A Decade of transformation discourse: Sociotechnical imaginaries of the Dutch web between 1994–2004

Nathalie Fridzema, Susan Aasman, Tom Slootweg, Rik Smit

Abstract: Web archives enjoy an increasing awareness and usefulness across a range of fields and disciplines, contributing to historical studies with archived web material, but also about the internet. Knowing how the web is imagined is essential for interpreting archived web material, especially during a highly transformative age in which technology advances at a rapid pace. This chapter investigates such a time of studying the Dutch web between 1994 and 2004, confirming that discourse surrounding the internet is appropriated differently. By means of a thematic analysis of a purposive sample of public media, the chapter presents 5 discursive themes that each reflect specific understandings of the Dutch web situated in a particular context, specified through social structure, scope, and time.

Keywords: public web, The Netherlands, sociotechnical imaginaries, internet history, thematic historical analysis.

Web archives enjoy an increasing awareness and usefulness across a range of fields and disciplines, contributing to historical studies *with* archived web material, but also *about* the internet (Brügger 2018, 140). Conducting research into these areas is not merely a discussion of material developments; how technology is understood and used is influenced by distinct discourses that shape social practices, norms, and values (Smit 2018, 47). Knowing how the web is imagined is essential for interpreting archived web material, especially during a highly transformative age in which technology advances at a rapid pace.

This chapter investigates such a time of technological, high transformability by studying the Dutch web between 1994 and 2004. This period marks the beginning of the public availability of the web until the rise of social media. It is furthermore characterized by the rise and fall of influential Dutch initiatives that adhered to ideals such as freedom, openness, and creativity. The various interpretations of these concepts are actualized in the usage of common metaphors that define the web as, for example, *global village*, *information highway*, or *commercial paradise*. Each of these phrases comes with specific meanings that are highly context-dependent; while the United States' cultural hegemony drove some interpretations of the web, others are best situated in Europe's or, more specifically, Amsterdam's particular creative culture in the 1990s. This case

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study affirms that technology, as well as discourses about technology, are appropriated simultaneously in specific circumstances in which meaning is actively constructed. By looking into these complex dynamics, the chapter demonstrates that various interpretations of the meaning of the Dutch web were evident between 1994 and 2004. This specific historical period is critical to study because the decade before web 2.0 was a dense period including the disruption of traditional media, the emergence of various sociotechnical orders, and the normalization of a web culture that influenced our contemporary media landscapes.

This research contributes to studies of the early public web and can be described in three ways. I) Theoretically, the chapter offers the framework of sociotechnical imaginaries as a lens to study the development and understanding of technologies in a socio-historical context. II) In terms of methodology, the chapter demonstrates how an explorative analysis of discourse can be used to study a historical object systematically. And III), the research contributes empirically to the historiography of the public web in the Netherlands, offering opportunities to compare such lesser-studied narratives to dominant notions in internet history.

Thus, the research answers the question of what the prominent sociotechnical imaginaries of the web in the Netherlands between 1994 and 2004 are. Additionally, the chapter briefly elaborates on how the analysis of such a transformative period allows us to better position and interpret archived web materials and why it is important to scrutinize context-specific imaginaries.

1. Theoretical framework

Technologies are never merely material but are actively made sense of in discourse and through practice. Their uses and meanings are imagined by specific actors who are embedded in specific social, cultural, and historical contexts, and who have different degrees of discursive efficacy. The meaning of technology is, therefore, a site of discursive struggles and power dynamics. The web is no exception to this, as scholars (Flichy 2007; Stevenson 2013; van den Boomen 2014) have argued. Certain actors helped stabilize particular meanings of the web through their discourses. That is, certain ideas about the web and its uses have become more dominant than others, shaping how the web has been developed and used. Discourses, therefore, can help establish and normalize particular "sociotechnical imaginaries", which Jasanoff and Kim (2015, 4) conceptualize as "collectively held, institutionally stabilized, and publicly performed visions of desirable futures animated by shared understandings […] through, and supportive of, advances in science and technology."

Sociotechnical imaginaries are performative, in the sense that they are not merely symbolic, but actively shape a given technology's development as well as the policies and politics around it. By deconstructing sociotechnical imaginaries in texts and connecting them to their historical contexts, one can gain insight into the relationships between meaning (how the technology is interpreted or given meaning), materiality (how meanings are inscribed in the technology), and morality (how life ought to be lived, enabled or not by a technology) (Jasanoff and Kim 2015, 4). Moreover, the framework provided by Jasanoff and Kim suits this study's question and objectives particularly well because it recognizes that multiple sociotechnical imaginaries can exist simultaneously (23).

