Creating PublicSpaces: Centering Public Values in Digital Infrastructures

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Institutions like public and universities face conflicts of values when using surveillant digital tools: organizations bound to protect the privacy and respect their autonomy of their constituents - which we term "values-led organizations" - find those values undermined by tools they must use to conduct business online. A Dutch nonprofit, Public Spaces, has developed a self-audit method for documenting dependencies on such tools and working to find values-consistent alternatives. The Public Spaces Digital Power Wash is a method applicable to other tensions between organizational values and values embedded in digital tools. We expand from this specific case study to consider the larger challenge of tensions between organizational values and the behavior of digital tools and examine the possibility that values-led organizations could take the lead in building digital public infrastructures that value the autonomy and privacy of citizens.

CCS Concepts: • **Human-centered computing → Collaborative and social computing**;

Additional Key Words and Phrases: Digital public infrastructure, open-source software, surveillance, privacy, user autonomy

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1 INTRODUCTION

Non-profit, government-funded and mission-driven organizations face a complex set of problems in using a wide range of popular digital tools: a clash of values. These organizations, which we term "values-led organizations", are limited by charters and other legal frameworks that prioritize values like diversity, autonomy, and privacy. Tools that these organizations need to use to carry out business functions routinely violate these principles, creating a values conflict for these organizations and those they serve.

We examine a case study of VPRO, a public service media organization in The Netherlands, to understand how these values clashes manifest in the importation of commercial tools into public broadcast environments, and how organizations might work to resolve them. Our study focuses on a process created by VPRO in cooperation with other Dutch values-led organizations to conduct rigorous self-audits to identify these value clashes, and

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to prioritize steps that can be taken to mitigate them through reconfiguration of technology, careful choice of alternative technologies, and development of new technologies.

The model pioneered by VPRO and the PublicSpaces network provides a framework for other values-led organizations to identify values conflicts which arise when commercial digital tools are deployed in the public sphere; this model demonstrates how coalitions of values-led organizations might work together to accommodate the demand for values-aligned digital tools. We believe the model described in this case study could be applied to other areas in which values conflicts exist, suggesting a process through which coalitions could demand, fund, and build values-aligned public infrastructures, including digital public infrastructures.

2 A CLASH OF VALUES: UNDERSTANDING THE PROBLEM

VPRO is a Dutch public service media organization for radio, linear TV, and online media that operates as a non-profit organization—financed by state funding and membership fees—and is bound by a legal framework prioritizing public values such as diversity, inclusiveness, autonomy, and privacy. It is an example of what we term "values-led organizations", organizations that include public broadcasters, educational institutions, non-profit healthcare providers, and other organizations whose accountability is ultimately based upon their adherence to a set of values, documented and compiled into a legally binding framework, rather than their compliance with fiscal or commercial concerns. Many commercial organizations have a mission statement and stated corporate values, but these statements likely are not legally enforceable.

For values-led organizations, deploying commercial online tools that violate these values could lead to a reduction or elimination of funding, or the revocation of the charter to operate. Furthermore, such violations open organizations to public criticism that they do not 'practice what they preach'. For instance, VPRO produces a documentary series called 'Backlight', that regularly outlines and summarizes Big Tech policies in a critical manner; however, in the daily practice of running a broadcast organization, it uses Big Tech's platforms such as Facebook and YouTube to promote and distribute this program.

As a result, a conflict between the values an organization is legally bound to and the values embodied in tools used by the organization is not just a moral conflict, but a legal one, potentially one with consequences for the viability of the organization. This problem with clashing values is apparent immediately in sectors like European public broadcasting, where most participants meet our definition of "values-led organizations", but the situation is likely to arise in more venues as structures like B-corporations, social-enterprise corporations verified by an external auditor for their social impact, become more popular in the United States [Kim et al. 2016].

