A living platform:

The public library beyond four walls

A qualitative exploration of
platformization processes within the
Norwegian library sector

Kayla M. Holderbein

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Abstract

Digital platforms such as Facebook, Google, Amazon and Microsoft increasingly shape our everyday experience of the public sphere. Recent scholarship on *platformization* highlights the tension between public values and corporate interests, positioning platform power as a threat to democracy. This thesis questions the implicit tension between public and private interests, and considers platformization processes taking place within the public sphere. Taking the Norwegian library system as an object of study, this thesis seeks to understand how public institutions are reconfigured and remediated by networked platform ecosystems. The research theorizes the library as a platform and seeks to identify processes of platformization occurring within this institution. In doing so, it aims to explore how cultural practices such as governance and ownership are shaped by processes of platformization within the public sector. This exploration is guided by the research questions: *1) In what ways do platformization processes materialize within the Norwegian library sector?* and *2) How does platformization shape cultural practices of governance and ownership within the library ecosystem?* To address these questions, methodological triangulation of the following methods has been selected: 1) expert interviews with library staff; 2) discourse analysis of policy documents; and 3) participant observation of digital library activities. The thesis moves toward an understanding of platformization that may cultivate democracy and afford public institutions greater relevance in a digital world.

Foreword

When I enrolled in the Screen Cultures MA program, I could not have anticipated the extent to which screens would shape my time as a student. The pandemic created challenges and opportunities, as both a student and a researcher. It was the ultimate experiment, in which my everyday was suddenly so overrun with *screen cultures* that I couldn't tell if I was the researcher or the subject (I believe now that I was both). Questions I wanted to ask had to be asked again in new ways; screens became not only a subject of study, but also the means by which I conducted my research.

The library has always held a special place in my heart, and the past year has illuminated the true necessity of community libraries as a space of refuge for those who need it most. At the IMK reading room, my desk's former owner left behind a hidden treasure: a tote-bag from the New York Public Library stowed neatly in the cabinet, waiting to be found. For an American far from home, writing an MA about public libraries, it was a subtle nudge of encouragement from somewhere-out-there. I cannot express the significance of everything and anything that whispered, *"keep going."*

And there are those whom I owe my deepest gratitude. To my supervisor Taina Bucher, for always knowing what I wanted to say when I couldn't find the words; and for asking the questions that led me where I was trying to go. To Martin Bråthen at Biblioteksentralen, whose conversations first inspired me to explore the library as a platform. And to the library staff across the country, who so openly shared their thoughts with me during research interviews. To my fiancé Niels who cares for me in ways I don't always know how to ask for, and who has remained patient and loving despite sharing a 35-square meter home/office for far too long. To Plato the pup, who always knows when I need a break and takes me on walks. To my friends and family who, from thousands of miles away (through little screens) have encouraged me, loved me, and supported me in ways I cannot begin to describe here. And to God, my rock and my refuge, who has brought strength in every trial and joy in every triumph.

Kayla M. Holderbein
Oslo, June 2021

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1 Introduction

What will the future of education look like when everything is digital? In October 2019, I sat in a scenario planning workshop[1] at the University of Oslo with researchers, government officials, and teachers. Together, we approached the question of what seemed to be a far-off future. *If education became digital, where would everyone go?* As the group discussed this question, one distinct possibility emerged: *the library*. Just a few months later, the COVID-19 pandemic swiftly brought this 'future-scenario' to life—across the world, schools closed their doors and teaching moved online. In many communities, the one space that remained open was, indeed, the library. The question of whether the library remains a relevant institution in the digital age has been asked time and time again. Yet while digital technologies may change how the library operates, they also *reinforce* its importance, as an institution that provides citizens with the tools to navigate digital society. Taking the Norwegian library sector as an object of study, this thesis aims to explore the ways digital technologies reconfigure citizens' experience of and relation to public institutions, through the lens of *platformization.*

1.1 The library in the platform society

The foundation of digital society is increasingly built upon *platforms*, which have become the "infrastructures of everyday life" (Barns, 2019). Digital platforms such as Google, Apple, Facebook, Amazon and Microsoft [GAFAM] are the means by which we find information, navigate our surroundings, socialize, shop, and work. They are the digital intermediaries that connect us with the content, services or information we seek. These ubiquitous platforms are no longer confined to screen interfaces such as smartphones and computers, but are now built into urban environments through smart city initiatives, and form the backbone of e-government infrastructures (Repette et al., 2021). While platforms may enable urban innovation, the continuing development of "the platform society" has created cause for concern. Platforms and platform companies have accumulated social, political and economic power that reckons with that of governments and democratic institutions (van Dijck et al., 2018). As platforms take on qualities of infrastructures, their governing influence may jeopardize the sovereignty of existing public infrastructures and authorities.

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[1] Report can be viewed at: https://booksadventures.files.wordpress.com/2020/03/oslo-future-of-schools-scenarios.pdf

The library is one such institution whose relevance has been challenged by digital platforms. At the same time, it has been positioned as an educational and social platform itself (Mattern, 2014; Weinberger, 2012). Is the library still important when endless amounts of information can be accessed instantaneously from any connected device? The short answer, following Mattern (2014), Palfrey (2015) and Leorke & Wyatt (2019), is *yes*, *more than ever.* The question is not so much *if* the library is still relevant, but rather *how* the library's role is evolving in the time of digital information. To investigate this further, this thesis will look at the processes of *platformization* shaping the library's development. While platforms themselves are concrete entities, platformization describes the *processes* taking place within a larger assemblage of social, political and economic forces. Platformization can be defined as,

> The penetration of infrastructures, economic processes and governmental frameworks of digital platforms in different economic sectors and spheres of life, as well as the reorganization of cultural practices and imaginations around these platforms. (Poell et al., 2019, p. 1)

Platformization offers a means of assessing the ways platform logics and strategies are transforming social, political and economic processes within institutions. As platformization becomes a common mode of digitalizing societal activities and operations, it is important to look beyond purely commercial platforms, and consider how platformization may be shaping the *public sector* as well. This thesis initiates such an exploration by taking the public library as an object of study.

Like other platforms, public libraries mediate access to information and facilitate social and civic engagement. Unlike major platforms such as GAFAM, the library is free, independent, non-commercial and open to all. For this reason, the library has been hailed as a last bastion of democracy—a truly *public* space in an increasingly privatized urban landscape (Eckerdal, 2017; Olsson Dahlquist, 2019). The library provides free access to information, teaches critical digital skills, and simply provides a place to *be*–not to mention free Wi-Fi and computer access. These elements make it possible to participate as citizens of democratic society in the digital age. The library therefore provides a useful example for considering a model of platformization that may provide the antidote to the consolidatory, anti-democratic effects of major commercial platforms such as GAFAM.

1.2 Previous research and contribution

The merging of platforms and infrastructures underscores a contemporary debate within platform studies: the conflict between public values and private interests, and the

resulting challenges for ownership and governance (van Dijck, 2020b; van Dijck et al., 2018). As major corporate platforms take ownership of public functions, they are able to exert governance over populations while evading democratic processes that public bodies are traditionally beholden to.

Recent scholarship has focused primarily on American corporate giants such as Google, Apple, Facebook, Amazon and Microsoft, or Chinese state-controlled platforms such as Alibaba and Baidu (Poell et al., 2019; van Dijck, 2020b; van Dijck et al., 2018). While this has illuminated key insights into the ways such platforms function and tensions between private and public values, it may also be a limiting perspective. The focus on major tech platforms has produced a binary of either "corporate" or "state-controlled," with few alternative models considered. While the unregulated growth of American platforms and the state surveillance of Chinese platforms each present important issues for consideration, these are not the only kind of platforms that exist—nor are they the only kind of platforms that are possible. In Norway, the government has been involved in developing a variety of platforms in an effort to digitize public services (Norwegian Ministry of Local Government and Modernisation, 2016). These platforms operate with a combination of public and private actors, and are subject to democratic processes. This thesis engages with this existing scholarly debate by presenting an alternative perspective, applying platformization as an analytical framework to the case of the Norwegian library sector. By challenging the binary of corporate versus state platforms, this thesis aims to illuminate the possibility of looking beyond dominant models of the platform, to imagine new models for what a platform *could be*—and to reconsider the relationship between screen technologies, citizens and governments.

This thesis is situated within the field of screen cultures, but draws on an interdisciplinary pool of research encompassing platform studies, platform urbanism and digital media studies. Useful research has also been located in the fields of library science and new public management, to better understand the specific context of the library and broader processes of digitalization within public institutions. Scholars such as Palfrey (2015) and Leorke and Wyatt (2019) have written extensively about the changing role of the library in digital society, which has been helpful for situating this research. In addition, scholars writing about 'open government' have also addressed the ways public institutions have begun adopting digital technologies to improve their operations (Lathrop & Ruma, 2010). While previous research has conceptualized the library as a platform (Andrews et al., 2017; Mattern, 2014; Weinberger, 2012), this has not been examined through the lens of platformization.

This research applies the lens of platformization in an effort to understand *how* these developments are shaping economic, social and political processes within the institution. Here, previous research within the field of *platform urbanism* will also prove useful, as a means of exploring the ways platforms shape the urban environment and our relation to it (Barns, 2020; Fields et al., 2020; Lee et al., 2020). So far, there has been little attention paid to *public* or public-private platforms within the realm of platform studies. Such a perspective is valuable as our relationship to governments and public institutions is increasingly mediated through platforms. This thesis therefore aims to contribute to a more nuanced understanding of *platformization*, and to present a concrete instance of the ways *screen cultures* form our experience of world around us.

1.3 Research questions

In Norway, the library sector has undergone a significant digital transformation over the last decade. In an effort to adapt to an increasingly digitized society as well as attract new users, the Norwegian public library system has expanded beyond its four walls to develop digital tools, services and infrastructures. This research theorizes the library as a platform, and seeks to understand how processes of platformization may shape digital developments within the Norwegian library sector. In doing so, it aims to explore the potential consequences of platformization processes for the negotiation of power between public institutions, citizens, and market actors. I have developed two research questions to guide this exploration:

1. **In what ways do platformization processes materialize within the Norwegian library sector?**
2. **How does platformization shape cultural practices of governance and ownership within the library ecosystem?**

These questions will be addressed through the lens of *discourse*, which considers how meaning is constructed through descriptive qualities of speech (Dunn & Neumann, 2016). This approach is useful for linking speech to *practice*, to understand how ideas are brought to life. Given the extensive body of literature related to commercial platforms, I will first consider how platformization is presented in existing scholarship, and note where the library's developments align with this or depart from this. In addition, I will examine discourses within the library sector by considering three modes of speech: 1) Expert interviews with Norwegian

library staff; 2) Policy documents from the Norwegian library sector; and 3) Participant observation of one Norwegian library's digital activities. This will illuminate the ways platformization discourses manifest in the library's own practices. It was important to develop these questions in a way that is neutral, without presuming whether platformization is a positive or negative process. As described in the definition of platformization above, cultural practices are re-organized by platformization (Poell et al., 2019). Platform scholarship highlights how practices of *governance* and *ownership* are reconfigured by platformization. Because these two areas are of particular importance in the context of the public sector, I have developed the second research question to understand the implications of these processes.

1.4 Thesis structure

Following this introduction, *Chapter 2* will begin by orienting the reader with a brief introduction to the Norwegian library sector. This will provide an overview of recent developments within the sector, the structure of the library system, and the role of each type of library. From there, *Chapter 3* will introduce the conceptual framework that will be drawn upon throughout this thesis. The concept of the platform will be discussed in depth, as well as the concepts of ownership and governance. These concepts are then situated within platform studies from an infrastructural perspective, and tied to the field of platform urbanism. In *Chapter 4*, I present the analytical framework for this thesis. While platformization is not a formal theory in itself, it has been proposed by several scholars as an analytical tool. I draw on platformization literature to develop an analytical framework based on platformization processes that intersect data infrastructures, economic processes, and governmental frameworks. The methods used in this research will then be discussed in *Chapter 5,* through the lens of Foucauldian Discourse Analysis. This includes a triangulation of three methods: expert interviews with library staff, discourse analysis of policy documents, and participant observation of digital library activities. The analysis chapters have been structured to reflect each of the three aspects of platformization presented in the definition above: Data infrastructures (*Chapter 6)*, Economic processes (*Chapter 7)* and Governmental frameworks (*Chapter 8)*. Each of these chapters investigates how platformization processes manifest across these different dimensions of the library institution, and the implications of these processes for governance and ownership. Finally, *Chapter 9* concludes this thesis with a summary of findings, and relates these findings to the larger scholarly discussion of platformization.

2 The Norwegian library sector

An overview of the Norwegian library sector's structure and how its components work together will be useful for understanding this thesis. In this chapter, I orient the reader by providing a brief summary of the current state of the Norwegian library sector (2.1), and introduce the different libraries and their responsibilities (2.2). I also present the Norwegian library's purpose and objectives, as outlined in the Public Libraries Act (Ministry of Culture, 2014) and the *National strategy for libraries 2020-2023* (Ministry of Culture, 2019). This background information will be used to situate the analysis and discussion of findings.

2.1 The state of the library in Norway

The Norwegian library sector has gone through a transformation over the past decade, as a response to changes that have come with the digital information age. Accordingly, many of the strategic and policy documents published during this time have addressed digital transformation directly. The government acknowledged the beginnings of this shift with the document, *Libraries - Knowledge Commons, Meeting Place and Cultural Arena in a Digital Age* (Ministry of Culture and Church Affairs, 2010). This new conception of the library's role was formalized through the amendment of the Public Libraries Act in 2014. Following this change, the first national strategy for libraries was published for the period 2015-2018, providing concrete direction as to how the library system should enact and embody its new role in practice. At the same time, the National Library began its efforts to digitize all material published in Norway, and develop a digital library for the Norwegian public. Despite the vast amount of information freely available online, public libraries in Norway remain widely used. A 2018 survey shows that 54% of the population visited a public library in the previous year (Ministry of Culture, 2019, p. 10). While census data showed a 10% drop in library visits between 2005 and 2015, visits began to increase again between 2015-2018. Going forward, one of the library's primary objectives is to increase visitation and use of the library, by reaching those who have not recently visited a library.

These developments have refocused the library's role to become not only a place for books and information, but a community space where culture, democracy and learning are cultivated. These objectives are made clear in the *National strategy for libraries 2020-2023,* which presents three focus areas for the library system: 1) Dissemination; 2) Cooperation and development; and 3) Infrastructure (Ministry of Culture, 2019, p. 8). The goal of dissemination is not only for libraries to make information available, but to actively promote

their offering to users and potential users. Digital tools play a key role in this (Ministry of Culture, 2019, p. 10). The second objective, cooperation and development, encourages greater collaboration between libraries as a way of improving public access to information and operational efficiency. Lastly, the National Library will continue to develop its infrastructural tools for all libraries. This includes data infrastructures, collective digital offerings, and staff educational resources.

2.2 The structure of the Norwegian library system

The Norwegian library system consists of libraries, government ministries, and public bodies, which are visualized in Figure 1 below. On the left side of the visualization, the libraries are divided into three levels: national, county, and municipal. The National Library falls within the jurisdiction of the Ministry of Culture, and is responsible for the Public Libraries Act and supplying the county and public libraries with infrastructural support.
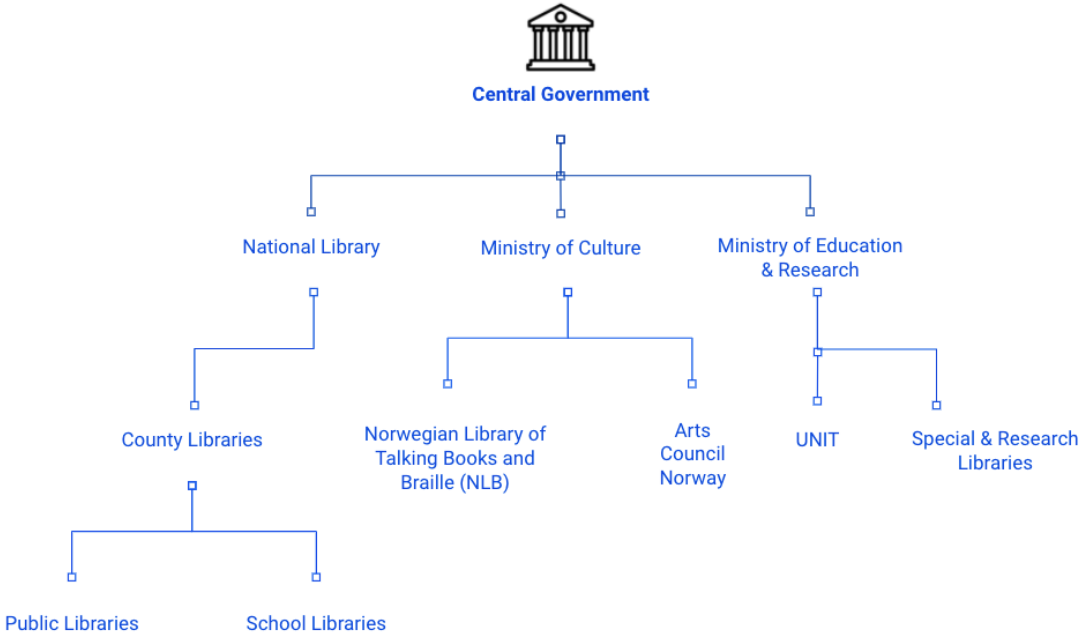
Figure 1. The structure of the Norwegian library system.

The county libraries, supported by the National Library, offer strategic and advisory support to the public libraries to assist them in their development goals. The public libraries are intended to serve the general population, as both a knowledge center and a meeting place for the community. I will expand on the role of each of these libraries in the coming sections.

Supporting the library system are the government ministries and public bodies, shown in the center and right side of Figure 1. Under the authority of the central government, the

Ministry of Culture and the Ministry of Education & Research work together to produce the national strategies for libraries. These strategies set the agenda for the national, county and public libraries, and offer guidance for how they can work together to achieve common goals. In addition, the ministries have authority over special libraries and public organizations such as Arts Council Norway and UNIT (Norwegian Directorate for ICT and Joint Services in Higher Education and Research), whose services support the various libraries. This thesis will focus specifically on the libraries which serve the general public: the National Library, the county libraries and the municipal libraries.

2.2.1 National Library

The National Library describes itself as, *"Norway's shared memory"* (Nasjonalbiblioteket, n.d.-b), storing all information published in Norway from the Middle Ages and onward. Since 2005, the National Library has taken on the massive effort of digitizing the entire collection—a process they estimate will take 20-30 years. They also offer a digital library where the Norwegian public can access the digitized material. In addition to preserving cultural heritage, the National Library also serves an infrastructural function for other libraries. As a financial infrastructure, the National Library distributes funding to county and municipal libraries for development projects supporting the focus areas in the national strategy. As an operational infrastructure, they develop and maintain shared services for the libraries. This involves negotiating national agreements with select service providers. In addition, the National Library is responsible for developing and operating the Bibliotekutvikling.no skills-sharing platform and the Library Search tool used by all libraries. As a technical infrastructure, the National Library sets bibliographic standards through metadata and authority records.

2.2.2   County libraries

There are currently 10 county libraries operating in Norway's 11 counties. While the county library has historically assisted with inter-library lending, the amendment to the Public Libraries Act (2014) altered this role significantly. The county libraries now act as strategic advisors and development partners for municipal libraries (Ministry of Culture, 2014). In addition, they are no longer required to have locations that are open to the public, further solidifying their role as administrative bodies rather than public spaces. As a regional development partner, the county libraries act as an intermediary between the National Library

and the local libraries. They offer support to local libraries by contributing to, "skills development, infrastructure, information dissemination, regional networking and library development" (Ministry of Culture, 2019, p. 22). The county libraries therefore maintain intimate knowledge of the local libraries' needs, while providing national resources and funding.

2.2.3   Public libraries

Each municipality in Norway is required to have a public library, and many municipalities have multiple branches (Ministry of Culture, 2019, p. 10). These libraries consist of physical locations that are free and open to the public, complemented by digital services available to library-card holders. Historically, the role of the Norwegian public library has been to enable access to information, knowledge and culture. The amended Public Libraries Act (2014), however, has updated this role to reflect additional responsibilities. In addition to free *access to information*, public libraries to be *meeting places* for the community (Ministry of Culture, 2014). The public libraries are under municipal jurisdiction, and therefore maintain the freedom to decide what kind of collection or activities they offer on a local level. Because the level of funding varies by municipality, the local library offerings vary greatly. This is especially evident in each library's digital offering. All public libraries do, however, have access to development project funds offered by the National Library and the resources available through the county libraries.

2.2.4 School, research and special libraries

While the national, county and public libraries serve the general public and are incorporated by the Public Libraries Act (2014), school and research libraries are more specialized and are intended for specific groups. School libraries are under county jurisdiction, while special and research libraries are typically owned privately or by universities. These libraries therefore operate in a way that is somewhat disconnected from the public library system described above. Following the most recent national strategy for libraries, however, there is a desire for greater cooperation between these specialized libraries and the rest of the library system (Ministry of Culture, 2019, p. 19). At of the time of writing, these libraries are still less connected to the public library ecosystem, and will therefore not be a subject of focus in this thesis.

3 Conceptual framework

3.1 Conceptualizing the platform

Although the term 'platform' has become commonplace in media culture to refer to tech giants such as Google and Facebook, a singular ontology of the platform is difficult to concretize within scholarly literature. Platform studies began as a branch of software studies (Bogost & Montfort, 2009), and has continued to develop within digital media studies (Helmond, 2015; Poell et al., 2019; van Dijck et al., 2018). As an interdisciplinary field, it has drawn scholars from political economy (Srnicek, 2016), infrastructure studies (Gillespie, 2010; Plantin et al., 2018), information science (Basole et al., 2017), and urban geography (Barns, 2020; Fields et al., 2020; Lee et al., 2020; Mattern, 2017). Accordingly, definitions and approaches to the study of platforms are wide-ranging across these various fields of scholarship. To ground an understanding of the literature surrounding platforms and platform studies, I will first provide an overview of scholarly definitions of platforms, and move toward a working definition and approach for the research presented here.

Within platform studies, definitions have evolved with the technical capabilities and cultural uses of platforms, as well as the interests of the scholars studying them. Early discussions about platforms focused on their technical nature, describing, "a computing system of any sort upon which further computing development can be done" (Bogost & Montfort, 2009, p. 3). These systems can be, "programmed and therefore customized by outside developers—users—and…adapted to countless needs and niches that the platform's original developers could not have possibly contemplated" (Andreessen, 2007, para. 5). As digital platforms have become ubiquitous, definitions have developed beyond the purely computational to encompass their social and political aspects. As van Dijck et al. (2018) describe, platforms are "fueled by *data,* automated and organized through *algorithms* and *interfaces*, formalized through *ownership* relations driven by *business models,* and governed through *user agreements*" (p. 9). Platforms are not screens in themselves, but rather work through screens, and reflect screen logics within their ecosystems. Their technical infrastructure lays the groundwork for actions to be taken—which may extend beyond the screen, with ramifications beyond the realm of the platform itself. Building on this infrastructural understanding, Gillespie (2010) highlights the term's *architectural, figurative,* and *political* facets. Architectural features imply support as a surface for people or things; figurative features imply facilitation of actions or events; and political features reflect the

ability to amplify certain interests and hinder others. As infrastructures, platforms *afford* possibilities for developers, users, corporations, and institutions.

3.2 Platform or infrastructure?

Approaching the platform as infrastructure reflects an 'infrastructural turn' within platform studies, which aims to highlight the materiality, logics and cultural practices involved in networks of information circulation (Plantin et al., 2018; Plantin & Punathambekar, 2019). Media anthropologist Brian Larkin (2013) defines infrastructure as, "built networks that facilitate the flow of goods, people, or ideas and allow their exchange over space" (p. 328). Platforms, too, exist within, "information ecosystems as hierarchical and interdependent structures" (van Dijck, 2020b, p. 1). Both digital platforms and public institutions can be thought of as infrastructures, serving essential functions for information access and exchange within communities (Plantin et al., 2018). Useful for understanding this infrastructural turn is the concept of *platformization,* or, "the interpenetration of infrastructures, economic processes and governmental frameworks of digital platforms in different economic sectors and spheres of life, as well as the reorganization of cultural practices and imaginations around these platforms" (Poell et al., 2019, p. 1). Platformization explores the *process* of how platforms become integrated into larger sociopolitical systems, accounting for three primary factors: data infrastructures, markets and governance (Poell et al., 2019, p. 6). As a concept, platformization accounts for a diverse set of factors that influence the ways in which platform logics become embedded in sociocultural practices.

