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Designing digital services for equitable access

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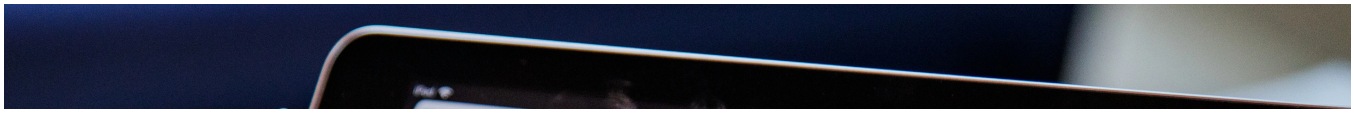

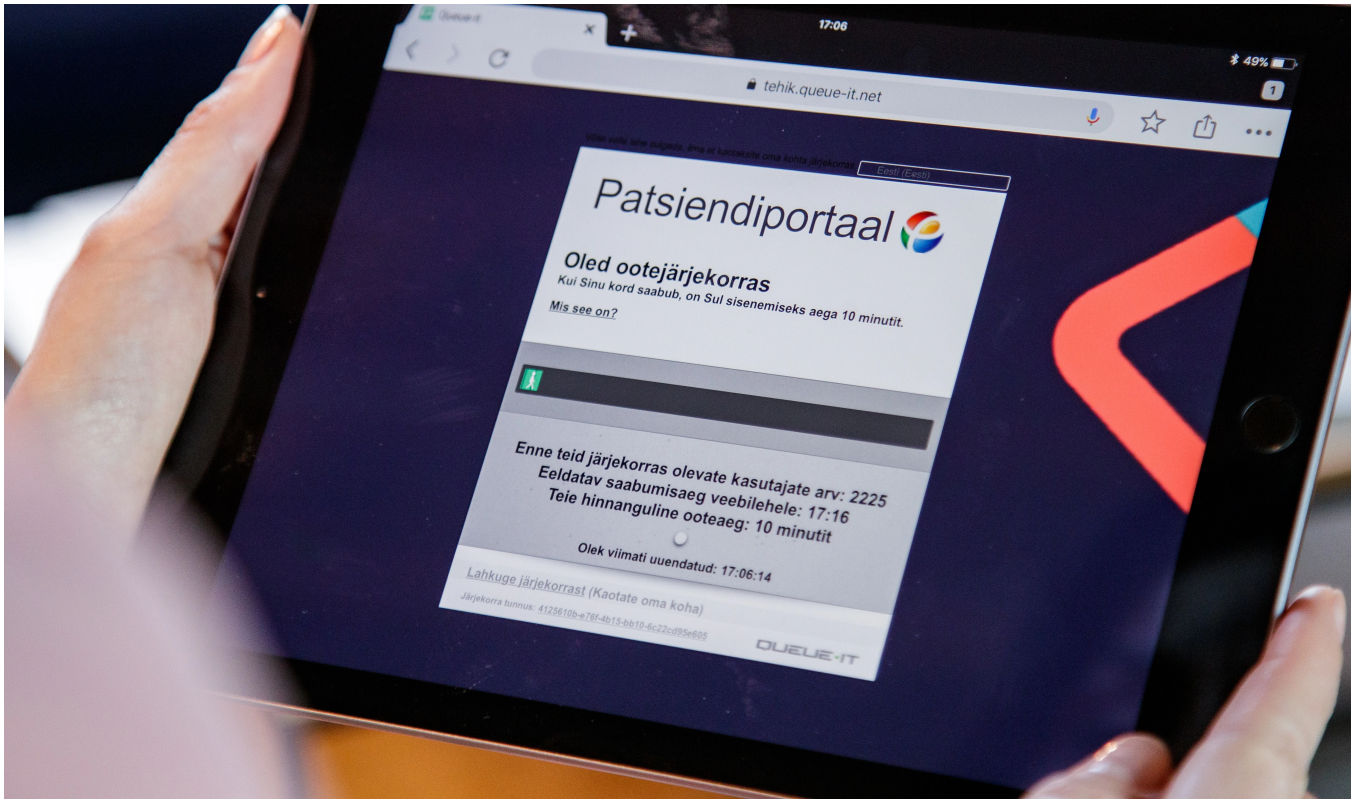

A resident of Estonia accesses that country's patient web portal to book an appointment to receive a COVID-19 vaccine. (Postimees/Scanpix Baltics via Reuters Connect)

In 1995, the U.S. National Telecommunications Infrastructure Administration was the first government body to empirically document the existence of the "digital divide"—the gap between those who do and do not have ready access to internet service. In a report that year—"Falling Through the Net"—the agency described the geographic, demographic, and economic divides in the adoption and use of the internet. The report was prescient in recognizing the role that disparate infrastructure and hardware access played in driving digital inequality and showed how those inequalities impacted how people were using the internet.

The NTIA report also made a crucial wrong bet. It assumed that there was "an" internet and that fixed-line broadband to a personal computer would be the common denominator technology to enable access. But the world didn't primarily adopt fixed-line broadband. Instead, mobile phones and the mobile internet became the primary mode of access. While the NTIA was right that the primary drivers of digital adoption

were content and services, the presumption of a computer-based internet shaped a generation of service providers to design for digital platforms that fail to reach nearly

half the world, making those services inaccessible to those who need them most.

