On the governance of privacy-preserving systems for the Web: Should Privacy Sandbox be governed?

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Abstract

This work investigates governance structures of various web and internet projects or standardisation initiatives. In each case, the details of the governance structure or the decision-making process are considered. The changing landscape of the digital advertising ecosystem is considered in the context the potential development of a privacy-preserving ad system. This is made on the example of the currently much-debated technical-standardisation proposal within the context of Google's Privacy Sandbox, and the associated other proposals. Using the insight from analysis of existing web standards governance structure, a potential governance structure for Privacy Sandbox is considered and proposed.

The proposal put forward in this work considers technical measures, technology (web) standards, and the aspects of privacy, competition, and regulations.

There are rising links between technology, privacy, and market competition, with new investigations and new regulations. Linking governance structures with regulatory enforcement frameworks is not unimaginable. In this work, such a case is suggested on the examples of existing European regulations: the General Data Protection Regulation (for privacy), and the proposed Digital Services Act (for competition).

1 Introduction

User tracking on the web was a developing and rising issue in the decades of 2000 and 2010[1]. The developing web economy ecosystems coupled with the new advertising technologies lead to the proliferation and uncontrolled spread of ubiquitous tracking on the web[2]. Such tracking had various forms, for example:

[1] Jonathan R Mayer and John C Mitchell, 'Third-party web tracking: Policy and technology' (2012).

[2] Mayer and Mitchell (n 1); Balachander Krishnamurthy and Craig Wills, 'Privacy diffusion on the web: a longitudinal perspective' (2009); José Estrada-Jiménez and others, 'Online

- tracking pixels or scripts 'monitored' user interactions across the browsed websites to enable the construction of user profiles,
- third-party cookies making such tracking rather simple[3],
- the various forms of fingerprinting (such as browser-configuration types or Canvas)[4] making the technical possibility of tracking even stronger,
- various types of "web plugins" (e.g. the Facebook Like button) or libraries that were functionally deploying the tracking capabilities
- the increasing issue of behavioral monitoring, including the tracking of keystrokes or mouse movements.

This growing problem likely culminated around the years of 2014-2016[5]. While tracking-protection technologies, such as web browser plugins, were always present, the landscape is evolving since web browser vendors entered the game. Approaches of web browser vendors such as Mozilla, Apple or Microsoft vary, but it is widely accepted that it is Apple who is the vendor that first seriously considered the risk of web privacy [6]. Since then, the web is on a trajectory to 'civilise' the associated technologies, curbing unsanctioned tracking.

Privacy is constantly at the center of today's shifts in the web technologies, such as web browsers, as evidenced with the regular changes in the privacy user interface and new technical features deployed in web browsers, both implementing Internet Engineering Task Force (IETF) and World Wide Web Consortium (W3C) standards, and going beyond. Significant changes continue to be introduced. Web browser vendors decide to take action to address the growing user concerns due to the rising privacy problem of web tracking. The previous decade witnessed the growing trend of content filtering and blocking. Anti-tracking measures built in by the major web browser vendors are changing how the web ecosystem works. There is currently an abrupt backlash from the third-party cookies mechanism, the primary vehicle of user tracking. This is evidenced with the growing popularity of privacy-focused web extensions, and the changing default treatment of thrid-party cookies in major web browsers like Mozilla Firefox, Apple's Safari, and the Google Chrome's vow to disable third-party cookies.

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advertising: Analysis of privacy threats and protection approaches' (2017) 100 Computer Communications 32.

[3] Franziska Roesner, Tadayoshi Kohno, and David Wetherall, 'Detecting and Defending Against {Third-Party} Tracking on the Web' (2012).

[4] Pierre Laperdrix and others, 'Browser fingerprinting: A survey' (2020) 14(2) ACM Transactions on the Web (TWEB) 1.

[5] Authors own independent and humble assessment, based on the many years of observations, and including due to the fact that it was around these years when some web browser vendors started to build countermeasures.

[6] Apple was certainly the first big technology firm strictly underlining the privacy guarantees built-in with technology. Such a serious take on privacy was famously stressed for the first time in the 2015 annual keynote while releasing new products, see also https://techcrunch.com/2015/06/08/apple-stresses-user-privacy-at-wwdc/. Such communications are consistently maintained since then.

Apple's Safari does not support the mechanism of third-party cookies, and deploys a specialised Intelligent Tracking Prevention[7]. Mozilla Firefox ships Enhanced Tracking Prevention, and likewise scrutinises third-party cookies and interactions[8]. Finally, Chrome announced the intention to remove third-party cookies in 2022[9], conditioned on "*satisfactory changes*" to the web platform, a timeline already delayed to 2023[10]. Such modifications are called *Privacy Sandbox*, and they aim to tighten the control over privacy, at the same time allowing ads to be displayed in a "*privacy-preserving manner*". In other words, the third-party cookie[11], today's primary tracking vehicle, is going away.

Privacy Sandbox foresees several web browser features that might be deployed by web browser vendors to (1) guarantee future user privacy protection by limiting the potential of abuses, and (2) uphold the web economy model based on web advertisements. The so-called Privacy Sandbox proposals were introduced in 2019[12], and the co-design and co-development happen in the open within the discussion venues of the W3C standardisation body, primarily in the Improving Web Advertising Business Group (WAB), and in the later formed Private Advertising Technology Community Group (PATCG). Some parts of designs appear to be consistent with past well-researched proposals in privacy-preserving digital advertising systems[13]. Early evidence demonstrates openness to proposals submitted during the design discussions within the W3C venue[14].

Concluding how such interactions would look like in the future, in general, is premature. Nothing compels the technology controller (i.e., Google, owner of Chrome; or other web browser vendors should they are involved, like for example Mozilla[15]) to guarantee the future aspects of Privacy Sandbox[16].

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[7] John Wilander, Intelligent Tracking Prevention, (2017) ⟨https://webkit.org/blog/7675/intelligent-tracking-prevention/⟩.

[8] Mozilla Firefox, Enhanced Tracking Protection in Firefox for desktop (2019) ⟨https://support.mozilla.org/en-US/kb/enhanced-tracking-protection-firefox-desktop⟩.

[9] Justin Schuh, Building a more private web: A path towards making third party cookies obsolete (2020) ⟨https://blog.chromium.org/2020/01/building-more-private-web-path-towards.html⟩.

[10] Vinay Goel, An updated timeline for Privacy Sandbox milestones (2021) ⟨https://blog.google/products/chrome/updated-timeline-privacy-sandbox-milestones/⟩.

[11] Roesner, Kohno, and Wetherall (n 3).

[12] Justin Schuh, Building a more private web (2019) ⟨https://www.blog.google/products/chrome/building-a-more-private-web⟩.

[13] Vincent Toubiana and others, 'Adnostic: Privacy preserving targeted advertising' (2010); Saikat Guha, Bin Cheng, and Paul Francis, 'Privad: Practical privacy in online advertising' (2011); Michael Backes and others, 'Obliviad: Provably secure and practical online behavioral advertising' (2012); Minh-Dung Tran, Gergely Acs, and Claude Castelluccia, 'Retargeting without tracking' [2014] arXiv preprint arXiv:1404.4533; Lukasz Olejnik, Are we reaching privacy preserving digital advertising? Historical view (2020) ⟨https://blog.lukaszolejnik.com/are-we-reaching-privacy-preserving-digital-advertising-historical-view/⟩.

[14] Justin Schuh, Marshall Vale, Progress update on the Privacy Sandbox initiative (2021) ⟨https://developer.chrome.com/blog/privacy-sandbox-update-2021-jan/⟩.

[15] Martin Thomson, Privacy Preserving Attribution for Advertising (2022) ⟨https://blog.mozilla.org/en/mozilla/privacy-preserving-attribution-for-advertising/⟩.

[16] 'Killed by Google' ⟨https://killedbygoogle.com/⟩.

1.1 Privacy, Competition, Governance

Signals about the increased convergence between *privacy* and *competition* protection are appearing. But such links between these two spheres are in line with previous predictions of the European Data Protection Supervisor (since 2014)[17] or the U.S. Federal Trade Commission (since 2017)[18].

Google's web browser Chrome has an estimated around 69% of global user-base, and many businesses depend on the web browser as a gateway technology. Recent changes made to web browsers (particularly, Google's plans) appear to gather a significant interest from competitors[19], regulators[20], or civil society[21].

Such privacy and competition concerns ought to illuminate the public debate. But in this context it is worth noting that: (1) it is unclear how the privacy input would or should be considered, and by who (2) it is unclear how the existing competition controversies will be reconciled in the future, (3) it is unclear if in the future the Privacy Sandbox proposals would be maintained, developed, or even kept as part of the web browsers[22].

Technically speaking, these questions touch the issue of governance, a political science term describing a collective process of effective and legitimate decision making[23]. Governance is also a process well known in the technology landscape.

In this chapter, the focus is put on the related issues of governance of a potential privacy-preserving digital advertising systems.

1.2 Alternatives to Privacy Sandbox?

Privacy Sandbox is presented as a realisation of a privacy-preserving online ad system. As such it currently has no substantial competition, but it is pertinent to mention the potential alternatives.

[17] Christian D'Cunha, 'Best of frenemies? Reflections on privacy and competition four years after the EDPS Preliminary Opinion' (2018) 8(3) International Data Privacy Law 253; P Hustinx, 'Privacy and Competitiveness in the Age of Big Data: Preliminary Opinion of the European Data Protection Supervisor' [2014] .

[18] Julie Brill, 'The intersection of consumer protection and competition in the new world of privacy' (2011) 7(1) Competition Policy International 6.

[19] Natasha Lomas, Digital marketing firms file UK competition complaint against Google's Privacy Sandbox (2020) ⟨https://techcrunch.com/2020/11/23/digital-marketing-firms-file-uk-competition-complaint-against-googles-privacy-sandbox/⟩.