When considering platforms, I will approach them from an infrastructural perspective, with a focus on processes of platformization taking place within public institutions such as the library—and how this shapes governance. Plantin et al. (2018) describe the overlap between platforms and infrastructures, noting the ways the two have begun to merge. Table 1 presents a side-by-side comparison of platforms and infrastructures, showing their similarities as well as where they differ from one another. The qualities described in this table will be referenced in the analysis chapters to come. This will be especially useful when describing the qualities of both platforms and infrastructures that the Norwegian library system exhibits, as well as discussing how the library-as-platform differs from the commercial platform model. In the following section, I will expand on this conception of platform-as-infrastructure, with a focus on how this shapes the urban landscape and the relationship between citizens and their environment.

Table 1. Table summarizing infrastructure and platform properties.

	Infrastructure	Platform
Architecture	Heterogeneous systems and networks connected via sociotechnical gateways	Programmable, stable core system; modular, variable complementary components
Relation between components	Interoperability through standards	Programmability within affordances, APIs
Market structure	Administratively regulated in public interest; sometimes private or public monopoly	Private, competitive, sometimes regulated via antitrust and intellectual property
Focal interest	Public value; essential services	Private profit, user benefits
Standardization	Negotiated or de facto	Unilaterally imposed by platforms
Temporality	Long-term sustainability, reliability	Frequent updating for competitive environment
Scale	Large to very large; ubiquitous, widely accessible	Small to very large; may grow to become ubiquitous
Funding	Government, subscription, lifeline services for indigent customers, pay-per-use (e.g. tickets)	Platform purchase (device), subscription (online), pay-per-use (e.g. TV shows), advertising
Agency of users	"Opt out," for example, going off the grid	"Opt in," for example, choosing one platform instead of another; creating mashups

API: application programming interface.

Figure 1. Table summarizing infrastructure and platform properties. Adapted from "Infrastructure studies meet platform studies in the age of Google and Facebook," by Plantin et al., 2018, New media & society, p. 299. Copyright 2016 by Plantin et al. Adapted with permission.

3.3 From smart cities to platform urbanism

The merging of digital technologies and urban infrastructures has been discussed extensively in scholarly literature on smart cities. 'Smart cities' is a broad term used to describe the integration of information and communication technologies [ICTs] with urban landscapes to solve complex urban challenges (Batty et al., 2012; Kitchin, 2014). 'Smart' solutions often involve real-time sensing mechanisms built into urban infrastructures, collecting mass amounts of data that may be used to improve, "efficiency, equity, sustainability and quality of life in cities" (Greenfield, 2013). Increasingly, cities worldwide have begun implementing smart city initiatives to develop innovative solutions to issues like water pollution, air quality, public internet access, traffic congestion, and more (Neirotti et al., 2014). While smart cities have been fantasized as a model for greater democracy and openness (Mitchell, 1996), they have also been met with criticism. Key concerns in the smart city debate emphasize the challenges of surveillance, access and operationality of data, and private versus public interests (Green, 2019; Greenfield, 2013; Sennett, 2018). The concept of 'smartness' in itself has also been increasingly interrogated, presenting the counterargument that data is not the only source of urban intelligence (Greenfield, 2013; Halpern et al., 2017;

Mattern, 2017). Rather, there are non-quantifiable elements such as community, indigenous knowledge, and democratic processes that may make a city resilient, sustainable, creative and open. Smart city discourse tends to take a 'top-down' approach as governing bodies set the agenda for the ways networked technologies are used to facilitate civic functions. As Barns (2020) proposes, *bottom-up* citizen engagement with platforms may shape the everyday experience of the city *more* than centrally-implemented strategies. This approach provides an alternate lens to view the ways platforms, governing bodies and citizens work together to produce the urban environment.

As networked and digital technologies become integrated into our surroundings, platforms extend beyond the screen and into our built environment. This has led to an emerging genre of scholarship called *platform urbanism*, which explicitly addresses the integration of platforms within urban infrastructures (Barns, 2020; Rodgers & Moore, 2018; van der Graaf & Ballon, 2019). Platform urbanism explores how platforms as "infrastructures of everyday life" (Barns, 2019) mediate the relationships between citizens and their environment. It is related to smart city discourse in that platforms are a *means* by which digital governance is exerted within the urban context. But platform urbanism can also exist outside of the smart city; a city does not need to have 'smart' initiatives in order to leverage platforms for civic purposes. Platform urbanism therefore reflects a tangible application of screen logics in social and government infrastructures. Some have envisioned the city as a platform or interface in itself, as technologies structure everyday processes, policies, and relations (de Waal, 2014; Fields et al., 2020; Urban Intelligence, 2019). Urban platforms, again, are often discussed with relation to the major corporate tech players introduced earlier in this chapter. But platform urbanism need not fall into the same 'corporate versus state-owned' binary as larger platform discussions. Rather, as Barns (2020) suggests:

> The 'Uber model' isn't just for Uber, it's for any utility or infrastructure to try (*try*) to adopt. Platform strategy is increasingly urban strategy, an approach to building digital services in ways that ensures end users are also producers of sorts. (p. 15)

Platform urbanism may therefore encompass private and public entities, infrastructures and services (van der Graaf & Ballon, 2019). Above all, it seeks to unpack the ways platforms shape relationships and experiences within an urban context, and present new models of urban governance (Gorwa, 2019). The conceptual lens of platform urbanism will be useful in accounting for the more complex sociopolitical dynamics that occur in the uniquely urban context, in which public libraries are intended to serve their communities.

3.4 The right to the (platform) city

The field of urban studies has long explored the relationship between citizens and governing bodies, and the ways the two work together to create *urban space.* The urbanist Henri Lefebvre (1996) theorizes the city as an ongoing project, requiring active participation from its constituents in order to claim their "right to the city." It is through action and engagement that that citizens take ownership of *place*, to ensure that such spaces reflect the needs of the public and not just those in power. Here, governance and ownership meet— governance is a two-way process that implicates citizens in a shared negotiation of power, which leads to a shared ownership. Adapting this notion of the 'right to the city' to a networked urban landscape, Foth et al. (2015) propose that the digital urbanite can claim ownership of urban space by embracing their dual role as both producer and consumer of the environment they inhabit. In the same vein, de Lange & de Waal (2012) describe networked urban ownership as, "the degree to which city dwellers feel a responsibility for common interests and can take action on them" (pp. 9-10). In both cases, there is a sense of obligation to co-creating one's urban environment. The right to the city will prove a useful tool in considering themes of *ownership* in the case of a commons such as the Norwegian library, which is created to enable knowledge, democratic engagement, and integration within urban communities (Ministry of Culture, 2019).

In tension with ownership is *governance*. In a political sense, governance has traditionally been referred to as a government's bureaucratic capacity to exert power through laws, regulations and services (Fukuyama, 2013). Yet as global life has become more interconnected, a broader notion of governance has been proposed as, "more than just a capacity, but a specific and complex network of interactions spanning different actors and behaviours" (Gorwa, 2019, p. 856). It is from this networked perspective that digital media scholars have approached governance, to address the ways in which digital infrastructures govern users (Plantin et al., 2018). For the purposes of this research, I will look specifically at the ways in which platforms as digital infrastructures govern and are governed. Following Gorwa (2019), platform governance refers to, "platform practices, policies, and affordances" which structure the relations between companies, governments, users, and institutions (p. 854). Platforms govern through mechanisms such as content moderation, terms and conditions or APIs (Gillespie, 2017). Platforms and platform companies are subsequently challenging to govern, given that they occupy a grey area between public utilities and for-profit businesses (Gillespie, 2010). As platforms increasingly supplement or take on the role of infrastructures, their utility as public services is countered by the question of private

interests. In this thesis, I will look at the public library as an object of study, which has a critical function to uphold civic values. As the library becomes more heavily digitalized, it works with an increasing number of service providers [complementors], whose own interests may not always align with public interests. I will assess how the library negotiates power with these complementors, as well as the ways in which platform thinking configures forms of governance for the institution and its users. This will involve looking at the relationship between the library's objectives, users, and platform ecosystem.

3.5 The role of the library: Past, present, future

Historically, the library has acted as an information repository—or as Logan & McLuhan (2016) put it, "a physical extension of man's memory, a tool, a medium and a technology" (p. 1). In the earliest libraries, the storage of media was primarily physical, intended for the written word. Over time the library began to house other forms of cultural media such as films, music, newspaper articles, historical documents. As information is increasingly digitized, the library remains a repository for cultural media, in both physical and digital formats. While digitization has transformed modes of information storage and access, it has also transformed how we conceive of the library more broadly. Digitized information such as e-books, audiobooks or streamable films are often offered through online services, meaning that users don't need to visit a physical library to locate material. This thesis therefore conceives of the library as not just a physical building, but an infrastructural network of tools and services, both public and privately owned.

The outsourcing of media storage and curation to other partners has also made it possible for the library to offer other services beyond content alone. Today, the library serves an increasingly important role as a form of social infrastructure (Klinenberg, 2018). The library has been theorized as a *third place*, a space beyond the home or workplace that serves the community as a public commons (Elmborg, 2011). A 'third place' functions primarily as a social space for casual interaction. Coincidentally, social media platforms too have been dubbed 'third places' online, further delineating the connection between public sphere and platform affordances (Edirisinghe et al., 2011). The social and cultural role of the library has been further explored by Audunson (2005) and Klinenberg (2018), highlighting the importance of social infrastructure in fostering equality in multicultural societies. In Norway's "National Strategy for Libraries," the library is presented as a nexus for social integration and engagement in local politics, in addition to information access (Ministry of Culture, 2019).

This conception of the library as a social infrastructure and third place will be further discussed in an analysis of the library's governmental frameworks (see Chapter 8).

3.6 The library as a platform

I am not the first to conceive of the library as a type of platform—a concept that bridges its properties as a social commons, information repository and infrastructure across the physical and the digital. In an article for *Library Journal,* Weinberger (2012) presents the concept of the 'platform' as a heuristic for exploring the possibilities of what the library *could be* if platform thinking was applied. In Weinberger's view, the library as platform would maintain its public openness but allow for greater information access, data sharing and public innovation across its ecosystem. Engaging with Weinberger's writings, Mattern (2014) highlights the social and informational attributes of the library that mirror platform-like qualities. Though for Mattern, this metaphor does not go far enough; rather, she positions libraries as *infrastructural ecologies*: "sites where spatial, technological, intellectual and social infrastructures shape and inform one another" (2014, para. 10). Platforms, too, can be considered forms of infrastructure, and are increasingly integrated with existing forms of infrastructure through processes of platformization (Plantin et al., 2018). While the metaphor of the library as a platform is, as Mattern suggests, somewhat limiting, it provides an interesting starting point to consider the nature of the public sphere in the digital age. Where previous writings have focused on theorizing the library *as* a platform, I will focus on processes of platformization *within* the library, and how platform thinking shapes governance and ownership of the commons within the library ecosystem.

4 Analytical framework

While platformization can be considered a *concept* (3.1), it can also be expanded for use as an *analytical framework* to make sense of phenomena occurring in the social world. An analytical framework provides a toolkit to assess and understand data, and illustrate the relations between different elements (Michelle, 2007). As a concept, platformization refers to the permeation of platform logics across a variety of societal sectors. Platformization as an emergent *analytical framework* provides a means for understanding how these processes occur, and the impact they have. Because platformization processes impact a wide variety of industries and institutions, an analytical framework will be useful in developing a more nuanced understanding of platformization within a variety of contexts. In this chapter, I will present two existing models of platformization (4.1), and present platformization as an analytical framework for use in this thesis (4.2). I will then clarify how this framework provides a useful lens for addressing the research questions posed (4.2).

4.1 Existing models of platformization

Scholarship on platformization has primarily been developed through the work of Nieborg, Poell, van Dijck and Helmond over the past five years (Helmond, 2015; Nieborg & Poell, 2018; Poell et al., 2019; van Dijck, 2020b; van Dijck et al., 2018). In their work, these scholars present models that can be used to identify, categorize and analyze processes of platformization, as well as understand their effects. Although these scholars work from the same basic assumptions and definitions, often publishing work together, they have not developed a uniform analytical approach to platformization. Therefore, I will begin by summarizing the key contributions from two recently-published models, before presenting a comprehensive framework to be used in this thesis.

The key elements of platformization as a *concept* can be identified in the definition proposed by Poell et al. (2019):

> Platformization is defined as the interpenetration of infrastructures, economic processes and governmental frameworks of digital platforms in different economic sectors and spheres of life, as well as the reorganization of cultural practices and imaginations around these platforms. (p. 1)

The authors build on this conceptual definition in order to present an analytical framework for approaching platformization in research. The authors propose that platformization can be

operationalized by looking at each of these three interconnected aspects: aspects within institutions: 1) data infrastructures; 2) markets, and 3) governance. I will review each of these.

4.1.1 Data infrastructures

For Poell et al. (2019), data infrastructures involve both the systematic generation of data and the subsequent use of that data. Data infrastructures are linked to the notion of *datafication,* or, "the ways in which digital platforms render into data, practices and processes that historically eluded quantification" (Poell et al., 2019, p. 6). Datafication can occur through mechanisms such as apps, plugins, or trackers, which collect data from users and circulate it back into the platform ecosystem. It is not the process of datafication alone that is significant, but how that data is *used*. Datafication is interlinked with economic processes— data is commodified within and beyond the platform ecosystem. In addition, data infrastructures are a means by which platforms control data. Platforms manage access to data, software and apps through the adoption of centralized (tightly-controlled) or distributed (open-source) models. In this way, data infrastructures act as gatekeeping mechanisms toward both end-users and other actors such as developers, publishers or advertisers, also called *complementors.* This gatekeeping role also extends to data standards, which are set by platforms to categorize and structure data. This inherently shapes the kind of material that end-users and complementors can input, and how this material is organized.

4.1.2 Markets

The nature of platforms as intermediaries between end-users and complementors also has implications for economic processes. This is characterized by a shift from traditional business-to-consumer models to what Poell et al. (2019) classify as *two-sided* or *multi-sided markets* (p. 7). Two-sided markets connect end-users with complementors, such as publishers, while multi-sided markets involve additional complementors, such as advertisers. This places significant market power into the hands of platforms as economic mediators, and has the potential to shape market dynamics. Where platforms provide a space for users and complementors to connect, complementors are driven by the platform's terms as well as user practices. A platform's usefulness to complementors is dependent on how users respond to their efforts; complementors are therefore encouraged to wield to the user's wants and needs.

4.1.3 Governance

Platformization also shapes modes of governance, setting the terms by which users engage with or relate to a platform. This takes place on three levels: 1) interfaces; 2) algorithms; and 3) contracts and policies (Poell et al., 2019, p. 8). How a platform is designed delimits how it can be used, encouraging some actions and discouraging others. There is intrinsic value placed on the features present within a platform interface. Behind the interface, algorithms are a mechanism often-used by platforms to shape what is seen by the user. This is reflective of a larger process, where platforms set the terms by which complementors reach end-users. This can occur through algorithms, as well as APIs and software development kits (SDKs)—which are again connected to data infrastructures. Perhaps the most routine way platforms exert governance is through contracts and policies. If users or complementors want to participate within a platform ecosystem, they are subject to the guidelines and legal agreements put forth by that platform.

The analytical framework outlined by Poell et al. (2019) provides clear definitions which can be used to identify and categorize platformization processes occurring within institutions. While this framework is useful for classifying processes of platformization, it also has its limitations. This framework focuses on what platforms are and what they do, but does not address the pervasiveness of platformization processes as a part of larger ecosystems. Van Dijck (2020b) develops this further, proposing an analytical framework that illustrates the dynamics of platform ecosystems, with a focus on how they govern and can be governed. Because this framework acknowledges the interconnectedness of public and private actors within information systems, it will be useful for conducting an analysis of platformization processes within the Norwegian public library system.

Van Dijck's analytical framework illustrates platformization dynamics through the visual metaphor of "the platformization tree" (Fig. 3). This visualization presents the core elements of platformization as the *roots*, *trunk* and *branches* of a tree. The roots correspond to *digital infrastructures*, the trunk refers to *intermediary platforms*, and the branches represent *industrial or societal sectors* (van Dijck, 2020b, p. 5). These elements echo the model presented by Poell et al. (2019), but here *data infrastructures*, *markets* and *governance* co-exist at all levels of the platformization tree. In this way, the tree metaphor reinforces their interconnectedness. It also emphasizes the *living* nature of platform ecosystems, which are constantly evolving as these elements mutually shape one another. Drawing on assemblage theory (Deleuze & Guattari, 1987), van Dijck (2020b) highlights that, "each tree is part of a

larger ecosystem—a global connective network driven by organic and anorganic forces" (p. 5).
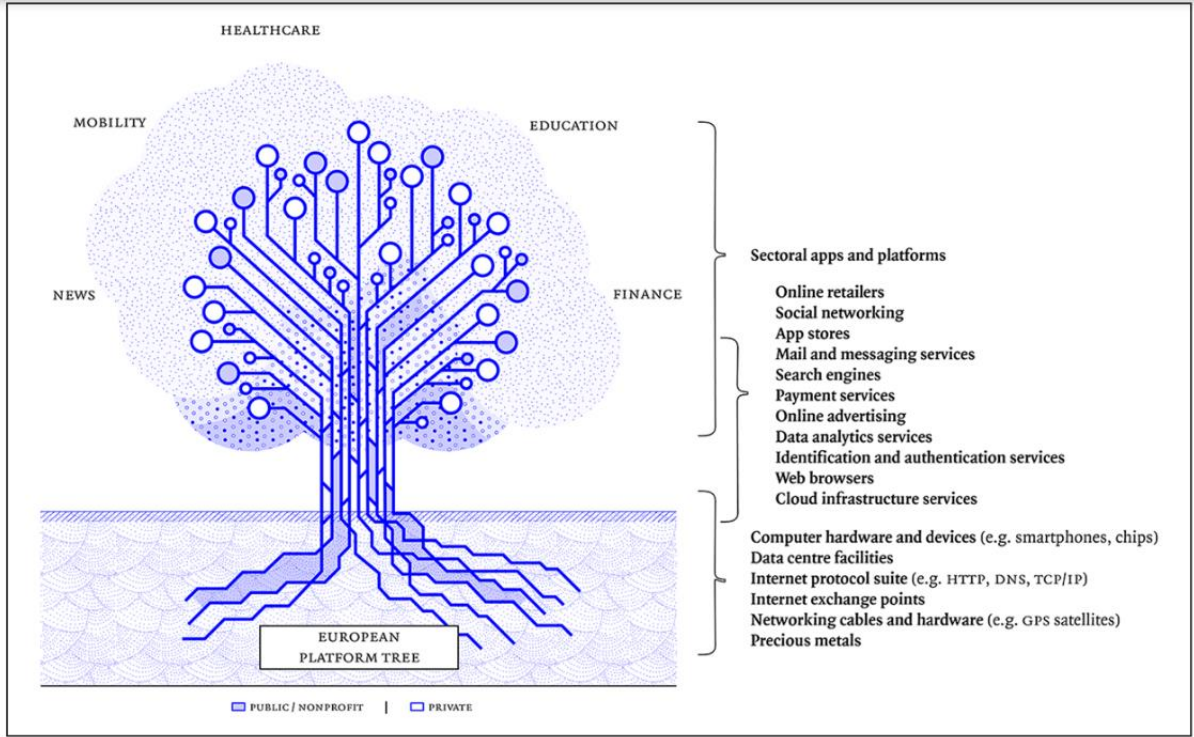
Figure 2. European platform tree. Adapted from "Seeing the forest for the trees: Visualizing platformization and its governance," by J. Van Dijck, 2020, New media & society, p. 15. Copyright 2020 by José Van Dijck. Adapted with permission.

Platform ecosystems do not exist on their own or separately from social or economic systems—rather, they are a part of them. This is further emphasized by the color coding in the visualization, which draws attention to the intermingling of public and private actors within platform ecosystems. For additional clarity, I summarize the defining qualities of each category and provide several examples below (Table 2).

Roots	Trunk	Branches
Digital infrastructures	Intermediary platforms	Industrial and societal sectors
- Material infrastructures - Connect across platforms / ecosystems - Allow data to be sent - Part of global digital infrastructure	- Channel between infrastructures and users - Channel between infrastructures and societal sectors - Exercise power through competition and coordination	- Sectoral applications, private and public - Built on intermediary platforms - Made possible by data infrastructures
Satellites, data centers, wireless access points, protocol systems, hardware devices	Login services, payment systems, mail and messaging services, search engines, app stores	MOOCS (Massive Online Open Courses), navigation apps, banking apps, health apps

Table 2. Components of the platform tree, based on van Dijck, 2020.

While these three categories are presented separately, their interdependency obscures the boundaries between them. Nevertheless, the separate-but-intertwined visual of the tree helps illustrate the power dynamics at play. Intermediary platforms, placed in the middle, have particular power-potential, as they channel data between both infrastructures *and* sectoral applications. There is a compounding effect when the same firm owns data infrastructures, intermediary platforms *and* sectoral applications (as is the case for GAFAM). This blurring of boundaries is what van Dijck (2020b) refers to as *vertical integration,* wherein market power becomes consolidated across different parts of the platform ecosystem, such as data flows or proprietary infrastructure (p. 8). In addition to vertical integration, the other two forces driving platformization are *infrastructuralization* and *cross-sectorization* (van Dijck, 2020b, p. 10). Infrastructuralization, building on the work of Plantin et al. (2018), describes the process of intermediary platforms taking on the role of necessary public functions, or infrastructures. Cross-sectorization occurs when intermediary platforms expand their offering to encompass multiple sectors, further solidifying their ubiquitous presence and influence.

Applying this analytical framework enables hierarchies of power to be identified within platform ecosystems, and consequently, where regulatory intervention might be possible. The objective of this model is to understand, "how sociotechnical systems and political-economic actors (firms, states) build symbiotic relationships to create connective value and develop coordinating power" (p. 4). The hope is to envision a way forward in the European context, and new models of platformization that maintain democratic values. With its focus on governance, this model provides a toolkit to assess how public and private entities—both human and nonhuman—negotiate power within platform ecosystems.

4.2 Proposed analytical framework

In this thesis, I have theorized the library system as a kind of platform ecosystem (3.6). While not a tech company in the same way as GAFAM, the library is nonetheless an *information system* with platform-like qualities. Therefore, both of the existing models presented will prove useful in assessing platformization processes within the Norwegian library sector. I will draw on each of these models to present an analytical framework to be used in this thesis. Again, the research questions this framework is intended to address are:

1. In what ways do platformization processes materialize within the Norwegian library sector?

2. How does platformization shape cultural practices of governance and ownership within the library ecosystem?

The model presented by Poell et al. (2019) is well-suited for identifying processes of platformization within institutions, while the framework proposed by van Dijck (2020b) will be useful for understanding how the dynamics of platformization impact governance and ownership. These two models are not in tension with one another, but are complementary, drawing on the same basic assumptions to view platformization processes from different angles. Both Poell et al. (2019) and van Dijck (2020b) work from the same definition of platformization as, "the inter-penetration of the *digital infrastructures*, *economic processes*, and *governmental frameworks* of platforms in different economic sectors and spheres of life" (Poell et al. in van Dijck, 2020, p. 4). While Poell et al. focus on intermediary platforms and the forces at work within them, van Dijck takes a bigger-picture view of platform ecosystems as embedded within larger social, economic and political networks. The side-by-side comparison below (Table 3) shows the similarities and differences between the two models:

	Poell et al. (2019)	*van Dijck (2020)*
Scope	- Intermediary platform	- Platform ecosystem
Key elements	- Data infrastructures - Markets - Governance	- Digital infrastructures - Intermediary platforms - Industrial & societal sectors
Actors	- End-users - Complementors - Platform operators	- Users - Firms - Governments
Processes	- Datafication - Two-sided/multi-sided markets - Algorithmic sorting	- Infrastructuralization - Vertical integration - Cross-sectorization
Objective	- Identify processes of platformization within institutions or platforms	- Identify points of intervention / regulation within platform ecosystem - Identify power dynamics / hierarchies

Table 3. Comparison of platformization frameworks.

Both the intermediary-platform view and platform-ecosystem view address actors and processes at play within digital infrastructures, economic processes and governmental frameworks. Each of these frameworks can therefore be used to analyze platformization at different levels. These models' analytical compatibility unlocks potential to reveal additional insights when used in combination, rather than individually.