VPRO, like all European public broadcasters, has become increasingly dependent on proprietary digital infrastructures that leave little space to operate independently online. To assess its online viewership and impact—a requirement for public funding—the organization uses traffic analytics software provided by companies such as Google and AT Internet; commercial tools such as Ternair, Microsoft CRM, and Kikz to deliver email and measure reader engagement; and social media platforms like YouTube, Twitter, and Facebook to engage with users. These digital tools were purpose-built for use in commercial environments where surveillance capitalism – the capture of information about internet users in order to market products to them, supporting free-to-use services – is the dominant economic model [Zuboff 2019]. As a result, such tools push users towards engagement using dark patterns and other techniques that may conflict with organizational values such as privacy, transparency, independence, and diverse audience reach [Poell 2020]. While less surveillant alternatives to platforms like YouTube or Facebook exist for content promotion and delivery, moving towards values-aligned alternatives implies that organizations may have to sacrifice audience reach and user convenience. Moreover, many of these platforms are increasingly integrated with infrastructural services, such as cloud services for data storage, analytics, and distribution, that are typically owned by the large American tech firms most responsible for the spread of the surveillance economy. Even when a specific tool is not explicitly surveillant, supporting the companies behind them creates ideological conflicts for values-driven organizations [Van Dijck 2019; Constantinides, Henfridsson & Parker 2018].

As a result, values-led organizations face a thorny problem: the digital tools that are essential for their aims and reach conflict with their organizational values [Van Es & Poell 2020; Steiner, Magin & Stark 2019]. This problem has several facets. First, when values-led organizations use a "free" surveillant tool like YouTube to reach audiences, values-driven organizations are asking their audiences to participate in an economic model that violates basic principles such as data sovereignty and the right to privacy [Napoli 2019]. In addition, many tools supported by advertising models engage in "dark patterns", interface elements that shape user behaviour in order to increase usage of a platform, violating principles of user sovereignty central to the values of many organizations [Kretschmer, Schlesinger & Furgal 2021].

Second, digital services essential for the functioning of modern society give commercial platforms and companies unwarranted power over traditionally public domains: the dissemination of public information, the exchange of political and civic views between citizens, and the conversation around works of art and culture [Flew et al. 2019]. Big tech platforms have become indispensable for the dissemination, delivery, discovery, and navigation of information, education, and entertainment [Moore & Tambini 2018]. However, their tools, algorithms, and datasets lack public scrutiny; the digital ecosystem has turned into a fully proprietary space, outside of democratic control and oversight. Speech that may be beneficial to public discourse can be censored or deprioritized by tech platforms in ways that have so far been virtually immune to regulatory scrutiny [Gillespie 2018, Van Dijck 2020]. The lack of public space on the internet is unequivocally detrimental to civic organizations: they are often unable to prioritize their legally mandated public values due to the sociotechnical dynamics of the platform ecosystem—a system in which coercive commercial logic and global reach is virtually inescapable if organizations want to avoid a loss of operational scale, scope, and efficiency [Murdock 2018; Van Dijck, Poell & De Waal 2018].

Third, the digital services under consideration are generally hosted outside of the EU, creating multiple regulatory conflicts for European governments and for values-led organizations that use public funds. For instance, user data generated by American platforms and stored on these companies' servers is subject to US government surveillance, as detailed in documents leaked by Edward Snowden about the PRISM program [Collins 2019], while the use of Chinese-hosted tools creates other well-documented surveillance concerns [Cadell 2021]. The use of non-EU tools serves as an economic transfer from European governments to US and Chinese corporations, subsidizing tech innovations based on data-accumulation in those countries. By treating European public sectors as just another market, big tech companies fail to acknowledge the special needs of values-led organizations [Kahn & Vaheesan 2017].

The question emerging from this thorny problem animates this article: *How do values-led organizations take responsibility for centering public values and serving the common good in a digital environment that is defined almost entirely by the corporate values of tech companies? What does this mean for policy-making, regulation, and governance in Europe and other venues where values around privacy and user autonomy conflict with dominant business models?* Organizations like Dutch public broadcasters are obviously too small to design and maintain their own independent digital infrastructures. However, they are not powerless in the face of this dilemma.

In the next section of this article (Section 3), we examine the case of PublicSpaces—a coalition of more than thirty Dutch nonprofit organizations in the domain of public media and culture.[1] We successively describe the coalition's foundational principles, best practice, and the impact of this practice. In Section 4, we focus on its shortcomings and implications for other, similar organizations outside the sector of public media. The broader question addressed is whether the case study can serve as a model for other values-led organizations to evaluate their software and design a better alternative digital environment. In Section 5, we discuss how examples like PublicSpaces may propel the reimagination of online public space and ask what this would mean for a cooperative model that could inform national and supra-national policy and regulation. In the concluding section, we discuss its potential merits for a European model of platform governance and policy-guidance. We believe that models

[1] A complete list of all PublicSpaces coalition partners can be found at https://publicspaces.net/the-coalition/.

like the one explored by PublicSpaces, if adopted widely, could help shape broader policy debates around the future of digital public spaces, leading towards a more civically healthy and inclusive public sphere.

