novel digital health technologies—such as privacy and effectiveness—were less salient, at least when compared to COVID-19 digital contact-tracing apps.

The Certificates were implemented when pandemic fatigue was already widespread in the general population and political opposition against widespread restrictive measures became stronger in many countries. In that context, the Certificate played an ambivalent role: in some countries (*Portugal*, *Ireland*)—where national policy narratives were largely aligned with the EU one—governments welcomed it as an option to meet the requests of these oppositions while still trying to control viral spread. In some others (e.g. Italy, Switzerland), however, restrictions introduced through the Certificates were deemed *too restrictive* and hindering the exercise of fundamental social and individual rights, and thereby *not too different* from those restrictions enacted through lockdowns.

Against the backdrop of initiatives of a similar kind, such as the WHO's Global Digital Health Certification Network (World Health Organization 2023), this study can contribute to a careful, well-considered, human rights-respecting implementation, which can address salient concerns in a proactive and socially robust way.

Author contributions

Luca Marelli (Conceptualization, Formal analysis, Funding acquisition, Writing—original draft, Writing—review & editing), Bettina Zimmermann (Conceptualization, Formal analysis, Funding acquisition, Writing—original draft, Writing—review & editing), Helena Machado (Conceptualization, Formal analysis, Writing—review & editing), Marie Gaille (Formal analysis, Writing—review & editing), Amelia Fiske (Formal analysis, Writing—review & editing), Ruth Horn (Formal analysis, Funding acquisition, Writing—review & editing), Stuart McLennan (Formal analysis, Funding acquisition, Writing—review & editing), Barbara Prainsack (Formal analysis, Writing—review & editing), Anna Sierawska (Formal analysis, Funding acquisition, Writing—review & editing), Zita Van Horenbeeck (Formal analysis, Writing—review & editing), Ine Van Hoyweghen (Formal analysis, Funding acquisition, Writing—review & editing), and Gemma Watts (Formal analysis, Writing—review & editing)

Supplementary data

Supplementary data is available at *Science and Public Policy* online.

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