Using this same terminology drawn from the authors' shared definition of platformization, I propose an analytical approach that incorporates both the intermediary-platform view, as well as the larger platform-ecosystem view (Figure 3).
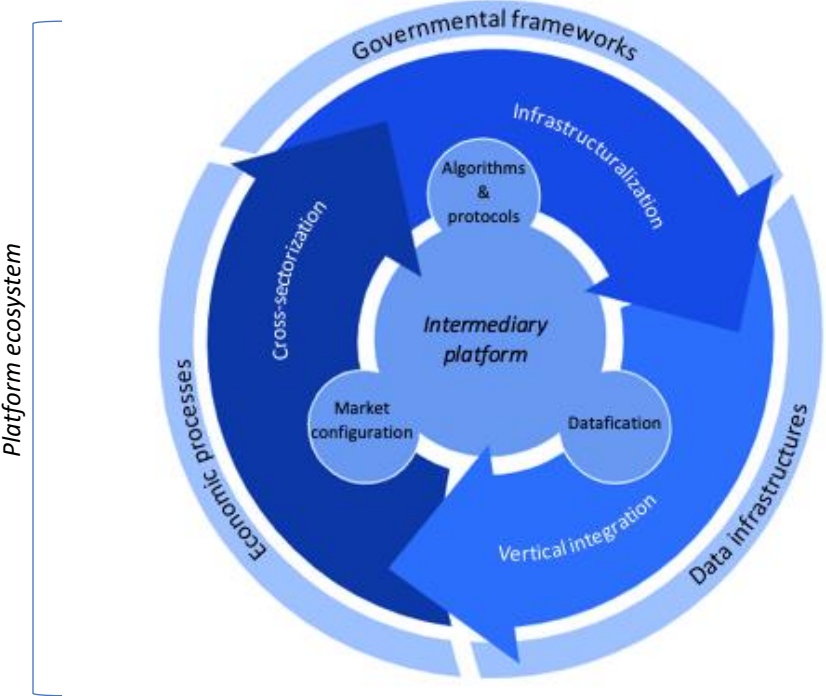
Figure 3. Analytical framework for processes of platformization.

The intermediary-platform level is intended to encompass all types of individual platforms, whether sectoral, infrastructural or intermediary. This is because the same platform can be classified as infrastructural, sectoral and/or intermediary simultaneously. The ongoing processes of vertical integration and infrastructuralization obscure these distinctions, making the processes themselves a more effective way of describing this dynamic than the type of platform. Connected to the intermediary platform are the elements *datafication, market configuration*, and *algorithms & protocols*. These elements are aligned with the processes of vertical integration, cross-sectorization, and infrastructuralization respectively, linking the platform with the larger ecosystem. Each of these processes connects to the larger ecosystem levels: data infrastructures, economic processes, and governmental frameworks. At each level, actors such as end-users, governments and firms are present, and may take on multiple roles within the ecosystem. Governments, for instance, may operate a platform, and firms may own data infrastructures. Therefore, I have not distinguished between these actors within different parts of the framework. What is not visualized in this analytical framework is the connections

across platforms. Echoing the "roots" in van Dijck's platformization tree, multiple intermediary platforms can exist in the same platform ecosystem, connected by data infrastructures.

This framework situates the platform within a larger ecosystem, as "complex assemblages of technologies, business models and user practices" (Burgess et al., 2017, p. 6). The layered, cyclical illustration shows how processes at each level coexist and reinforce one another. What occurs within the intermediary-platform has an impact on the larger ecosystem, and the ecosystem shapes the individual platform. Both the intermediary platform and larger ecosystem can be examined at three levels: data infrastructures, economic processes, and governmental frameworks. At each level, different platformization processes may be taking place simultaneously. Within the intermediary platform, datafication occurs at the data infrastructure level; economic processes are characterized by multi-sided market configurations; and governmental frameworks take the form of algorithms and protocols. The processes taking place within the intermediary platform also shape the ongoing processes in the larger ecosystem. Moving outward to the ecosystem-view, processes of vertical integration occur at the data-infrastructure level; cross-sectorization impacts economic processes; and infrastructuralization presents a new governmental framework solidifying platform power. The simultaneous, mutual-shaping of these processes emphasizes the interconnectedness of these three levels.

In this thesis, what I have referred to as the library ecosystem (2.1) will be treated as the platform ecosystem. The individual libraries can be considered intermediary platforms, connecting end-users and complementors. These exist within a larger framework of government policies, and are connected through common data infrastructures. Using this framework, this thesis will focus on identifying the processes taking place within individual libraries, as well as how these processes shape the larger ecosystem. By incorporating both the intermediary-platform level and the ecosystem level, this analytical framework allows for both a micro and macro view of platformization processes. At the micro level, it is possible to evaluate platformization processes by assessing datafication, market configurations and algorithms or protocols. At the macro level, the data infrastructures, economic processes and governmental frameworks within the larger ecosystem reveal how power is negotiated between various actors. In this way, the proposed analytical framework will allow for both the primary and secondary research questions in this thesis to be addressed.

5 Methodology

The objective of this study is to understand how public institutions are reconfigured and remediated by networked platform ecosystems. Taking the Norwegian library system as an object of study, this research theorizes the library as a platform and seeks to identify how processes of platformization materialize within this institution. In doing so, it aims to explore how cultural practices such as governance and ownership are shaped by processes of platformization. This exploration is guided by the primary and secondary research questions: *1) In what ways do platformization processes materialize within the Norwegian library sector?* and *2) How does platformization shape cultural practices of governance and ownership within the library ecosystem?* A qualitative mode of inquiry and methodological triangulation have been selected to address these questions. I have chosen a combination of primary and secondary source materials, in the form of expert interviews with library staff, library policy documents and participant observation of digital library activities. These materials have been approached through a Foucauldian notion of discourse, to explore how platformization materializes in different forms of speech.

I will first present the overarching research design, including the justification for the selection of methods, and how these methods support one another in addressing the research questions. I will then discuss each method in depth, including corresponding methodologies for data collection and analysis. Finally, I will discuss ethical considerations at each stage of the research process. Due to the ongoing pandemic during the research period, all data was collected digitally, and the challenges and opportunities associated with digital research will also be addressed.

5.1 Research design

A qualitative mode of inquiry has been chosen as the guiding research strategy. Qualitative research focuses on *describing* observations and experiences, rather than quantifying phenomena with numerical data. While quantitative research focuses on testing hypotheses through objective, repeatable methods, qualitative research is *theory-generating* and useful for approaching the ever-evolving, subjective nature of social reality (Bryman, 2012, p. 36). This follows a constructivist epistemology, developing an understanding of the world, "through the concepts constructed by the perceiving subject and the knowledge deriving from these…to interpret experiences,

or to understand and attribute meanings" (Flick et al., 2004, p. 89). This research aims to gain a better understanding of social processes and cultural practices, making qualitative research a suitable choice.

5.1.1   *Triangulation of methods*

A focus on social processes and cultural practices has also guided the evaluation of relevant research methods. As visualized in Chapter 2, "the library" is not one homogenous institution, but rather a larger ecosystem with many entities involved. To understand processes and practices taking place within such a large organization, it is helpful to consider each of the different entities, and the interplay between actors such as library staff, patrons and decision-makers at each level. This study has therefore been designed with a triangulated methodology. A triangulated methodology, as initially proposed by Denzin (1989), approaches a research problem from multiple perspectives in order to improve the validity of findings. The researcher may choose to triangulate data, methods, theories, or even researchers. For the purposes of this study, the design follows a triangulation of methods— more specifically *between-method triangulation*. Between-method triangulation involves selecting multiple methods that supplement one another in an effort to overcome each individual method's shortcomings. Most commonly, this involves,

> the combination of reactive procedures…in which the investigators are part of the research situation, and non-reactive procedures...that is to say, data that were not set up for the investigation. (Flick et al., 2004, p. 180)

Critics of triangulation note that the same qualities which have the potential to strengthen the validation of data, may also work against it. The researcher may incorrectly assume that different methods can be applied in the same way to achieve similar results, or that such results represent an absolute totality (Flick et al., 2004, p. 179). When combining methods, it is crucial to treat each method separately and acknowledge its individual strengths, weaknesses, and traditions. Rather than producing objective validity or accuracy of results, triangulation contributes to a deeper knowledge of the research problem than could be achieved with a single method alone. Triangulation will be helpful in discussing the findings of the study, in order to draw connections across methods.

For this investigation, I have selected one non-reactive method using publicly-available policy documents as a secondary data source for discourse analysis. This has been combined with two methods that follow reactive procedures: semi-structured expert interviews and participant observation, both based on primary empirical data collected

through social interactions. The triangulation of methods is tied together through the lens of *discourse,* drawing on a Foucauldian perspective. Foucault proposes that meaning is constructed through discourses, or representational practices, which in turn guide actions (Dunn & Neumann, 2016). For the purpose of triangulation, discourse serves as a red thread connecting the three methods. Each method works with a different kind of source material, representing a particular form or genre of speech that contributes to a larger discourse. Each source offers a different perspective on platformization discourse, from how that discourse is constructed to how it materializes. In this way, connecting the methods through the lens of discourse allows these different methods to supplement one another in achieving a greater understanding of platformization processes at work. Interview data, for example, is useful in highlighting areas of alignment with or difference from policy documents. Likewise, participant observation data can be used to evaluate the ways in which platformization discourses become manifest in the world. This focus on discourse assists in bridging the gap between knowledge construction and action, which will aid in addressing the research questions posed. The resulting findings will be presented using the analytical framework presented in Chapter 4.

5.2 Foucauldian Discourse Analysis

How might one identify processes of platformization taking place within the library system? In continuing to follow a constructivist epistemology, one site where social meanings and practices emerge is through *discourses.* In this section, I will expand on the definition of discourses and how they can be approached through the method of discourse analysis. This will be followed by an extrapolation of the Foucauldian Discourse Analysis methodology used in this research.

Discourse can refer to any mode of representational communication—visual or linguistic—which acts as a vehicle for relaying meaning. Though there are wide-ranging interpretations of what discourses are and how they function, I will follow Dunn & Neumann's (2016) conception of discourse, which is rooted in a Foucauldian tradition:

> We understand a discourse as a system producing a set of statements and practices that, by entering into institutions and appearing like normal, constructs the reality of its subjects and maintains a certain degree of regularity in a set of social relations…discourses are systems of meaning-production that fix meaning, however temporarily, and enable actors to make sense of the world and to act within it. (p. 4)

Discourse can be thought of as a locus where representation, meaning, and practice intersect. The Foucauldian perspective follows a basic assumption that discourses are not neutral, but rather *do* something—they reveal meaning that is socially constructed, and carry the potential to put those ideas into *practice* by presenting them as normalized. Discourses provide hints as to what values, logics and power dynamics exist around a particular topic. Government institutions have particular weight in the realm of discourse, due to their inherent power and influence in structuring society. This makes discourse a valuable tool for exploring the uses and meanings of a concept like *platformization*, and how it is operationalized within the institutional context of the library.

One way of approaching such a problem is through the method of *discourse analysis.* Discourse analysis is a methodological tradition with numerous scholarly interpretations, which at its core seeks to investigate *how* meaning is constructed through representational practices. There are three main approaches to discourse analysis, each with its own theoretical foundation and analytical method: 1) the critical linguistic tradition frequently associated with Fairclough (2013) and Critical Discourse Analysis focuses heavily on the symbolic power of language; 2) the tradition rooted in speech-act theory (Austin, 2009; Searle, 2012) emphasizes how discourse structures social interaction; and 3) the post-structuralist tradition commonly associated with Foucault takes an interest in how discourses operationalize and normalize systems of meaning within society (Gill, 2000). Unlike Critical Discourse Analysis which assumes that the subject and the discourse exist separately from one another, Foucauldian Discourse Analysis works from the premise that social reality, including the subject's position, is formed through discourse. The power of discourse, in this case, lies in its ability to not only "construct objects, subjects and problems, but…also simultaneously articulate policies to address them" (Shapiro in Dunn & Neumann, 2016, p. 60). This approach starts with the representations themselves, and works outward to develop an understanding of social reality and the power relations within it.

In this study, I follow a Foucauldian, post-structuralist approach to discourse analysis of policy documents and expert interviews, as it is well-suited for investigating how particular concepts are *operationalized* by institutions. Although Foucauldian Discourse Analysis has not been formally used to analyze the participant observation data, I draw on a Foucauldian understanding of discourse to make sense of the observation results in connection with the other two methods. This approach allows for a focus on the construction of meaning through discourses, incorporating both language and practice, and is particularly useful for exploring

meanings associated with a newer concept such as platformization. It also affords an opportunity to examine the kinds of policies or practices indicated by such discourses.

5.2.1   Foucauldian Discourse Analysis of policy documents

The objective of the discourse analysis of policy documents is to identify *discourses of platformization* within the library's core institutional communications. This method will be useful in understanding how systems of meaning are constructed around this concept, and the kind of action they enable. By 'discourses of platformization,' I mean the core thematic elements that comprise platformization as a concept—not the explicit use of the term itself. These thematic elements are drawn from the scholarly literature on platformization outlined in the analytical framework (see Chapter 4), including: data infrastructures, economic processes, and governmental frameworks. I have chosen not to focus on the specific *term* 'platformization' because this term is not often explicitly used by institutions; it encompasses a number of *processes* transforming the core elements listed above. Through this form of analysis, I aim to illuminate the discursive construction of the platformization concept within an institutional framework, and to illustrate how this discourse enables social practices.

5.2.2   Selection of source materials

For the purposes of this research, I selected two official documents which are intended for application across the entirety of the library system:

- The Public Libraries Act (Ministry of Culture, 2014)
- A space for democracy and cultivation: The Norwegian national strategy for libraries 2020-2023 (Ministry of Culture, 2019)

These documents were selected because they are intended to direct the strategy and vision of the Norwegian library system as a whole, and are appropriated by local and county libraries in the development of their own strategies. Both of these documents are publicly available online, but their intended audience is primarily institutional professionals or politicians. The Public Libraries Act is the national law establishing the purpose and function of the library system, which was first published in 1985 and revised in 2013. The national strategy is a strategic document developed by the Ministry of Culture and the Ministry of Education and Research, which communicates key tenets for strategy and development during a four-year period. I have selected the most current version of this strategy, which is used by the library system during the time of writing. While both of these documents were originally published in Norwegian, both of them are available as English translations, and I have used these

translations for the purposes of this analysis. There are many additional documents that could have strengthened the results of this study or provided interesting insights, such as the county library strategies or local library strategies mentioned. While these strategies were referenced as background material for the development of interview questions, they were excluded from discourse analysis simply due to the scope of this study.

5.2.3   Conducting the analysis

While there is no universal procedure for conducting Foucauldian Discourse Analysis, there are several core principles that guide the methodology. Dunn & Neumann (2016) outline three general steps to direct the researcher: 1) selecting a discourse and relevant sources; 2) identifying representations that align with the selected discourse; and 3) examining the layers of discourse, including potential meanings and preconditions (p. 8). Before approaching the materials for analysis, the analyst should become familiar with the culture surrounding the source materials. I acquainted myself with the Norwegian library system and its terminology by reading a variety of public documents and industry articles, as well as visiting some of the libraries. My familiarity with the Norwegian language allowed me to sift through background material in both Norwegian and English, broadening the selection of available material. It was also important to develop a research question to guide the analysis. In the case of Foucauldian Discourse Analysis, the questions that guide the researcher typically relate to the meanings associated with a concept, how language frames that concept, who constructs these discourses, and the purpose they serve (Dunn & Neumann, 2016, p. 5). The research question I developed to guide this analysis is: *How are discourses of platformization constructed within core policy documents, and what practices might they enable?*

To answer this question, I began by conducting a close reading of each document. During close readings, I manually identified representations [textual passages] that expressed ideas related to the core elements of platformization: data infrastructures, economic processes and governmental frameworks. These representations were inventoried by theme, and continuities were mapped across themes and documents. A focus on continuities is what Mutlu & Salter (2012) call a *plastic* approach to discourse analysis. A plastic analytical strategy highlights, "the persistence of particular metaphorical schema," often working with an "organizing principle" and connecting or referring to other texts (p. 113). In this case, the organizing principle or metaphorical schema is the concept of platformization, as outlined in Chapter 3. Other texts such as scholarly literature around platformization were used to identify continuities with the source materials.

Although the documents do not explicitly use the word 'platformization,' Foucauldian Discourse Analysis defines discourse not as a single word, but rather the knowledge systems surrounding a concept. Therefore, the concept of platformization could be extrapolated beyond scholarly texts in order to identify thematic or metaphorical continuities within the documents. I looked primarily at the vocabulary used within the representations, in particular the verbs, adverbs and adjectives connected to nouns. This strategy is also known as *predicate analysis,* and is intended "to expose how certain meanings or capabilities are established, thus enabling actors to understand and act in certain ways" (Dunn & Neumann, 2016, p. 111). It focuses on how an object is *described* as a way of revealing how our understanding of that object is constructed. Because these forms of vocabulary connect description and action, predicate analysis provided a useful way of linking discourse to practice. Specifically, I noted verbs, adjectives and adverbs connected to nouns relating to data infrastructure, markets or governance. Representations that were repeated were of particular interest, due to the emphasis placed on them. I then explored how the selection of predicates suggested a particular understanding of the nouns, and how representations related to one another. Finally, I reviewed the texts once more, with a focus on how representations guided potential action. Although this analysis focused on continuities, I also noted where there were deviations across representations, or ruptures from existing platformization scholarship. Due to the scope of this study I excluded the step of layering discourses, which is a historical, change-over-time lens used by Foucauldian discourse analysts.

5.3 Expert interviews

Because Foucauldian Discourse Analysis focuses on how representations, "enable actors to know the object and act upon what they know" (Dunn & Neumann, 2016, p. 60), I selected *expert interviews* as a method of understanding how key actors within the Norwegian library system operationalize these ideas. Expanding on the notion of 'practice' (5.2), interviewing experts allowed me to incorporate personal accounts from decision-makers responsible for implementing strategies such as those in the policy documents referenced above. Interviews were transcribed and coded following Meuser and Nagel's (2009) methodology for expert interviews, and analyzed following the Foucauldian Discourse Analysis methodology (5.2)

The qualitative, semi-structured expert interview follows a flexible interview guide with open-ended questions, and designates experts as its informants. Expert interviews are

particularly useful for gaining insight into larger organizations or specialized knowledge within a field, which might not be easily accessible otherwise (Bogner et al., 2009). Given the library's extensive national infrastructure, documents alone would not provide a sufficient understanding of *how* processes of platformization might be taking place in reality. These documents present strategic direction that is then carried out *in practice* by those working in the library system. Expert interviews are a form of speech where platformization discourses may extend from these strategic documents to be reflected in how institutional representatives speak about and practice their roles. Therefore, expert interviews with library staff and decision-makers, as spokespersons for the institution, was selected as a complementary method.

The initial research question guiding these interviews was: *How does the public library in Norway envision itself as a platform both in theory and in practice?* It became clear, however, that the informants were not always *aware* of the ways in which the library acted as a platform. They did, however, describe processes of platformization occurring within the library, whether they were conscious of these processes or not. The guiding research question thus evolved to: *In what ways do platformization processes materialize within the Norwegian library sector?* The objective of these interviews was not to produce repeatable, generalizable results or to prove a specific hypothesis. Rather, the purpose was to gain a better understanding of platformization processes taking place, directly from those working within the organization. In addition, the interviews allowed for an understanding of how platformization discourses shape experts' actions.

While there are several types of expert interviews, this research follows the *theory-generating expert interview* methodology as conceptualized by Meuser and Nagel (2009). The purpose of the theory-generating expert interview is, "the communicative opening up and analytic reconstruction of the subjective dimension of expert knowledge" (Bogner & Menz, 2009, p. 48). The job of the researcher is to uncover and interpret the implicit meaning within the knowledge shared by experts. Although there has been much debate about what constitutes an *expert*, I adopt Bogner & Menz's approach which,

> sees expert knowledge as an "analytical construction" and, at the same time, incorporates the expert's "formative power"…Experts are generally of research interest above all because they are in a position to actually put their own interpretations into practice. (Bogner et al., 2009, p. 7)

Experts are not a source of absolute knowledge—rather, they can be thought of as the *means* by which ideas or concepts are put into practice. This is particularly helpful in understanding

how processes and strategic visions are realized by individuals within a larger organization. From these accounts, the researcher is able to infer meaning that can be extended to a larger social context through the selected theoretical lens.

I follow the methodology proposed by Meuser and Nagel (2009), which involved: 1) development of interview topic guide; 2) data collection through conducting interviews; 3) transcription of thematically-relevant passages; 4) coding of passages by themes; 5) thematic comparison; and 6) conceptualization (pp. 35-36). I draw on Foucauldian Discourse Analyses to approach the final step of conceptualization. In the following sections, I will explain the selection process for interview informants, as well as expand further on the methodology used for data collection and analysis.

5.3.1   Selection of informants

When designing the interview study, it was important to represent the breadth of the Norwegian library ecosystem. Given the limited scope of this project, it was not possible nor reasonable to interview representatives from every library in the country; therefore, a selection process was initiated. I prioritized locating informants who are directly involved in particular areas related to the topic of study—namely, the library's digital offering, data ownership, or digital partnerships. In the case of public libraries, it was also important to include libraries from municipalities of varying sizes. This is because a library's offering can vary greatly by the size of the municipality they serve.

Recruiting experts can be a challenge because those in key roles may be busy, difficult to get in touch with, or simply not interested in participating in student interviews (Meuser & Nagel, 2009). I was able to overcome this by first asking for references from personal contacts in the library sector, as well as asking informants at the end of interviews if they could recommend additional contacts. The informant identification process began in November 2020, and continued throughout the research period from December 2020 to January 2021. I began with an initial pool of 4 informants, which grew to 9 through informant recommendations. Because the expert interviews were intended to provide insight into the functioning of individual libraries rather than a generalizable representation of the entire system, saturation was not a primary concern. A goal of two informants per library was established, in order to attain multiple perspectives from each library. I was able to meet this goal for every library except one, where only one representative was able to commit to an interview. In all cases, I emailed each potential informant introducing myself and the project, and included an information letter (see Appendix C) describing the objective of the interview

and project, data processing and privacy considerations, as well as a consent form to be signed.

I have included a short description of each informant's professional role and their corresponding library below. Because the names of the informants do not contribute significant value to the research findings, this personal information has been omitted. In the coming chapters, informants will be referred to using a numbered code which aligns with the numbers below (Appendix A).

1. **Trondheim Public Library, library director**. Involved in the digitalization of the library sector and digital development projects, with over 30 years of library experience.

2. **Trondheim Public Library, ICT adviser.** Responsible for the development of digital services and tools for the library, focusing on hardware. Over 30 years of experience in the library sector.

3. **Skien Public Library, user services adviser.** Focused on the development of digital services. Involved in the planning of the new Ibsen Library in Skien, scheduled to open in 2026.

4. **Skien Public Library, library director**. Involved in the planning of the new Ibsen Library and member of the National Library's strategic board.

5. **Deichman Stovner Public Library, specialist librarian.** Works on the floor in the library on a day-to-day basis, assisting patrons and facilitating daily operations.

6. **Deichman Stovner Public Library, adult education and multicultural adviser.** Works with integration and inclusion programs for immigrants, as well as daily operations in the library.

7. **Vestfold & Telemark County Library, adviser**. Focused on the county library's digital development projects. Background in collection management within local public libraries.

8. **National Library, senior adviser in the Secretariat for Library Development.** Works with library development, primarily public libraries. Responsible for project funding, and has worked on several reports on the future of Norwegian libraries.

9. **National Library, head of metadata standards development team.** Part of the department for bibliographic services and acquisitions. Responsible for the cataloguing systems and bibliographic formats, and metadata development in general.

5.3.2   Developing the interview guide

Crafting a topic-based interview guide is the first step in in the theory-generating expert interview methodology proposed by Meuser & Nagel (2009). Unlike a structured interview where a specific set of questions is asked of all informants, a topic-based guide is more open-ended and tailored to each informant's experiences, allowing them to share their reflections more freely. An example of a topic-based interview used in this research can be found in Appendix B. I began by developing a set of topics followed by several open questions within each topic. As Meuser and Nagel (2009) note, the researcher's perceived knowledge impacts the level of information the informant feels comfortable sharing. The process of developing these topics therefore required background research on each library's activities and each informant's role. I began all interviews by asking about the informant's professional background and current role. From there, specific questions varied per informant, but were categorized within the following topics:

- o   Planning digital tools & services
- o   The library's role within the community
- o   Processes of digitalization

Within each of these topics, I developed open questions for each informant based on their role and area of expertise. These questions addressed the informant's knowledge, opinions, and experiences of each topic, as starting points to guide the conversation. This allowed the discussion to flow more naturally based on the informant's responses. Having background knowledge about the topics of interest allowed for proper follow up questions. Generally, the experts were eager to share their perspectives, and many of them expressed that the interview process made them reflect on their own work in a new or different way. While additional respondents would have strengthened the dataset, I was satisfied with the number of respondents and the breadth of the library system represented given the scale of this study.