3 CASE STUDY: PUBLICSPACES IN THE NETHERLANDS

3.1 Foundational Principles and the Articulation of Public Values

Initiated in 2018, PublicSpaces is a coalition of cultural organizations—public media, museums, festivals, libraries, digital centers, and heritage organizations—that share a joint concern for an open online space; they want to map out a strategy to "reclaim the internet as a force for the common good and advocating a new internet that strengthens the public domain" [PublicSpaces 2021]. The work of PublicSpaces started with the realization that any attempt to strengthen public values in the online domain is too big an effort for a single organization. Only by pooling financial and human resources can the public sector hope to reconquer the public sphere in the digital domain. To build such a coalition, participating organizations needed to agree on two things: (1) what the coalition ultimately wants to build, and (2) a common understanding of what constitutes public values in the digital realm.

Initial coalition discussions sought balance between idealistic aims and practical goals. Since most founding partners of PublicSpaces[2] were rooted in media and public broadcasting, the idea of creating an alternative social media platform that would facilitate the discovery of content, user interaction, community building, and distribution took center stage. Not surprisingly, this aspiration soon appeared to be unattainable. Instead, the coalition settled on the broader goal of "providing alternative software that serves the common interest and does not seek profit" [PublicSpaces 2021]. This broader goal – moving from the building of an alternative platform to providing an alternative software ecosystem—better served the range of partners with different interests and priorities. After much debate, the founding partners agreed by consensus[3] to core principles of this alternative ecosystem's design: it should be decentralized and federated, multi-purpose, self-governing, and compatible with (and complementary to) existing networks. The coalition decided to limit its work to the software layer in all its forms and shapes (e.g. apps, websites, software as a service, protocols, etc.) while excluding, for now, the physical infrastructure of the internet (e.g. routers, hardware, datacentres, and telecommunications technology). The latter decision was informed by practical limitations, such as available expertise and the effective deployment of financial and human resources.

The second discussion addressed the common dilemma felt by members of the PublicSpaces coalition: most partners feel trapped in a digital ecosystem driven by commercial and corporate values which is squarely at odds with their aspiration to contribute to an online space grounded in public values and a digital ecosystem that serves the common good rather than commercial interests of its owners. The question that inevitably came up was: "What kind of public values need to be served?" The first draft of the PublicSpaces manifesto, written in April 2018, outlined values including openness, transparency, accountability, sovereignty (of creators and organizations), and user-centeredness. The principle of user-centeredness was further refined by employing two design principles: privacy by design and the avoidance of so-called dark patterns (see also [Waldman 2020; Nouwens et al. 2020]). Partners also wanted to adhere to broader public values such as democratic control, fairness, diversity and non-discrimination.

Articulating public values is one thing, translating them into standards for measurement and assessment is quite another. Public organizations such as broadcasters or museums feel increasingly uncomfortable being measured by social media metrics (shares of content, number of likes or comments on posts online) as "neutral"

[2]Among the founding partners of PublicSpaces were public broadcasters EO, BNN-VARA, and VPRO, institutions for cultural heritage Royal Library of the Netherlands, the Eye Film Institute and the Netherlands Institute for Sound and Vision, Dutch Film Festivals IDFA, NFF and IFFR, cultural festivals Dutch Design Week and Holland Festival, debate center Pakhuis De Zwijger, and research center Waag.

[3]The process of decision-making has been formalized in the PublicSpaces Foundation bylaws. They state basically that governance lies with a seven-member board. Partners in the coalition have a deciding vote in three matters: changes to the core Manifesto, the appointment or dismissal of board members, and the approval of annual plans and budgets. These decisions have to be made with a qualified majority. In this case, consensus was achieved between members and did not require a formal governance vote.

criteria for success: criteria that may subsequently be turned into benchmarks for funding [Enli et al. 2019; Donders 2019]. These metrics measure instant virality or likeability as a proxy for quality, rather than assessing impact or diversity in audience reach [Van Es 2020]. While each partner organization defines its own values and standards for "publicness", their common struggle lies in escaping the commercial logics of the digital ecosystem they are trapped into.