Following this perspective, sociotechnical imaginaries are mostly concerned with how possible futures of technologies are imagined. As Simone Natale and Gabriel Balbi (2014) point out, a fruitful distinction can be made between imaginations about future media technologies before they emerge and imaginations about a novel technology that has emerged. This distinction between future and new media is a dynamic one as future media can exist long before new media in various discourses such as science fiction without being grounded in reality. Interestingly, notions of future media like cyberspace that align with the actual development of the technology are best understood as prophetic afterward, and not as accurate predictions (Ernst and Schröter 2021, 37).

Following Natale and Balbi's conceptualization of a medium's life cycle (2014, 204), the Dutch public web between 1994 and 2004 is a communication network in its earlier period of introduction. Therefore, it is most suitable to look for 'new media imaginaries', specifically focusing on realms of the imagination pertaining to the novelness of the web. During this period, the technology's affordances are still flexible. To study this interplay between human imagination and the web's development, the authors propose to use the frame of interpretative flexibility from the SCOT tradition (social construction of technology). A "new technology often used in its early phase for different purposes by different social groups, and every group fights to impose a specific meaning on the novelty [...]. In a certain sense, the new technology is to be regarded not so much as a single technology as a continuum as possibilities" (Natale and Balbi 2014, 208). Following this framework allows us to study sociotechnical imaginaries, which are more grounded in reality—as opposed to future media—and specifically study common understandings of the web in the form of norms, values, and common sense, as well as critically look into the various social groups of influence.

The notion of temporality in internet imaginary work has also been conceptualized by Patrice Flichy in his trajectory of media imaginaries (2007, 10). Flichy understands technological reality as an ongoing process

between two poles of the *imaginaire*; utopia and ideology. Emergent utopian perspectives produce experimental initiatives that question an existing order. For these initiatives to become dominant technological assemblages, they must gain legitimacy and be mobilized within a new ideological framework that obscures certain facets of the prior (Lesage and Rinfret 2015, 3). Similar to Natale and Balbi (2014), a distinction is made between imaginaries about future media imaginaries, or utopias, and new media imaginaries, framed afore as ideologies.

Taking into account the notion of temporality helps to better select historical sources to identify sociotechnical imaginaries. As opposed to future media imaginaries—predominantly situated in texts like science fiction or written by futurologists—this study focuses on public discourses; texts (in various media forms) where reality is constructed through interpretation, performance, and social practice. Thus, the research adheres to the Foucauldian concept of discourse in which ideology and rhetoric are merged (Hodges 2015, 54). A specific focus is on metaphors concerning the web because these rhetorical devices were commonly used to help concretize the abstract and novel technology, and to help communicate values and purposes (e.g. *digital city*, *electronic highway*, or *global village*). The impact of metaphors is used in much scholarly work (Markham 2003; Van Dijk 2015) and is theorized by Lakoff and Johnson (2008). The latter authors argue that metaphors are central to defining our daily lives and have a structuring power that creates shared experiences.

2. Methodology

This research applies a Thematic Analysis (TA) to gain an understanding of which sociotechnical imaginaries about the web were present in the Netherlands, as well as how these various understandings developed over the period of interest. TA is suitable because it "allows the researcher to see and make sense of collective or shared meanings and experiences [...]. This method, then, is a way of identifying what is common to the way a topic is talked or written about and of making sense of those commonalities" (Braun and Clarke 2012, 57). Since sociotechnical imaginaries are, in the core, collective and idiosyncratic, TA is adequate to unravel hegemonic and counter-hegemonic notions, contributing to alternative readings of an idealized past and thus demystifying grand notions (Achugar 2017).

The research was structured as an exploratory sequential design. The first stage serves to acquire contextual knowledge through content analysis of various sources, as well as the identification of key points of interest and keywords. This is followed by a qualitative study aimed to explain the previously identified phenomena. In general, the design adhered to an abductive approach, allowing the implementation of existing theories as a

foundation while remaining open to modification based on emerging findings. This iterative interplay between data collection, analysis, and prior literature allows for a nuanced understanding of the object of study (Kennedy and Thornburg 2018). This approach is suitable for this type of historical research because it aims to situate dominant, historical narratives of the web in other, not poorly established contexts and thus build upon them. The table below explicates the procedures and analytical steps taken during the research. Besides offering a transparent step-by-step account of this research project, it also offers a methodological guide for similar research.

Table 1. Procedures and steps taken in the research process.