5.3.3   Conducting interviews

I conducted nine expert interviews in total, with each interview lasting between 45 minutes to one hour. Because this research was conducted during a pandemic that hindered the possibility of face-to-face interviews, the video-conferencing platform Zoom was used to conduct and record the interviews. While this allowed access to informants in a variety of geographic locations without travel or cost, it should be acknowledged that digital interviews may have a different dynamic than in-person interviews (Bryman, 2012, p. 658). This is due to the fact that body language may be restricted, the environment may be unstable due to

distractions or other interference, and technical issues may interrupt the interview. I therefore took extra care to test technical equipment and have backup solutions.

It was important to make the informants feel at ease in the interview situation, and to show that I had enough competence in the subject area to be respected as an interviewer. Prior to the interviews, I informed all participants that interviews would be conducted in English. All but one were comfortable with this, despite it being their second language. One interview was conducted entirely in Norwegian. To set a comfortable tone, I began each interview in Norwegian by sharing a bit about myself, my interest in libraries, and my motivation for the project. I also gave them the opportunity to supplement words or expressions in Norwegian where they felt necessary. I then their consent to video and audio recording, before beginning the recording in Zoom. Throughout the interviews, I took notes in a Word-document version of the interview guide, noting particular thoughts I found interesting for follow-up questions and later analysis. I ended each interview by asking the informant if they had any final reflections or questions. In addition, I asked each informant if they knew any other relevant contacts who might have helpful insights for my research, and who might be interested in participating in an interview. Many of the informants provided direct references to new contacts, which allowed me to expand the pool of informants throughout the research process.

5.3.4 *Analytical approach*

The analytical approach for the expert interviews involved a multi-step process, beginning with the coding and transcription process, followed by Foucauldian Discourse Analysis of transcripts. For the coding and transcription process, I followed the approach outlined by Meuser and Nagel (2009) which draws on concepts found in *grounded theory* and adapts them for the expert interview genre. This was combined with a Foucauldian Discourse Analytical approach (5.2.1) to make sense of the transcribed data, allowing for triangulation with data generated through policy documents and participant observation.

Grounded theory is a methodology that involves a simultaneous process of comparing and analyzing data throughout the research process (Charmaz & Belgrave, 2015). Its core elements of coding and comparison are echoed in the analytical approach put forth by Meuser and Nagel (2009), with an added emphasis on *thematic elements* or, "passages with similar topics which are scattered about the interviews" (p. 35). The primary elements of this methodology include transcribing key thematic passages, coding these passages per interview, comparing them between interviews, and finally conceptualizing the results across all interviews within a theoretical framework. Unlike other kinds of qualitative interviews,

transcription of the full interviews is not required; only transcription of relevant thematic passages is necessary.

Discourse analysis of interviews follows a similar methodology to the one outlined by Meuser & Nagel (2009), and therefore allows these two approaches to be combined. The core methodological elements of interview discourse analysis involves reading transcripts, identifying themes, identifying how these themes are constructed, and comparing these constructions across interviews (Harding, 2015). Therefore, once passages have been transcribed, these transcripts can be used to conduct a Foucauldian Discourse Analysis. This analytical mode helps frame the comparison and conceptualization of interview transcripts. In this study, the purpose of a Foucauldian Discourse Analysis of interview transcripts is to explore how platformization discourses emerge in institutional representatives' speech, and guide the actions they take.

I began the interview analysis by using the interview guide topics as themes, and transcribed the passages from each interview that fell into one of these thematic categories. Because Foucauldian Discourse Analysis is more focused on the construction of ideas rather than linguistic qualities, it was not necessary to use the full transcripts of the interviews. Once relevant passages had been transcribed, I reviewed all passages within each single interview to develop more nuanced coding categories. These categories were based on the specific themes that emerged within each interview, which involved condensing the meaning of passages to draw out their significance. Although Meuser and Nagel (2009) recommend paraphrasing the passages at this stage, I have chosen to omit this step to maintain the informants' own formulations. Once passages were coded with nuanced categories at the individual interview level, a thematic comparison across interviews was conducted. This involved identifying platformization discourse in the way these themes were addressed, and the elements that constructed those discourses. Finally, I conceptualized the results in relation to the larger analytical framework for this thesis (see Chapter 4), looking for continuities in discourses related to data infrastructures, economic processes, and governmental frameworks.

5.3.5 *Challenges of qualitative interviews*

The primary challenges faced in qualitative interview research are the reliability, generalizability and validity of interview data (Kvale & Brinkmann, 2015). Reliability indicates, "the degree of consistency with which instances are assigned to the same category by different observers or by the same observer on different occasions" (Hammersley, 2013, p. 67). This primarily concerns the researcher's role in the coding process, acknowledging that

even the same researcher may code data differently over a period of time. The fact that I was the sole interviewer and coder helped improve the reliability of the coding. I also reviewed the coded data twice, to ensure data was categorized as consistently as possible. Critics of the expert interview method note that the subjective specificity of each interview make generalizability across interviews a challenge (Bogner & Menz, 2009). Since the objective was not to find commonalities across all informants, but rather to gain insight into a variety of perspectives, this was not a hindrance for my research. The inclusion of two representatives per participating library was in effort to ensure an adequate sample, thereby improving the validity of the results. While these representatives were not intended to represent the totality of an entire library's operations, as experts within their field they still offered valuable insights that became even more valuable when placed in conjunction with others. The methodological strategy of triangulation also improved validity by placing the interview results, institutional documents and observation data in dialogue with one another.

5.4 Participant observation

Poell et al. (2019) emphasize, "the importance of considering platform-based user practices when analyzing platformization" (p. 5). With policy documents and interviews providing two different angles toward platformization from a professional or industry perspective, it was also important to gain insight from a *library user* perspective. Participant observation was selected as a continuation of the qualitative empirical data collected in interviews, through a case study of one library's Digital Language Café program. In the following section, I will provide background on participant observation as a method, and the objective of participant observation in this study. I will then explain how research and analysis were carried out.

Participant observation is a method typically used in ethnography, to describe the behaviors or culture of a group through immersion within the group environment (Bryman, 2012, p. 432). Through participating in group activities or environments, the researcher observes behaviors in order to gain a better understanding of the group's culture. Whereas the other methods in this study focus on institutional decision-making and processes, participant observation offers one example of the way platformization materializes for the *library user*. Through the lens of discourse, this gives a sense of how the platformization discourse presented in the interviews and policy documents manifests in the world.

I selected Deichman Stovner's Digital Language Café program as an object of study, as this was one of the only libraries offering this kind of activity at the time. Digital Language Café is an educational program offered by Stovner Public Library on Zoom, which is designed for immigrants looking to develop their Norwegian-language skills. The research was guided by the question: *How does Deichman Stovner Public Library use Zoom as a platform to facilitate social participation during Digital Language Cafe?* Because the study was conducted in the context of this single library, this portion of the study is limited in scale. As a result, the findings are not intended to be generalized across the larger library system, but offer insight into how one library uses a digital platform to conduct activities with its users.

5.4.1 Participant observation of Digital Language Café

After an expert interview with a respondent at Deichman Stovner Public Library, I was invited to join the library's weekly Digital Language Café sessions on Zoom as a researcher and participant. The Digital Language Café is a weekly event facilitated through the Zoom video-conferencing platform. Before the COVID-19 pandemic, language café had been held in the physical library space, but was moved to an online format mid-2020. I joined two consecutive sessions during February 2021. Each session was held on Zoom, lasting 1.5 hours each and involving 30-40 participants.

For data collection, I followed the methodological principles outlined by Pink et al. (2016) for ethnographic research on digital practices. A focus on digital practices looks at, "what people do and how these doings might be constitutive of wider social configurations, contexts and processes" (Pink et al., 2016, p. 57). The researcher is more concerned with the role media play in everyday life, rather than personal experiences. During each session, I joined as a researcher-participant and took part in the various language-learning activities with the other participants. At the same time, I typed field notes in a Word document describing my observations throughout each session. These field notes focused on describing user-platform engagement, as well as my own reflections.

Once field notes had been collected, I conducted an analysis of the observation data, connecting back to the lens of discourse presented in the policy documents (5.2) and interviews (5.3). While I did not conduct a discourse analysis of the observation data, I view the Digital Language Café as a *manifestation* of platformization discourse. To begin the analysis, I first reviewed my notes and identified commonalities and differences between the two sessions. I then categorized observations based on the themes that emerged. Two primary

themes surfaced from the data: 1) observations about the Zoom platform's features more broadly, and what these made possible for the Digital Language Café format; and 2) observations about what features were used and not used by participants, and what these features allowed for during the sessions. Finally, I looked for continuities between these observations and the three theoretical pillars of platformization: data infrastructures, economic processes, and governmental frameworks.

5.4.2 Concerns and challenges

Access to the group was not a challenge, as sessions are open to the public and I had already established a relationship with the program leader. During observation, one concern for participant observers is how active or passive a role they should take during the research process, as this can impact the behavior exhibited (Costello et al., 2017). I made an effort to participate as a group-member, in order to make my presence feel more natural. Being a Norwegian language-learner myself and having participated in similar language-learning activities before helped with this. Although participant observation typically involves the long-term involvement of the researcher with a group, this was a very temporary engagement intended to shed light on a single case example.

5.5 Ethical considerations

Expert interviews

The interview process was conducted in accordance with the guidelines set by the University of Oslo [UiO] and the Norwegian Centre for Research Data [NSD]. This process began before any informants had been contacted, by notifying NSD of the project and specifying how data would be collected, processed and stored. Data was processed using UiO's contracted partners, Zoom and Microsoft Outlook. In addition, data was stored according to UiO's *restricted* security level[2], using an encrypted memory stick. I received approval for the project from NSD in November 2020, and a copy of the approved notification form can be found in Appendix D. I carefully considered what personal information was necessary to collect given the research questions and methods selected. In addition, I confirmed each participant's consent to video and audio recording at the start of each interview. While video and audio recordings were stored on the memory stick, no personal identifying information besides the library name and role of each participant was

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[2] https://www.uio.no/english/services/it/security/lsis/storage-guide.html

recorded in the transcription of the interviews or included in the analysis. Therefore, though the use of a scrambling key was initially planned to anonymize data such as the participant's names, this was not used in the final research process. Upon completion of the project, all personal data will be anonymized. I did not know any of the participants prior to the interviews or have a personal connection to the library, so there was no conflict of interest.

Participant observation

In the initial planning of this project, participant observation was considered as a method to observe how library staff carried out daily operations using digital tools, and how patrons engaged with the library through digital platforms or interfaces. Due to COVID restrictions in Norway, many libraries were forced to close their doors, though others remained opened with limited capacity. These restrictions meant that participant observation would not be feasible as originally planned; it did, however, create new opportunities for ethnographic study. Rather than conducting participant observation in the physical library space, I could observe *digital* library activities that had been moved from the physical space to online platforms. Because I had included participant observation on my initial NSD form, it did not need to be updated. I also made the decision to keep all data collection anonymous and unrecorded, and no personal identifying information was collected during participant observation. I did, however, inform all participants in the beginning of each session that I was a researcher, what the purpose of the research was, that no data would be collected. Participants could also let me know at any time if they felt uncomfortable being observed, and the observation would stop. The participants had also experienced researchers participating in these sessions before, which may have assisted in making the experience more comfortable for them.

6 Data infrastructures

Libraries, as repositories for published information, carry the responsibility of storing, processing and managing mass amounts of data. As the information landscape becomes increasingly digital, this data and the way it is managed are digitalized to a greater extent. The library's digital collections, activities and everyday operations rely on a complex technical architecture that extends from the National Library to the municipal library level. This chapter investigates the library system's *data infrastructures*: the ways in which data is created, managed, and shared within the library ecosystem. Throughout the chapter, I look at how data infrastructures are described through policy document and expert interview discourses. I identify the guiding principles that emerge through these discourses, how these principles are operationalized, and the kind of infrastructural systems they enable. I also consider how these principles reflect platformization processes, following the analytical framework presented in Chapter 4. Finally, I draw on these findings to analyze how data infrastructures function as a governance mechanism, and how ownership of data is negotiated through these infrastructures.

6.1 Guiding principles of platform infrastructures

Following the Google, Apple, Facebook, Amazon and Microsoft [GAFAM] model that dominates much of the current platform landscape, the way platform data infrastructures are constructed tends to reflect principles that strengthen the platform's governance and ownership of data. Platform architectures are characterized by their *programmability*, or the capacity for outside actors to engage with the platform's infrastructure and modify it for their own purposes (Andreessen, 2007; Helmond, 2015; Plantin et al., 2018; van Dijck et al., 2018). These programmable infrastructures are, "fueled by *data*, automated and organized through *algorithms* and *interfaces*" (van Dijck et al., 2018, p. 9). Yet each of these elements tends to be tightly controlled by the platform owner, highlighting concerns of power consolidation by platform companies (van Dijck, 2020b; van Dijck et al., 2018). Programmability as a guiding principle, despite implying notions of openness and collaboration, is somewhat misleading—there are strings attached. Certainly, the GAFAM model affords programmability, but on the platform owner's terms. As caveats to programmability, two other principles seem to guide GAFAM data infrastructures: *centralized control* and *proprietary ownership* (Plantin et al., 2018). Elements such as APIs (application programming interfaces), protocols, and data flows have become proprietary to

the point of preventing competition or diversity within the platform ecosystem, thereby acting as modes of governance by platforms and platform companies (van Dijck, 2020b). And although outside developers are able to make modifications, the platform owner centrally determines the rules for if and how modification is possible, with its own interests in mind.

To investigate platformization processes occurring at the data infrastructure-level, it will therefore be useful to interrogate *how* programmability is negotiated: on what terms and by what means outside actors are able to engage with or modify the platform. This also raises questions of data ownership, and how infrastructural components act as modes of governance within the platform ecosystem. Looking to the Norwegian library system's data infrastructures, what elements align with or depart from the GAFAM-model? What principles guide its technical architecture? These questions will be investigated in this chapter. Through the discourses found in policy documents and expert interviews, three primary themes emerge around the subject of data infrastructures: interoperability (6.2), decentralization (6.3), and data flows (6.4). I will explore each of these themes in relation to the platformization processes presented in the analytical framework (4.2).

6.2 An interoperable framework

The notion of *interoperability* emerges as a primary theme within policy document and expert interview discourses, and is presented as a guiding principle for the Norwegian library system's data infrastructure. Interoperability describes the extent to which different elements within a system are able to work together across that system (Ribes, 2017). If programmability is the ability for outside actors to engage with a platform ecosystem, then interoperability is the ability for components *within* the platform ecosystem to engage with one another. Two of the three priority areas in the *National strategy for libraries 2020-2023* align with this notion of interoperability: 1) Cooperation and development, and 2) Infrastructure. There is a desire to, "strengthen cooperation and the sharing of resources between libraries, different types of institutions and administration levels," (p. 21) as well as to develop shared services and infrastructure (p. 8). The structure of the Norwegian library system itself (see 2.1) enables an interoperable framework: the National Library, supported by the county libraries, leads the development of infrastructural initiatives which allow *knowledge* (6.2.1), *resources* (6.2.2) and *data* (6.2.3) to be shared across the entirety of the library system.

6.2.1 Knowledge sharing

Knowledge sharing refers to the infrastructures which allow the municipal libraries, county libraries, and National Library to connect and learn from one another. This enables the heterogeneous counterparts of the library system to function as a unified whole, and to work toward common objectives. The sharing of skills and knowledge within the library system is facilitated through infrastructural measures such as proprietary platforms and development initiatives, which are led by the National Library and county libraries. The *National strategy for libraries 2020-2023* (2019) highlights *Bibliotekutvikling.no* as one example of a proprietary, internal knowledge-sharing platform.

Developed by the National Library, Bibliotekutvikling ("library development," in English), is a digital platform for knowledge exchange and skills-sharing amongst library staff, as well as a database of library statistics and development projects. The platform is also being expanded to incorporate an e-learning offering, where library staff can take online courses and watch streamed professional events. The *National strategy for libraries 2020-2023* (2019) lists Bibliotekutvikling as one of the measures to strengthen the system's shared infrastructure, describing it as, "a digital platform for interaction between the country's library staff…as well as being a source of information about national services that are mainly delivered by the National Library" (p. 35). The platform is presented as the municipal and county libraries' virtual access point toward the National Library: services, resources and data generated nationally are accessible locally through this digital portal. The strategy heavily emphasizes Bibliotekutvikling's *accessibility* to all library staff, regardless of location or funding level. It is intended to be especially helpful for libraries with limited resources, who otherwise might not receive the same training, resources or collaboration opportunities as those with greater resources. The hope is that this will have a democratizing effect across the library system, enabling development through shared resources and cross-library collaboration.

The importance of interoperability is reiterated in expert interviews with library staff. One library staff member explained the benefits of exchanging knowledge across the library system, particularly with libraries who have greater resources:

> When you are bigger, you have more resources and you have an insight that we do not get. But they are so good at sharing and making sure that we can take part in everything they see and do. And that's a quality I have not seen in other parts of the cultural sector that I have worked in. This is an extra quality that the library and the library community have: the sharing. (Interview 4, December 2020)

An informant working on the Bibliotekutvikling platform team at the National Library echoed this sentiment, highlighting that the role of the platform in facilitating cross-library collaboration is, "to help libraries learn from each other" (Interview 8, January 2021). By sharing their own development projects, visitation statistics and professional resources, each individual library contributes to the development of the library ecosystem as a whole. The data provided by each library is, in essence, what forms the foundation of this knowledge-sharing infrastructure. It is then *recirculated* into the library system, to increase the functionality of the ecosystem as a whole. In these discourses, knowledge itself is constructed as a resource, highlighting the key role that collective intelligence and innovation plays in building the future of the library.

While these discourses illustrate a guiding principle of interoperability, they also reveal elements of *programmability* within the library system's knowledge-sharing infrastructure. The Bibliotekutvikling platform's resources, e-learning courses and forums are flexible, *modular* components intended to be leveraged and built upon, both within and beyond the realm of the online platform. Library-generated data is organized through the platform interface in a way that is searchable and freely available for other libraries to use in creating something new. This echoes platformization discourses which highlight architectural properties of *flexibility* and *extensibility* (Plantin et al., 2018). Platform architectures are described as having a stable core, with components that can be recombined in new and varied ways (Baldwin & Woodard, 2008). In this case, the National Library provides a stable infrastructural core, while providing resources for the larger ecosystem of libraries to adopt and repurpose for their own individual needs.

The merging of infrastructural properties such as interoperability with platform properties such as programmability reflects what Plantin et al. (2018) call the "platformization of infrastructures" (p. 306). As an interoperable infrastructure, Bibliotekutvikling connects the different libraries across the library system. As a programmable platform, it enables these libraries to create new resources both on- and off-platform. This is also related to *infrastructuralization,* the process by which platforms become embedded as infrastructures of everyday operations (Plantin et al., 2018; van Dijck, 2020b). The Bibliotekutvikling platform-as-infrastructure has become a necessary professional resource within the library system, and the primary way for library staff to learn, communicate, and collaborate through one system.

6.2.2 Resource sharing

In addition to knowledge sharing, the library's interoperable infrastructure is also supported through *resource sharing* across the library ecosystem. While knowledge is framed as one kind of resource, the policy documents and expert interview also stress the importance of *shared services and collections* as common resources. Although each library maintains jurisdiction over what services and collections they choose to utilize, the National Library and county libraries serve an infrastructural function by negotiating and developing common services that are available to all libraries. This allows even the smallest libraries to have a certain base-level offering, which ensures a level of equality across the library system.

Unlike physical collections, local libraries do not own most of their digital collections. Although the National Library will digitize all existing physical published materials, it relies on agreements with publishers and service providers to supply digital collections of e-books, e-audiobooks, and film. Some of these agreements are made nationally, while others are negotiated by the county libraries on behalf of the local libraries. Some of the external service providers named during interviews and in the national strategy include the film-streaming services Filmbib and Filmoteket, the e-book and audiobook service Bookbites, and the digital newspaper and magazine service Pressreader. Each local library's digital offering is dependent on the external service partner agreements they have in place. Because each service provider has its own business model and pricing, having the national or county library negotiate on behalf of the local libraries allows for better agreements and a more standardized offering. One of the informants working at a county library described this process during an interview:

> All the libraries are chipping in to a pool of money, and there's a group of librarians who decides what to buy in. And we then curate that, so that they have a meeting point and are also involved in those meetings where they choose what to buy and not buy, and [the county library] also chip in a little bit of money ourselves. (Interview 7, January 2021)

This echoes the amendment to the Public Libraries Act (2014), which positions the county libraries as strategic partners for the local libraries. By acting collectively, the libraries have greater negotiating power toward service providers. While all service agreements are optional, many of the libraries choose to take part because of these better terms. The county libraries encourage this, as they see this form of interoperability as crucial to providing a more equitable digital offering for users across the library system.

Internally, the National Library has also developed two inter-library lending tools to enable the sharing of collections across the library system. These two tools are: Library Search, which is available to all libraries and library users; and BaseBibliotek, an international inter-library lending tool. These inter-library lending tools expand each individual library's collection by consolidating *all* library collections in one place, effectively allowing library users to borrow from any library in the system. The *National strategy for libraries 2020-2023* (2019) describes the benefit of these tools, as allowing "borrowers themselves to order literature from all libraries in Norway. At the same time, this…relieves staff of the task of ordering material from other libraries and frees up resources locally" (p. 28). In this way, the library acts as one entity rather than many small entities. This, in turn, allows library users to access a much wider range of resources than what is available in their local library alone. The sharing of resources empowers users to locate and request material on their own, as well as improving operational efficiency within the individual libraries.

Resource-sharing as a mode of interoperable infrastructure is presented as having three primary purposes in the interview and policy discourses: 1) to improve economic efficiency; 2) to improve operational efficiency; and 3) to improve access for library users. Expressions such as, "freeing up resources," "better utilization of resources," and "more easily accessible," are repeated throughout the strategy in relation to shared infrastructure and cross-library cooperation. These discourses echo the neoliberal discourses that Plantin et al. (2018) connect with platformization. The authors relate the rise of platformization to the collapse of public infrastructures in the 1970s, which signaled the beginnings of neoliberalism. As governments handed over their infrastructural responsibilities to the private market in an effort to maximize economic efficiency and cut costs, infrastructures transformed into, "increasingly fragmented, privatized, yet interoperable systems and services" (Plantin et al., 2018, p. 300). But while neoliberal discourses describe the paring back of government responsibility in infrastructure-building, here infrastructure is presented as a priority. The development of this infrastructure is also not left entirely to the free market. Instead, it is led centrally by the National Library, and 'fragmented' internally. What is present in the policy and interview discourses is a desire for increased efficiency by *distributing* responsibility across the library system. Rather than relinquishing infrastructural responsibilities completely, these responsibilities are *shared* and *delegated* amongst the county and public libraries. On the other hand, incorporating public-private partnerships serves a regulatory function by encouraging diversity within a platform ecosystem (Helmond et al., 2017; van Dijck, 2020b). This counters what Plantin et al. (2018) call the, "traditional

monopoly infrastructure mode" (p. 301). Again, the library's model illustrates a balance between infrastructural properties and platform properties. The result is an interoperable system that promotes resource-sharing in the interest of economic and operational efficiencies, while maintaining a focus on library user needs.

6.2.3 Data sharing

The library's interoperable framework is built on a foundation of *data sharing* as part of its infrastructure. The library is a data-powered institution, storing and sorting massive amounts of collection information, both digitally and physically. In order for the library to operate as a unified system toward its users, data sharing both within and beyond the library ecosystem is necessary. In this section, I will focus on the sharing of data *within* the library system, as a form of interoperable infrastructure.

The library system's internal data sharing infrastructure is formed around *bibliographic standards,* or *metadata*. Bibliographic standards are the rules and protocols used to classify, format and organize bibliographic data (Wiggins, 1988). These standards make data machine-readable, and allow it to be catalogued, retrieved and exchanged across the library system using automated systems. The *National strategy for libraries 2020-2023* describes this process:

> Metadata is exchanged in machine-readable form from supplier to library, between libraries and from libraries to key services such as Library Search…The National Library determines the format and protocols that Norwegian libraries must use. (p. 31)

The standards set centrally by the National Library allow data to be shared across the entire library system, creating a unified catalog that can be accessed through tools like Library Search. In addition, the standards follow an international protocol to ensure that they are compatible with library systems globally (Interview 9, February 2021). These standards contribute to quality cataloguing and retrieval processes, which are at the core of delivering relevant search results for library staff and end-users. Bibliographic standards ensure that identification data such as author name or book title is entered in a way that is consistent, helping the system index accurately. The more detailed and standardized the bibliographic entries are, the better the quality of search results, and the more likely a user will find what they are looking for. In this sense, bibliographic standards function as a kind of algorithm: they are the parameters and sorting mechanisms used to retrieve and deliver information (Bucher, 2018). Algorithmic logics of classifying, sorting and retrieving information have historically formed the core of the librarian's role. But, as one informant working with

metadata standards at the National Library expressed, these processes are being automated in order to minimize the time librarians spend on cataloguing and classification. The automation of these processes does not replace the librarian's role, but makes it more efficient and relevant, allowing library staff to focus on more 'human' tasks, such as assisting visitors. Although the use of bibliographic standards is intended to produce more consistent and relevant search results across the library system, there are still challenges in bringing together heterogenous data sources:

> Despite the standardized set of rules for registration and central access to metadata, local practices in the libraries affect the quality of Library Search. There are still too many duplicates that are easy for a human to see, but not for a computer that will do an automated merge. (Ministry of Culture, 2019, pp. 31–32)

Standardized data may help fuel automated processes, but this process is still a manual effort that requires human oversight in order to produce accurate results. At the same time, the use of machine learning to manage these processes is growing. Artificial intelligence and machine learning are promoted as ways to, "collocate data and find connections that humans are unable to see" (Ministry of Culture, 2019, pp. 30–31). In this vision, library staff are not replaced by automated processes, but work side by side with AI, each with complementary skills that together build an interoperable data system.