[20] UK Competition and Markets Authority, Investigation into Google's 'Privacy Sandbox' browser changes (2021) ⟨https://www.gov.uk/cma-cases/investigation-into-googles-privacy-sandbox-browser-changes⟩; Australian Competition and Consumer Commission, Digital advertising services inquiry (2021) ⟨https://www.accc.gov.au/focus-areas/inquiries-ongoing/digital-advertising-services-inquiry/interim-report⟩; European Commission, Antitrust: Commission opens investigation into possible anticompetitive conduct by Google in the online advertising technology sector (2021) ⟨https://ec.europa.eu/commission/presscorner/detail/en/ip_21_3143⟩.

[21] Bennet Cyphers, Don't Play in Google's Privacy Sandbox , (2019) ⟨https://www.eff.org/deeplinks/2019/08/dont-play-googles-privacy-sandbox-1⟩.

[22] 'Killed by Google' (n 16).

[23] Vasudha Chhotray and Gerry Stoker, *Governance theory and practice: A cross-disciplinary approach* (Palgrave Macmillan November 2008).

One rigid approach could be the complete removal, or the minimisation, of all the technologies with tracking potential, including third-party cookies, fingerprinting etc. – without any other intervention. In case of privacy that would limit the risks and issues of concern. However, that would likely have a significant impact on some market players in online e-commerce, including publishers and advertisers that rely on cookies used in e-commerce (e.g. to monitor user behaviour, or to facilitate the "shopping cart" functionality with cookies – not third-party cookies when performed on the example web store site) or web advertising (e.g. to to track conversions, whether the seen ad was linked with a particular user action such as purchase). Hence, anti-competition complaints are being filled, investigations are being made. It seems that in the market economy this may not be so simple. In fact, the matter is the subject of anti-competition proceedings[24], specifically with the focus on the dominant web browser, Chrome. It turns out that having a dominating market position opens a player to a potential anti-competition proceeding. And in fact, the United Kingdom's Competition and Markets Authority (CMA) and Google worked towards an agreement, where the final say over the removal of third-party cookies and the acceptance of "*alternative technologies*" will (!) actually be with the UK's CMA[25]. In June 2021 CMA had an intention to accept Google's commitments, de facto becoming a key regularor with respect to the competitive practices of this technology[26]. The committments were formally accepted in February 2022[27]. The European Commission is following a similar path, initiating an independent investigation[28].

Still, the final structure of the Privacy Sandbox is not finalised yet. There are many proposals aspiring to be picked up and considered seriously (for example some by Mozilla[29], but also those of many other proponents). These intra-competition may also be viewed as 'alternatives'. How will this develop in the

[24]Investigation into Google's 'Privacy Sandbox' browser changes (n 20); Digital marketing firms file UK competition complaint against Google's Privacy Sandbox (n 19); District Court, EDTexas, Anti-competition complaints against Google's plan to replace third-party cookies with Privacy Sandbox ; UK Competition and Markets Authority, Notice of intention to accept commitments offered by Google in relation to its Privacy Sandbox Proposals. Case number 50972 (2021) ⟨https://assets.publishing.service.gov.uk/media/60c21e54d3bf7f4bcc0652cd/Notice_of_intention_to_accept_binding_commitments_offered_by_Google_publication.pdf⟩; Antitrust: Commission opens investigation into possible anticompetitive conduct by Google in the online advertising technology sector (n 20).

[25]Notice of intention to accept commitments offered by Google in relation to its Privacy Sandbox Proposals. Case number 50972 (n 24); Antitrust: Commission opens investigation into possible anticompetitive conduct by Google in the online advertising technology sector (n 20).

[26]UK Competition and Markets Authority, CMA to have key oversight role over Google's planned removal of third-party cookies (2021) ⟨https://www.gov.uk/government/news/cma-to-have-key-oversight-role-over-google-s-planned-removal-of-third-party-cookies⟩.

[27]UK Competition and Markets Authority, CMA to keep 'close eye' on Google as it secures final Privacy Sandbox commitments (2022) ⟨https://www.gov.uk/government/news/cma-to-keep-close-eye-on-google-as-it-secures-final-privacy-sandbox-commitments⟩.

[28]European Commission, Antitrust: Commission opens investigation into possible anti-competitive conduct by Google in the online advertising technology sector (2021) ⟨https://ec.europa.eu/commission/presscorner/detail/en/IP_21_3143⟩.

[29]Privacy Preserving Attribution for Advertising (n 15).

future will be determined in 2022.

2 Technology governance

From the high-level and generic challenges such as Internet Governance[30], through the deliberations about AI governance[31], to the many practical setups in standardisation, the problem of technology governance is in general a challenge. But while the topics of internet and AI are complex and compounded, and they involve many actors. Issues of technology governance arise also in other dimensions of modern technologies in the broader deployment phase[32].

For example when many actors are involved, and the stability of the product for its users is an asset, governance issues arise when multiple and various factors play a role. In general, designing a governance model may need to account for known or predictable challenges, for example reaching an agreement among a diversified numbers of actors. Standardisation bodies such as the World Wide Web Consortium (W3C), with its Advisory Board (AB) and the Technical Architecture Group (TAG), or the Internet Engineering Task Force (IETF), with the Internet Architecture Board (IAB) form good model examples. These bodies strive to reconcile the policy and technical design issues with their specially designated advisory bodies. The processes at work are present for many decades now. They withstood the test of time and proved themselves to be working models offering advantages when the goal are stable and mature technical standards. In these respects, the standardisation processes at the IETF or the W3C are a de facto standard in themselves.

Governance-like structures exist in the case of other technologies as well. Including at the Accelerated Mobile Pages (AMP)[33], which "*delegates the technical leadership of the AMP project to the AMP Technical Steering Committee*", the JS Foundations' Technical Advisory Committee (and its the technical leadership structure)[34], the OpenJS Foundation's Cross Project Council[35] that is the "*the technical governing body of the OpenJS Foundation*", or even the Facebook's Oversight Board[36] that is tasked with advisory help concerning content moderation. Other significant standardisation bodies such as the Institute

[30] Laura DeNardis, 'The emerging field of Internet governance' [2010] Yale Information Society Project Working Paper Series; John E Savage and Bruce W McConnell, 'Exploring multistakeholder Internet governance' [2015] Brown University Bruce W. McConnell, EastWest Institute. https://www. eastwest. ngo/sites/default/files/Exploring% 20Multi-Stakeholder% 20Internet% 20Governance_0. pdf.

[31] Allan Dafoe, 'AI governance: a research agenda' [2018] Governance of AI Program, Future of Humanity Institute, University of Oxford: Oxford, UK.

[32] Paul Timmers, 'There will be no global 6G unless we resolve sovereignty concerns in 5G governance' (2020) 3(1) Nature Electronics 10.

[33] AMP, AMP Governance Structures (2020) ⟨https://amp.dev/community/governance/⟩.

[34] JS Foundation, Technical Advisory Committee (TAC) Charter v1.0 (2016) ⟨https://github.com/JSFoundation/TAC/blob/master/TAC-Charter.md⟩.

[35] The OpenJS Foundation, The OpenJS Foundation Cross Project Council (2020) ⟨https://github.com/openjs-foundation/cross-project-council/⟩.

[36] Facebook AB, Facebook's Oversight Board's Charter (2020) ⟨https://oversightboard.com/governance/⟩.

of Electrical and Electronics Engineers Standards Association (IEEE-SA), the Institute of Electrical and Electronics Engineers (ETSI), or the International Organization for Standardization (ISO), are not considered. While these are versatile standards developments organisations, the focus of this work is on information technologies, the internet, and most particularly, the specialised aspects concerning the web or the platforms functioning on the web.

The overarching theme based on such governance structures strongly suggests that for successful technology governance to happen, some prerequisites must be met. A technology must either exist or be emerging. Involvement of several stakeholders is necessary. Mechanisms of decision-making that impact technology control, development, or management, must exist. To achieve these tasks transparently and predictably from the point of view of all the stakeholders, technical consortiums typically give rise to forms of advisory bodies.

The core intention of the work in this chapter is to offer a potential future vision of technology governance of the "Privacy Sandbox" and its associated deliverables. To propose a governance framework, the sincere commitments of the involved proponents and actors in the development of Privacy Sandbox must be assumed. Therefore, it is assumed that Privacy Sandbox and the related web browser features would be eventually deployed and in use (there is limited rationale for designing a governance structure for something that is not of practical relevance). This will introduce several future challenges, for example, the need to design a transparent future mechanism of steering the development and deployment of Privacy Sandbox, including the advisory aspects.

At stake is the future of web privacy, while considering the impact of technologies on competition might also be relevant[37]. Therefore it might be constructive to offer a governance and advisory structure that would guarantee future privacy protections, considering also the competition factor.

Today, no technology governance structure comes to mind that concerns itself with matters of technology, privacy, considering the aspects of competition. It is therefore pertinent to consider these issues as of importance to proposals such as 'Privacy Sandbox'. This observation stems from the existing evidence of interest from data protection and competition protection authorities[38]. Technology or standards assessments are often concerned with the consideration of security, privacy, ethics, or perhaps human rights aspects. Less focus is typically put on the technical conceptions of competition. The proposal analysed in this chapter is based on the author's experience in web standardisation and privacy, as well as the awareness of the on-going policy and regulatory processes.

This work is grounded on certain premises. Namely, that users expect privacy when browsing the web, that this aspect is clearly in scope of the interest of data protection regulators, that competition authorities are increasingly focus-

[37]Investigation into Google's 'Privacy Sandbox' browser changes (n 20); Digital advertising services inquiry (n 20); D'Cunha (n 17); Antitrust: Commission opens investigation into possible anticompetitive conduct by Google in the online advertising technology sector (n 20).