PublicSpaces counters this commercial logic by offering a different, shared goal: to address the shortcomings of the digital infrastructure by articulating a set of principles and public values, followed by a plan to actively deploy an alternative set of tools, practices, and standards. Organizations can measure themselves and each other based on their progress towards these shared goals, in addition to or in place of more conventional "engagement" metrics from social media. To launch this process, the coalition developed a tool called "the **Digital Power Wash" (DPW)**: a collaborative tool for identifying, assessing, and optimizing the public value-score of the assorted digital tools used by a public organization.

3.2 Best Practice: The Digital Power Wash

The "PublicSpaces Digital Power Wash" [2021], is a heuristic tool to identify and improve a public organization's digital toolset. Metaphorically speaking, it aims at sorting, washing, repairing, and drying an organization's digital garments for the purpose of optimizing its public values-based operation. The DPW can be applied to any values-led organization; it is open and extensible, so it can be adapted according to specific needs and circumstances. To start off the process, it is helpful to engage in a discussion with stakeholders about the organization's public values and its online presence: what are the terms for measuring achievements, success, aims and goals, audience engagement, impact, creative development, and so on? Which public values are important to the organization and how do they translate to online standards? How do these values relate to the organization's informational, educational, journalistic, or entertainment-related goals? To kick-start the discussion, PublicSpaces offers a checklist of five core values: openness, transparency, accountability, autonomy, and user-centeredness (which includes a user's right to privacy). This section describes the five-step process as it was first developed and applied to public broadcaster VPRO's digital inventory, but it can be adjusted to meet the needs of other values-led organizations.

(A) Inventory. After discussing organizational values, the first step is to make an inventory of the digital instruments used by the organization. It is important to involve all relevant disciplines: people from marketing, data analysis, communications, and so on. The inventory should differentiate between the tools that are purely for internal use (e.g. an application that monitors the operation of your servers, or office automation) and the applications with which the audience interacts: applications for sending newsletters, login systems for website visitors, or analytics tools to measure online behavior.

(B) Spreadsheet. The next step involves the creation of a spreadsheet which includes all digital tools in the organization and associates a series of yes/no questions with each of these applications [PublicSpaces Spreadsheet 2021]. The questionnaire is arranged according to the five core values of PublicSpaces and it asks the organization to score each piece of software for compliance and ranking in terms of priority. This questionnaire, and indeed, the method itself, is still evolving, and current best practices are likely to improve. With use and experience, PublicSpaces expects it to grow more reliable, more representative and better at setting benchmarks.

(C) Applying a score. The questionnaire requires the organization to attach a score to each tool: to what extent does this tool comply with the organization's public values? The questionnaire ultimately delivers a score between 0 (no compliance with PublicSpaces' values at all) to 100 (complete compliance) for every digital tool in the organization's toolkit. Each of the five questions delivers 20% of the score. A score is not solely dependent on the tool, but also on the particular configuration in use. For instance, Google Analytics can be set up in such a way to obscure the identifying part of a user's IP-address, so Google has no access to data at the individual

level. This would yield a higher privacy score than in the case of a set-up without such additional configuration. The result of the analytical phase of the DPW is a spreadsheet that contains the tools and their scores.

(D) Roadmap to improvement. The next step is to identify quick wins in set-up or configuration, for instance, by assessing the possibility of replacing problematic software with proven alternatives. Investments in digital tooling usually carry a write-down period of no more than five years, which implies the entire digital toolset could be optimized in five years or sooner. The resulting roadmap can be seen as a backlog that is prioritized according to a public set of criteria: urgency, write-downs, cost of implementation, cost of not doing anything, and so on. Obviously, parts of the toolset where no values-compliant alternative exist will be harder to replace. It should come as no surprise that, for instance, there are very few mature, values-compliant alternatives to the discovery and distribution platforms provided by mainstream social media (Facebook, Instagram, YouTube, Twitter) that can match their audience customization and networking effects.