Procedures	Steps
Exploratory research (establish broader context)	○ Exploration of the topic in public discourse and existing literature. ○ Content analysis of samples of newspapers and TV shows. ○ Identification of case studies and key phenomena.
Gathering and selecting data	○ Gathering and organizing relevant discourse (TV shows, policy documents, popular books, texts from professional communities, radio shows, topical magazines, political party magazines). ○ Selecting a purposive sample based on previously identified important themes, context, metaphors, cases, and keywords that serve the research angles and objectives.
Describing and coding data	Textual analysis of sources. ○ Coding for subjects and themes; layout and structural organization; actors and institutions; ideological standpoints. ○ Coding for metaphors, keywords, and symbolic rhetoric. Contextual analysis of sources. ○ Reflecting on intertextuality in terms of conceptualizations and taking note of which texts are mentioned. ○ Noting down socio-political, and economic phenomena; keep a timeline of the research period. Identification and organizing of discursive statements (quotes).
Interpretation of data and mapping of sociotechnical imaginaries	Abductive categorization of sociotechnical imaginaries. ○ Categorizing sociotechnical imaginaries based on common understanding and mapping into broader discursive themes. ○ Supplementing sociotechnical imaginaries with quotes analysis. ○ Interpretation of dominant metaphors, thematic keywords, and particular rhetoric per sociotechnical imaginary.

The definitive sample used for TA comprises 46 Dutch media texts ranging across types of media and years of publication between 1994 and 2004 (Fridzema 2024). This period marks the beginning of the public availability of the web until the rise of social media and Web 2.0. The sample is purposively created; texts were selected throughout the research

process to be i) diverse in media types (from audiovisual news items to specialized magazines or policy papers), ii) spread across the period of interest, and iii) rich in potential to identify both dominant and alternative sociotechnical imaginaries. A critical note is that in these sources some of the more activist historical actors gained media preference, and increasingly assumed the role of spokespersons. This media preference may introduce certain biases in the types of imaginaries detected.

3. Findings

A total of five discursive, sociotechnical themes emerged from the analyzed discourses: civic; societal; economic; cultural; and ontological. Each theme includes at least three and up to six singular imaginaries that convey a specific vision of the Dutch web. Furthermore, each imaginary also includes predominant keywords, metaphors, and other symbolic rhetoric which convey the premise of the vision.

3.1 Civic

The civic sociotechnical theme includes five imaginaries that primarily convey a notion of the web being a democratic tool or place that could be beneficial for civil procedures in society or strengthen processes typically associated with the public sphere. Four imaginaries stem from discourses between 1994 and 1998, and emerged within the context of several local initiatives such as *Knoware*, *Internet Access Foundation* (IAF), *De Digitale Stad* (DDS) and *XS4ALL*[1]. The last two initiatives specifically sprouted from a highly educated, critical social class based in Amsterdam during the 1990s. The Dutch capital was a rich breeding ground for artists, squatters, and hackers to create an alternative culture (Olsthoorn 2015, 233; Apprich 2017). The Dutch hacker scene was part of an international network and quite active; there were multiple magazines in circulation and various hacker festivals were organized in the 1990s[2].

Despite these various contexts, it is important to emphasize that both initiatives operated locally during the mid-1990s due to practical boundaries such as hardware capabilities and pricing. This locality was the case for DDS in particular, which was, at its core, a virtual version of the city of Amsterdam and was thus mostly geared towards its inhabitants. In their early days, both DDS and XS4ALL aimed to provide services on a national level, but the following four imaginaries were part of a specific circle of

[1] Internet providers such as Knoware, Internet Access Foundation, and especially XS4ALL (Olsthoorn 2015) are examples of early initiatives that offered relatively cheap access to the web for everyone in the Netherlands outside the academic realm. De Digitale Stad (The Digital City) was the first online community in the Netherlands (Rommes, Van Oost, and Oudshourn 2003).

[2] Two hacker festivals were organized in the Netherlands during 1993: *Hacking at the end of the universe* (Seclist 1993) and *Next5minutes* (V2 n.d.).

enthusiasts that were predominantly bound to Amsterdam and part of its cultural scene. In other words, while both case studies are significant for Dutch web history, they represent a metropolitan view and do not take into consideration similar, peripheral activities and initiatives at the time[3].

Firstly, the web was imagined as connecting multiple, non-profit public spheres that would enable communication as well as provide public information. Various metaphorical constructions were used to underline this, such as *electronic highway, public domain,* and *global village* (all metaphors are translated from Dutch).

The second imaginary envisioned the web as a digital city which influences its meaning, usage, and design. Grounded in metaphors such as *digital city* and *digital infrastructure*, this imaginary reflected the essence of the DDS and seeped through on multiple levels such as interface design, jargon, social practices, usages, functions, etc. Interestingly, a significant amount of discourse reflected a critical awareness about the (over)usage of the 'city' metaphors:

> If that is your only metaphor, suddenly everything becomes like on-ramps and off-ramps and roadside restaurants, and in my eyes, that is not really necessary – Rop Gonggrijp, founder xs4all (Nieuwe economisch peil 1999).

Furthermore, the web was considered to be in its infancy, in an exploratory and experimental phase, which illustrates the novelty of the technology at the time. Metaphors like *testing ground* were often used in combination with other terms such as *innovative, testing, endless possibilities,* and *low threshold*. It is within this imaginary that utopian discourses develop in the form of future-oriented ideas about how the web will change reality significantly.