[38]Investigation into Google's 'Privacy Sandbox' browser changes (n 20); Digital advertising services inquiry (n 20); Antitrust: Commission opens investigation into possible anticompetitive conduct by Google in the online advertising technology sector (n 20).

ing on the actions of technology vendors, and that technology standardisation, "*albeit voluntary in nature, can impose de facto rules for a particular sector and hence become coercive*"[39].

Governance structures should guarantee the decisional equality of the members who form a representation of the concerned communities and industries. While some members may be inclined to favor their own industries or even individual firms, a well-designed governance structure should individual motivations, leading to the creation of broadly acceptable recommendations and standards. Evidence suggests that competitors tend to be involved in the same standardisation initiatives[40], and such natural competition improves the end product. This is opposed by self-standardisation ("*de facto*") when standards are simply built and implemented by a single vendor, not involving any external actors. Collaborative standardisation tends to be the favored approach by the modern developer circles, including open source developers. For example, within the W3C, it is a standard procedure to involve the wider community, including in the process of horizontal reviews, such as the assessment of accessibility, or security and privacy.

Good design of a governance design must guarantee satisfactory composition of the governance or advisory structure such as the appropriate member representation and the member expertise, or the practical issues of legitimacy based on the decision process such as consensus-based or voting[41]. Ultimately the decisions or advice must be adopted and accepted by all stakeholders, which in practice would mean that the controllers of the technology in question must implement the specified changes in the technology (i.e. the web browser, in this case), and the users of the technology must agree to use the functionality.

The primary source of legitimacy would be the respect of such voluntary standards. Another factor may be the reasons for considering regulations. While a governance body may be devised as a structure upholding self-regulation, it may be possible to go beyond by linking such a governance structure with vehicles offered by existing lawful mechanisms of regulatory oversight or those offered by regulations. For example, European law considers the issues of standardisation explicitly[42], and technology standards are used to fulfill the needs of various regulations.

As it will be shown in the case of the European Union, legal texts to consider could include General Data Protection Regulation (GDPR)[43], but also the Dig-

[39] Olia Kanevskaia, 'Governance within standards development organizations: WHO owns the game?' (2017).

[40] Justus Baron and Tim Pohlmann, 'Who Cooperates in Standards Consortia—Rivals or Complementors?' (2013) 9(4) Journal of Competition Law and Economics 905.

[41] Justus Baron and others, 'Making the rules: the governance of standard development organizations and their policies on Intellectual Property Rights' (2019) 29655 JRC Science for Policy Report, EUR.

[42] 'Regulation 1025/2012 of 25 October 2012 on European standardisation (2012), Official Journal of the European Union L 316/12' (2012-10-25) L 316/12 OJ.

[43] General Data Protection Regulation, 'Regulation EU 2016/679 of the European Parliament and of the Council of 27 April 2016' [2016] Official Journal of the European Union. Available at: hhttps://eur-lex.europa.eu/eli/reg/2016/679/oj.

ital Services Act (DSA)[44]. Both of these frameworks foresee the use of Codes of Conduct. For the GDPR, Europe's leadership in data protection standards is accepted – as is evidenced in the world's data protection frameworks modeled over the GDPR[45]. Likewise, linking an existing governance structure to European law could be broadly accepted as a model guarantee. The added advantage would be guaranteeing that the governance structure is to some degree based on existing laws, effectively constituting an additional source of legitimacy, and perhaps even enforcement.

2.0.1 Alternatives to Privacy Sandbox

Privacy Sandbox is a stack of proposals that intend to (1) improve the privacy footprints of certain web browsing experiences, and (2) attempt to introduce a potential form of privacy-preserving advertisement systems. As such, no viable alternatives to the Sandbox exist. That said, there are many various competing proposals introduced in the scope of individual proposals. For example, in the case of the Turtledove proposal[46], many variations or even competing solutions were put forward for consideration. Some of such input has been picked up by Google and they will be tested during the tests of Turtledove (called 'FLEDGE'[47]) conducted in 2022.

Privacy Sandbox is introduced as a possible avenue of amending the web architecture. It is advocated as the minimum change that would lead to the option of phasing out the current standard web tracking mechanism, the third-party cookies, from the most popular Chrome web browser. Still, it is necessary to point out that other web browser vendors (in particular, Apple's Safari or Mozilla Firefox) already restrict tracking by default. This chapter is not further elaborating on such already existing deployments. Rather, the focus is on the potential ways of governing of the Privacy Sandbox stack of proposals.

3 Existing technology governance framework special to internet and web

In this section, the governance configuration relating to existing technologies and associated problems are analysed. The focus is on web technologies, so the governance and standardisation consideration should be as close as possible to existing frameworks of the kind. Here it must be noted that the inclusion of Facebook's Oversight Board in the considerations is motivated by the fact that

[44] European Commission, 'Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on a Single Market For Digital Services (Digital Services Act) and amending Directive 2000/31/EC COM/2020/825 final' [2020] Available at: https://eur-lex.europa.eu/legal-content/en/TXT/?uri=COM:2020:825:FIN.

[45] Graham Greenleaf, 'Global data privacy laws 2019: 132 national laws & many bills' [2019] .

[46] TURTLEDOVE (2022) ⟨https://github.com/WICG/turtledove⟩.

[47] Michael Kleber, First Experiment (FLEDGE) (2021) ⟨https://github.com/WICG/turtledove/blob/main/FLEDGE.md⟩.

this structure is devised to "regulate" what happens on a technology platform (that uses the web).

Therefore, the assessment and the proposals are based on the analysis on the rules of the W3C's Technical Architecture Group, the IETF's Internet Architecture Board, the Accelerated Mobile Pages (AMP)[48], the JS Foundations' Technical Advisory Committee[49], the OpenJS Foundation's Cross Project Council[50], and the admittedly differing in topical interest – Facebook's Oversight Board[51]. The analysis will help to distill a proposal for a governance framework for privacy-preserving ad systems[52]. In practice, considering such a system based on Google Chrome's Privacy Sandbox proposals. This choice is made for the reason that Google's Chrome is the most popular web browser, that it is Google who has kick-started this particular debate, and that the initiative has garnered interest from many other vendors or companies.

3.0.1 W3C's Technical Architecture Group and Advisory Board

The W3C Process explicitly states that web development is a consensus-based activity[53]. Crucially, the Process defines two specialised groups, the Advisory Board (AB – "*to help resolve Consortium-wide non-technical issues*") and the Technical Architecture Group (TAG – "*to help resolve Consortium-wide technical issues*"). The W3C Advisory Committee (AC) is a body composed of the representatives of the current W3C Members. It reviews the W3C works, and "elects" members to the AB and to the TAG. In this sense, the AC forms a source of legitimacy as it expresses the views of the W3C Members. Specifically, "*the Advisory Board provides ongoing guidance to the Team on issues of strategy, management, legal matters, process, and conflict resolution*", while "*the mission of the TAG is stewardship of the Web architecture*". In practice, this work is done by the following actions: "*to document and build consensus around principles of Web architecture and to interpret and clarify these principles when necessary; to resolve issues involving general Web architecture brought to the TAG; to help coordinate cross-technology architecture developments inside and outside W3C*". The detailed description is in the TAG Charter[54].

This structure of W3C advisory bodies makes for a strict organisation-policy and technical division. The TAG was first bootstrapped by the W3C Director Tim Berners-Lee, who appointed the initial members[55], and some seats are still

[48] AMP Governance Structures (n 33).

[49] Technical Advisory Committee (TAC) Charter v1.0 (n 34).

[50] The OpenJS Foundation Cross Project Council (n 35).

[51] Facebook's Oversight Board's Charter (n 36).

[52] Toubiana and others (n 13).

[53] Elika Etemad, Floian Rivoal, W3C Process Document (2020) ⟨https://www.w3.org/2020/Process-20200915/⟩.

[54] Ian Jacobs, Technical Architecture Group (TAG) Charter (2004) ⟨https://www.w3.org/2004/10/27-tag-charter.html⟩.

[55] Jean-François Abramatic, Ann Bassetti, Tim Berners-Lee , Carl Cargill , Paul Cotton , Janet Daly, David Fallside , Renato Iannella , Alan Kotok , Ken Laskey , Ora Lassila, Håkon Wium Lie , Larry Masinter, David Singer, Steve Zilles, Technical Architecture Group (TAG) Charter (2001) ⟨https://www.w3.org/2001/07/19-tag⟩.

filled by the Director. But the current general process of election of AB and TAG Members is defined in detail. Election of a TAG member for a two-year term requires the current W3C Member to nominate an individual, the Members vote for individuals, and the seats are assigned according to a vote process that happens each year. The TAG members' terms are staggered, each year there are elections for some freed seats.

Crucially, the members of the AB and the TAG are representing themselves, not their companies or organisations. Members themselves may be employed by W3C Member organisations but they may also be external Invited Experts, unaffiliated with any formal member. The process contains numerous precautions. For example, to protect from having two participants with the same primary affiliation occupying seats at the same time, a measure likely meant to avoid the risk of unbalanced composition. The formally defined election process[56] for example considers the need to compose a nominating statement explaining the motivations and aims of the candidate. Candidates should have the following traits: "*Technical competence in one's role; The ability to act fairly; Social competence in one's role.*"[57].

At the W3C, including the groups like the AB or the TAG, decisions are made by *consensus*. This requires the need to include and consider the views, objections, and opinions of legitimate parties. Signaled problems should be addressed in ways so that all the parties are satisfied to a degree that there may even be unanimity. The Process document defines consensus as "*substantial number of individuals in the set supporting the decision and nobody in the set registering a Formal Objection*". But in practice, after a lengthy process is executed, the final decision may be resolved by voting or even by the W3C Director (CEO, or COO) decision, in mattes of special controversy. When holding the voting, no quorum is formally defined; a quorum may be defined in the case of individual groups.