(E) Publish roadmap and exchange best practices. The final step in the Digital Power Wash is to publish the spreadsheet, the resulting score and the priorities-driven roadmap to improvement. Publication could take any form, but in general, it should be

— as complete as possible to inform the public of the organization's status in aligning digital infrastructures with organizational values.
— completely transparent to the audience, both in terms of the outcomes and the procedures that led to these outcomes.

The published score and roadmap serve several purposes. First, it enhances transparency and trust by opening up value scores to audiences, and demonstrating an organization's commitment to optimizing public values. Second, it allows other organizations to discover shared needs, a pre-requisite to cooperation in building new software. Third, the published roadmaps are part of a benchmarking process: publication is a prerequisite for acquiring a PublicSpaces "badge" which serves as a benchmark of values an organization aspires to.

PublicSpaces assembles and aggregates the results of the publications on a specially dedicated subsite.[4] On this site, the general public can both find details about organizations' implementations of the Powerwash, as well as specific information[5] about the tools that have been examined. The first experiments with the DPW questionnaire applied to public broadcaster VPRO showed some interesting results.[6] The assessment was based on an examination of nine out of a total of 25 tools used within the organization. Each of these tools was scored as a percentage – the closer the score came to 100%, the more compliant the tool is deemed to be with the values from the PublicSpaces manifesto. The final result for VPRO showed that the most urgent need would lie in the removal of so-called tracking pixels, that are used to help target ad campaigns to specific target groups. Those pixels, provided by companies such as Alphabet and Meta, scored less than 20 percent, and VPRO is now re-evaluating their use and trying to find more compliant alternatives. Furthermore, VPRO has decided to abolish Google Analytics and to implement Matomo in its stead; it serves the same purpose but does so in a way that is compliant with PublicSpaces' values. However, the scores of one organization only make sense when compared with the scores of other tools that provide the same functionality. Hence, the process of scoring tools, replacing and re-scoring is part of a continuous benchmarking process to proceed in the years ahead.

3.3 Impact and Shortcomings

We anticipate that the Digital Power Wash will, at the minimum, lead to a basic discussion of all its member organizations about their preferred public values; at best, it may result in a self-regulatory system, where badges

[4]https://spoelkeuken.publicspaces.net/.
[5]https://spoelkeuken.publicspaces.net/tools.
[6]The VPRO scores are reported here https://spoelkeuken.publicspaces.net/organisation/VPRO.

can be earned by developing and optimizing the benchmark process, hence raising the stakes for compliance. One intended effect is that the audience may start asking questions when a values-centric organization does not carry a badge. People may also start looking into the process behind the badge: the scoring card, the compliance values, the investment roadmap, and the research going into it. Eventually, the Badge system may do for digital values-compliance what ISO-certifications have done for product quality. Besides affecting the governance of individual values-centric organizations, the process of aligning values with digital tools can have broader systemic effects on the public sector as a whole.

While the PublicSpaces initiative originated in the media and cultural sector, we see the potential for related work in other public sectors and areas, such as education and health—areas that experience similar problems aligning digital tools with organizational values. In The Netherlands, an emerging current in public education supports the building of values-based digital environments; over the past few years, similar cooperatives of schools and universities have been working together to identify their weak spots in public digital governance. For instance, a Dutch coalition of public school administrations operates collectively to pursue better bargaining positions with commercial ICT-vendors, leading not only to better prices but also to stricter conditions with regards to privacy settings and data control [SIVON 2021; Kerssens & Van Dijck 2021]. Cross-sectoral coalition-building could also result in the development of open source software solutions—which can be costly to develop and maintain single-handedly–that are tested and rolled out at scale across several public organizations. In addition, market transparency introduced by the Digital Power Wash process will likely also lead to the development of new, more value-based products by commercial vendors.

The process of aligning software with organizational values within Dutch public media is already showing potential beyond national borders. PublicSpaces has begun hosting international conferences and sharing knowledge with other European broadcasters. In recent years, its aims have resonated in similar initiatives including Civic Signals [2021] in the US, which seeks to make existing social networking platforms more consistent with civic values, or projects like the "Full Stack Approach to Public Media" proposed by the German Marshall Fund [2021]. If public organizations collaborate across borders, they may find sustainable solutions for larger problems, such as developing infrastructural services—a challenge too big to take on for individual organizations. Currently, PublicSpaces is working with other national and European parties to investigate public domain alternatives in the area of social media platforms. For instance, federated platforms such as Mastodon or Matrix seem architecturally sound and comply to a large extent with PublicSpaces' value system, but more work is needed to improve their user friendliness. The same is true for public values-based alternatives to cloud services, such as the GoodCloud or NextCloud, which seek to escape Google's datafied surveillance, but struggle with usability issues.