The fourth civic imaginary understands the web from a bottom-up perspective, highlighting its values as a decentralized, democratic space for ordinary users. This imaginary prevailed in hacktivist circles, particularly among those who founded XS4ALL. Within this framework, a counter-hegemonic narrative prevails; hackers should make the web available to a wider public (non-dominant groups in society), rather than serving a select group of privileged users (researchers and professionals). In other words, the web's accessibility was perceived as a universal right and the metaphors used reflected democratic ideals, conveying themes through discursive terms like *platform* and *network.*

The fifth and final civic imaginary emerged after 2000, coinciding with the gradual domestication of the web in society and its discussion in different contexts. As in the first imaginary, the web was approached as a

[3] The Digital City had other, popular versions in different cities, such as Groningen, which were developed locally (Digitale Stad Groningen 1998).

new public sphere, but here an emphasis was put on facilitating unbridled freedom of expression, even extreme and controversial opinions. This phenomenon was met with increasing annoyance by traditional media, as expressed in the quote below. Furthermore, it reflects the Netherlands' increasingly polarized political climate around the early 2000s[4]. Metaphors like *medium* prevail, emphasizing people's ability to express themselves in ways previously unattainable and connect with like-minded individuals online.

> Those group weblogs cause commotion, among other things, because you often see people hiding behind a pseudonym and the group itself. Just as in ordinary life, groups are often responsible for the most disturbance – Fransisco van Jole, journalist (NETWERK 2004).

3.2 Societal

After the web was more widely implemented in the Netherlands due to initiatives such as DSS and XS4ALL, but also other early providers such as the Internet Access Foundation (IAF) and Knoware (Olsthoorn 2015), other societal imaginaries emerged. These collective understandings situate the web as an impactful technology on a national level and thus touch upon themes such as social structures, daily life, and governance as a result of its domestication. In total, five societal imaginaries are identified from various public discourses across the decade of interest. Because these operate on a national scope—in contrast to the more concentrated civic imaginaries—the understandings are broad and, depending on the context, certain subtopics are more relevant than others. Therefore, it is worthwhile to provide a brief note on the Netherlands' socio-political development between 1994 and 2004. This period is characterized by trends related to neo-liberalism such as deregulation and privatization, an era of economic growth followed by a decline, the rise of populism, and the advancement of globalization (Mellink and Oudenampsen 2022).

The first societal imaginary positions the web in the context of the digital revolution and envisions the technology as essential for daily life. Recurring metaphors like *information society* and *digital infrastructure* reflect the sentiment of a pending large-scale societal transformation and its widespread use will enable such phenomena as *teleworking* and *teleshopping*. This sentiment began to emerge in the mid-1990s:

> For the first time, the contours of the information society become visible. [...] So far, computer networks are often associated with science or banking matters. But slowly, such technology is entering the living room – Fransisco van Jole, journalist (van Jole 1994, 185).

[4] At the end of the 1990s and beginning of the 2000s, the Netherlands saw an upsurge in populism and extreme right-ideologies. This notion became stronger after multiple (cyber)attacks and the 9/11 attacks.

The second imaginary reflects the notion that the web *will* drastically alter perceptions of reality either in a utopian or dystopian way. The first and second imaginary thus share a revolutionary rhetoric, but the latter one adopts solely future-oriented discourse. Utopian discourses mostly reflect watershed and phantasmagoric notions, a notable example of which is the idea of continuous synergy between the self and the technology.

> I believe in a future where biology and technology will merge, and the best of both worlds will prevail. I envision a future where we increasingly use technology to integrate with biology. [...] Ultimately, these two will just come together, giving rise to a new kind of humans who embody the best of both worlds – Paul Ostendorf, futurologist (Nieuwe economisch peil 2003).

Notable dystopian imaginaries are evident in public discourse as well. For example, the belief that a sense of community will get lost as no one would have to leave their house anymore whilst using the web, or the fear of addiction.

> The room in the future should never look like this. We need to continue doing normal errands, just keep loving each other. We should marry each other in city halls. Internet relationships scare me. For the first in days, tears well up in my eyes – Rogi Wieg, writer (Wieg 1996, 75).

Thirdly, the web is commonly understood as a technology that creates a social dichotomy between groups who already use computers and those who do not due to financial constraints and/or digital illiteracy. This narrative is apparent throughout the research period and includes a range of discourses pointing at the hegemonic position of particular social groups in the context of the web (*information-have-nots, wizzkids, the modemless, cybercitizens, digital newbies*). The fear of alienation due to the digital revolution or notions of a fragmented society were an ongoing concern since the early 1990s and thus were topics of discussion at the DDS and XS4ALL. Furthermore, within this imaginary, the founding of the *Digital Citizens Movement*[5] in 1994 and the subsequent government campaign *Internet for the Everyday*[6] are indicative of the societal apprehension at that time. Moving beyond the notion of estrangement, discourses post-2000s reflect a separation through fear and power; those who are comfortable with buying products online or knowledgeable about hacking computers, and those who are not.