While no quorums might be defined, the needed votes may be a supermajority (exceeding the 50% mark). While voting may be a last resort, the Process documents stipulate that groups should "*favor proposals that create the weakest objections*".

W3C favors "*rapid progress*". It is ensured by favoring small size of Working Groups, typically composed of less than 15 members. The existing and formal TAG review process may benefit from the many existing Working Groups, especially on the level of horizontal review of a considered proposal for a standard. In practice, the TAG may request an opinion (for a review) from an external group or even an individual, for example in the case of security and privacy reviews, or to assess the impact of a feature on accessibility. What matters is for proposals to undergo a *wide review* – including the consideration of the views of the wider community. This *wide review* means that other W3C groups may be involved, but it may also involve external actors such as civil society, or independent individuals. Today, the evidence of a wider review would typically

[56] W3C, How to organize an Advisory Board or TAG election ⟨https://www.w3.org/2002/10/election-howto⟩.

[57] W3C Process Document (n 53).

constitute a collection of links to statements or analyses, for example, posted on a GitHub discussion board, and/or to the mailing list.

Finally, it is necessary to understand that the W3C is involved in the development of technical specifications. It is not to be involved in the competitive practices of W3C's Members "*nor in any way restrict competition*". The legal obligations of participants are at their sole discretion, and the W3C is not the venue to reconcile such issues[58].

Relevance to Privacy Sandbox. Web standards governance happens within the W3C, but in the case of individual projects, the activity is limited to standards development. That said it is clear that the works within the W3C venue are directly relevant to the Privacy Sandbox, if just because of the fact that the W3C Improving Web Advertising Business (WAB) (or the Private Advertising Technology Community Groug, PATCG) is the venue of choice when deciding on feature designs.

While Privacy Sandbox concerns web technology, no clear path of linking it with the W3C process appears to exists at least based on the W3C Process document[59]. In this case, the works concerning the design of Privacy Sandbox are discussed in the devoted WAB and PATCG groups. But there seems to be no clear governance path, the work being limited to standards development, and only interested in the delivery of technical standards.

It is not possible, for example, to task the W3C Technical Architecture Group with a direct oversight mandate. The TAG is an advisory body of the wider W3C, and its works concern the web platform's architecture. As such, the TAG is reviewing the works delivered by individual Working Groups. The TAG considers matters of web architecture, and it can even link to privacy or competition aspects[60]. But it is less clear to what extent the TAG could impact the enforcement or impact on the final decisions made by the feature authord or the vendors (TAG has no formal powers).

Important discussions and deliberations may still happen in the specialised WAB group, and any potential Privacy Sandbox governance structure must consider this open and transparent nature of the process, as well as the collaboration venue of choice (the W3C WAB or PATCG).

3.1 IETF's Internet Architecture Board

According to the IETF's Internet Architecture Board (IAB) Charter[61], the IAB is composed of a fixed number of 13 Members who come from the IETF community. Like in the case of the W3C TAG, IAB members represent themselves – not the organisations they may be affiliated with. According to the Charter,

[58] Wendy Seltzer, Antitrust and Competition Guidance (2017) ⟨https://www.w3.org/Consortium/Legal/2017/antitrust-guidance⟩.

[59] W3C Process Document (n 53).

[60] Amy Guy, Early design review for the FLoC API #601 (2021) ⟨https://github.com/w3ctag/design-reviews/issues/601%5C#issuecomment-783780556⟩.

[61] BCarpenter, Charter of the Internet Architecture Board (2000) ⟨https://www.iab.org/about/charter/⟩.

"*The IAB acts as a source of advice and guidance to the Board of Trustees and Officers of the Internet Society concerning technical, architectural, procedural, and (where appropriate) policy matters pertaining to the Internet and its enabling technologies. If necessary the IAB may convene panels of knowledgeable people, hold hearings, and otherwise pursue the investigation*". In this sense, the IAB directs both technical and policy advice, and it may ask for external input, including from the wider community. IAB is tasked with a long-term oversight of internet protocols, and "*is expected to pay attention to important long-term issues in the Internet, and to make sure that these issues are brought to the attention of the group(s) that are in a position to address them*".

The decision process in IAB strives to be **unanimous**. If reaching unanimity is not possible in practice, a consensus is sought. Voting is possible: "*the chair may conduct informal polls to determine consensus*". Such a governance mechanism, like in the case of the W3C groups, is meant to reduce the risks of group lockup (paralysis) – ensuring that decisions are being made. Like in the case of the W3C, following each meeting or decision made, proceedings are made available to the public, to ensure transparency.

Candidate nomination and the election process are formalised and defined in detail[62]. The term of elected persons is two years. In the context of the election process, IETF IAB also has a dispute resolution mechanism, where the concerning party is sending their input to the Internet Society's President. Subsequently, a then-established independent arbiter is tasked with making an investigation, striving to understand all the sides of the dispute. The voting requires the majority of 3/4.

The day-to-day work of IETF concerns the standardisation process, described in Best Current Practice 9[63]. Among the goals are the "*technical excellence; prior implementation and testing; clear, concise, and easily understood documentation; openness and fairness; and timeliness*". Work procedures are construed to guarantee such desirable properties, and they describe each phase of a standard. All the crucial deliberations and decisions are communicated openly, in a transparent fashion. Clarity of the process and decision transparency make it possible to reason as to how and why particular decisions were reached. It is for example stressed that the IAB group "*have an existence as leaders in the community. As leaders in the Internet technical community, these entities should have an outlet to propose ideas to stimulate work in a particular area, to raise the community's sensitivity to a certain issue, to make a statement of architectural principle, or to communicate their thoughts on other matters*". This makes it clear that the IAB is tasked with resolving disputes and finding consensus. It is accepted that IAB's decisions are final.

[62] MKucherawy, RHinden, JLivingood, IAB, IESG, IETF Trust, and IETF LLC Selection, Confirmation, and Recall Process: Operation of the IETF Nominating and Recall Committees (2020) ⟨https://tools.ietf.org/html/bcp10⟩.

[63] SBradner, The Internet Standards Process – Revision 3 (1996) ⟨https://tools.ietf.org/html/bcp9⟩.

3.2 AMP advisory and technical steering group

The accelerated Mobile Pages (AMP) governance body is closely related to the publisher (that is, website) side. As such its charter may be understood as the principles facilitating the technical work closely linked to the functioning of websites. The Advisory Committee (AC) is representative in the sense that it includes members from "*major AMP constituencies (Collaborators, Contributors, Users and End-Users)*". The number of AMP AC members is not fixed but a situation of having between 6 and 12 persons is favored, possibly to balance the need for representation and allow a smooth practical work. Once initially established, the AMP AC is self-assigning future members via consensus. Compared with W3C's and IETF's strict limits on representation, AMP allows multiple individuals from single employers ("*no more than 1/3 of the Advisory Committee should be from one employer*").

In the case of AMP, the technical leadership is realised at the Technical Steering Committee (TSC). Crucially, the TSC may "*designate entities to perform security and privacy reviews of AMP code/features*", and also direct legal questions to upstream to the OpenJS Foundation. The ability to request legal support is not the norm at governance bodies.

The TSC "*shall be composed of members with significant experience contributing to AMP on a technical and product level*". This limits the participation to members contributing on a technical or product layer and potentially reduces the involvement of bodies such as civil society or academia. But the nature of the AMP deliverables are quite specific, and such a broad oversight might not be needed on the level of the TSC.

Like the AMP AC, the TSC is composed of an arbitrary number of members (aiming at 6-12 members), with not more than 1/3 members from a single organisation. Some seats may be pre-filled with individuals from organisations contributing funds to the AMP project: "*Entities (such as a company) may be granted seats on the TSC. In these cases certain conditions may be placed on the seat (such as maintaining committed resources to the project)*". In this sense, paying members would be viewed as those holding stakes in the committee and AMP, and would expect to have an influence on the works.

The TSC defines mandates of each Working Group working on particular features. In this sense, the TSC is the source of legitimacy of the Working Groups, while the source of legitimacy of the TSC are the Members. It is important to note that the members of the first AC and TSC were initially assigned "upfront" and directly, as is made clear by the Google-affiliated post[64]. Decisions at the AC, TSC, and the Working Groups are reached via consensus, with a possibility of voting.

AMP "*enables the creation of websites and ads. Publishers and advertisers can decide how to present their content that emphasizes a user-first experience*". Processes related to AMP may be seen as relevant to the Privacy Sandbox in the sense that both projects focus on fixed areas of web technologies. The differences

[64] Malte Ubl, An open governance model for the AMP Project (2018) ⟨https://blog.amp.dev/2018/09/18/governance/⟩.

lie in the topical focus. For example, AMP concerns only the presentation layer), and Privacy Sandbox would need to be specially assessed to measure its privacy aspects.

3.3 JS Foundation Technical Advisory Committee

Since the rules are roughly comparable to the previous bodies, the section concerning JS Foundation Technical Advisory Committee (TAC) is simplified.

The TAC's responsibilities are "*ensuring collaboration is the driving principle within a Project, between JS Foundation Projects, and between JS Foundation Projects and the broader community*". Its tasks include conflict resolution among the projects (in JS Foundation, projects are self-governing), and providing guidelines.

The Members of the TAC are elected for 1 year[65]. The body is set at a fixed size of 25 seats, with members consisting of people from the JS Foundation's Platinum Member organisation (1 seat), the Node.js Foundation (1 seat), and the broader community. It is the existing TAC and the Board that hold the election. Such an obligation required the bootstrapping of the first TAC, setting it up in some way.

Like in the previous cases, there is a strict limit on the number of members from the same employer (no more than one-fourth), a clause that is the norm.