Despite all this potential**,** two obvious shortcomings of the model described above need to be addressed. First, the Digital Power Wash model assumes that organizations operate in good faith and put in their best effort to resolve potential conflicts between their operational needs and public values. As in any self-assessment or self-regulatory process, there is a risk that organizations are less than fully transparent and honest about their implementation of DPW. The requirement that they publish the entire process is meant, in part, to mitigate this risk. It seems possible that deviations from the benchmark will draw attention and critique, offering a reputational penalty to those who do not engage honestly with the process. However, this is still an assumption and has yet to be proven true in practice.

A second and more critical shortcoming is that documenting holes in the software ecosystem does not necessarily fill them. The Digital Power Wash does not tackle the need for alternatives to social media platforms such as Facebook, Instagram, or YouTube. Public organizations need to reach their audiences and therefore need to be where their audiences are.

PublicSpaces plans to work with policymakers and legislators to change the criteria that need to be met for the continuation of public funding, which currently overfocus on quantitative criteria such as audience size and reach. Criteria for public support should at the very least incorporate some form of compliance with public

values. Ideally, the process of obtaining a PublicSpaces Badge or another kind of token of compliance should be made obligatory for publicly funded organizations. The ability to maintain a charter as a values-led organization might depend in part on adherence to the PublicSpaces process and similar processes that audit organizations on other forms of value comparisons.

Should the PublicSpaces model gain traction, we would expect to see other key changes affecting values-led organizations. As PublicSpaces offers a viable model for documenting organizational values, auditing software compliance and prioritizing deployment of alternatives, we would anticipate similar efforts across other sectors throughout Europe and in other markets where values-led organizations command large audiences and economic power. Given the popularity of social and environmental responsibility as a selling point for commercial products, it is possible that the PublicSpaces framework could be adopted in traditional corporate settings as well as the public sector it has emerged from. Particularly when it comes to policymaking, civic initiatives like PublicSpaces could be a complement to traditional government institutions, given their capacity to "facilitate meaningful civic engagement and to allow citizens to reclaim an active role in addressing public problems" [Wachhaus 2017, 206].

In sum, more research is needed to discover how decentralized alternatives can be made compliant with public organizations' values and needs, and how their technical capabilities, including scaleability, interoperability, and usability, can be aligned. Based on the results of this research, values-led organizations can develop **minimum viable products (MVPs)** geared towards the needs of the organization, based on the best of these systems.

4 REIMAGINING THE REGULATION AND CONTROL OF ONLINE PUBLIC SPACE

The need for values-aligned alternatives to problematic digital infrastructures points to the possibility of creating truly *public* space on the internet: critical pieces of infrastructure designed as values-aligned public goods in situations where the market fails to provide viable alternatives [Zuckerman 2020]. Over the past century, new media technologies such as radio and television always urged new alignments with public service models to accommodate the changing media landscape [Ruben 2010]. These efforts have had different results globally: while in the US public service media occupy less than five percent of broadcast programming [Why Radio 2021], in western European countries such as The Netherlands public media programming captures over 35% of television audiences [NPO Kijkonderzoek 2020].

The advent of the Internet and later the World Wide Web never led to concrete realignments of the public service model. Besides the creation of values-driven open-source projects, such as the Wikimedia Foundation and the Mozilla Foundation [Benkler 2006], there has never been a sustained effort at the national scale similar to public broadcasting to support the creation of public online infrastructure. The current digital realm is designed and ruled as a commercial space, driven by a corporate advertisement- and engagement-driven business models fueled by user data and steered by proprietary algorithms [Campos-Freire, Vaz-Álvarez & Ufarte Ruiz 2021]. Unlike the broadcast space, the digital ecosystem is neither open to public scrutiny nor configured to meet democratic needs [Fuchs 2021].