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[5] *Digitale Burgerbeweging* (digital citizen movement) was an organization founded in 1994 that wanted to put various rights of citiinternetke freedom of speech, in the Internet's development and legislation (Digitale Burger Beweging Nederland, 1996).

[6] *Internet voor alledag* (internet for every day) was a Dutch campaign with the then crown prince Willem Alexander as prominent actor to promote the implementation of the internet in people's daily routines. Iinternetom May 2001 until June 2003 (Internet voor alledag 2001).

The fourth societal imaginary involves the belief that its wider implementation will eventually reveal potential problems or (material) limits. Metaphorically, the web is commonly depicted as something concrete and tangible like *technical infrastructure*. Within this imaginary, many themes emerge throughout the decade that are dependent on context-specific influences. The most relevant are privacy and user rights; material limits of hardware/software; provocative online practices (unwanted intimacies, hacking, alternative subcultures, foul language, spam); (child) pornography; copyright; addiction; accessibility and literacy.

Finally, as a logical continuation of the previous imaginary, several discourses underline notions of control, governance, and legislation. A prevalent theme is the matter of responsibility: are users or platforms responsible for illegal music downloading; are parents responsible for children chatting online; are providers responsible for their client's behavior? Furthermore, the topics of censorship, encryption technology, and the privacy of citizens, were already prominent in the 1990s and re-emerged after 9/11 and the subsequent fear of terrorism. Pertaining to the latter, the question of how much the state should be able to monitor citizens' online behavior dominated discussion within this sociotechnical imaginary.

3.3 Economic

In the Netherlands, the period from 1994 to 2004 is mainly characterized by prosperity and increasing wealth (Mellink, Oudenampsen, and Woltring 2022). For the first time since the Second World War, economic growth numbers reached a record high and the unemployment rate was decreasing (Crone 2000). Simultaneously, the primacy of the welfare state was abandoned in favor of neoliberalism. In 1994, the Dutch government started *operation MDW* (market forces, deregulation, legislative quality) placing principles of a free market, privatization, and individualism at the core of government policy and practices (InfoMil 2023). The development of the web and digital society was a pivotal goal within this changing paradigm, influencing economic policies and vice versa. Central to this was the rise of the so-called 'new economy' (Gordon 2000). While ideological and public imaginaries of the web were evident in the 1990s, as discussed earlier, economic terms and notions were present from the beginning, yet gained prominence predominantly due to drastic governmental policy changes. As a result, the economic sociotechnical theme includes a rich set of discourses resulting in six imaginaries spanning the period of interest. The growing commercial hold on the web was widely discussed, most notably in talk shows, news broadcasts, current affairs programs, and documentaries.

The first imaginary highlighted the web's evolution as an important opportunity to gain a competitive edge in Europe and beyond; its national development is viewed concurrently as a measurement of success. Metaphors such as *information superhighway* reflect its impact on a large scale while symbolic rhetoric like *head start, falling behind,* and *competitive position* indicates a belief in partaking in a race. The Netherlands aspired to be among the first digital nations.

Secondly, within the economic context, the web symbolized another economic reality with new commercial opportunities for the private sector. A pivotal paradigm shift can be identified within this imaginary theme: the internet and the web are equated with 'the new economy', i.e. a new way of doing business digitally. Especially after 1995, a so-called 'new open market' emerged, prompting the search for new lucrative business models. This particular vision is prevalent in public discourses stemming from economic actors; this is how the market will work going forward. Symbolic rhetoric surrounding the web is marked by financial and hopeful language (i.e. *innovative, investing, infinite growth potential, success formula*) with references portraying the web as a *commercial paradise*.

Furthermore, many of these statements foreshadowed the rise of a new hegemonic force in the Netherlands: the new economic sector including internet businesses and related commercial actors. A stark difference is noticeable between these initiatives and those discussed in the civic imaginary theme. While the civic initiatives focused on the web's democratic capabilities, the new economy start-ups directed their attractions towards its commercial potential. Shared ideals like openness prevailed, but were reinterpreted within the context of efficiency and profitability.

The third economic imaginary involves the connection between the web and a distinctive entrepreneurial culture that evolved from 1995 onwards, giving rise to prominent figures like gurus and experts. Symbolic rhetoric like *internet gurus, experts, pioneers* is used, alongside more satirical stereotypes such as *boundless optimists, digital evangelists,* or *NASDAQ yuppies.* The discursive effects of forming this social group are noteworthy; the entrepreneurial spirit manifests itself in the forms of events like the famous First Tuesday drinks, and well-known gurus are consistently invited to share their perspectives on TV shows[7].