3.4 Facebook's Oversight Board

Facebook's Oversight Board is an advisory body admittedly different from the ones described previously. This governance structure is of interest because it relates to a closed platform maintained entirely by Facebook. The Charter defines the operation of the Oversight Board[66]. The need for the Board in the closed platform of Facebook is motivated directly: "*Free expression is paramount, but there are times when speech can be at odds with authenticity, safety, privacy, and dignity. Some expression can endanger other people's ability to express themselves freely. Therefore, it must be balanced against these considerations*".

The standards set are not standards in a technical sense (i.e. like in the context of the bodies previously described that worked on actual technology standards), but relate to the content placed on the platform by its users: "*internet services have a responsibility to set standards for what is and is not acceptable to share on their platforms*". The practical work of the Board is transparency, with decisions communicated to the public.

The Board counts at least 11 diversified members, with members having broad expertise, assumed to be able to arrive at "*neutral, independent judgment*". The members must have advanced competencies, being "*skilled at making and explaining decisions based on a set of policies or standards; and have familiarity with matters relating to digital content and governance, including free expression, civic discourse, safety, privacy and technology*". Such framing

[65] Technical Advisory Committee (TAC) Charter v1.0 (n 34).
[66] Facebook's Oversight Board's Charter (n 36).

deliberately mixes policy and technology competencies. The composition of the first Oversight Board was bootstrapped directly by Facebook. Members serve for a three-year term and a maximum of three terms. The terms are staggered – each year new members are accepted. The decision-making process at the Board is consensus, when this is not possible, a majority vote can be held.

The board also pays attention to human rights: "*When reviewing decisions, the board will pay particular attention to the impact of removing content in light of human rights norms protecting free expression*", even though the concrete human rights in question are not listed. The Board's work revolves around the interpretation of Facebook's Community Standards and applying them to Facebook's decisions with the option of overturning or upholding them. According to the Charter, the Board's decisions are biding: Facebook must adopt them. In this sense, Facebook is taking a unilateral vow to respect the Board's decision, a form of self-governance.

Members are compensated for their work. Furthermore, the Oversight Board has the support of employed staff that handles administrative tasks. The work process is open to external input: "*including through subject matter experts, research requests or translation services*". Funding comes from an independent trust: "*both the board and its administration are funded by an independent trust and supported by an independent company that is separate from the Facebook*" (funded by Facebook).

3.5 Summary

The previous sections described various approaches to technology governance, revolving around standardisation, advice, or even decision enforcement. Each body can be analysed in the context of the specific features and overarching rules.

- *The aims.* Scope of the governance structure typically revolves around facilitating the development work, providing advice about current and future work and challenges, as well as oversight. The aims usually include the oversight of the production of satisfactory deliverables and well-balanced opinions that are fair and acceptable to the Members.

- *The composition.* A governance structure is composed of interested individuals. This may be employees of member organisations or external individuals. Typically there are bounds on the numbers of individuals having the same employer. Additionally, Facebook's Oversight Board pays attention to geographic representation. Geographical or gender considerations may be an important aspect to guarantee the representativeness.

- *The nature of representation.* In the analysed cases concerning web technology standardisation, members of governance structures represent themselves, not their employers. While this differs in the case of other bodies, such as ISO (organisation representation) or ITU (country representation), such governance structures are outside the scope of this analysis.

- *The rules.* The rules of operating a governance structure are always formalised in some form (i.e. a charter). The length and complexity of the charter rules vary from the simpler (like in the case of AMP) to the long and precise (like in the case of the W3C TAG or the IETF IAB).

- *Decision making.* While unanimity may be an asset, the decisions are often made via consensus, which strives to obtain a result that is acceptable to all the involved parties. In practice, if consensus is difficult to obtain, voting can be held, with various majority needs (1/2, 2/3, 3/4, etc.), and with an option of filing a dissenting opinion or even a formal objection. Unanimity is favored at the IETF IAB, but it is accepted that voting might be needed (fallback to consensus if unanimity not possible). Voting may be performed to gauge the "feeling" of the members for a particular decision, for example at the IETF.

- *Legitimacy.* The composition of the high-level governing structures varies but the source of legitimacy is typically other higher-level governing structures, the Members, and/or participants from the broader community. In this place, a special status existing in the W3C is important, where unaffiliated individuals may participate as Invited Experts, making the process open to the wider community.

- *Bootstrapping.* The members of the governing structures are typically elected. But initially, there is a need to establish the starting composition. This might be a choice made by an influential member organisation or respected individual. For example, it was Google in the case of the initial AMP governing body, it was Facebook in the case of the Oversight Board, and it was the W3C Director in the case of the W3C TAG.

- *Mode of work.* Governance bodies usually perform work on a needs-basis, holding regular meetings, and often pro-active activities, for example the issuing opinions or assessments, or preparations of guidelines.

- *Transparency.* Typically, all the important work details are made public in an accessible place, such as a GitHub repository. Discussion venue may also happen at a designated working group, like for example in the case of the W3C. Sometimes, face-to-face meetings may be held, but the proceedings of such meetings are also published.

- *Translation to practice.* Certain bodies (i.e. the W3C TAG) while influential, do not exercise any formal powers (web browser vendors independently decide as to what to implement and how). Others (i.e. Facebook's Oversight Board) have a different role and their decisions should in principle be binding (in this case, voluntarily accepted by Facebook).

  Translating deliberations, opinions, or decisions into practice is a challenge. For example, the W3C is a venue for developing voluntary standards, meaning that implementors themselves decide what to implement and how.

- *Compensation.* A more practical matter of work. This varies greatly and some bodies support the governance structures financially (like AMP or Facebook's Oversight Board), while others do not.

- *Interactions with laws and regulations.* While some of the governance structures are tasked with making business or policy advice, the work conducted at the analysed governance structures typically does not directly intersect with regulations and policies. While of course there is an impact and overlap in this sphere (for example, the Web Content Accessibility Guidelines 2.1 guidelines were codified on the level of Directive of the European Union[67], standardisation bodies typically do not directly interact with the legal frameworks within various jurisdictions. There are caveats of a different nature. For example, the W3C expects its members to guarantee a patent-free policy (so that the deliverables remain unencumbered) and equally, places responsibility in the case of anti-trust and competition with the members. That said, the new laws such as the GDPR exert an influence on the works performed within the body.

4 Governance of privacy-preserving ads technology: "Privacy Sandbox" Governance

4.1 The understanding of the technical meaning of privacy and competition

"*A right to privacy is neither a right to secrecy or a right to control, but a right to appropriate flow of personal information*"[68]. Although compliance with data protection regimes is a separate, if serious issue, this concise definition is sufficient to consider the privacy footprint of the Privacy Sandbox. That said, the reader should understand that other notions of privacy may differ, and the specific focus of data protection laws may have plenty of complex principles that must also be considered. Here it is important to note that respect for privacy is the core tenet for fulfilling the data protection requirements, as introduced by existing regulations, such as the General Data Protection Regulation, or the ePrivacy Directive (or the upcoming Regulation, still in works in 2022). This definition, though, slightly differs from the notion of GDPR, which is focused on data protection and where the term '*privacy*' is not used (instead, '*data protection*' is in use). Subsequently, it is explained how the Code of Conduct vehicle of the GDPR may be used to offer certain guarantees of the governance structure discussed in this work. In the end, the potential tensions between competition and data protection need more attention.

In the case of a specialised integrated[69] product such as the Privacy Sandbox

[67] 'Directive (EU) 2016/2102 of the European Parliament and of the Council of 26 October 2016 on the accessibility of the websites and mobile applications of public sector bodies' (2016-10-26) L 327 OJ.

[68] Helen Nissenbaum, *Privacy in context* (Stanford University Press 2020).

[69] When the full deliverable only works if all its parts function.

concept, additional aspects may need to be considered. Specifically privacy[70]. To some degree the role of competition aspects play a role as well[71]. This is also the case considering that the contents of the W3C TAG review of the Federated Learning of Cohorts proposal[72], where the issue has been highlighted. The issue of competition is additionally stressed in light of the formal investigations[73]. To deliver acceptable deliverable, it is likely that the assessment of both aspects (privacy, competition) may need to be built into any "governance" structure.

It is perhaps a paradox because while many resources (including research) were devoted to the development of security and privacy assessment methods, a similar focus was never put on competition. Although the links between privacy and competition were investigated[74], the impacts of technologies on competition are today the prime subject of regulatory scrutiny[75], creating the motivation to consider the competition aspects in the design of potentially significant technologies. Competition is recently also becoming a topic of regulatory interventions[76].

Competition considerations are for example recognized by the W3C[77], although limited in this case to a policy and a legal framing, with less focus on the technical meaning. The W3C competition clause is very short and it mentions that the "*W3C does not play any role in the competitive decisions of W3C participants*". It is also mentioned that "*Participants must ensure that their conduct does not violate antitrust and competition laws and regulations. For example, participants should not discuss product pricing, methods or channels of product distribution, division of markets, allocation of customers, or any other topic that should not be discussed among competitors*". In other words, the long-term design consequences on entire ecosystems are not exactly foreseen directly, but in any case the responsibility is put on the W3C members, such as the companies participating in standards development process. Indeed, while many security and privacy technical assessments exist (and are created), no similar assessment frameworks appear to exist in the case of competition. Perhaps this is the case because it is a less structured horizontal issue, generally less defined technically. It may seem that the sole reason and motivation to consider the competitive aspects of technology developments is the interest of regulators, due to the actions of big market players. For the purposes of this work, the technical meaning of competition is defined as *all the technical processes and*

[70](As judged by the name, *Privacy* Sandbox)

[71]Frank Pasquale, 'Privacy, antitrust, and power' (2012) 20 Geo. Mason L. Rev. 1009; D'Cunha (n 17).