In addition to establishing bibliographic standards, the National Library is also establishing a *metadata vault* as a form of infrastructure, which will include all metadata generated by the National Library. All of this data will be freely available to the libraries without cost:

> Libraries can obtain metadata for their local catalogues, and this will be accompanied by a unique identification of the metadata. The metadata vault will also constitute a hub for the reuse of metadata between libraries. Other metadata suppliers can link up to the same infrastructure. (p. 32)

Developing a centrally-produced dataset that can be leveraged by all libraries allows for further unification of the cross-library catalog, preventing data duplicates and improving search relevancy. This level of standardization also enables new forms of programmability, by facilitating the *re-use* of data. As one informant working in the National Library noted, "if you have one set of metadata for each book, it's also far more simple to make digital services based on these metadata" (Interview 8, January 2021). Starting with a "stable core system" (Plantin et al., 2018, p. 299) of standardized data allows for the repurposing of that data by individual libraries. This aids in the development of new services by local libraries, through the use of linked data or the National Library's proprietary API. Linked data draws in

supplementary information from various sources (such as the open web) to produce more robust search results. This "paves the way for flexible reuse of data elements in different contexts and provides new opportunities to develop both national services and the libraries' own services" (Ministry of Culture, 2019, p. 31). In addition, a proprietary API makes it possible for developers to build on a stable foundation, while the library itself sets the terms of use. In this case, the library stipulates that the "interface must be documented and made accessible to allow its use" (Ministry of Culture, 2014, p. 29). In this way, the library is able to maintain its own interest and ownership of protocols, while also encouraging new, independent development.

The primary benefits of data-sharing are presented as making the library staff's work more efficient, as well as enabling greater autonomy for users to locate material themselves. A centrally-developed data infrastructure allows the various libraries to connect and work as one interoperable system, while also enabling programming of locally-adapted solutions, through modular components such as linked data and APIs. Together with interoperability, notions of *flexibility* and *extensibility* continue to emerge through these discourses. These themes are continuous with platformization discourses of *programmability*, illuminating where platformization processes may be at work. Departing from programmability discourses that stress the opacity of platforms such as GAFAM (Mackenzie, 2019), the library promotes a sense of programmability that is characterized by openness and accessibility. Throughout the policy and interview discourses, there is a consistent dichotomy of infrastructure and platform properties: interoperable and programmable; standardized and modular; centralized and distributed. The following section (6.3) will take a closer look at the balance between centralized and decentralized infrastructures in the Norwegian library system.

6.3 A decentralized operating system

As described in the previous section, the Norwegian library system's data infrastructures manifest properties of both infrastructures and platforms. This is further illustrated at the operational level, where a tension between *centralized* and *decentralized operating systems* is apparent in policy and interview discourses. In the field of computer science, the operating system refers to a base layer of software with two purposes: facilitating the user experience and managing resources (Tanenbaum, 2015). Operating systems are the infrastructures that applications are built on, setting the terms for how applications can be built. As control mechanisms for platform development, they represent forms of

infrastructural governance (Lustig, 2019). In this section, I will use the metaphor of the operating system to assess the infrastructural elements that guide the user experience of the library, and how resource distribution across the library system affects the user experience.

As noted in the conceptual framework (see Chapter 3), much of the current platformization discourse focuses on the five major commercial platforms [GAFAM] that dominate the western market. These platforms have operating systems that can be considered *centralized*. Platforms with centralized operating systems maintain proprietary ownership over access to processes and data, and set the terms of use for developers and users. Given their commercial nature, these centralized platforms are developed with profit in mind—and, therefore, have an interest in maintaining control over what they develop and how it gets used. This can lead to consolidated social and economic power, posing challenges for end-users, developers, and governments alike (Dijck et al., 2019). End-users struggle to maintain ownership of their data, developers are limited by proprietary protocols, and governments struggle with regulating platform power. Alternatives to GAFAM's centralized structure have been proposed. Van Dijck et al. (2018) suggest that, "governments, nonprofits, and corporations could become participants in multistakeholder collaborations—independent cooperations that develop decentralized yet interoperable systems which put public values at the center of their design" (p. 161). *Decentralized* systems, on the other hand, consist of many nodes. Each node has a level of autonomy and no singular point of control (Baran, 1964). A decentralized system allows for multiple developers to freely alter infrastructural elements, and is often associated with data ownership and privacy control for end-users. Baran's network model (Fig. 4) offers a visualization of centralized versus decentralized networks:

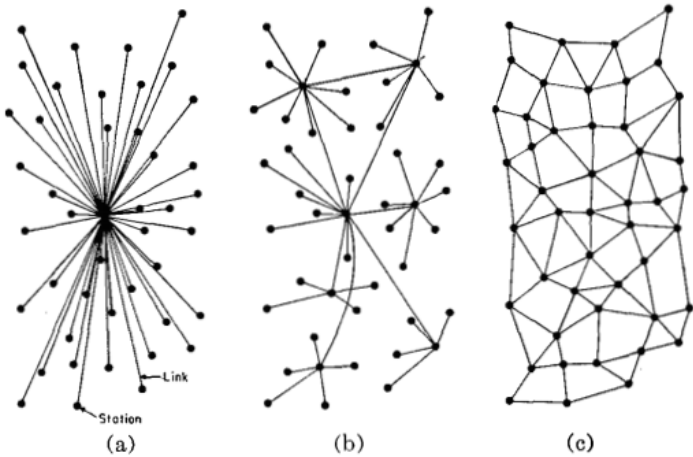Fig. 1—(a) Centralized. (b) Decentralized. (c) Distributed networks.

Figure 4. Baran's model of communication networks. Adapted from "On distributed communications networks," by P. Baran, 1964, IEEE, p. 1. © 1964 by IEEE. Adapted with permission.

The last illustration in Baran's model, *distributed networks*, refers to systems where nodes are interconnected, but separate. These networks can be controlled by either centralized or decentralized entities (Lustig, 2019). I will return to the notion distributed networks later, in section 6.3.3.

One of the objectives in the *National strategy for libraries 2020-2023* (2019) is to test "different models of operation and cooperation in libraries and library services" (p. 8). The library's current operating model can be evaluated by looking at the library's internal structure, as well as the daily operations and points of access for end-users. Going back to the computer science definition of the operating system referenced above, we might consider the library's internal operations as the 'distribution of resources,' and its external operations as 'facilitating the user-experience.' I will expand on each of these in the following sections.

6.3.1   Distribution of resources

While the National Library provides infrastructural elements such as funding, metadata and certain service agreements, most of the decision-making power regarding daily operations is made at the municipal level. From an infrastructural perspective, the *National strategy for libraries 2020-2023* (2019) clearly distinguishes between central and local responsibilities:

> The bulk of the development work must be driven by the library owners themselves, but the central government shall facilitate cooperation in a national library system, good framework conditions and the scope for testing new services and operating models. (p. 5)

This is reinforced by the legal framework set forth in the Public Libraries Act (2014), which specifies that *all* levels of the library system have a role in shaping governance (sec. 4). The distribution of resources such as funding and digital services is led by the National Library as a central node; but this is not the sole node with infrastructural power. Both the county library and the municipal libraries have a say in *how* funding gets used and how each individual library's offering will look. While some infrastructural elements are indeed centralized, this level of centralization is essentially intended to support individual libraries in carrying out their local operations. The library system is presented here as a *decentralized* network, where each library acts as its own independent node, while still maintaining its connection to county and national libraries. A decentralized structure allows for greater diversity within the ecosystem and adaptation of services to fit local needs. At the same time, inter-library cooperation strengthens the level of resources that the libraries have to work with collectively.

Although the centralized aspects of inter-library cooperation create operational and economic efficiencies, decentralized funding across the library system also means that not every local library has the same infrastructural resources. In the following section, I will discuss the implications of decentralized resource distribution for the user experience.

6.3.2 *Facilitating the user-experience*

A decentralized model of resource distribution has the potential to promote greater diversity within the ecosystem, as each library is empowered to develop their offering in a way that suits the local community. This diversity may, however, result in an unequal user experience. One informant working at a county library argues that the uneven distribution of resources across the library system may create inequalities for library users:

> It's important when transitioning from a mainly physical collection to a digital collection, to preserve the offering for all citizens. It shouldn't be depending on where you live, what kind of services you get from a library. So in my view, public libraries should be state level, not municipality level. (Interview 7, January 2021)

For smaller libraries who don't have the resources to acquire a strong digital collection, this can place the local community at a disadvantage in terms of accessing digital material. A quick review of local library websites across the country reveals a striking disparity in access to and dissemination of digital services. But, as one informant working at the National Library acknowledged, this disparity is also a reality of having a decentralized system, saying, "various libraries have different resources…I think you just have to live with that, because libraries are a municipal service, so it's really dependent on the municipality" (Interview 8, January 2021). This informant stressed that the National Library's digital infrastructure is intended to remedy this imbalance by providing a base level of services for all. These discourses reveal tensions between freedom and control; inequality and equality. The democratic freedom of choice may result in diverse but unequal offerings, while centralized control may ensure a level of equality, at the expense of municipal freedoms. The National Library describes decentralization as a mode of governance that empowers local libraries to take ownership of their local offerings. At the same time, not all local libraries have equal resources, and this impacts the way end-users experience the library. In the following section, I will discuss some of the potential new operating models described in interview and policy discourses.

6.3.3 New operating models

The national strategy promotes the creation of new operating models as a means of strengthening the interoperability of its infrastructure. Although what is meant by 'new operating models' is not explicit, what is clear is the desire to pursue *innovation.* Discussions of new operating models in the strategy are linked with the words 'innovative' and 'future-oriented (Ministry of Culture, 2019, pp. 5, 8). Several examples of new operating models are provided in the strategy. Some, such as the self-service library concept, focus on creating innovative user experiences. The self-service library concept extends opening hours without staff present, and allows anyone with a library card to use the premises and check out books on their own. Other models focus on cross-library collaboration, such as increased cooperation between university libraries and local libraries. Ultimately, the goal of such models is to maintain *relevance* in a competitive and information-saturated landscape.

Similar discourses around new operating models emerged in the expert interviews, combining aspects of both user-experience and cooperation. Out of the nine interviews, three different informants explicitly mentioned the Danish Digital Library [DDB] as an operating model that they look to as an ideal example (Interview 1, December 2020; Interview 3, December 2020; Interview 7, January 2021). In the Danish model, all digital services offered by the library are nationally-negotiated or developed, and consolidated through a single access-point. Each individual municipal library then pays a fee to leverage these central solutions (Interview 3, December 2020). One informant described how this kind of operating model could be beneficial for the Norwegian library system, highlighting the efficiency of resource sharing:

> We are many small entities who don't have so much money, but together we have a lot of resources. And we could use those resources to collaborate more closely, and develop services together. (Interview 1, December 2020)

The Danish model is based on a centralized system that consolidates power and resources at the national level. The use of centralization to create a 'seamless' user experience illustrates the platformization process of *vertical integration* (van Dijck, 2020b). There is certainly an appeal to such a model, for both the user and the local libraries. For one, it is more economically and operationally efficient for local libraries to leverage a nationally-managed service. In addition, a single point of access to all digital services creates a simpler, more integrated experience for the end-user. But it is precisely this kind of centralization that is incompatible with the Norwegian library system as outlined by the Public Libraries Act (2014), given that it restricts the ownership of local municipalities. And, as noted by one

informant, centralized solutions also have their limitations, given that a one-size-fits-all tool, "isn't always the best solution for a library" (Interview 1, December 2020).

Some Norwegian libraries have begun experimenting with other models, which still have the potential to improve the user experience and maintain efficient management of digital resources, while also maintaining local authority. The Deichman network of libraries in Oslo, with its robust digital offering, has offered to collaborate with other municipal libraries on the digital services they have developed and negotiated, which are tailored to library needs. One informant noted that several local libraries had already joined in such a collaboration (Interview 1, December 2020). In addition to local cooperation, there is also a desire for greater collaboration between county libraries. One interview informant working in a county library described how this could facilitate new ways of operating:

> Rather than always being 10 county libraries all doing the same thing, not talking to each other, while all talking to the people who offer the services…when combining forces, we are representing more people, and that gives us greater negotiation power…We can have more focus on where are the servers located, what kind of information is going between the supplier and the borrower. (Interview 7, January 2021)

There are multiple benefits to this kind of model: operational and economic efficiency, as well as greater negotiation power and attention to user data. In addition, as with the DDB-model, this would provide a more consistent offering to a larger group of constituents. Unlike the DDB model, this would help maintain local jurisdiction while improving local offerings. While several informants expressed frustration over not having this kind of model in place already, some have proposed development projects to test such models.

Collaborative operating models such as those described above represent decentralized systems, consisting of semi-centralized points that avoid consolidating power at any singular point. This offers something of a compromise between centralized and decentralized models, which could also be described as a *distributed* system (see Baran's model in 6.2). The word 'distributed' describes *where* power is located—within one node in the system, or shared across many nodes (Lustig, 2019). In these terms, the library can be considered both a decentralized *and* distributed system, particularly as new modes of cooperation are adopted. In this way, the library's model works against the platformization process of *vertical integration* (4.2), by preventing the concentration of power in one central node. While the National Library continues to provide a base level of infrastructure, collaborative models support greater cooperation at the inter-library level. A system like this strengthens library-library bonds, rather strengthening a single node, such as the National Library.

6.4 Data flows

So far, this chapter has explored the construction of data infrastructures within the Norwegian library system. This section will consider the *data flows* that circulate within these infrastructures, looking at what kind of data is present, how that data is circulated, and how data flows are managed. Because platforms are fueled by data (van Dijck et al., 2018), data flows within platform ecosystems are a key concern for scholars and users alike. Data privacy, ownership, and access emerge as key concerns in scholarly and popular discourses, particularly in relation to major commercial platforms such as GAFAM (Mejias & Couldry, 2019; Srnicek, 2016; van Dijck et al., 2018). In this section, I will begin by presenting two ways of classifying data ecosystems: open and closed (6.4.1). I will evaluate what kind of data ecosystem the Norwegian library system reflects, considering two common forms of data circulated within the library: collections data (6.4.2) and user data (6.4.3). Drawing on policy document and expert interview discourses, I will consider how *ownership* of data flows is negotiated within the library system, and to what extent this reflects platform logics.

6.4.1 Open and closed ecosystems

Data ecosystems can generally be classified as *open* or *closed,* based on the way data circulates between users, complementors and platform owners. At its core, this classification is a question of *access* and *participation*—who has access to data, and to what extent that data can be engaged with. Because there are multiple players involved in platform ecosystems, determining whether an ecosystem is open or closed requires first addressing the question, *open for whom?* A platform can be classified as open or closed for each role in the ecosystem—user, complementor, or platform owner (Eisenmann et al., 2009). There is also the question of *what* is open or closed: source code, end-user data, or other forms of data. These nuances highlight the contested nature of these terms; 'open' can just as easily imply 'open for *re-sale*' as 'open for *re-use*' (Kitchin, 2014; van Dijck et al., 2018). This assessment depends on the type of data in question, how it is used, and for whose benefit. In describing open and closed systems, I will consider each of these nuances, moving toward an assessment of the library system's approach as a whole.

The dominant commercial platform model adopted by GAFAM is typically classified as a 'closed ecosystem.' The model's proprietary, centralized structure offers limited ability for users and complementors to access and engage with data infrastructures. Data, after all, is

a precious resource that fuels both the technical side of these platforms as well as the economic side, through the process of *datafication.* Datafication describes the process of quantifying and commodifying user behavior, which is then recirculated to third parties for economic gain (Mejias & Couldry, 2019). Closed ecosystems function by, "'locking in' user data into information 'silos,' which keep users from exercising control over the information they provide to the service" (Nixdorf, 2019, p. 137). Data flows, then, become a means of governance: by controlling access to and ownership of data, platform owners maintain power over the other actors in the ecosystem (van Dijck, 2020b, p. 8). This, in turn, drives the process of *vertical integration,* as the platform owner controls the mediation of data across the ecosystem. Recent developments have begun to challenge just how closed platforms can be. The General Data Protection Regulation (GDPR) law passed in 2018 gave EU citizens the right to *data portability*: "the ability to access one's data and 'port' it to another website, platform or service provider" (Nixdorf, 2019). While this is a positive development, commercial platforms largely continue to follow 'closed' practices in order to maintain proprietary interests.

Open ecosystems, on the other hand, prioritize the ability for users and complementors to access and engage with data infrastructures, rather than protecting proprietary interests. The notion of 'open data' can be linked to the open software movement and Open Source Initiative, which champion the freedom to access, modify and distribute source code in a decentralized and non-proprietary way (Open Source Initiative, 2007). For this reason, the open source movement is often linked to decentralized or distributed operating systems. The Open Knowledge Foundation expands this definition beyond the realm of software, defining 'open' as, "free to access, use, modify, and share" (n.d.-a, para. 1). Openness, they suggest, encourages innovation through the creation of, "a robust commons in which anyone may participate, and interoperability is maximized" (Open Knowledge Foundation, n.d.-a, para. 2). This broader definition of openness can be applied not only to data, but is a philosophy that can be applied to all forms of knowledge. Governments, too, have embraced this definition of openness with the development of 'open government' strategies that prioritize participation and interoperability (O'Reilly, 2011).

Viewed through an infrastructural lens, platform ecosystems can be considered open when, "the technical and institutional arrangements of the system permit anyone to create visible, findable, and linkable content that is encoded using public standards" (Plantin et al., 2018, p. 302). These cross-disciplinary definitions exhibit a common thread in the values they promote. The open ecosystem ideal is characterized by democracy, transparency,

interoperability, and accessibility, in the interest of the public good. Instead of relying on users as a source of commodifiable data, "open data providers usually aim to stimulate the use of their data and they often need data users to enable this" (Zuiderwijk et al., 2014, p. 20). Open data ecosystems *reverse* the platformization process of datafication by starting with data, then seeking users to create value out of it. Open data is, after all, only useful if it is useable and used (Open Knowledge Foundation, n.d.-b).

In the case of the Norwegian library system, policy document and expert interview discourses underscore the theme of *open access*. The Public Libraries Act (2014) states that purpose of the library as an institution is, "to promote the spread of information, education and other cultural activities through active dissemination and by making books and other media available for the free use of all the inhabitants of Norway (sec. 1). This is reiterated in the *National strategy for libraries 2020-2023* (2019), where one of the current strategic objectives is to, "develop in the direction of providing more open access to collections, knowledge and research" (Ministry of Culture, 2019, p. 20). In addition to the themes of interoperability (6.2) and decentralization (6.3) that have emerged in this analysis so far, the theme of open access suggests the library's alignment with an open data ecosystem. But what does this look in practice? To illustrate the ways in which the library reflects an open data ecosystem, I will look at discourses centered around two primary forms of data handled by the library: *collections data* and *user data*. Within each of these contexts, I will explore the flow of data between the library, complementors and end-users.

6.4.2   *Collections data*

The primary form of data managed by the Norwegian library system is collections data, in the form of bibliographic data and the source materials of digital collections. Where the library has historically purchased bibliographic data from external providers, today they are increasingly involved *generating* this data. This can be seen in its efforts to digitize the National Library's collection, create a metadata vault, and offer free metadata to the libraries (Ministry of Culture, 2019). As the library manually copies its physical collection over to a digital one, it creates both source files of digitized material, as well as metadata for all material in their collections. One informant working for the National Library noted that the metadata is produced by external partners, in order to improve the efficiency of the process (Interview 9, February 2021). Nevertheless, involving complementors in the form of external partners does not seem to affect the 'openness' of the data; the metadata can be freely used by all Norwegian libraries, at no cost to them. In addition, the library actively encourages the,

"reuse of metadata both between the libraries and between the libraries and other parties" (Ministry of Culture, 2019, p. 9). Because the National Library *owns* the metadata in the metadata vault, it can be accessed, shared and re-used both within the library system and beyond. This presents an example of how proprietary ownership can, in fact, support public values, as the purpose of that ownership is to facilitate the flow of data. This is echoed in descriptions of the library's API, which allows national collection data to be re-used in the development of local library services, and can connect data flows across the library system (Ministry of Culture, 2019, pp. 28–29). The emphasis on words like 're-use,' 'free' and 'open access' in these discourses aligns with an open system, promoting the free flow of data within the library system, as well as portability to other systems.

　　While policy and interview discourses emphasize a desire for openness in the library system, this is contrasted with the reality of copyright limitations. When digitizing the collections into e-book format, the National Library works with the service provider Bokhylla ('Bookshelf,' in English), which acts as a mediator between the library and copyright holders. Through the Bokhylla agreement, digital copies of most material are made freely available for viewing, as long as the user has a Norwegian IP address. Due to copyright concerns, however, not all material can be downloaded or saved by users. Copyright is a mechanism to protect the proprietary interests of those producing the material, which limits the flow of data between the library, complementors and end-users. Efforts such as Creative Commons have attempted to offer an 'open' licensing model for copyrighted material, intended for digital contexts where attribution and usage are hard to control (Creative commons, 2021). But while these alternatives exist, copyright is still a complex arena that continues to challenge the library in its move toward digital collections (Interview 9, February 2021). One informant identified Open Access and Plan S as two government-led initiatives that involve direct negotiation with rights-holders to promote a more open system (Interview 1, December 2020). These initiatives are intended to facilitate greater access to academic publications for the general public by, "promoting open research dissemination and more open data" (Ministry of Culture, 2019, p. 28). While one challenge with open access can be the high cost of purchasing rights (van Dijck et al., 2018, p. 133), the terms of the Norwegian Open Access agreement specifically state that, "publishing open access shall not increase total costs" (*Open Access*, n.d., para. 7). Although a completely 'open' system is perhaps not reasonable or feasible when considering the library's dependence on copyrighted material, the institution nonetheless seems to prioritize 'open' practices where possible. By pursuing the free and open

flow of data within its ecosystem, the library minimizes the potential for *vertical integration*, or flow of data toward any one party.

6.4.3   User data

In addition to collections data, the library also manages the flow of library user data internally and to external complementors. User data is collected when registering for a library card in-person or online, as well as when users browse the library's digital collections. As the library landscape becomes increasingly digitized, the processing of user data has become an even greater concern. One informant working in the IT department of a local library described the type of personal data that is collected at the local-library level:

> We are not sending sensitive information, but we are sending personal data like Mac addresses, IP addresses, library card numbers…We're not sending any classified personal data, but still we have to be aware of GDPR and comply with that. (Interview 2, December 2020)

Although the library does not collect sensitive personal information, the information that is processed is still beholden to GDPR legislation. This allows users to gain insight to the use of their personal data, and request that it be removed from unwanted databases. In the physical library, the flow of user data has historically been kept between the library and the end-user. Digital library offerings, however, involve a host of different complementors such as film streaming services, e-book providers, audiobook providers, and more. This requires greater competence of data regulation within the library, and an awareness of how data will flow to different complementors (service providers). As additional complementors become involved, an increasingly complex web of data flows must be managed. Several of the informants acknowledged that the flow of user data isn't always easy to manage. One interview informant explained this from a technical perspective:

> The borrower's data has always, as long as IT has been a part of the library, been an issue. How to send the data between system suppliers...The servers have always been standing in Norway, so it hasn't been a big issue. But now, the servers are standing in the U.S., in Ireland, and other places. (Interview 7, January 2021)

Working with external complementors requires a greater understanding of how data flows *beyond* the library system itself. When the servers that process data are located outside of Norway, the library must rely on its complementors to safely and securely process the data of its users. This presents a caveat to discourses of openness: while openness may prove beneficial in the dissemination of collections data, personal data cannot be treated in the same way. Personal data is not the same as 'open data' or 'open knowledge,' and the library works

actively with its external providers to ensure that it is treated securely. And, although user data does flow to external complementors, this data is not given a commercial value or commodified in a way that fuels the process of datafication. These challenges require the library to take a more 'closed' perspective toward user data, in order to ensure that users maintain ownership over their own data, and that the flow of user data to complementors is not misused.