The fourth imaginary emerged from a starkly different context than previously discussed, namely after the internet market crashed. Cynicism and uncertainty had always surrounded the new economy, but after 2001 public discourses began viewing the new digital market as an illusion. The metaphorical portrayal of *the internet world* often created a divide between

[7] First Tuesday drinks were monthly network gatherings for entrepreneurs in the internet industry.

common-sense reality and 'that' group of people and businesses who blindly followed the *hype*. While the dotcom crash is often regarded as an American phenomenon, the Netherlands had its fair share of internet start-ups like Zon, Newconomy, and World Online—the latter of which went public, but ultimately crashed alongside the NASDAQ. As a result, many individuals lost their investments, a popular topic of discussion in Dutch media, further fueling the critical attitude of this imaginary towards the web's new economy.

Due in part to the failure of World Online, a fifth imaginary quickly emerged. The *web industry*—another metaphor to distinguish this societal group—was the subject of suspicion, specifically with regards to the workers' skill sets, the ethics of *doing internet business* on the stock market, and the industry's attitudes towards employees and consumers. This understanding extended from the third imaginary and further sustained this hegemonic group in society.

> I believe that [the internet world] consists nowadays of, unfortunately, 90% of people who are there solely to make quick money – Michael Frackers, founder of Planet internet (PER SALDO 2001).

Lastly, the sixth imaginary positions the web's economic structure as an *illusion* that was deliberately circulated for propagandistic purposes; the new economy was purposely created by a select group of people to generate profits. Following this understanding, start-ups like World Online created extensive marketing campaigns to spread disinformation, fostering false hope. This imaginary is arguably a logical continuation of discontent felt in society after the crash, compounded by the Netherlands being in a period of economic recession in 2002. Metaphors like *Walhalla* were used alongside such terms as *small talk, gambling,* and *throwing mud.*

3.4 Cultural

Through the gradual domestication of the web, various web cultures emerged between 1994 and 2004, encompassing many practices, jargon, and norms from an ever-growing group of users at the time. Similar to the societal imaginaries, the cultural theme is broad in terms of topics and scope. Depending on the specific discourses and social group in focus, cultural imaginaries may differ. Nevertheless, three distinctly recognizable categories are identified.

The first imaginary encompasses the very notion of 'web culture' and its perceived influence on daily life, habits, and practices, set against the backdrop of the material infrastructure at the time. Common metaphors included *cyberspace* and *virtual community*. Exemplary cultural jargon that emerged during the decade included *chatting, web surfing, scrolling,*

cyberspace traveler, in real time, and various electronic texts like *e-zines* or *e-mails*. As some aspects of early 1990s web culture normalized in the 2000s, other unique features also solidified. Examining a case like DDS reveals a rich history of Amsterdam's cultural scene going online for the first time. DDS was modeled as a digital city and thus virtual meeting spaces could resemble cafés, the metro, or post offices. Here, users could engage in practices like *irc'ing* or *mudding*[8] in so-called *metro meetings*. Furthermore, *newsgroups* emerged during this time, known to foster *flame wars*[9]. Topics such as *cyber romance, flirting*, and *sex* sparked significant interest in various public discourses, including popular books or TV/radio shows—a curiosity that endured well into the 2000s when chat services like MSN gained popularity.

Secondly, between 1994 and 1996, the web was envisioned as an additional layer of reality, called cyberspace, inhabited by various subcultures. Although the web was not yet fully enmeshed in everyday life, it was already perceived as a new, distinct space: an *artificial city, virtual city, electronic island,* or a *digital world*. Most statements from the mid-1990s initially assessed the web positively as a space for subcultures. Nevertheless, the notion of virtual communities and the spaces they inhabited gradually became associated with the emergence of extreme and contrarian opinions and attitudes (as discussed in the fifth civic imaginary). Generally, this imaginary includes a mix of legitimizing and mobilizing discursive statements, future-oriented utopian frameworks, and hegemony orientations related to community formation online.

Similar to the previous one, the third and final cultural imaginary emerged in discourses before 2000. Here, the notion of disembodiment is foregrounded and connected to creating different identities and/or *avatars*, separate from reality. The symbolic rhetoric deployed was predominantly spiritual or religious in tone, giving an esoteric dimension to the conception of the self in relation to technology. For example, some historical actors described the practice of becoming a *ghost* or *soul* online, falling in love through the mind, and leaving one's *shell* behind.

> The electronic possibilities have allowed me to create a really good avatar and make it do a variety of things. I do not see it as pretending to be someone else; I see it more as separating a part of yourself that you can then thoroughly explore – Yvonne la Grand, artist (De andere wereld van de zondagmiddag 2004).

3.5 Ontological

[8] IRC is the abbreviation for Internet Relay Chat. MUD is the abbreviation for Multi User Dungeon, referring to a type of online roleplay game (van de Boomen 1996).

[9] Textual disagreements with swear words and inappropriate language usage via e-mail or in newsgroups (van de Boomen 1996).