While the digital divide is now a globally understood phenomenon, more than 25 years after the NTIA report, service designers are still designing and building public technology systems that depend on the internet, preferencing the well-connected and embedding the digital divide. The tendency to design services for the internet—in both technology adoption and in the services that depend on them—is the *digital services design divide*.

COVID-19 and its accompanying lockdowns have only made the digital services design divide more stark. Public institutions turned to digital tools for both internal operations and to interact with those they serve, relying on technology companies to preserve vital public functions, from online court proceedings to digital payments for taxes and fees. That turn has embedded the digital divide in these systems. The most stark example of this divide has been in the public education system's adoption of digital tools (many of whom explicitly prioritized continuity over equity in education interventions). Even before the pandemic, the "homework gap" was described as "the cruelest part of the digital divide," with 50% of students reporting that they were unable to complete homework because it required access to the internet. Early research suggests that student well-being and performance has suffered during the pandemic, and that those effects are also being felt inequitably—by the same groups the NTIA highlighted in 1995.

As it turned out, mobile phones became the world's common denominator technology and messaging, far more than the internet, its killer application. Some 26 years after the NTIA report, 3.7 billion people—half the world's population—still lack any form of internet access, and getting that "remaining half of the world online will be a whole different ball game," as Doreen Bogdan Martin, who leads the International Telecommunication Union's development bureau, observed at the recent Global Digital Development Forum. Even as internet access lags, mobile phone penetration is speeding ahead. There are 5.27 billion unique mobile phone users in the world, making up two-thirds of the world's population. And there are more mobile phone connections than people in the world. Nonetheless, 3.4 billion people live in an area with mobile broadband coverage, which is how most people

access the internet, but don't use the internet. That makes the usage gap—the number of people who live in an area with mobile broadband but don't use it—six times larger than the coverage gap, which refers to the number of people who don't have access to mobile broadband at all.

Despite the evidence, history, and scholarship demonstrating that digital infrastructure isn't the primary problem, public service designers are failing to meet users on the platforms available to them. Rather than acknowledge it and require designers to build services for the widely available tools, institutions mostly focus on hardware, infrastructure, and patchwork fixes, like distributing devices and public hotspots. That's how, service by service, the people un- or underserved by technology are categorically and cumulatively marginalized by public services. The more public services focus on digitization as the next step in their evolution without proactively addressing the digital service design divide, the more digitization disconnects the least connected.

The design and roll-out of national vaccination campaigns has demonstrated the stakes of failing to deliver accessible services. Like access to connectivity, vaccine distribution has favored the wealthy and powerful and, and the use of technology in enabling vaccine access has amplified that dynamic, especially in India. In January, the Indian government began its vaccine roll-out by making doses available exclusively through a web-based system, CoWIN. Conditioning vaccine access on registering through a web portal failed to address the needs of India's significant population without internet access or digital literacy. While the number of mobile connections in India equals 79% of the population, internet connectivity is somewhere between 20.1% (ITU) and 56% (Indian government), depending on whom you ask. Exacerbated by supply problems, India's vaccine distribution has failed to achieve widespread inoculation. As of the end of June, a mere 4% of the country's population was fully vaccinated.

While it's easy to opine about the imperfections of digital infrastructure and adoption, digital design comes down to a series of choices—for example, how to manage who

gets vaccines and how vaccines are rolled out. And while India's case is illustrative, the same dynamic has been present in digital COVID-19 responses globally, no matter the jurisdiction or the connectivity. India's decision to make online registration a requirement for vaccines is a choice, one that embeds the inequalities of the digital divide in the way that Indians access vaccines. These decisions are made so often across millions of services, that they feel inevitable—and their cumulative effect, like climate change—is to individualize the responsibility for the divides that public institutions enable through their service design choices.

The digital service design divide has at least two political effects: (1) It puts much of the blame for systemic failure on those unable to access digital systems and (2) mollifies the people with the knowledge and resources to access the system. The responsibility for equitable delivery of public services rests with the government, but digital public service design typically starts with an assumption of internet connectivity and digital literacy. By making public service delivery more convenient for those with the ability to use online services comfortably, usually the urban elite, the digital service design divide becomes invisible for many of the people with political influence to compel better practice. As the saying goes, "the greatest trick the devil ever pulled is to convince the world he doesn't exist," and the digital service design divide, whether hiding behind innovation or ignorance, has become a vehicle to perpetuate problematic politics and systemic racism.

The phrase "digital divide" is a valuable piece of nomenclature, but like the NTIA report that solidified its existence, the phrase makes a critical framing error. Internet access on its own is not enough if services remain inaccessible. The role of public governance and service design is to build services that acknowledge disparities and create a balance that prevents them from becoming a driver of inequality and conflict. The digital services design divide is both immediately addressable, and the kind of small, cumulative harm that can feel impossible to bridge. The first step is to prioritize equity in service design. Otherwise, the more we use digital services to build social safety nets without designing for the holes, the more of us—as the NTIA pointed out some 25 years ago—will keep falling through.

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