6.5 Discussion

In this chapter, I have assessed how platformization processes shape the library system's data infrastructures, through an analysis of policy document and expert interview discourses. These discourses present several themes that inform the construction of the library's data infrastructures: interoperability (6.2), decentralization (6.3), and open data flows (6.4). In examining how each of these principles come to life through discourse, I find that the library aspires to adopt an interoperable framework, based on a decentralized operating system and an open ecosystem of data flows. At the same time, there is a dialectic between infrastructural and platform properties that is present throughout these discourses. Descriptions of the library's data infrastructures display aspects of both an infrastructure *and* a platform. Indeed, the library as a public institution *is* an infrastructure, and as it moves toward a more digital model, it takes on platform-like qualities. The library's data infrastructures manifest as both interoperable *and* programmable; standardized *and* modular; centralized *and* distributed; open *and* closed. While there are benefits and downsides to each of these, what emerges is a clear desire to pursue greater *efficiency* of operational and economic processes, while still preserving dedication to serving public values of democracy, collaboration and openness. The focus on efficiency is linked to economic processes, which will be further explored in the following chapter.

The library exhibits a tendency toward platformization processes such as infrastructuralization and vertical integration, but these tendencies are simultaneously tempered by efforts to counteract these processes. Additionally, some aspects of platformization such as programmability and infrastructuralization are framed as positively impacting the public good. Thus, what we see at the data infrastructure level is the infrastructuralization of platforms, as well as the platformization of infrastructures (Plantin et al., 2018). The evidence of platform thinking is also reflected in shifting practices of ownership and governance, which are implicated throughout these discourses. Greater

cooperation between libraries through data-sharing, resource-sharing, knowledge-sharing shifts notions of 'ownership' from a singular-library level to a more collective sense of ownership. In addition, new operating models that advocate for greater cross-library collaboration broaden notions of governance from a centralized structure to a more distributed one. Although some aspects of the library's data infrastructures are becoming privatized through increased cooperation with external partners, these kinds of public-private partnerships can also strengthen the diversity within the library ecosystem (van Dijck, 2020b, p. 14).

The descriptions of data infrastructures in policy document and expert interview discourses thus appear to present an alternative vision of platformization: one that reflects aspirational *technical-ethical principles* in its design (van Dijck, 2020b). Technical-ethical principles are associated with the international FAIR principles, an acronym for Findable, Accessible, Interoperable, and Reusable (*FAIR Principles*, n.d.), which can be followed as a means of regulating the negative aspects of platformization processes such as vertical integration, cross-sectorization and infrastructuralization. The *National strategy for libraries 2020-2023* (2019) explicitly names the FAIR principles as influential in the way it develops its infrastructure (p. 32). These values are also present throughout the discourses presented in this chapter. The library seems to adopt platform thinking in ways that help it to stay relevant and competitive in an increasingly digital information landscape, while still pursuing a commitment to democratic values. At the same time, being a government institution that is accountable to the public allows the library to take an active role in regulating platformization processes within its own ecosystem.

7 Economic processes

In addition to storing data, the library also provides access to information as a *mediator* linking publishers with end-users. The digital era has brought about a crowded market of information mediators, which platforms such as Google, Amazon, Facebook, Apple and Microsoft [GAFAM] continue to dominate. To stay relevant in light of these new platform competitors, the Norwegian library system has begun thinking like a fellow market player. This chapter explores the *economic processes* shaping the library's development in an increasingly platformized landscape, and examines to what extent platform logics are present in these processes. Economic processes involve the impact *of* markets on platforms, and the impact of platforms *on* markets. Platforms are shaped by markets, but they also have the ability to shape markets themselves (Srnicek, 2016). These dynamics also bring to light new ways of considering ownership and governance within the institution, from an economic perspective. In this chapter, I will draw on discourses from policy documents and expert interviews to illustrate how the Norwegian library perceives the impact of market dynamics on its development. I will begin by illustrating how market relations are configured between the library, complementors and end-users (7.1). I will then look at the competitive landscape the Norwegian library is situated within, and how market forces such as competition, demand and supply shape the development of its digital services (7.2). In each of these sections, I identify continuities and ruptures with existing scholarly discourses of platformization.

7.1 Market configurations and the platform economy

One of the defining features of the platform economy is its *market configuration*. Market configurations illustrate the economic relations between various actors, such as platform operators, complementors and end-users. As presented in the conceptual framework (see Chapter 3), platforms are characterized by a *two-sided* or *multi-sided market configuration* (D. Evans & Schmalensee, 2014; McIntyre & Srinivasan, 2017; Poell et al., 2019; Rochet & Tirole, 2003). Two-sided or multi-sided platforms, "create value by bringing two or more different types of economic agents together and facilitating interactions between them that make all agents better off" (D. Evans & Schmalensee, 2014, p. 404). In this kind of arrangement, multi-sided platforms act as *mediators* that facilitate transactions between complementors and end-users. Complementors gain access to an audience of potential customers, while end-users are connected with services they may find relevant. This is in contrast to one-sided markets, which connect businesses directly with consumers.

While platform markets benefit both complementors and end-users, they also present challenges for market competition and regulation (Poell et al., 2019). Platform markets thrive on strong *network effects:* the more end-users a platform gains, the more desirable it becomes for complementors; likewise, the more complementors there are, the more appealing the platform is for end-users (D. S. Evans & Schmalensee, 2016). This mutual strengthening of transactional power often results in a consolidation of the platform's overall market power, locking out competition (Schwarz, 2017). This consolidation can also result in *lock-in* for users and complementors, who become more and more reliant on the platform for services (Eisenmann et al., 2009). Lock-in contributes to the platformization process of *infrastructuralization*, where the platform becomes a necessary part of daily life. This is further compounded by the processes of *cross-sectorization* and *vertical integration,* as platforms expand into multiple sectors and data flows become centralized, creating economic value for the platform (van Dijck, 2020b). Platforms' status as transactional mediators has also allowed them to occupy a regulatory grey area, limiting their liability for users' and complementors' actions (Gillespie, 2010). In recent years, their unregulated growth has raised anti-trust concerns and brought a host of legal cases that are still ongoing (Department of Justice, 2020; European Commission, 2019; Federal Trade Commission, 2020).

Despite these challenges, multi-sided platforms still have useful potential as an economic model. This is especially true when considerations are taken for the regulation of growth and competition in the marketplace (van Dijck, 2020b). While the vast majority of platform scholarship discusses platforms in the context of for-profit companies, this thesis theorizes the library—a public institution—as a platform. In the following section, I will draw on policy and interview discourses which present the library as a multi-sided platform, and illustrate the economic relationships between the library, complementors and end-users. In doing so, I demonstrate the potential benefits and drawbacks of a multi-sided market configuration that combines the regulatory power of national governments with privatized, free-market complementors.

7.1.1 The library as a multi-sided platform

The physical, 'non-digital' library has historically exemplified a *two-sided market*, negotiating with publishers to provide material to the end-user, the general public (Fig. 5). Rather than purchasing material from the publisher or a reseller, the end-user is able to borrow material from the library free of charge.
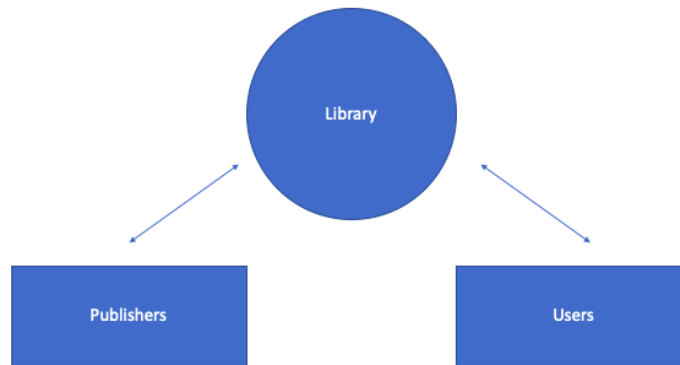
Figure 5. The non-digital library as a two-sided platform.

How exactly does this material become 'free' for the end-user? As illustrated in Chapter 2, the library system is funded publicly, with separate budgets at the municipal, county and national levels. As the county library's role has shifted toward library development, much of its resources now go toward supporting the local libraries—a key part of that being collection development and acquisitions (Interview 7, January 2021). This has resulted in very little purchasing still being done at the local library level (Interview 5, December 2020). As described in Chapter 6, centralizing the acquisition process benefits the library system as a whole by making the process more efficient, and securing greater negotiating power with service providers. But there is also a financial benefit for publishers and rightsholders; the library pays each party when it acquires material for its collection (Kulturrådet, 2020). In addition, material that is acquired gets wide circulation in the library circuit. The public's experience of the library as a 'free service' thus tends to conceal the complexity of the value exchange taking place. This arrangement does, however, clearly delineate notions of ownership and governance: the library manages the acquisition process on behalf of the end-user, and maintains ownership over the physical material they acquire. The end-user has a direct relationship with the library, governed via the borrowing terms set by the library.

As the Norwegian library develops its digital offering, however, its economic arrangement becomes increasingly complex. The number and different types of complementors continues to grow, and the business models for digital material are ever-evolving. With the addition of a digital model and new service providers, the library's market configuration has developed into a *multi-sided market* (Fig. 6). In this configuration, the library offers a single point of access to physical books as well as digital services offered by various complementors [service providers], such as audiobook providers, film-streaming

providers, and e-book providers (Ministry of Culture, 2019). Unlike the two-sided market visualized above, the multi-sided arrangement is comprised of a complex web of relationships between the library, publishers, digital service providers and end-users.
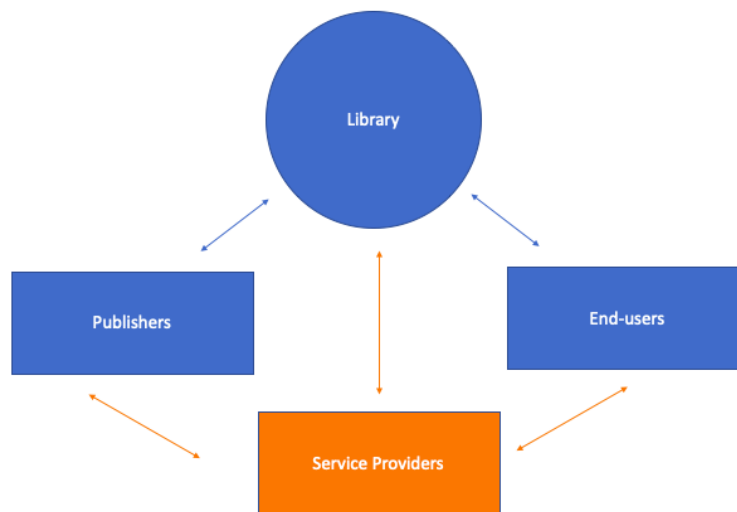
Figure 6. The digital library as a multi-sided platform.

While the library still negotiates with publishers to acquire material for its physical collections, its digital collections are enabled by service providers who conduct their own negotiations with publishers, in order to offer material to end-users (Interview 2, December 2020). There is still a mutually beneficial value exchange taking place, but the exchange of value is somewhat more complex in the multi-sided arrangement. Rather than the library acquiring one book or film at a time, service providers have varied pricing models. Some are based on a yearly subscription model, others are based on a cost-per-loan model (Interview 7, January 2021). Multi-sided platform holders are typically able to set the pricing structure themselves, given the benefit complementors attain from access to the platform's userbase (Nieborg & Poell, 2018). Pricing structures therefore act as a form of *governance* by platforms, setting the terms of use. What is unusual in the library's case is that the service provider establishes the pricing model, instead of the library. Yet this is not a simple transaction, but rather a process in which the library negotiates terms and conditions. When multiple libraries enter into an agreement together, for example, they have greater negotiating power given their greater number of users (Interview 7, January 2021). Because the library has the final say in what services will be offered on its platform, the negotiations process can also be considered a governance mechanism.

Ultimately, the primary form of value in the multi-sided platform ecosystem is *users*; many digital platforms are speculatively valued based on the number of users they have, rather than financial profit (Srnicek, 2016). What makes a strong userbase so valuable? For one, a strong userbase signifies potential for future growth. But there is also a more concrete factor: *user data*. As presented earlier in this thesis, platforms quantify and commodify and through a process of *datafication* (Poell et al., 2019). In commercial digital platforms such as GAFAM, this involves the presence of advertisers who leverage user data to target specific audiences with tailored ads. Advertisers subsidize the user's free experience, paying the platform in exchange for access to user data (D. S. Evans & Schmalensee, 2016). In the case of the Norwegian library system, the library subsidizes the user's free experience by paying complementors for their services. Although user data is not given commercial value in service partner negotiations, there are ways in which this data is commodified. Within the library system, data such as number of loans and visits is a factor in determining what kind of funding libraries receive (Interview 6, January 2021). In addition, datafied user feedback, such as what audiobooks are downloaded or what films are streamed, is increasingly used to inform acquisitions processes (Interview 7, January 2021).

With additional complementors involved in the multi-sided arrangement, notions of ownership and governance become muddled. The end-user is still governed by the library's borrowing terms, but is also subject to agreements with each individual service provider. This will be further discussed in Chapter 8. And as its digital offering becomes more and more dependent on complementors, the library relinquishes ownership of digitally-acquired materials to its service providers (Interview 2, December 2020; Interview 7, January 2021). Instead, it is the service provider who manages the selection of digital content on the library's behalf. As market actors take on a larger role in shaping the library's digital offering, one concern is whether their values align with the library's own. This is an important consideration with relation to collections development, in terms of what material gets selected and for what reason. The library follows a regulated bid process, which may help address this concern. In this process, the library solicits offers from a variety of service providers before selecting one (Interview 2, December 2020). This assists in promoting market competition, and helps mitigate vendor lock-in by keeping providers accountable to the public interest. As one interview informant observed, if a service doesn't meet the library's standards, they find another provider (Interview 1, December 2020). In addition, the impermanent nature of service provider agreements means that changing service providers is also possible. A diversity of complementors in the library ecosystem can aid in mitigating the consolidation of

market power by any one actor (van Dijck, 2020b). Yet concerns about public values, governance and ownership did not seem to be of significance for interview informants. Rather, informants were more concerned about providing a *competitive* and *relevant* offering for end-users. They suggested that it was less critical who provides or owns the material, and more important to ensure free *access* to that material (Interview 2, December 2020; Interview 7, January 2021; Interview 8, January 2021). In the following section, I will further discuss the competitive landscape and the market forces driving the development of the library's offering.

7.2 Market forces and digital service development

A discussion of economic processes cannot be considered separately from the political-economic system in which the Norwegian library operates. This system can best be described as a mix of capitalism and socialism which incorporates, "both cooperative and competitive strategies" (Midttun & Witoszek, 2020). Interview and policy discourses emphasize both cooperation and competition as economic strategies influencing the library's development. Chapter 6 touched upon the economic benefits of cooperation within the library system, as a way of driving operational efficiency. Cooperation with the private sector has also been introduced in 7.1.1, as part of the library's multi-sided platform configuration. This section will focus on *competition,* and the influence of market forces on the development of library services. Although the library is a public institution, it is also a multi-sided platform whose development is shaped by market forces such as *competition*, *demand* and *supply*. These forces emerged as common themes across interview and policy discourses to describe the way the library views its current place in the market, as well as its future development. In this section, I will look at how the library's competitive landscape is presented in these discourses (7.2.1), the relationship between user demand and library development (7.2.2), and the implications of supply-side shifts (7.2.3).

7.2.1 Competitive landscape

Interview and policy discourses suggest that the Norwegian library system sees digital platforms as its primary competitors in terms of the services they provide, as well as how they provide them. The library has historically been a place where the public can search and find information with the assistance of library staff. Today, anyone with an Internet connection find infinite amounts of information on their own, with the help of search engines like Google. Four interview informants explicitly named Google as a competitor, in terms of

providing free access to information and search tools (Interview 2, December 2020; Interview 3, December 2020; Interview 6, January 2021; Interview 7, January 2021). But in the library's view, simply having access to information doesn't address the issue of information quality (Ministry of Culture, 2019, p. 4). Both interview and policy discourses stress that *quality information* is one of the library's competitive advantages—one that becomes progressively more important in an age of misinformation. As one informant noted, "Google is very good at giving you any answer that may be correct, but our main thing as a library should always be that you get what you're looking for" (Interview 3, December 2020). Part of providing quality information is ensuring the *relevance* of that information. This is further emphasized in the *National strategy for libraries 2020-2023* (2019) emphasizes the unique, "quality-assured" nature of library information (p. 3). Not only is the library competing with search engines such as Google, but it becomes a complement to these platforms, offering a means of sorting and assessing information.

In addition to information and search platforms, the library also faces competition in the *content dissemination* space. As the national strategy points out, the library's relevance is, "constantly being challenged by other forms of entertainment and new platforms" (Ministry of Culture, 2019). In response, one of the Norwegian library's current focus areas is 'active dissemination' (Ministry of Culture, 2014, sec. 1, 2019, p. 16) Rather than expecting users to passively discover content, the library wants to take an active role in *serving* content to users. In the content dissemination space, Amazon-owned audiobook platform Audible, music-streaming platform Spotify, and film-streaming platform Netflix were named as key competitors by informants (Interview 1, December 2020; Interview 7, January 2021). These platforms offer access to digital content such as films, music and books in formats compatible with a wide variety of devices. Like many digital platforms, Audible and Spotify offer both free and paid options to its users. This "freemium model" offers free basic services to attract users, while premium features come at a cost (Seufert, 2014). Users may not realize that while a service is free, they are often 'paying' with their data, which acts as a currency within the platform ecosystem (Nieborg & Poell, 2018). Spotify's free option, for example, allows users to listen to unlimited music—the caveat being that their data is sold to advertisers, and advertisements are served as they listen. In the case of Audible, paying users avoid advertisements, but user data is still recirculated back into the Amazon-ecosystem for ad targeting and sold to third parties (Audible, 2020). One interview informant highlighted the library's role as a counterforce to these kinds of models:

More or less 80-90% of what's accessible on the Internet is locked down and only available when you have a username and a password, or if you pay for it. I think the library has a hand, an important role, and a platform for those users who don't have access or the money or the knowledge about databases and information that is locked in by a username or password. (Interview 2, December 2020)

As "houses of democracy," libraries are intended to offer services that are free to all, with no strings attached (Ministry of Culture, 2019, p. 1). Anyone can use the physical library space, with no payment or obligation required. And although usage statistics such as number of visits and loans are collected in the physical library, this form of user data is anonymous and is not commercialized or shared beyond the library system.

How might this change when for-profit service providers are increasingly acting as digital content providers via the library-as-platform? Service providers such as Bookbites [e-audiobooks] and Filmbib [film streaming] do not appear to share user data with third parties or serve ads. At the same time, some user data is collected to help improve their services, which has intangible value for service providers. Providing a service thus becomes a means of benefiting from the pre-existing relationship between library and end-user. This will be further explored in the following section on user demand (7.2.2). The datafication of user activities by digital service providers is nonetheless a significant change from the anonymity of the physical library space. If that data is used responsibly, this does not necessarily pose a threat to public values such as privacy and security (van Dijck et al., 2018, p. 140). The library thus has a role in ensuring responsible data use by its service providers (Interview 7, January 2021). Overall, these discourses suggest that what the library has to offer in this competitive landscape is an *alternative* to major commercial platforms such as Audible and Spotify: an alternative that is free to use, without sacrificing public values for profit.

In addition to the services they provide, the library also competes with digital platforms in *how* it provides services. Throughout interview and policy discourses, adjectives such as *seamless, user friendly,* and *relevant* surface as competitor qualities that the library aspires to. Interview discourses highlight these qualities as areas for improvement, which the library seeks to incorporate as it develops its digital offering. The library has thus responded to this competitive landscape by taking on qualities of its platform competitors. One informant described the "Googlification" of the Library Search tool:

Google has taught libraries a lot about how to search and how to be user friendly. That has been a learning process for the librarians and the staff to make the catalog more user friendly…you sort of adapt to their way of thinking. (Interview 2, December 2020)

Google's search fields allow for broader, more intuitive search terms than library staff would typically use. Improving user-friendliness by 'Googlifying' the Library Search tool has made it possible for both library staff and users to use this tool. But because broad search terms produce broad search results, there is now a greater need for sorting and assessing information to improve relevance. This creates a need for better algorithms, opening up opportunities for artificial intelligence, "to learn and understand how the user thinks" (Interview 2, December 2020). The objective of pursuing qualities such as seamlessness, user-friendliness and relevance serves an economic function. As libraries compete with other digital platforms, building upon competitor qualities ensures that they remain a relevant actor in the marketplace.

Making services 'seamless' and 'user-friendly' also serves an infrastructural function, integrating different systems and allowing for a single access point. The *National strategy for libraries 2020-2023* (2019) supports this by expressing that, "users want access to various types of resources in the same location" (p. 32). Yet, as exemplified by the Danish Digital Library [DDB] model (see Chapter 6), the desire for a more seamless user experience often leads to greater centralization of power and less diversity in the platform ecosystem. Nevertheless, interview discourses demonstrate a clear desire from library staff to develop the digital offering to be more in line with its competitors. The need for "libraries that are relevant" emerges again as a motivating factor in the library's development (Ministry of Culture, 2019, p. 4). One informant describes the fight for relevance in a crowded market:

> What we are seeing is that we are losing borrowers…it's a real drop in youth. They were maybe borrowing music and videos more before, and now they don't do that because they have Spotify, they have Netflix, they don't need the library. (Interview 7, January 2021)

As Plantin et al. (2018) identify, "frequent updating for competitive environment" is a core aspect of the platform marketplace (p. 299). Several informants expressed the need to "constantly have to change" in order to keep up with competitors (Interview 2, December 2020). If the library lacks a competitive digital offering, it will neglect a growing segment of the population which could prove important for its future. Indeed, one of the most repeated objectives throughout the *National strategy for libraries 2020-2023* (2019) is "attracting new users" (p. 17). To maintain relevance in a platformized competitive landscape, the library must change, adapt and update its offering to respond to the needs and habits of its users.

The greatest obstacle for the Norwegian library system in accomplishing this appears to be budget limitations. The Norwegian library, as with many libraries across the globe, has

faced increasing budget cuts over the years. The need to do less with more is what drives its desire for economic and operational efficiencies. One informant noted that the library simply doesn't have the money to create services that are as seamless and user-friendly as major digital platforms (Interview 1, December 2020). The current offering is a fragmented collection of apps and screen interfaces across the physical library space and its digital collection, which are not linked to one another. One objective with pursuing a seamless user experience is to bridge the separation between the physical and digital offering, so that the online and in-person experiences become simplified and unified (Interview 2, December 2020; Interview 4, December 2020). Yet the current funding model—based on physical library visits and loans—continues to reinforce the separation between digital and physical (Interview 6, January 2021). By basing funding on physical library statistics, the library's economy is linked solely to its physical space. Although the national strategy indicates digital service development as a priority, digital metrics such as film streams or e-audiobook listens are not yet accounted for in this funding scheme. While digital activities may not provide a basis for funding yet, municipal libraries continue to pursue seamlessness, relevance and user-friendliness to maintain a competitive edge. In the following section, I will build on the competitive landscape presented here, to further discuss the role of *user demand* in the development of the library's offering.

7.2.2 User demand and library development

The Norwegian library's desire to maintain a competitive edge in the platform marketplace highlights the importance of *demand* in the development of its digital services. Because demand is a core driver of competition, the library must adapt to user desires and behaviors in order to compete with digital platforms such as Audible, Spotify, Google and Netflix. The user is the nexus of the platform economy, a key value-driver for platforms and complementors alike. The concrete value of users is encapsulated in the concept of *network effects*. Network effects describe how value is generated through the production and consumption of commodities in a platform ecosystem, often with a cumulative effect (Nieborg & Poell, 2018, p. 4278). Multi-sided platforms can be subject to both direct and indirect network effects: direct network effects occur when users benefit from additional users joining the network, while indirect network effects indicate a mutual benefit across different sides of the network (McIntyre & Srinivasan, 2017, p. 143). Both demand and value are cumulative in this cycle, often leading to unfettered growth and a monopolization of the market (van Dijck, 2020b). In the case of commercial platforms like Netflix, Spotify and

Audible, content is produced by filmmakers, musicians, or authors. It is then mediated by intermediaries such as publishers or music labels, and distributed to consumers by way of the platform interface. In a multi-sided platform ecosystem, content becomes a commodity that generates value for the platform and its complementors by attracting users (Nieborg & Poell, 2018). Audible, for example, is a leader in the e-audiobook space precisely because its wide selection of content offers value to its users. User growth subsequently creates value for publishers, and incentivizes them to provide content via the Audible platform. Network effects such as this are instrumental in driving the process of *infrastructuralization*, as platforms are so widely used that they become indispensable parts of everyday life. These effects are also strengthened through the process of *cross-sectorization,* as increased influence allows platforms to diversify their offering across multiple sectors.