The potential of creating sustainable public service models on the internet is still undervalued and under-researched on both sides of the Atlantic. In the US, calls for regulating the internet are leading to proposals for enforced content moderation. Informed by US-centered conversations on reforming social media, American state and federal legislative bodies generally propose regulatory solutions to problems of polarization, misinformation, and incitement to violence [Congressional Research Service 2021]. At the same time, antitrust regulatory frameworks are being explored for their potential to curb tech giants' market power [House Committee on the Judiciary 2019]. However essential and effective in the long run, these regulatory efforts leave intact a fundamentally flawed corporate infrastructure that ignores the need for value-based spaces and does nothing to stimulate the mobilization of civil society actors or the protection of a public domain.

In Europe, legislative bodies concerned with new regulatory frameworks for digital infrastructures—notably the Digital Markets Act and the Digital Services Act—borrow from a US frame in which government sectors are considered simply as another market sector [European Commission 2021]. Like their American counterparts, regulators focus mainly on issues concerned with content moderation and antitrust when proposing infrastructural repairs. What is still lacking in the DMA/DSA proposals—to be developed and implemented over the next two years—is the idea of an online infrastructure that carves out a specific space for independent institutions and organizations, a space that caters to the values-driven needs of public actors [Jacobides 2020].

The need for civic institutions and civil society that can act as counterbalance to the powers of state and market has been quite central to Western European history and culture. Identifying values-led organizations as critical stakeholders in conversations about the regulation of digital infrastructures may shift the terms of debate beyond ones in which corporations inevitably push social norms on privacy and surveillance and in which (state) regulations seek to re-establish boundaries. It may also alter the terms of debate from reshaping regulatory frameworks to curb big tech's corporate power towards creating conditions for values-led organizations to demand public-spirited infrastructures that can act as an alternative to existing systems.

For a digital public infrastructure model to work, we need to reimagine regulatory power to work at various levels: the sectoral and cross-sectoral, the national and supra-national level. First, as the case of PublicSpaces coalition shows, public media and like-minded civic organizations are keen to self-regulate the online spaces they use on their own terms, after negotiating values and standards for online interaction with their publics and exchanging best practices. The software and tools they decide to implement do not reflect the ideal public space they would like to inhabit, but the best possible options within the current restraints and the potential for continuous optimization. If values-led organizations accept the invitation to adapt their technological infrastructure to more values-compliant tools this may eventually lead to a digital media environment consistent with European values of privacy, individual autonomy, and concern for public benefit. The potential of the sector to develop a solid system for standardization, certification, and compliance could be a first step towards a possible mandate for self-regulation.

If this effort to move towards values-aligned digital architectures spills out into other public sectors, shared experiences between independent organizations could also lead to concerted efforts to negotiate better terms with private actors (e.g. tech companies) or the joint development of crucial platforms services (e.g. identification or authentication tools). Besides developing the Digital Power Wash, the PublicSpaces coalition has recently initiated a '**Proof of Provenance**' project **(POP)** aimed at developing a method to certify the origin of any type of online content. Such digital content authentication could play a role in assessing the trustworthiness of content and could be transferable to all types of media content (audio, video, print). Applied to public information, such a project could serve as a counterbalance to the problematic spread of misinformation and disinformation in public dialog.

However, for such tools to be developed, tested, and implemented, public organizations need financial and technical support, not only from governments who provide funds for innovation, but also from values-led institutions who provide testing grounds for new deployments. PublicSpaces' DPW and POP-projects have both secured funding from state ministries, but the next step will be even more important: once a system is up and running, it needs institutional support to grow and scale. EU governments are thus far hesitant to open their technical infrastructures to non-corporate developers, often resorting to security arguments to justify their reluctance. The creation of a Coronavirus warning app was one of the most publicized efforts of European governments to develop a digital tool rooted in public values, rather than outsourcing the project to big tech [Simon & Rieder 2021]. The coronavirus app led to a principled public debate about big tech players exerting their infrastructural power, specifically through app stores which can define strict technical and financial conditions for distributing public tools.

For independent efforts to reach a level where they can challenge decisions made by Google and Apple, coordination at national and supra-national levels around digital infrastructures will be necessary [Gorwa 2019].