[72]Early design review for the FLoC API #601 (n 60).

[73]Investigation into Google's 'Privacy Sandbox' browser changes (n 20); Digital advertising services inquiry (n 20); Antitrust: Commission opens investigation into possible anticompetitive conduct by Google in the online advertising technology sector (n 20).

[74]D'Cunha (n 17); Pasquale (n 71).

[75]Investigation into Google's 'Privacy Sandbox' browser changes (n 20); Digital advertising services inquiry (n 20); Antitrust: Commission opens investigation into possible anticompetitive conduct by Google in the online advertising technology sector (n 20).

[76]European Commission, 'Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on a Single Market For Digital Services (Digital Services Act) and amending Directive 2000/31/EC COM/2020/825 final' (n 44).

[77]Antitrust and Competition Guidance (n 58).

changes that may have impacts on market conditions and competitive behavior of existing market participants[78]. This definition should include the possible impacts of technology changes on the ability or inability to function by market participants, and to deliver services. It should also include the ability to compete on special grounds, such as the level of privacy.

In the case of standardisation, such a definition should also consider the priority of constituencies at the standards bodies. For example, the W3C and the IETF understandably prioritise the well-being of users – not the servers or companies. While in this work user privacy is prioritised, it is likewise preferred to refrain from engaging in philosophical discussions considering the tangible or intangible "inherent" value of market competition. It is also not the intention of this work to discuss any "*trade-offs between privacy and competition*". The priority of constituencies as defined by the IETF and the W3C, specifically the user, must be respected.

4.2 The need of mediating and receiving input concerning the design layer

During the design of a system intending to work on a broad scale, voices of many sides and parties must be duly included into consideration. For example, in February 2021 the W3C Technical Architecture Group review of a Privacy Sandbox component (the Federated Learning of Cohorts, FloC, now a discontinued proposal, following significant criticism of this proposed solution[79]), indicated the need for having a way of designating the privacy parameters of the systems. For example, such configuration aspects concern which websites are considered "sensitive" by the system[80]. Apart from the technical aims, it is necessary to understand who would be making such decisions, and how. In principle, they could be made by Google Chrome's engineers. But crucially, the TAG review suggests reaching some particular decisions "*by a diverse set of stakeholders, so that the definition of "sensitive" is not biased by the backgrounds of implementors alone*". This means that there should be some input and analysis phase during the discussions and before the decisions are made.

Other relevant ideas from the early W3C TAG review directly motivating the needs for governance are: "*a persistent and authoritative means of documenting what they are that is not tied to a single implementor or company*", "*how such documentation can be updated and maintained in the long run*", and "*what the spec[ification] can do to ensure implementers actually abide by restrictions around sensitive categories*". In other words, these comments concern the long-term decision-making process and stability of the decisions, as well as the

[78] Author-proposed broad definition.

[79] It is difficult not to think of FloC as a type of "lightning arrester", as FloC absorbed the strong criticism from academia, NGOs, media, etc., which consequently did not reach other Sandbox proposals. After so much initial focus on FloC, it appears as if the community has lost steam and less decided criticism was directed at other proposals. Whether this was an ingenious policy-technology craft is another story.

[80] Early design review for the FLoC API #601 (n 60).

legitimisation of the decision process. Some of the concerns relate to the protection of individuals (and their privacy), while others in these comments actually seem to be motivated in thinking in aspects of competition.

4.2.1 Can governance of Privacy Sandbox happen in the W3C?

In the end, the TAG review comments highlight the need to gauge the opinions of users and of other involved actors. The next step after a W3C TAG review typically is the consideration of its contents and an appropriate reply. The review contents are directed at the specification authors, in this particular case meaning Google. Assuming that the "process of design governance" of Privacy Sandbox is entirely focused on the W3C, this could work as follows. Discussions happening in the W3C WAB/PATCG (or others) group should be open to external opinions. In principle, voices should be taken into consideration by feature developers. Nearing the end of this process, a TAG review is requested and implementation is created, possibly later taking into consideration the external input and the TAG review. In this case, the decisions happen entirely at the discretion of the implementor.

Assuming goodwill of collaborators in the standardisation venue, as well as the goodwill of the implementors (web browser vendors, i.e. Google Chrome) such a process could function, if in principle at least. But it is important to understand that nothing compels or binds recipients of the W3C TAG review, nor any other review. This means that the perception and the later changes are solely within the control of the feature developers and implementors. In the next sections, the possibilities of going forward, or beyond, are explored.

4.2.2 Dedicated governance structure?

It is imaginable that the current consensus-based process within the W3C work venue would function, and work would be continued. However, in practice there is no guarantee how this process would look like in the future. What is certain is the apparent interest of data protection and competition regulators in the changes introduced to the web ecosystem (particularly, online ads capabilities). In such an atmosphere, to avoid the risks to the development and implementation of such a platform like the Privacy Sandbox within the web architecture, a specialised governance structure could be envisioned. A structure that would offer clear assumptions as to transparency, legitimisation, and decision making.

The structure in question could function as an additional advisory board, including in matters of assessing privacy and technical aspects of the technical proposals. It is of course assumed that Privacy Sandbox, as any other web technology, will undergo future changes and development. An additional governing structure, independent of a single actor, could help to alleviate concerns and reconcile the potential conflicts during such evolution and development.

Such a structure would not be an entirely new thing (i.e. not a precedent). As explained in the previous section, many web, internet, and platform technology governance bodies exist. These preceding examples could function as

a model for the creation of an additional legitimate (that is, independent and impartial) governing or advisory body. The design of such a governance structure could even go beyond the traditional governance means. Such an outcome could be achieved by closely aligning the works with some existing or emerging self-regulatory and regulatory levers.

From now on, such a structure will be referred to as the " *Privacy Sandbox Governance*".

4.3 Potential Privacy Sandbox governance structure

To design a governance structure several prerequisites must be considered. These points are extracted and summarised from the analysis of other practical venues of the kind, explained in the previous section. Specifically important aspects to consider are the aims, the composition, the nature of representation, the rules, legitimacy, bootstrapping, mode of work, transparency, translation into practice.

Whether there would be a dedicated Trust, Consortium, or a Body that unites collaborators and supports the work in the field of privacy-preserving ads ("Privacy Sandbox") is a separate "operational" problem, external to the considerations of this work. In this section, other voluntary "assurance" aspect should me mentioned: the linking of the governance structure with existing regulatory frameworks to guarantee decision enforcement and trust.

4.3.1 Aims

The aims and scope of such a governance structure should be simple: oversight of the design and the delivery of privacy-preserving ads technologies, that would constitue an ecosystem. The focus on privacy should be obligatory. The aim should not be the finding of "rotten compromises". Rather, the aims should include the provision of advice and guidance around the development of privacy-preserving digital online ad capabilities. The opinions should be well-balanced, and acceptable to all the relevant actors.

4.3.2 Composition

Such a governance structure should be composed of individuals representing themselves, not their organisations. Exactly like in the case of similar governance bodies. The number of individuals with the same affiliation should be bounded (perhaps no more than 1 or 2 such individuals). Such a structure could have between 7 to 15 members (and an odd number).

4.3.3 Nature of representation

The participants represent themselves, but they should come from various (including demographic) backgrounds and organisations. These should include important stakeholders such as the major web browser vendors (representative, so with substantial market participation), others with stakes in such a system

(perhaps the members of the W3C WAB/PATCG group) like the ads technology active in privacy-preserving advertising (i.e. representatives from demand-side platforms or supply-side platforms), publishers, civil society, independent researchers and experts. Relevant candidates for members should be competent in the problems of privacy, technology, web, standardisation, and ads systems, having demonstrated track record.

Not discussing the elephant in the room, the initial proponent of Privacy Sandbox, Google, a company with a dominant position and the most popular web browser Chrome, is unavoidable. Google-affiliated members should abide by the limits of participants, but it has to be assumed that opinions of any participant from the implementors' side (like Google Chrome) would carry weight.

4.3.4 Rules

As in the case of all governance bodies, rules should be formalised in a public charter. Additional documents providing topical precision should be created and published by the Governance body itself. The rules should be flexible enough to offer smooth work, but not leaving too much room for interpretation.

4.3.5 Legitimacy

Legitimacy is challenging in such a structure because online ads concern every web user, and many websites or firms. The source of legitimisation should be the potential members of the body where the collaborators contribute (i.e. W3C/WAB), the contributors, the relevant and competent experts, or members of the relevant civil society. However, such a governance structure would be tasked with oversight of a precise piece of technology.

Prior to the election, candidates should publish statements describing their candidacy.

Legitimacy is undermined if the decisions put forward by the Governance body are not translated into practice. A specific process should be defined.

4.3.6 Bootstrapping

Bootstrapping also impacts legitimisation. How should the members of the initial Governance structure be chosen? Procedures varied historically but it is accepted that individuals with adequate expertise were initially assigned authoritatively. For example, it was Google who chose and assigned the initial members in case of the governing body of AMP, it was the W3C Director who assigned the initial people to the Technical Architecture Group, it was Facebook who unilaterally and independently filled seats of their content moderation advisory body, the Oversight Board. After the initial process of bootstrapping, elections should be held to fill the available seats in the Governance group on a rolling basis.

4.4 Decision-making process

The core process of decision-making should be identical as in the case of the W3C, namely, the need of seeking consensus. Decisions and consensus must be justified with source material (evidence). If consensus is impossible to reach, voting should be allowed, with a pre-defined majority type, such as 2/3 majority of votes, and perhaps 3/4 in the case of certain crucial decisions. Unanimity might be inadequate for practical reasons, as this form of decision-making may risk the paralysis of the works by a single participant.