In a similar way, the Norwegian library system works with digital service providers [complementors] to disseminate digital content to its end-users. This digital content becomes commodified as a means of generating value for both the library and complementors, through the ability to attract users. When developing its digital offering, user demand is a crucial factor influencing the library's decision-making:

> This is a back and forth process, where you try and understand and interpret and listen to the needs of the people. And then you go to the providers and see what's in the market for us…and then we test it with the audience. And we go back to the providers and say, we need more of this or we need more of that. (Interview 4, December 2020)

The collaborative effort between the library and service providers demonstrates the mutual value generated when user experience is prioritized. Developing services that respond to user demand drives increased use of both the library, as well as complementors' services. As demand changes, these collections must also be updated to remain relevant. One informant observed that users now want the latest material, and that demand is often influenced by, "what their neighbor reads, what their family member reads, what everybody's talking about" (Interview 7, January 2021). There is also an increased use of statistics in the acquisitions process, based on what is in-demand and trending (Interview 4, December 2020; Interview 7, January 2021). Rather than the library developing its collections based on what library staff find relevant, the library has adopted a *networked strategy* that draws on user data and seeks to benefit from network effects by prioritizing content that drives user engagement. This directly impacts what kind of content is available to users, and reconfigures the way material is acquired. As one informant put it, "we are trying to make sure that everybody can access everything, and if we only buy the bestsellers, then we are not offering everything" (Interview

7, January 2021). This tension between meeting demand and ensuring access to a wide selection of content is a challenge the library continues to face.

The Norwegian library is not only concerned with responding to the demand of its users, but it also seeks to drive demand and attract new users through *active dissemination*, or distribution. Dissemination is a relatively new responsibility for the Norwegian library system, which was added to the Public Libraries Act in 2014 and is currently a core objective in the national strategy. Digital services are identified as an important part of this dissemination strategy and key growth driver, given the ability to reach new users beyond the physical library and facilitate access to collections (Ministry of Culture, 2019, p. 16). Where library staff have historically played a key role in guiding users to content, digital services now allow users to take ownership of the search and discovery process. Yet, as the national strategy states, "it is not sufficient that the research and sources are available; they must also be actively communicated and disseminated" (Ministry of Culture, 2019, p. 16). One interview informant working with collections development reaffirmed this sentiment, as well as the challenges that have come with this new responsibility:

> Digital collections, they disappear…nobody knows of it unless you market it…And public libraries, one, they don't have that much time to do marketing. Do they have knowledge about how to do marketing efficiently? How to reach those people, which channel to use…And do they have money to do that? (Interview 7, January 2021)

With many libraries forced to close their doors or limit their capacity during the COVID-19 pandemic, the importance of digital dissemination has been brought to the fore. While the development of digital dissemination methods is an objective in the national strategy, much of the budget allocated toward these development projects in 2020 was instead allocated to funding digital services (Interview 8, January 2021). One informant noted the significant uptick in digital service usage during this period (Interview 8, January 2021), and another noted that it has encouraged experimentation with new services and platforms (Interview 6, December 2020). With limited time and budget for dissemination, one strategy has been to build on the network effects of other platforms. One library has used Facebook and Zoom to promote and coordinate its Digital Language Café series, in addition to other digital library activities (Interview 6, January 2021). Other libraries also use social networks such as Facebook to market their offerings. These popular platforms afford an opportunity to reach potential new users by meeting them where they already are (Nieborg & Poell, 2018). These services are also able to invest greater resources in developing new features and a seamless user experience than what the library is able to develop on its own. While this saves time and

money, it also means that the library's own services are to a greater extent reliant on complementors. In addition, dissemination often means the library is promoting its service providers, rather than its own material. In this way, service providers become infrastructuralized as extensions of the library, and the library becomes more platform-like. What kinds of implications does this have for ownership of content? This question will be explored in the following section, with a focus on changes to the library's *supply-side* economy.

7.2.3 Supply-side shifts

As described above (7.1.1), the library's supply-side economy has historically been comprised of publishers, film distributors and rightsholders who provide collections material. As the Norwegian library develops a more robust digital offering, the supply-side ecosystem becomes progressively more complex. Much of the library's digital collection is now facilitated by external service providers [complementors] who manage negotiations with publishers. Because the service providers handle these negotiations, the library is then reliant on them to curate collections of e-audiobooks and films. Interview and policy discourses describe the benefits of working with digital suppliers as allowing for greater flexibility and an expanded range of content. But these shifts also reflect a new reality for digital collections; one that is ephemeral and driven largely by external actors.

Shifts in the library's supply side begin with the format of the material itself. In response to its competitive environment and user demand, the Norwegian library system is moving steadily toward a more digital supply of content. The National Library's collection specifically, "has gone from being mainly physical with an add on of digital content to…mainly digital with a supply of physical when demanded" (Interview 7, January 2021). But due to uneven funding across the municipal library system, there is still great variation in digital offerings from library to library (see Chapter 2). Though this transformation may take time, the *National strategy for libraries 2020-2023* emphasizes the importance of digital services for the future of the library. This is reinforced by the changing role of the physical library space. With the amendment to the Public Libraries Act in 2014, the physical library space is now intended to be, "an independent meeting place and arena for public discussions and debates" (Ministry of Culture, 2014, sec. 1). As physical library spaces become, "cultural arenas, learning arenas and meeting places," their primary purpose is no longer to supply physical materials such as books, films and music (Ministry of Culture, 2019, p. 3). At the

same time, the Norwegian library system is embracing new, more digitally-based models for content supply in the development of its collections.

When offering content digitally, the library is able to work with a diverse selection of service providers [complementors] who offer a dynamic and expansive range of content. Interview and policy discourses describe three primary benefits of this supply model: access, flexibility, and variety. *Access* is one of the Norwegian library system's core values, as a building block of democracy, participation and integration (Ministry of Culture, 2019). All nine interview informants affirmed that providing access to information is one of the library's most important responsibilities. To support this objective, the Norwegian library system sees a potential for digital services to, "democratize access to…knowledge" (Ministry of Culture, 2019, p. 16). Digital services provide an opportunity for those who cannot or choose not to come to the library's physical space, to still benefit from the library's offering (Interview 6, January 2021). This is a means of accommodating, "all those who have special difficulty in using libraries" (Ministry of Culture, 2014, sec. 2). This is directly related to the concept of *universal design,* a component of the Norwegian government's ICT policy intended to ensure its services are available and accessible for all (Norwegian Ministry of Local Government and Modernisation, 2016). For the Norwegian library sector, dissemination is not only about staying competitive and relevant, but also about ensuring equal access for all citizens. Expanding the library's offering beyond four walls supports this objective by taking, "the library and collections out of the physical library to new groups" (Ministry of Culture, 2019, p. 17). In this way, a digital supply model improves access by making the library available to end-users wherever they are.

In addition to access, digital services allow the library to adopt a greater *flexibility* in collections development. Because media formats are constantly changing, a digital supply model allows the library to adapt to these changes more quickly and easily. Rather than needing to replace an entire collection with every time a new media format emerges (as with the transition from cassettes to CDs), the library selects service providers who offer the most up-to-date formats (Interview 1, December 2020). This flexibility also aids in facilitating access, by providing information in formats that are contemporary and widely-used (Interview 7, January 2021). A result of this flexible model is a shift in responsibilities from the library to the service provider. Because the service provider is negotiating with publishers and curating a collection, they take on a greater responsibility in managing the library's collection. For the library, collections management becomes more about managing a collection of *service agreements* rather than materials. One benefit of an agreement-based model is that it allows

the library to curate and change its service providers, based on user needs or changing trends (Interview 4, December 2020). But as Nieborg and Poell (2018) observe, "for platform holders, content developers can become dispensable" in a multi-sided market configuration (p. 4282). For the library, agreements with service providers are temporary, where physical collection acquisitions are permanent. While there are benefits to this flexibility for the library, service providers must stay competitive to meet the library's needs—or risk being replaced.

The added flexibility of this supply model makes it possible for the library to offer a greater *variety* of services to its users. The Norwegian library has long had music and film collections in addition to books, but these have only recently become available digitally. The library currently works with several different film-streaming providers and e-audiobook providers to offer its digital collections. Following interview and policy discourses, part of the motivation in offering a variety of digital services is to reach a wider audience of potential users. As one informant explained, "we make sure that we have a wide spectrum of offers because we are trying to make sure that everybody can access everything" (Interview 7, January 2021). The *National strategy for libraries 2020-2023* (2019) underscores the role of digital services in facilitating this access, as a means of attracting new users (p. 17). The desire to expand into a variety of sectors in order to appeal to a wider audience reflects the platformization process of *cross-sectorization* (van Dijck, 2020b). While scholarly discourse warns that cross-sectorization may consolidate power, here it is presented as a democratizing force. For each service provider that the library works with, the end-user is supplied with an even broader selection of content. And rather than consolidating power to a single actor, a multi-provider model further encourages a diversity of actors in the market.

While an agreement-based digital model has its advantages, it also has consequences for the Norwegian library system's *ownership* of material. In a physical acquisitions process, the library acquires permanent materials that become a part of its collection. These can be borrowed and shared throughout the Norwegian library system, and are consistently available once incorporated into the collection. With the addition of service providers as intermediaries in this process, digital collections become ephemeral and driven by the service providers themselves. Acquisition of digital material is not a one-time event, but an ongoing subscription to material offered by the service provider. As one informant working with collections development describes,

> We have to forget ownership. It's just like Netflix; some things are available for some period of time…if libraries should *own* digital media, then we'd be talking about a

completely different budget. For now, the best thing we can do is to try and supply a basis of content. And that content will differ from year to year. (Interview 7, January 2021)

As service providers change or update their collections, the selection of content offered to end-users changes. Likewise, when libraries change service providers, the selection of material also changes. The result is a collection that is not static, but ever-changing—which can be both unreliable or dynamically up-to-date. The tradeoff between short-term benefits and long-term ephemerality is characteristic of the platform economy, as content providers become dependent on intermediaries (Nielsen & Ganter, 2018). While the library is also an intermediary between content providers and end-users, this role is increasingly outsourced to service providers. The *curation* of digital content thus becomes another means by which governance is negotiated between the library and its service providers. While service providers curate collections of digital content, the library curates its selection of service providers. This may alter the notion of what a 'collection' is. As one informant put it, "a collection is something that you own, a service is something you offer. And a service is up for change more often than a collection would be" (Interview 7, January 2021). As the development of digital services continues, the library's digital 'collection' might be better be described as the service provider's collection *mediated* by the library.

7.4 Discussion

This chapter has evaluated how economic processes shape the development of the Norwegian library system's digital services, and identified where platform logics are reflected in these processes. With the expansion of its digital offering, the Norwegian library has evolved from a two-sided market to a *multi-sided market configuration,* involving a complex web of service providers who act as content intermediaries. This market configuration, which is typical of digital platforms, articulates the library's role as a mediator connecting service providers [complementors] and end-users. This is evident in the context of the Norwegian library's digital offering, which is becoming more reliant on service providers to manage its digital collections. Based on policy document and interview discourses, three primary economic processes appear to influence digital service development: competition (7.2.1), demand (7.2.2), and supply (7.2.3). As the library competes with major digital platforms in facilitating access to information and dissemination of content, it draws on platform qualities such as seamlessness, user-friendliness and relevance to guide its development. The library's

incorporation of these qualities is a response to user demand and trends, in an effort to stay competitive and relevant in a crowded market. But because the library has limited resources for digital development, they rely on service providers to negotiate with publishers and supply content. Yet moving toward service provider-based digital model also has consequences for the supply and ownership of collections material.

These economic processes contribute to what Nieborg and Poell (2018) call the development of *contingent cultural commodities* in a platformized market. As digital platforms such as GAFAM become gatekeepers of cultural content, processes of cultural production and consumption become contingent on those platforms. These cultural commodities are also contingent in the sense that they are, "malleable, modular in design, and informed by datafied user feedback, open to constant revision and recirculation" (Nieborg & Poell, 2018, p. 4276). In the development of the Norwegian library's digital offering, service providers act as gatekeepers of cultural content such as audiobooks and films. While this role has previously been held by the library themselves, *what* content is made available to end-users, and *how* that content is consumed are now dependent on digital service providers. This analysis has highlighted the flexibility and ephemerality of the service-provider model, as well as the library's focus on responding to competition and user-demand, which also reinforce this contingency.

While this model affords economic and operational efficiencies for the library, it may put at stake, "media plurality, the independence of cultural producers, access to media, and the influence of owners" (Nieborg & Poell, 2018, p. 4279). Srnicek (2016) argues that non-corporate platforms are crucial for maintaining unbiased, uncompromised access to information. The library's role as a curator of services is therefore to negotiate agreements with service providers that uphold public values such as *diversity, independence* and *open access*. This connects to a larger conversation surrounding the privatization of the public sphere, and the potential threat to public values that could arise. Nielsen and Ganter (2018) describe three primary ways organizations engage with digital intermediaries: coexist with them, confront them, or collaborate with them. The Norwegian library system adopts all three: *coexisting* and responding to developments in the marketplace, *confronting* them about meeting the library's standards, and *collaborating* with them to develop services. Although digital service providers may shape the production and consumption of cultural content, the library maintains governing oversight to ensure its values are preserved. As its digital offering continues to expand and diversify, this regulatory role will likely become even more important.

8 Governmental Frameworks

As both a public space and a public institution, the library serves an important social and political function in communities. In Norway, libraries are, "an important part of the democratic infrastructure," as spaces for knowledge, civic engagement and self-cultivation (Ministry of Culture, 2019, p. 3). Yet, as discussed in Chapter 7, the Norwegian library is increasingly partnering with private companies to develop its digital offering. This is reflective of a larger trend, both in Norway and beyond, driven by governments seeking to be innovative while maximizing operational and economic efficiencies (Janssen & Estevez, 2013). As the process of *infrastructuralization* merges platforms with infrastructures, public spaces are becoming privatized to a greater extent (Barns, 2020). The result is that citizens are governed by both public bodies *and* private entities—though the latter are not democratically elected (Gorwa, 2019). This raises questions of whose values are reflected in the design of public spaces such as the library, and whether there may be possibilities for participatory intervention (Barns, 2019). In this chapter, I will discuss how platformization materializes in the *governmental frameworks* that structure relations between the library, users and service providers. While technical and economic aspects of governance have been addressed in chapters 6 and 7, this chapter will approach governance through the lens of *platform urbanism* (see Chapter 3), with a focus on the relationship between citizens and their environment. This analysis will be supported with interview and policy document discourses, as well as a case study of one library's Digital Language Café. The chapter begins by identifying governance mechanisms within the Norwegian library system, and how these configure terms of engagement (8.1). I will then discuss how the library's digital initiatives enable opportunities for participatory governance (8.2). Finally, I will consider the role of the library as a social platform, and the potential for digital activities to facilitate social integration (8.3).

8.1 Forms of governance

As digital platforms such as Google, Apple, Facebook, Amazon and Microsoft [GAFAM] accrue economic power through processes of cross-sectorization and vertical integration, they also gain political power through *infrastructuralization*. The merging of infrastructures and platforms complicates notions of governance, as platform companies rather than public entities dictate the terms and conditions of digital environments. Platform governance describes the, "practices, policies and affordances" that delineate how users relate to and engage with the platform (Gorwa, 2019, p. 854). This can involve such diverse

mechanisms as the Terms & Conditions that establish platform-user relations, Community Guidelines that dictate what practices are (not) allowed, or algorithms that shape what content is and is not seen (Poell et al., 2019). As scholars of platform urbanism observe, this governing influence has also begun expanding off-screen and into platformized urban landscapes, as public spaces and infrastructures become digitalized (Barns, 2020). As the Norwegian library system moves toward a hybrid model of digital and physical services, its governance mechanisms also become more complex. With the incorporation of service providers [complementors] into the platform ecosystem, multiple forms of governance now structure the relations between the library, its users and its service providers. In this section, I will discuss two primary governance mechanisms: the library card (8.1.1) and service-provider agreements (8.1.2).

8.1.1 The library card

The principal means by which the Norwegian library governs its users is the *library card.* The Norwegian library system offers a national library card that provides access to material from *all* libraries throughout the country, including digital services (Ministry of Culture, 2019, p. 28). The library card serves a dual purpose: to provide access to material by authenticating a user's identity, and to establish the rules of engagement. It serves as an agreement between the library and its users, where users are afforded certain benefits under the terms and conditions set by the library. I will briefly outline the process of registering for a library card, and will then address the benefits and rules that govern library users.

While users are able to receive a physical card from their local library, the primary means of registering and using the library card is digitally. To register, users first authenticate their identity through the national electronic identification portal. The use of digital authentication is part of the Norwegian government's larger *One digital public sector* strategy, intended to streamline citizens' access to public services through digitization (2019). The use of a single sign on [SSO] system such as this is common among digital platforms, as a way of enabling a seamless user experience without creating different accounts for different services. For the library, this prevents duplicate accounts in their system, and supports a more integrated, unified approach to digital public services. One informant working with digital services expressed that the hope is for the library card to facilitate *all* experiences in the library, by using an SSO approach to connect digital services, library interfaces, and Wi-Fi access (Interview 2, December 2020). The goal of consolidating this access is for the library card to provide, "a big value for the end user" (Interview 2, December 2020). This illustrates

the interconnectedness between economic processes and governance, as the library's approach to governance supports its objectives of attracting new users and increasing usage. To complete the registration process, the user must then accept the terms and conditions of the national library card. If they connect that card to their local municipal library, the user must also accept that library's terms and conditions. And, depending on what digital services are offered by that municipal library, this may also involve accepting the terms and conditions of its service providers.

The reality behind the library card's 'seamless' end-user experience is that there are several layers of governance in operation. While the library card provides a single point of access, the user is in fact governed by multiple agreements with multiple parties. What exactly do these agreements afford the user, and on what terms? The *National strategy for libraries 2020-2023* (2019) describes the library card's affordances as giving access to national digital services, the ability to borrow books across the library system, and to use the library's self-service hours (p. 28). When it comes to the rules of engagement, the terms vary from library to library. The national library card agreement involves consenting to the storage and processing of user account information (Nasjonalbiblioteket, n.d.-a). Once logged in, users have the ability to see what data has been collected and stored, and are given sovereignty over how that data is managed. Municipal library agreements, on the other hand, outline the terms of borrowing and returning material: how long books can be borrowed for, that they must be returned in good condition, and that damaged or lost material must be replaced (Trondheim folkebibliotek, 2021). These delineate the user's relationship to collections materials, rather than the physical space of the library or its digital services. In this sense, the library card is a means of *sharing* ownership with users. The user plays a role in preserving the library's collections, by taking responsibility for their care. For many of the library's digital services, however, the user must agree to the service provider's terms and conditions. This will be addressed in section 8.1.2.

Yet, a library card is not required to access all that the library has to offer. The physical library, for example, does not require a library card to enter or make use of its space. This is because the library is intended to be a public space that is, "open, inclusive and accessible" for all (Ministry of Culture, 2019, p. 3). Several interview informants stressed the importance of having a free, open, truly *public* space in the community:

> We don't have many requirements for you in the library, we don't demand anything specific from you…And we are non-commercial, so if you like you can come to the library every day, every morning, you can be here all day long, and no one will ask

you what you are doing here. No one will ask you to leave, at least if you behave
nicely. (Interview 2, December 2020)

This is in stark contrast to the complex user agreements drafted by Facebook or Google, or private spaces reserving services for paying customers. The 'code of conduct' for the library space is as simple as showing consideration for others, and not breaking the law (Trondheim folkebibliotek, 2021). Visitors in the physical library space are instead governed by the same democratic rules and principles that govern all public life in Norway. As one informant put it, the library is, "neutral in every sort of way," in the sense that it does not prioritize certain groups or tailor its services to any one kind of person (Interview 3, December 2020). This fosters a, "free and independent cultural life," in the face of urban and digital landscapes that are increasingly privatized and commercialized (Ministry of Culture, 2019, p. 5). Put simply, "our attention cannot be bought and sold in a library" (Palfrey, 2015, p. 59).

8.1.2 Service provider agreements

As introduced in Chapter 7, the Norwegian library has begun partnering with a variety of service providers to facilitate its digital offering. Because each municipal library has a different selection of digital services, users are then governed by the terms and conditions set by each of these providers. This creates a complex web of governance, where the user is beholden to the library directly, as well as its complementors who leverage the library's platform. One of the main service providers, Bibliotek-Systemer, is responsible for many of the library's digital tools and services. These include in-library search interfaces, self-service interfaces and hardware, and the digital library card system itself (Bibliotek-Systemer, 2021). In addition, many Norwegian libraries use Bibliotek-Systemer as a provider for their cataloging and borrowing systems. The company's digital solution "Bibliofil" provides users with an interface to access and use their digital library card, both on desktop and mobile. As a result, Bibliofil collects and stores much of the same information as the library and the government's e-identity portal, such as name, address, birth date, contact information, and borrowing history (Bergen Offentlige Bibliotek, 2021).

Other digital services, such as Bookbites, Pressreader and Filmbib, have their own terms and conditions as well. Because all of these apps and systems are separate entities, there is currently no unified interface for the user to access all digital services (Interview 2, December 2020). The result is a somewhat disjointed digital experience, governed by a patchwork of user agreements. These agreements and interfaces can also be considered governance mechanisms, which delimit the user's experience of the library. Outsourcing this

to commercial partners represents a permeation of private interests into public space (Leorke & Wyatt, 2019, p. 6). There is a sharing of governance between public and private entities that further reflects the, "infrastructuralization of platforms and the platformization of infrastructures," discussed in Chapter 6 (Plantin et al., 2018, p. 295). Platform thinking is not only incorporated in the library's data infrastructures, but its governing infrastructures as well.

The library has, however, begun to work toward a model of co-development with its partners. This integrated approach involves the development of digital tools and services as a cooperation between the government bodies and commercial partners. Bookbites and Filmoteket are two examples of providers who have built their services in cooperation with public organizations, or with public funding support. In addition, the Deichman libraries in Oslo have begun developing their own proprietary services, which may prove useful for other libraries in the Norwegian system (Interview 1, December 2020). Although the library is always involved in negotiating agreements with its service providers, taking a more collaborative approach may enable the library to maintain greater oversight in the governance of its users. In the future, this could also aid in the integration of different services to create a more uniform digital experience. In addition, public-private collaboration may strengthen the library's own governance by allowing for regulatory oversight in the development process, while maintaining a healthy balance between public and private interests (Schwarz, 2017, p. 395). This regulatory oversight may prove significant for the library user, in protecting the integrity and privacy of user data. In the following section, I will expand upon the potential for user intervention in the governance process, by looking at how the Norwegian library fosters a participatory culture.

8.2 Fostering a participatory culture

Although library users are governed by the terms and conditions set by the library and its service providers, digital tools and services also enable users to partake in governance processes. Norwegian libraries are "cornerstones of democracy" which actively encourage a participatory culture that engages citizens in social and political processes, both within the library and beyond (Ministry of Culture, 2019, p. 3). As infrastructure and digital technologies intersect in the 'platform city,' the skillset and knowledge needed for citizens to partake in democratic processes is also under transformation (Barns, 2019). Because platforms are intended to facilitate action, as digital infrastructures they may lend themselves to co-creation of public space. The promise of participatory culture can be seen in platforms

such as Google and Facebook, which are built upon user contribution to the platform environment (Barns, 2019). But while users play a vital role in creating these environments, they are serving the platform company's interest rather than exercising governing power in the public interest. What could be a democratic digital public sphere is instead overrun with profit-driven motives (Fenwick et al., 2019). What if public institutions took that same participatory platform-thinking, and applied it within a democratic framework? While the library's role is not to create a digital public sphere, it gives citizens the critical skills to participate in it. This section will explore how the Norwegian library system leverages digital tools to facilitate citizen-led governance. I will begin by discussing how the library cultivates civic engagement through digital education (8.2.1), and will continue by looking at the Norwegian library's self-service model, which enables a user-powered library experience (8.2.2).

8.2.1 Digital skills and civic engagement

The library plays a vital role in democratic society by facilitating, "access to the skills and knowledge necessary to fulfill our roles as active citizens" (Palfrey, 2015, p. 9). As the information landscape becomes steadily more digital, the skills and knowledge required to participate in society have also evolved (Jaeger et al., 2012). The library's role and responsibilities have, consequently, expanded to incorporate new forms of knowledge. The Norwegian library has not only *adapted* to these changes by developing digital tools and services (see Chapter 7), but they are also *responding* by equipping citizens with the skills to participate in digital society (Interview 6, January 2021). This is particularly evident in the physical library, which has become a hybrid space bridging the library's dual role as a meeting place and knowledge center. In this section, I will draw on interview and policy discourses to describe how the library's digital tools and services encourage civic engagement.