The final sociotechnical imaginary theme is ontological and encompasses all understandings that convey something about how the web's intrinsic existence, properties, and social reality are viewed. While most imaginaries have an ontological dimension, the understandings in this theme articulate how the technology of the web is perceived *a priori* and how this, in turn, shapes society's understanding of itself. Two ontological imaginaries are identified.

Firstly, the web's character is principally understood to be liberal and aligned with ideals of decentralization, freedom, openness, and individualism. Exemplary rhetoric includes *many-to-many attitude, unique features,* and *open nature.* The statements reflect a strong, ingrained understanding of the web characterized by notions of the technology being inherently associated with a set of conditions and rules, whether one agrees with them or not. Notably, some statements advocate the belief that nobody can own the web and that it does not possess a commercial character. As discussed previously, the rise of the new economy caused some bitterness.

The second ontological imaginary posits that the web is understood as a network influencing governing structures, technological infrastructures, and how individual actors (should) understand themselves and their relationships. This imaginary represents an interesting dichotomy, namely, the development of an increasingly networked society alongside the rise of individualism. The latter aspect can be contextualized within the neo-liberal surge in Dutch society that also informed the entrepreneurial spirit of the new economy in the late 1990s. A common metaphor used to convey this reality besides *network* or *infrastructure,* is *system*. Common rhetoric either emphasizes the interconnectedness of society through the web (e.g. *connections, circulate, organizational forms, links,* and *chain reactions*) or focuses on the individual (*tailormade, identity, your own culture*). Despite being present in certain discourse in the 1990s, the concept of the *network society* grew particularly popular in the 2000s and is often situated in discussions about the commercial aspects of the web. Furthermore, a prominent theme is the fear or danger of being too dependent on technological networks. Especially after 9/11, technological networks are imagined as vulnerable since one failure or hacker can trigger a chain reaction of problems.

> We have seen chain reactions where the power goes out for a whole day simply because a number of power plants fail. I think it is warranted to have a critical look at how things will work out if companies become increasingly dependent on each other through the internet – Roel Pieper, entrepreneur (Zembla 2004).

4. Discussion and conclusion

The study has identified a total of 21 sociotechnical imaginaries

categorized amongst 5 discursive themes. Each imaginary reflects a specific understanding of the Dutch web situated in a particular context, specified through social structure, scope, and time. The chapter demonstrates how the understandings were conveyed through the usage of various common metaphors and/or rhetoric. Despite the variety of interpretations and meanings, a few trends can be identified across the sample. Following Flichy's framework, most discourse is ideological as opposed to utopian, typically part of future media imaginaries. Once the web became publicly available, more widely used, and domesticated, its technological usage became normative and part of the status quo. In general, the research reveals an evolution in sociotechnical imaginaries transitioning from early grassroots democratic ideals to hopeful entrepreneurial visions, culminating in more critical perspectives post-2000. The latter turn can be positioned in various historical phenomena. Internationally, the influence of the 9/11 terror attacks or the frenzy due to the millennium bug problem were significant for creating notions of risks when it comes to the internet and web. Nationally, the Netherlands sees the rise of extreme populism and anti-globalization ideals, as well as the increasing implementation of the web as an infrastructure in all aspects of daily life creating a sense of dependence. Economically, the dot.com crash did a lot of detriment to the commercial optimistic mindset. Additionally, the act of buying goods online took some years to become normalized in the Netherlands, further influencing economic beliefs. A second trend is that the hegemonic notion is reflected in a significant amount of the sources and aptly illuminates the creation of dominant social groups. Most notable is the emergence of an entrepreneurial group that was at the forefront of many commercial initiatives after the mid-1990s and proved influential in creating the economic imaginaries of the web, replacing the more public (civic) imaginaries.

Likewise, hegemonic discourse brought forth a social dichotomy that developed between those who are able or willing to adapt to the new technology and those who are not. The afore-mentioned hegemonic power relations remained influential during the rise of web 2.0 and thus this research historicizes from where they originated. Finally, the research observed that imaginaries generally grew more critical, bitter, and/or hesitant after 2000 as discourse shifted towards the risks, vulnerabilities, and adverse effects of the web. This observation helps us to better understand the particular time and Dutch context of the turn of the century from a historical perspective. Futurism and optimism were significant themes towards the end of the 1990s but, as this study affirms, it is apparent that what the web *is* and how it was understood varies significantly before and after 2000.

Utilizing the framework of sociotechnical imaginaries to study the history of the web has proven vital for contextualizing meanings related to

Dutch web culture and practices in various ways. First, the research demonstrates the importance of looking beyond dominant notions and showcases that many imaginaries exist simultaneously. Also, these understandings are predicated on such dimensions as context, social group, or locality. Scrutinizing such scopes helps to better position ideologies while also enforcing the idea that preeminent notions do not have to be all-encompassing in terms of national beliefs. Furthermore, imaginaries do not exist independently but rather influence or inform each other. This is evident in the observation that metaphors or specific rhetoric are used across discourses but vary in meaning. For example, the ideal of 'openness' is used in the civic theme to frame the web along the lines of democratic ideals while the economic imaginary positions openness in terms of free markets and commercial benefit.