Task groups working on specific deliverables could be created. After a proposal receives adequate scrutiny, and is reviewed and accepted by the governance structure (including, possibly, with the involvement of external structures like the W3C TAG, since Privacy Sandbox concerns the web platform). The governance body should arrive at a decision, issuing a public communication. Subsequently, it would be expected that following a decision, such as design document or a feature in question is accepted. It is then translated into practice, i.e. a document is published and must be considered in the future, or a design feature is ready to be implemented, shipped by the web browser, and used by publishes or users.

All concerned actors must accept the decisions made using a formal process. Otherwise, this would undermine the legitimisation of the governing body, and undermine trust in such a privacy-preserving ads technology component.

4.4.1 Mode of work

Regular meetings should be held. Input from the wider community should be considered. Such a governing structure should accept input from external actors in matters of technology, policy, and regulations. The governance body should provide opinions, advice, reviews, etc.

4.4.2 Transparency

All the proceedings or documents from the work of such a governing body should be made public, including the transcripts of the meetings held, the adopted decisions, etc. It should be the Chair's responsibility to make sure that the work proceedings are public.

In principle, the work could be performed in the open over GitHub. Such as it happens in the current dedicated W3C WAB and PATCG groups. Currently, the deliberations around the design and issues happen on the W3C WAB and PATCG groups, Early evidence suggests that changes to the design and implementation are made in response to such discussions[81].

[81] First Experiment (FLEDGE) (n 47); Progress update on the Privacy Sandbox initiative (n 14).

4.4.3 Translation into practice

Implementors should accept the opinions, guidance, and proposals of the Governing body, and implement them when they are mature. In practice, such a decision would always be voluntary on the side of implementors. A good example is the W3C. Nothing can compel a vendor to implement a particular feature if the will is not present. There are features that are not being implemented, or features that are were removed (for example, due to privacy concerns).

Actually enforcing decisions could be imaginable if the Governance structure's body is linked to some existing regulatory or enforcement vehicle, such as the data protection authorities, the competition authorities, or even the respective regulations. The potential of linking with regulatory levers is covered in the section below.

4.4.4 Compensation

In general, governing bodies do not offer compensation (with the exception of Facebook's Oversight Board). While it is accepted that not being compensated for one's work perhaps may be seen as an idealistic goal of guaranteeing independence[82], financing issues should be addressed either by a specifically designed Trust or the members of such a project.

The financing source should cover costs such as the operation of the governance structure, face-to-face meetings, and perhaps the work of the governing structure members.

4.4.5 Summary

An alternative process could include the establishment of a typical W3C Working Group. With a dedicated charter, option to join by members, and the linkage to the typical W3C work process. Concerning the ideas laid out in the previous points, a typical W3C Working Group structure would simplify the rules around the development of voluntary technical standards. But such a work process would not take into consideration advanced matters of privacy (though this interest sphere has a dedicated point of interest within the W3C) or even competition, a point expressly outside of W3C consideration[83]. It would also potentially be challenging to convince some parties such as the civil society groups or publishers (specific websites) to join W3C solely to participate in the fraction of works of such a Working Group, although their views should always be incorporated on the time of work and review of prepares deliverables.

[82] Even if at the same time typically being employed, so compensated, by stakeholder organisations, which is not always the case...

[83] Antitrust and Competition Guidance (n 58).

4.5 Regulatory levers

Law is a type of a regulatory system[84]. Vendors desiring to demonstrate extra sensitivity or to extend extra guarantees could benefit from regulatory vehicles that would allow linking the technical and business decisions with a form of oversight or limitations.

4.5.1 General Data Protection Regulation

In the European regulatory regime, the General Data Protection Regulation[85] offers a way of designating and accepting a *Code of Conduct* by which controllers may abide to demonstrate guarantees of respecting data protection laws. These frameworks are used in this chapter as potential world standards[86]. Theoretically, a code of conduct of this kind could be prepared to guarantee the privacy level of privacy-preserving ads systems, including the acceptance of the decisions made by the governance structure. Subsequently, any vendor decision that would violate the advice of the governance structure could be seen as a violation of the code of conduct in question, and an evidence of a worse stance when it comes to data protection guarantees. Article 40(9) of the GDPR[87] stipulates that a code of conduct may be accepted and adopted by the European Commission through the issuing of a formal implementing act (and thus be binding in the whole European Union), even though until now this article has never been used. In principle, adherence to the code of conduct is stipulated in GDPR's Article 24 ("responsibility of the controller"): "*to demonstrate compliance with the obligations of the controller*". While the GDPR is a legal framework developed in line of European values[88], it is conceivable that considering its emergence as a world standard[89], grounding a privacy-preserving technical system on a regulatory footing would give it additional credence.

4.5.2 Digital Services Act

Perhaps a superior voluntary regulatory lever is contained in the proposal for a Digital Services Act in the EU[90], specifically Article 36 ("*Codes of conduct for online advertising*"). This article is encouraging the creation of voluntary codes of conduct in the area of online advertising. The article also concerns

[84] Ugo Pagallo, Pompeu Casanovas, and Robert Madelin, 'The middle-out approach: assessing models of legal governance in data protection, artificial intelligence, and the Web of Data' (2019) 7(1) The Theory and Practice of Legislation 1 ⟨https://doi.org/10.1080/20508840.2019.1664543⟩.

[85] Regulation (n 43).

[86] Greenleaf (n 45).

[87] Regulation (n 43).

[88] Amelia Andersdotter and Lukasz Olejnik, 'Policy strategies for value-based technology standards' (2021) 10(3) Internet Policy Review 1.

[89] Greenleaf (n 45).

[90] European Commission, 'Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on a Single Market For Digital Services (Digital Services Act) and amending Directive 2000/31/EC COM/2020/825 final' (n 44).

data protection and competition aspects at the same time: "*competitive, transparent and fair environment in online advertising, in accordance with Union and national law, in particular on competition and the protection of personal data*". This made even more precise by the Recital 70: *"Codes of conducts should support and complement the transparency obligations relating to advertisement for online platforms and very large online platforms set out in this Regulation in order to provide for flexible and effective mechanisms to facilitate and enhance the compliance with those obligations, notably as concerns the modalities of the transmission of the relevant information. The involvement of a wide range of stakeholders should ensure that those codes of conduct are widely supported, technically sound, effective and offer the highest levels of user-friendliness to ensure that the transparency obligations achieve their objectives"*.

Such a code of conduct could then voluntarily stipulate that decisions of a structure governing the design of a privacy-preserving advertising system (i.e. Privacy Sandbox) are binding, should be translated into a practical operation (or implementation or deployment), and should respect user's privacy. Enforcement is a separate issue. While non-acceptance of decisions may undermine the legitimisation of the governing body, and generally result in a public relations crisis or even backlash from the solution, is it possible to voluntarily go beyond?

The Digital Services Act foresees fines for non-compliance: "*the Commission may impose on the very large online platform concerned fines not exceeding 6% of its total turnover in the preceding financial year*" in the case of infringement of "*relevant provisions of this Regulation*" (Article 59(1)(a)). While it is unclear if such fines relate to non-compliance with a voluntary code of conduct (i.e. Article 36), the regulation project is as of now not yet finalised. It is expected that this particular issue will be clarified in the future.

In summary, if a very large company would seriously intend to respect the privacy and competition guarantees of a Privacy Sandbox-like mechanism, self-regulatory opportunities such as the adoption and acceptance of a code of conduct are potentially an option. Such measures might be acceptable and reassuring to regulators, for example to the European Commission, to the market participants, and perhaps to the the users. It could also constitute an additional form of legitimisation of the work of the governance structure.

5 Conclusion

In this chapter, the landscape of standardisation of web technologies with a special focus on the various existing governing structures was investigated. The analysis included the common governance frameworks such as the legitimisation, the mode of work, or the practical aspects such as how decision-making is made.

Such an analysis allowed us to consider a possible governance structure of the future privacy-preserving advertising ecosystem, a flexible proposal that would foresee the acceptance of input from multiple stakeholders, offering advice, and issuing biding decisions about the operation, maintenance, and development of

privacy-preserving ads systems components. The practical realisation of such a technical system might be Google Chrome's proposal of Privacy Sandbox. The practical associated governance structure should be an independent entity, with works done in the public. The primary objective of such a structure should be user privacy on the web and technical soundness.

In this work, the intersections of privacy and competition is also considered. Historically, this area is often considered by legal scholars or data protection regulators. However, it must be noted that the technical understanding of the meaning of "competition" is not mature or well understood, unlike in the case of other horizontal aspects such as security and privacy. While when designing application programming interfaces (APIs) privacy aspects may well be considered, it is perhaps not so simple to include into the considerations a perhaps even more high-level issue such as "competition". At the same time, some design choices may clearly be regarded as anti-competitive - the implications are simply not immediately clear.

While the growing interest of market competition authorities in web technologies (and the actions of certain players) is perhaps a testament to the current times, the potential ability to connect technical and standardisation work done with regulatory frameworks may conceivably be seen as surprising. This is likely a consequence of the growing importance of technology policy. Notably, the proposal for a Digital Services Act offers flexible options of self-governing frameworks relating to data protection and competition.

References

AMP, AMP Governance Structures (2020) ⟨https://amp.dev/community/governance/⟩.

Amy Guy, Early design review for the FLoC API #601 (2021) ⟨https://github.com/w3ctag/design-reviews/issues/601%5C#issuecomment-783780556⟩.

Andersdotter A and Olejnik L, 'Policy strategies for value-based technology standards' (2021) 10(3) Internet Policy Review 1.

Australian Competition and Consumer Commission, Digital advertising services inquiry (2021) ⟨https://www.accc.gov.au/focus-areas/inquiries-ongoing/digital-advertising-services-inquiry/interim-report⟩.

BCarpenter, Charter of the Internet Architecture Board (2000) ⟨https://www.iab.org/about/charter/⟩.