National and supra-national (European) governments (legislative and regulatory bodies) need to be aware of the supportive role they can play vis-à-vis public organizations and independent civil society actors. On the regulatory side, governments could mandate a baseline of interoperability between services of sufficient size. If a platform hosts a certain percentage of a nation's citizens as users, a nation could demand that other social networks be able to access that platform's posts via a well-documented API, allowing a new platform to interoperate with these well-established platforms [Flew et al. 2019]. This would reduce the advantages of network effects enjoyed by these existing platforms and make it more likely that civically-oriented projects could attract a sufficient audience.

National governments might also choose to mandate transparency and auditability of the algorithms used by social media platforms to filter content [Shapiro et al. 2021] These algorithms have tremendous influence over the shape of online discourse, but platforms resist attempts to audit or examine them for fear over losing competitive advantage or enabling abuse of their tools. If new, civic-focused platforms can demonstrate the ability to filter content using transparent and auditable tools, they will challenge arguments made by platforms that these algorithms must be protected as trade secrets. Mandating transparency over this critical code would stimulate the solving of complex technical problems necessary for building effective algorithms that are auditable [Gil-Garcia, Gasco-Hernandez & Pardo 2020].

In addition to creating regulatory environments where platforms are interoperable, transparent and auditable, governments committed to a healthy digital public sphere can decide to directly fund the creation of these public service platforms, challenging public broadcasters to take on the work of developing values-centred online public spaces. In doing so, we would urge governments and those they support not just to create new networks managed by broadcasters – i.e., VPRO's Facebook clone, BBC's Twitter alternative – but to create an environment where citizens and organizations create and manage their own social networks, creating spaces where citizens not only participate in civic discussions, but manage them. This advice is particularly difficult for public broadcasters to follow, as they are used to accepting responsibility for creating public dialogs with an eye towards a careful balance of participants' political and other perspectives. However, successful digital public spaces managed by public broadcasters and other values-led organizations face the same problems as big tech platforms: undue control over what speech is permissible online [Van Dijck, De Winkel & Schaefer 2021].

We believe values-led organizations should both create digital public spaces designed to enable dialogs not currently occurring, and support citizens in developing and curating their own spaces using compatible and interoperable tools. Such a model not only enables a diversity of conversations but asks citizens to take on the democratic responsibilities of operating and managing online communities, doing the practical work of community management and governance. We prefer a decentralized, community-based view over the centralized model of global mega-platforms when it comes to responsible governance of online space. We believe that values-led organizations and citizens who take on this work will learn from each other and pioneer different community governance models than have been advanced by existing platforms.

5 CONCLUSION: DESIGNING A EUROPEAN MODEL?

Is the model developed by PublicSpaces indicative of a uniquely European approach to questions around the design of digital systems? As others have argued, Europe has a characteristic tradition of providing public services by publicly funded, but independently operated, institutions. Usually, they derive their mandate from a statute that guarantees their autonomy from too much political meddling.

In that respect, Europe operates on a middle road between some of the governmental polity models that are in use in East Asia and Russia, where the state has a defining role in determining online infrastructure and regulation; and the US, where private sector interests drive policy making. European policymakers have already challenged the unfettered environment US tech companies have enjoyed, introducing restrictions over the use of user data through GDPR [Van Dijck, Niebord & Poell 2019]. The approach pioneered by PublicSpaces offers

another way in which Europe might act as a middle road, balancing between state control and censorship and unrestricted development of socially harmful business models, stimulating civil society groups and independent public organizations to redesign the online space to serve civic needs. Europe's strong commitment to public goods makes it possible for values-led organizations to have a seat at the table where the future of digital public spaces is discussed, and the emerging cooperation of public broadcasters and cultural institutions suggests a pathway for building digital public infrastructures.

PublicSpaces reminds us of a European tradition: that media, arts, and culture are essential facets of our societies that deserve a carved-out space protecting them from the pervasive commercial incentives that currently propel all online activity. We feel that many online instruments have become so important for the day-to-day functioning of society – on a political, economic, social, individual, psychological level – that we may eventually need to treat these instruments as public utilities, just as power, clean water, or gas [Ghosh 2019; Thompson 2010]. Demanding these platforms accommodate values-based organizations – or risk their users migrating to platforms that will – is a step far short of declaring platforms as utilities, but a powerful step towards the same goal. We advocate, therefore, not to abolish commercial platforms, but to ensure that alternatives are available that comply with public values.

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