Ontologically, openness is perceived as an intrinsic characteristic of the web and refers to its technological structure. The difference in appropriation is also evident in the usage of metaphors. The term *information highway* has been used across the decade but positions the web in various ways; either as a communication opportunity between citizens, a network to connect countries on a global level, or a framework to enhance trade employing e-shopping or e-working. Thus, being aware of the various sociotechnical imaginaries, especially concerning the specific language used, is crucial for detecting alternative ideologies and contextualizing sources in historical research such as web-archived material. To elaborate on the latter, knowing which dominant or alternative imaginaries are of influence considering certain websites can help to better understand their content and meaning. Solely looking at the archived material without considering collective understandings of what actors thought the web's main function was, will disregard an important layer during the public web's early fluctuating years.

The case study of the public web in the Netherlands also demonstrates that popular techno-solutionist notions, mostly based on Big Tech institutional narratives of Silicon Valley (Morozov 2013, 13), should not be interpreted as global or solely significant. While American narratives have dominated internet history, the public is generally described as passive in such studies. Even in books that take a critical, non-technological deterministic perspective, like *From Counterculture to Cyberculture* by Turner (2006) or Morozov's *To Save Everything Click Here* (2013), one can still detect the inclination for top-down imaginaries from hegemonic groups. The chapter has shown that bottom-up imaginaries are also prevalent in society and can have significant discursive effects related to the web's development. The understanding of the web as causing a social dichotomy both in terms of skills, but also in culture, is a good example of this. Solely focusing on dominant understandings, or elite imaginaries, will result in

overlooking other important discourses and interpretations that are critical for understanding the web's everyday culture.

This does not imply disregarding top-down understandings or American narratives altogether; even in the specific context of the Netherlands, they prove to be influential and should be taken into account from a historical perspective. To elaborate, it is evident from the studied sources that America's techno-cultural hegemony was present, as concepts, actors, or ideas often appear in Dutch academic and popular discourse. For example, the usage of *information highway* is often in reference to Clinton and Gore's appropriation of the metaphor. Besides, influential popular-science texts like Rheingold's *Virtual Community* (1993) and Castells' *The Internet Galaxy* (2001) are referenced multiple times.

While all these examples clearly influence the web's development in the Netherlands, the Dutch initiatives are not mere copies of American counterparts. For example, the Dutch case of DDS is comparable to the famous pre-web forerunner The Well[10], however, it does not fit the description of a counterculture in the same fashion as Turner argued (2006). DDS, as well as XS4ALL, aimed to replicate the actual public communities in Dutch society virtually by working together with the government. In contrast, American initiatives such as The Well created anarchist communities to construct a sense of camaraderie that was missing in American post-war society and thus truly represented a counterculture (Turner 2006). This dichotomy is also identified by Apprich (2017), who positions the emergence of a specific European network critique in a larger commercial cyberculture. The complex intertwinement of both objectives is, according to Apprich, aptly represented in the dominant usage of the city metaphor. "This was less a matter of simulating the city, but rather a metaphorical transcription of the dynamics and diversity of urban processes" (2017, 80). DDS facilitated both civic or public functions in its center while also facilitating not-registered, niche cultures in its periphery. This demonstrates that while American narratives are influential and should not be ignored, dominant imaginaries should be contextualized and critically compared to specific contexts and scopes.

Future studies in Web History should aim to push beyond conventional histories such as the web as a utopian ideology based on Silicon Valley's idealized past. While the identified sociotechnical imaginaries provide a sufficient look into collective imaginations of the web, they are by no means generalizable for everyone in society as they are based on popular, public discourse. Future research will thus explore how the public web was understood and experienced by everyday users who are not part of a

[10] The Well is the abbreviation for The Whole Earth 'Lectronic Link which was one of the first online communities on the web, founded in 1985 (Turner 2005).

significant hegemonic group in society. To truly capture such lived experiences, methods like oral history interviews or the analysis of bottom-up sources like archived web materials need to be adapted. This is in line with calls from scholars like Janet Abbate who argue that internet histories should not solely be defined along material definitions. Other perspectives like usage experience or locality are important as well, whilst it is crucial to point out how such definitions bring their own socio-politics to the historiography of the internet (Abbate 2017). This means that we need to expand on our number and types of sources. Because our analysis of public media like popular TV shows and magazines were used besides sources from key actors or initiatives, the sample is predominantly based on established media with a limited number of historical actors. Further research aims to explore other bottom-up narratives using, for example, oral history interviews, but also discursive practices of early web users.

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