Backes M and others, 'Obliviad: Provably secure and practical online behavioral advertising' (2012).

Baron J and Pohlmann T, 'Who Cooperates in Standards Consortia—Rivals or Complementors?' (2013) 9(4) Journal of Competition Law and Economics 905.

Baron J and others, 'Making the rules: the governance of standard development organizations and their policies on Intellectual Property Rights' (2019) 29655 JRC Science for Policy Report, EUR.

Bennet Cyphers, Don't Play in Google's Privacy Sandbox , (2019) ⟨https://www.eff.org/deeplinks/2019/08/dont-play-googles-privacy-sandbox-1⟩.

Brill J, 'The intersection of consumer protection and competition in the new world of privacy' (2011) 7(1) Competition Policy International 6.

Chhotray V and Stoker G, *Governance theory and practice: A cross-disciplinary approach* (Palgrave Macmillan November 2008).

D'Cunha C, 'Best of frenemies? Reflections on privacy and competition four years after the EDPS Preliminary Opinion' (2018) 8(3) International Data Privacy Law 253.

Dafoe A, 'AI governance: a research agenda' [2018] Governance of AI Program, Future of Humanity Institute, University of Oxford: Oxford, UK.

DeNardis L, 'The emerging field of Internet governance' [2010] Yale Information Society Project Working Paper Series.

'Directive (EU) 2016/2102 of the European Parliament and of the Council of 26 October 2016 on the accessibility of the websites and mobile applications of public sector bodies' (2016-10-26) L 327 OJ.

District Court, EDTexas, Anti-competition complaints against Google's plan to replace third-party cookies with Privacy Sandbox.

Elika Etemad, Floian Rivoal, W3C Process Document (2020) ⟨https://www.w3.org/2020/Process-20200915/⟩.

Estrada-Jiménez J and others, 'Online advertising: Analysis of privacy threats and protection approaches' (2017) 100 Computer Communications 32.

European Commission, 'Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on a Single Market For Digital Services (Digital Services Act) and amending Directive 2000/31/EC COM/2020/825 final' [2020] Available at: https://eur-lex.europa.eu/legal-content/en/TXT/?uri=COM:2020:825:FIN.

— Antitrust: Commission opens investigation into possible anticompetitive conduct by Google in the online advertising technology sector (2021) ⟨https://ec.europa.eu/commission/presscorner/detail/en/ip_21_3143⟩.

— Antitrust: Commission opens investigation into possible anticompetitive conduct by Google in the online advertising technology sector (2021) ⟨https://ec.europa.eu/commission/presscorner/detail/en/IP_21_3143⟩.

Facebook AB, Facebook's Oversight Board's Charter (2020) ⟨https://oversightboard.com/governance/⟩.

Greenleaf G, 'Global data privacy laws 2019: 132 national laws & many bills' [2019].

Guha S, Cheng B, and Francis P, 'Privad: Practical privacy in online advertising' (2011).

Hustinx P, 'Privacy and Competitiveness in the Age of Big Data: Preliminary Opinion of the European Data Protection Supervisor' [2014].

Ian Jacobs, Technical Architecture Group (TAG) Charter (2004) ⟨https://www.w3.org/2004/10/27-tag-charter.html⟩.

Jean-François Abramatic, Ann Bassetti, Tim Berners-Lee , Carl Cargill , Paul Cotton , Janet Daly, David Fallside , Renato Iannella , Alan Kotok , Ken Laskey , Ora Lassila, Håkon Wium Lie , Larry Masinter, David Singer, Steve

Zilles, Technical Architecture Group (TAG) Charter (2001) ⟨https://www.w3.org/2001/07/19-tag⟩.

John Wilander, Intelligent Tracking Prevention, (2017) ⟨https://webkit.org/blog/7675/intelligent-tracking-prevention/⟩.

JS Foundation, Technical Advisory Committee (TAC) Charter v1.0 (2016) ⟨https://github.com/JSFoundation/TAC/blob/master/TAC-Charter.md⟩.

Justin Schuh, Building a more private web (2019) ⟨https://www.blog.google/products/chrome/building-a-more-private-web⟩.

— Building a more private web: A path towards making third party cookies obsolete (2020) ⟨https://blog.chromium.org/2020/01/building-more-private-web-path-towards.html⟩.

Justin Schuh, Marshall Vale, Progress update on the Privacy Sandbox initiative (2021) ⟨https://developer.chrome.com/blog/privacy-sandbox-update-2021-jan/⟩.

Kanevskaia O, 'Governance within standards development organizations: WHO owns the game?' (2017).

'Killed by Google' ⟨https://killedbygoogle.com/⟩.

Krishnamurthy B and Wills C, 'Privacy diffusion on the web: a longitudinal perspective' (2009).

Laperdrix P and others, 'Browser fingerprinting: A survey' (2020) 14(2) ACM Transactions on the Web (TWEB) 1.

Lukasz Olejnik, Are we reaching privacy preserving digital advertising? Historical view (2020) ⟨https://blog.lukaszolejnik.com/are-we-reaching-privacy-preserving-digital-advertising-historical-view/⟩.

MKucherawy, RHinden, JLivingood, IAB, IESG, IETF Trust, and IETF LLC Selection, Confirmation, and Recall Process: Operation of the IETF Nominating and Recall Committees (2020) ⟨https://tools.ietf.org/html/bcp10⟩.

Malte Ubl, An open governance model for the AMP Project (2018) ⟨https://blog.amp.dev/2018/09/18/governance/⟩.

Mayer JR and Mitchell JC, 'Third-party web tracking: Policy and technology' (2012).

Michael Kleber, First Experiment (FLEDGE) (2021) ⟨https://github.com/WICG/turtledove/blob/main/FLEDGE.md⟩.

Mozilla Firefox, Enhanced Tracking Protection in Firefox for desktop (2019) ⟨https://support.mozilla.org/en-US/kb/enhanced-tracking-protection-firefox-desktop⟩.

Natasha Lomas, Digital marketing firms file UK competition complaint against Google's Privacy Sandbox (2020) ⟨https://techcrunch.com/2020/11/23/digital-marketing-firms-file-uk-competition-complaint-against-googles-privacy-sandbox/⟩.

Nissenbaum H, *Privacy in context* (Stanford University Press 2020).

Pagallo U, Casanovas P, and Madelin R, 'The middle-out approach: assessing models of legal governance in data protection, artificial intelligence, and the Web of Data' (2019) 7(1) The Theory and Practice of Legislation 1 ⟨https://doi.org/10.1080/20508840.2019.1664543⟩.

Pasquale F, 'Privacy, antitrust, and power' (2012) 20 Geo. Mason L. Rev. 1009.

Regulation GDP, 'Regulation EU 2016/679 of the European Parliament and of the Council of 27 April 2016' [2016] Official Journal of the European Union. Available at: hhttps://eur-lex.europa.eu/eli/reg/2016/679/oj.

'Regulation 1025/2012 of 25 October 2012 on European standardisation (2012), Official Journal of the European Union L 316/12' (2012-10-25) L 316/12 OJ.

Roesner F, Kohno T, and Wetherall D, 'Detecting and Defending Against {Third-Party} Tracking on the Web' (2012).

SBradner, The Internet Standards Process – Revision 3 (1996) ⟨https://tools.ietf.org/html/bcp9⟩.

Savage JE and McConnell BW, 'Exploring multi-stakeholder Internet governance' [2015] Brown University Bruce W. McConnell, EastWest Institute. https://www. eastwest. ngo/sites/default/files/Exploring% 20Multi-Stakeholder% 20Internet% 20Governance_0. pdf.

The OpenJS Foundation, The OpenJS Foundation Cross Project Council (2020) ⟨https://github.com/openjs-foundation/cross-project-council/⟩.

Thomson M, Privacy Preserving Attribution for Advertising (2022) ⟨https://blog.mozilla.org/en/mozilla/privacy-preserving-attribution-for-advertising/⟩.

Timmers P, 'There will be no global 6G unless we resolve sovereignty concerns in 5G governance' (2020) 3(1) Nature Electronics 10.

Toubiana V and others, 'Adnostic: Privacy preserving targeted advertising' (2010).

Tran M.-D, Acs G, and Castelluccia C, 'Retargeting without tracking' [2014] arXiv preprint arXiv:1404.4533.

TURTLEDOVE (2022) ⟨https://github.com/WICG/turtledove⟩.

UK Competition and Markets Authority, CMA to have key oversight role over Google's planned removal of third-party cookies (2021) ⟨https://www.gov.uk/government/news/cma-to-have-key-oversight-role-over-google-s-planned-removal-of-third-party-cookies⟩.

— Investigation into Google's 'Privacy Sandbox' browser changes (2021) ⟨https://www.gov.uk/cma-cases/investigation-into-googles-privacy-sandbox-browser-changes⟩.

— Notice of intention to accept commitments offered by Google in relation to its Privacy Sandbox Proposals. Case number 50972 (2021) ⟨https://assets.publishing.service.gov.uk/media/60c21e54d3bf7f4bcc0652cd/Notice_of_intention_to_accept_binding_commitments_offered_by_Google_publication.pdf⟩.

— CMA to keep 'close eye' on Google as it secures final Privacy Sandbox commitments (2022) ⟨https://www.gov.uk/government/news/cma-to-keep-close-eye-on-google-as-it-secures-final-privacy-sandbox-commitments⟩.

Vinay Goel, An updated timeline for Privacy Sandbox milestones (2021) ⟨https://blog.google/products/chrome/updated-timeline-privacy-sandbox-milestones/⟩.

W3C, How to organize an Advisory Board or TAG election ⟨https://www.w3.org/2002/10/election-howto⟩.

Wendy Seltzer, Antitrust and Competition Guidance (2017) ⟨https://www.w3.org/Consortium/Legal/2017/antitrust-guidance⟩.