In Norway, citizen service centers have been introduced as an initiative to assist citizens with public services, with a particular focus on the government's digital services. Many citizen service centers are operated by local municipalities, but some are now being incorporated into municipal public libraries. In Skien, the new public library will incorporate the municipality's service center as well as some parts of NAV. One informant working at the library in Skien described the hope for the new center:

> We will then be the first line of communication with the citizens in Skien, and the plan is to be able to answer most of the requests that the citizens have, where today they go

to NAV, they go to the service center, and they come to us for different types of requests. (Interview 3, December 2020)

These centers may be a new addition to the library, but the library has in fact provided support with new technologies and digital tools for many years (Interview 1, December 2020). Many libraries don't have formal service centers, but still assist the population with these same tasks. One informant working in the Trondheim public library described their offering:

We have our own learning center, where people who lack IT knowledge can come and get one-on-one guidance…And we also have other initiatives: courses, guidance, everyone can just come into a public library and ask for help—IT assistance, help with accessing forms, logging into NAV, for example. (Interview 1, December 2020)

Citizens' need for digital knowledge has only increased as the Norwegian government invests heavily in digitalizing the public sector. Across all areas of public life, the government is digitalizing processes to enable, "a simpler everyday life through better services and more efficient use of resources by government agencies" (Ministry of Local Government and Modernisation, 2019, p. 7). As the *National strategy for libraries 2020-2023* (2019) pinpoints, citizen service centers play a key role in supporting the government's larger digitalization efforts by "boosting the population's digital skills" (p. 6). The library thus becomes an extension of the larger digital 'public platform' being created by the Norwegian government.

A high level of digital competence is required in order for the Norwegian government's plans for a digital public sector to succeed. Part of the library's responsibility in making information "accessible to all" is ensuring that no one gets left behind (Ministry of Culture, 2019, p. 5). Although the majority of the Norwegian population has access to the Internet, not everyone is equally equipped to navigate the digital landscape:

The public administration is saying "digital first," so all public digital services should be able to be used by all. And what we see in surveys is that many aren't able to use them…we know that there are between 400 000 – 800 000 Norwegians who don't know enough to navigate online, at least when it comes to public digital services. (Interview 1, December 2020)

This illustrates the importance of the library's role in developing citizens' digital competence. After all, simply having *access* to digital tools is not enough—people must also be able to *use* them (Jaeger et al., 2012). This is particularly important to keep in mind when considering those who may be able to afford a computer of their own, older populations uncomfortable with digital skills, or those who are new in Norway and not yet familiar with digital systems (Interview 5, December 2020). Library initiatives such as Digidel and DigiHjelpen directly

address these challenges. In 2017, the library participated in the national Digidel initiative, which offered basic training, "to strengthen the population's digital population and skills" (Ministry of Culture, 2019). Although the initiative is now complete, the library now continues this work directly with its visitors on a day to day basis. The DigiHjelpen ["DigiHelp" in English] initiative is an extension of Digidel that will become a part of the library's service center. The objective is, "getting the people who don't know anything at least up to some basic understanding of digital knowledge" (Interview 3, December 2020). Digital literacy also goes beyond filling out online forms or filing taxes online. Some requests are as basic as using a computer, printing, or help with searching and applying for jobs (Interview 5, December 2020). Basic tasks indeed, but no less important. This is especially true when there aren't many other places who assist with these needs—and 'just Googling it' isn't the right approach. Simply having the knowledge and access to Wi-Fi and a computer are the most basic requirements for digital citizenship. With the library's help, citizens can get skills they need to exercise their right to the platform city, as active participants in digital society.

Interview and policy discourses also highlight two economic incentives behind this model: cost-savings for the central government, and digital re-skilling of citizens. Digitizing the public sector is a means of paring back the bureaucratic resources required for everyday operations across government agencies. The library is able to answer many of the low-threshold questions that would typically be directed to government agencies such as NAV or the Norwegian Tax Agency, allowing those agencies to focus on higher-priority tasks (Interview 3, December 2020). And as citizens gain the skills to navigate the digital transformation taking place within the public and private sectors, they are able to take care of many tasks on their own, with the help of automated processes. It also enables greater participation in the workforce, as digital skills become an important prerequisite for many jobs. Overall, this drives economic efficiencies for the central government across its agencies, and increases the value generated out of the library's own funding (Interview 3, December 2020). As Leorke and Wyatt (2019) illustrate, this is part of a wider phenomenon that highlights the interconnectedness between economic processes and governmental frameworks:

> Libraries are becoming de facto collaborators in their governments' economic programs, helping to reskill workers, drive innovation, and support entrepreneurs to commercialize their applications and products. (p. 96)

This once again reflects the ideology of neoliberal governance that is ingrained in platform logic (Plantin et al., 2018). By decentralizing a system and having users manage government

tasks on their own, central agencies benefit from greater economic and operational efficiencies (Janssen & Estevez, 2013). At the same time, citizens may experience a greater sense of participation and responsibility by taking matters into their own hands. So, while platformization may enable new opportunities for 'bottom-up,' citizen-led governance, it is worth acknowledging the benefit to 'top-down' government entities as well.

8.2.2 The self-service library

The Norwegian library system has also created the opportunity for citizen-led governance in its own space, with its *self-service library* model. The self-service model was first introduced in Denmark, and launched in Norway in 2013. Within five years, 132 libraries across the country had made it possible for users to access the library during extended hours, without staff present (Ministry of Culture, 2019). The objective for the Norwegian library is to, "offer greater availability and accessibility," allowing visitors to use the library's services on their own terms (Ministry of Culture, 2019, p. 20). Without the presence of library staff, the self-service library experience is facilitated primarily by digital tools and services. Users gain access to the library premises by scanning their library card via their mobile device or a plastic card. The Library Search tool can be used to search and locate material via screen interfaces within the library, or any Internet-connected device. Self-service machines allow users to borrow or return physical materials, and the library's digital services can be accessed via library computers or the user's own device. In addition, surveillance cameras and RFID-sensors act as security measures in the absence of staff. This hybrid digital-physical experience relies on the library card as a mode of access, making it a governance tool *for* users that affords a sense of ownership of the library space.

What exactly can users do in the self-service library? Nearly anything they would normally do: use the space, read, borrow material, or use the computers, printers and Wi-Fi (Deichman, 2021). Even during its regularly staffed hours, the library provides these same self-service opportunities for the user to take ownership over their experience of the space. Though staff may be present, users can still choose to use the Library Search tool, self-checkout screens, or any of the library's digital services on their own. The Library Search tool and digital services can also be accessed from home, extending the 'self-service library' beyond the four walls of the library building. One interview informant described these self-service tools as a means of connecting the digital library with the physical space:

> In my head, the library is a 24-7 thing. We have to make sure that every entrance, either physical or digital, is available, open, and connected to the audience or the

public…If you're thinking about a book, you Google it, you go to the library app to see if it's available…everything starts, that has to do with the library, in the digital world. (Interview 4, December 2020)

Digital tools do not make the physical library space less relevant, but are rather an extension of the space that gives it new functionalities (Leorke & Wyatt, 2019). These functionalities put more control in the hands of the user, allowing them to shape how they experience the library. This can be thought of as a form citizen-led governance, creating a space where users are effectively 'in charge,' without the presence of authority figure. As users take more ownership of the library experience, the role of library staff also changes. While some might argue that the ability for users to do everything themselves may make library staff obsolete, this is not necessarily true. As illustrated in 8.2.1, library staff have taken on more of a guidance role, helping users help themselves. One librarian described their hope that digital tools will make users more self-sufficient:

Almost every time I help someone to order something, unless they can't see or obviously can't do it themselves, I usually show them how to do it themselves so they can do it themselves the next time. (Interview 5, December 2020)

As digital tools become a central part of the library experience, library staff must also increase their level of digital competence. The library in Skien offers digital training for its staff, to help them better assist guests with requests involving online services. One informant described this a way of re-training staff to apply their "ability to quickly sort information [and] make sure you know where to go to find what you need" to a hybrid digital-physical environment (Interview 4, December 2020). As library staff use less time on tasks that users can manage on their own, they have more time to assist the patrons who need it most.

The self-service model also makes the library's services available to a greater portion of the population, by making the *terms of access* more flexible. Users have the ability to access the library's services wherever they are, whenever they like—whether digitally, or physically during staffed or self-service hours. Leorke and Wyatt (2019) draw on Nikolas Rose (1999) to describe the library as, "'governing at a distance,' aligning 'the aspirations of free citizens' with governmental ideals of the self-regulating, autonomous individual" (p. 87). The self-service model exemplifies this 'distance' by placing a greater level of trust in library users, who are given responsibility for the library space during self-service hours. A greater level of autonomy within the space subsequently creates a sense of ownership of that space. Allowing citizens to shape their experience of the library reflects the platform strategy of *programmability* which has been introduced in Chapter 6. An overly-programmed space has

affordances and limits that are pre-determined, while programmability affords a state of openness or incompleteness that enables the *co-creation* of space. This kind of openness for citizen input is a key feature of what O'Reilly (2011) calls, "the government as a platform" (p. 13). Governments are increasingly adopting platform strategies to encourage participation and co-creation, relying on the affordances of digital tools to create a more 'open government' (O'Reilly, 2011). The library's self-service models are an example of how digital technologies can encourage greater collaboration between public institutions and citizens. These can be thought of as what Barns (2020), "a platform for reclaiming cities from the bottom up," as urban centers have fewer truly *public* spaces. As one informant commented,

> There are fewer open meeting points, especially free ones…society is closing, but the public libraries are just opening up more and more. With longer opening hours, with self-service libraries. (Interview 4, December 2020)

The openness and flexibility of the self-service library serves an important community role, as a place for citizens to meet and simply *be* without question. For this reason, libraries also play a key role in integration. In the following section, I will explore the ways the Norwegian library leverages digital tools to contribute to integration efforts in its communities.

8.3 The library as social infrastructure

The library is not only a knowledge infrastructure, but also an important *social infrastructure* which, "provides the setting and context for social participation" (Klinenberg, 2018, p. 32). Social participation is an active process which contributes to the production of social space, by involving constituents in co-creating how that space is used and experienced (Lefebvre, 1991). Libraries facilitate this kind of bottom-up governance, as spaces which are free, open to be used by anyone, and which provide access to information and shared culture. These qualities make the library a valuable "third place" in society: a non-commercial space beyond home and work, where people can meet and socialize (Oldenburg & Brissett, 1982). Third places such as the library are "low-intensive meeting places" that allow communities to come together and bridge cultural, educational and social differences (Audunson, 2005, p. 430). Digital platforms such as Facebook and Twitter have also been conceptualized as third places or digital public spheres, translating opportunities for social participation to a digitally-mediated format (Edirisinghe et al., 2011; Soukup, 2006). Although these platforms have the ability to facilitate social interactions and even political engagement, some of their features contradict the function of third places. For one, they are increasingly commercialized with the

presence of advertisers, who commodify and trade user data (Mejias & Couldry, 2019). In addition, their algorithmically-driven structures produce a "programmed sociality" that tends to reinforce users' pre-existing realities, rather than encouraging engagement with those who think differently (Bucher, 2018). Finally, the content on these platforms is heavily moderated, delimiting what is said and seen (Gillespie, 2018). Is it possible to harness the participatory potential of digital platforms, while avoiding these pitfalls? In this section, I will approach this question by exploring the ways interview and discourses describe the library as a social platform (8.3.1), and will present a case study of one library's Digital Language Café initiative, based on data collected during participant observation (8.3.2).

8.3.1 A social platform

The amendment to the Public Libraries Act (2014) in Norway established the purpose of the library as, "an independent meeting place and arena for public discussions and debates" (sec. 1). In the years that followed, development funds were delegated to projects that would bring this 'meeting place' to life, and that work has continued into the current strategy period. Part of creating spaces that encourage social participation has been *responding* to the needs of each individual community. When developing the new public library in Skien, the library held community workshops where residents were invited to share their thoughts and wishes for the new space (Interview 3, December 2020). In Oslo, one librarian at the Deichman Stovner public library emphasized the need to consider the diversity of communities, suggesting that, "all libraries should be different and reflect the people who live there" (Interview 5, December 2020). Because libraries are a place where *all* are welcome, its role as a meeting place creates the opportunity for community-building and integration. Not only do libraries bring people together as a meeting place, they bring *different kinds* of people together— people from all social classes, cultural backgrounds. As Audunson (2005) observes, spaces such as the library where, "a discourse can take place across social and cultural borders" enable a democratic society where all voices are heard (p. 438). The *National strategy for libraries 2020-2023* (2019) reiterates this, acknowledging that, "a rich and varied cultural life is crucial to freedom of expression and a well-functioning democracy" (p. 5). The public library is a place where users are not only able to *access* shared culture, but to *create* shared culture.

Social media platforms such as Facebook and Twitter also facilitate the possibility for cross-cultural discourse, but rarely expose users to alternative viewpoints. Governance mechanisms such as algorithms function by showing users more of what they already like and

are familiar with (Bucher, 2018). In addition, the moderation of community guidelines function based on notions of freedom expression decided by the platform company, rather than democratic law (Gillespie, 2018). Where platform-mediated sociality seeks to curate a sense of order, the library's governance model embraces the *disorder* of social life, giving citizens the critical skills to make sense of it on their own (Ministry of Culture, 2019, p. 3). This is especially relevant when it comes to community-building, and tackling, "challenges related to density, overcrowding, language, cultural differences and integration" (Ministry of Culture, 2019, p. 21). Audunson (2005) identifies two ways the library supports integration and community-building: to "integrate newcomers into the political and social culture of the receiving country [while giving] them possibilities to cultivate their own culture," and second, "creating arenas where people belonging to different cultural groups can meet and communicate" (432-433). One way the Norwegian library has approached this has been to design physical spaces that bring people together, with carefully-designed interiors and tailored programming. At the same time, they have also begun looking to digital platforms to facilitate social participation.

The *National strategy for libraries 2020-2023* (2019) emphasizes that its goal is to "maximize participation" in the social activities that it offers (p. 18). During the COVID-19 pandemic, the library was not able to offer its usual selection of programming in the physical library space, and instead turned to digital platforms develop a 'virtual meeting place.' One strategy has been to live-stream events as they are happening, inviting the community to take part digitally. As part of its digital infrastructure, the National Library will develop, "a common platform for streaming various events," and will also leverage this platform to "actively disseminate its own collections and events" (Ministry of Culture, 2019, p. 18). The Deichman library in Oslo has already launched a podcast, as well as published recordings of debates and lectures. While these formats afford greater flexibility for users to join events, they are primarily passive, one-way forms of communication. Some libraries, however, have begun experimenting with platforms that enable active, two-way communication in order to facilitate social activities. In the following section, I will take an in-depth look at Stovner public library's Digital Language Café initiative, with a case study based on participant observation and interview discourses.

8.3.2 A case study of the Digital Language Café

For several years, the Deichman Stovner public library in Oslo has operated a successful "language café" program, where newcomers and Norwegian language-learners

have the opportunity to learn and practice their language skills with others. The success of this program has attracted people from beyond Stovner itself, drawing newcomers and language-learners around the greater Oslo area (Interview 6, January 2021). When the COVID-19 pandemic hit Norway, the Stovner library moved the program online using the Zoom video-conferencing platform. In February 2021, I joined two of these sessions as a participant-observer. The observation was guided by the research question: *How does Deichman Stovner Public Library use Zoom as a platform to facilitate social participation during Digital Language Cafe?* In this short case study, I will describe what the Zoom platform makes possible for library users attending Digital Language Café, followed by an analysis incorporating interview discourses with employees from the Stovner public library.

The Digital Language Café hosted by Stovner public library is a semi-structured, informal language program, led by a library staff member and supported by several program volunteers. Some of these volunteers are native Norwegian speakers, and others are former program participants who have developed their language skills enough to be able to assist others. The program takes place as a Zoom-meeting, where participants join remotely and convene in one virtual "room." In both sessions I observed, there were on average 30 participants. Upon joining, I was surprised by the colloquial ambiance in the Zoom-room; many of the participants seemed to know each other already, joking and chatting casually with one another across the grid of faces on-screen. Nearly all of the participants joined with video turned on, and very few were on mute throughout the session. When the session was scheduled to begin, the program leader welcomed the group and introduced the format of activities. While no one was asked to turn on their video or turn off their sound, there were several rules: 1) Speak as much Norwegian as possible; 2) We help one another; and 3) Dare to ask questions. After this, the participants were asked to introduce themselves, including where they were from, how long they had been in Norway, as well as answer one themed question. Although the session was hosted by Deichman Stovner in Oslo, many of the participants were not from Stovner or Oslo at all. There were participants from all over Norway, and several from countries all over the world. Several participants were native Norwegian-speakers, who joined to support the language-learners and answer questions. What everyone had in common was an interest in Norwegian language and culture.

Once everyone had been introduced, the participants were divided into *breakout rooms,* a feature in Zoom that allows for the creation of smaller rooms outside of the main meeting room. These breakout rooms had approximately 5 participants each, and were joined by at least one volunteer. The volunteer led the small-group activities, and was there to

answer questions. In addition, the program leader was able to move between the different breakout rooms to assist. During these activities, participants used *reaction icons* such as thumbs up, raising a hand, or applause hands to communicate non-verbally. These reaction icons allowed participants to express an emotion or opinion without interrupting the activity on-screen. Additionally, participants used the *chat function* to ask questions, without interrupting the flow of the activity happening on-screen. This allowed for a simultaneous flow of activity: the scheduled activities could continue verbally, while volunteers or other participants answered questions in written form. The chat function was also used as a virtual "whiteboard," used to write out useful vocabulary words, or to clarify spelling. When an activity involved a visual cue such as an image or website, the *share screen* function was used by the program leader and volunteers. This functioned as a virtual projector screen, allowing the participants to view specific material on-screen simultaneously. At the end of the 90-minute sessions, all participants re-convened in the main Zoom-room to share their experiences and ask any final questions.

As a digital platform, Zoom affords the possibility for new forms of presence and participation. Because users can access the platform from anywhere, it opens up the possibility for a wider variety of people to participate. The digital platform has allowed the program to expand beyond the capacity of its physical space, while breakout rooms create the opportunity for participants to engage directly and ask questions in a lower-threshold space. The presence of volunteers and native language-speakers allows participants to learn more about the culture and language directly. Because participants don't need to be physically present, the digital format allows those who normally wouldn't be able to attend—such as new parents, the elderly or those outside of Oslo—to participate. Participants can meet and engage with people from a variety of different cultures, who are all trying to establish their identity in Norway. This has allowed the program to reach a new audience with more flexible terms of participation, further supporting the library's goal of active dissemination.

As with any new format, the development of the Digital Language Café has been a learning process. The program leader described the technical challenge of learning Zoom's different features, as well as 'Zoom-etiquette,' the art of reading social cues through a screen (Interview 6, January 2021). This was a learning process that everyone undertook *together*, as a collaborative process. The program leader described how participants and volunteers helped one another to learn how to use the different features, and experiment with what these could be used for during the sessions. The result was a co-creation process, where participants were involved in shaping how digital tools would be used. This also aids in heightening the digital

competence of library users, particularly those who are not as confident in using digital platforms. Although the Digital Language Café has been a successful format so far, the program leader clarified that it has not replaced the physical language café offering. Rather, the digital format offers an experience that is *complementary* to the physical library offering, with a completely different audience. For some, digital formats offer greater convenience and accessibility; for others, these platforms are unfamiliar and uncomfortable (Interview 5, December 2020). As platforms become a part of the library's digital infrastructure, a hybrid approach that spans digital and physical spaces may aid in fostering access and participation for all.

8.4 Discussion

This chapter has explored how platformization processes materialize in the governmental frameworks that configure relations between the library, users and service providers. As platforms become a part of infrastructures such as the Norwegian library ecosystem, this process of *infrastructuralization* also shapes the way citizens experience and relate to the library. The lens of platform urbanism has illuminated the ways platforms mediate the relations between citizens and their environment, and create the possibility for participatory governance. The primary ways users are governed within the Norwegian library system are the library card (8.1.1) and service provider agreements (8.1.2). The result is a layered form of governance, where use of digital services is governed by individual service providers, while users are simultaneously governed by the library's own terms and conditions across its digital and physical spaces. The library card connects these forms of governance, as the user's primary means of accessing library and service provider resources. While citizens are governed *by* the library and its service providers, the library also facilitates opportunities for *citizen-led governance*. Digital tools and services function to create opportunities for education, civic engagement, and a sense of ownership of the library space itself (8.2). These opportunities also lay the groundwork for *social participation,* supporting the library's role as free, independent and accessible form of social infrastructure.

As platforms become infrastructuralized, how might public institutions such as the library maintain a focus on public values? The Norwegian library system provides an example of incorporating public-private partnerships while still fostering a participatory, citizen-led space. As van Dijck et al. (2018) suggest, "creating public value for the common good should ideally be the shared responsibility of market, state, and civil society actors" (p. 139). In

building a more digital society, public and private actors do not necessarily need to be in opposition to one another. As they begin to work more closely together, these private actors, "need to put long-term public value creation over short-term economic gain" (van Dijck et al., 2018, p. 147). Platformization processes such as infrastructuralization raise valid concerns about platforms potentially overpowering democratic institutions, without democratic accountability (Gorwa, 2019). Yet overall, the Norwegian library system seems to maintain a balance that leverages the innovative power of commercial partners while maintaining its responsibility to the public interest. Its governmental frameworks exemplify what van Dijck (2020b) calls *democratic-civil principles.* Where platformization has blurred the boundaries between commercial, governmental and public interests, democratic-civil principles help to distinguish between these, allowing for each to be assessed and governed accordingly (van Dijck, 2020b, p. 15). Although library users experience multiple layers of governance, distinguishing between the terms set by the library and the terms set by private actors helps to keep each of these parties accountable. And as users are given greater opportunity to partake in the governance process, the library space becomes a space that reflects the public interest.

9 Conclusion

This thesis began by asking two questions: 1) *In what ways do platformization processes materialize within the Norwegian library sector?* and 2) *How does platformization shape cultural practices of governance and ownership within the library ecosystem?* To answer these questions, I have looked at how expert interview and policy document discourses describe platformization processes, and how these discourses align with existing platformization scholarship. In addition, participant observation provided useful insight into how platformization manifests for library users. This thesis has theorized the library as a platform, and worked outward to consider the intersecting platformization processes across its data infrastructures (Chapter 6), economic processes (Chapter 7), and governmental frameworks (Chapter 8). This final chapter will summarize the findings from this study (9.1), and bring these findings into a larger discussion of platformization within public institutions (9.2). I will close by acknowledging the limitations of this study (9.3), and highlight opportunities for future research (9.4).

9.1 Summary of findings

The objective of this thesis has been to better understand how platformization processes are shaping the development of public institutions, such as the library. Platformization is not a process unique to major commercial technology companies such as Google, Apple, Facebook, Amazon or Microsoft [GAFAM]. Rather, it is reflective of developments taking place across the axes of data infrastructures, economic processes and governmental frameworks in a variety of sectors. These developments have implications for the way governance and ownership are negotiated between market actors, governments, and citizens. As the platform becomes a pervasive infrastructural model for configuring digital connectivity, it becomes increasingly important to interrogate platformization processes across private *and* public sectors.

Platform governance scholarship asserts that platform power poses a threat to public values and democratic processes (Gillespie, 2017; Gorwa, 2019; Poell et al., 2019; van Dijck, 2020a). This is because platformization processes such as *vertical integration, cross-sectorization* and *infrastructuralization* tend to consolidate social, political and economic power in the hands of platform-holders, making them difficult to govern (van Dijck, 2020b). While these concerns have been explored extensively with regard to major digital platforms such as GAFAM, they are not inherent or inevitable outcomes of platformization. This thesis

has followed the definition of platformization as, "the penetration of infrastructures, economic processes and governmental frameworks of platforms in different economic sectors and spheres of life" (Poell et al., 2019, pp. 5–6). This has allowed for consideration of platformization processes within the context of the Norwegian library sector, as a means of exploring platformization *beyond* the corporate sphere. Each of the three elements of platformization has been addressed individually in a corresponding analysis chapter. Engaging with platform governance and platform urbanism scholarship has also illuminated the ways platformization processes shape practices of governance and ownership in this public institution. Through an exploration of policy and interview discourses and participant observation, this thesis finds that platformization materializes as a *strategic tool* for the Norwegian library system.

Platformization processes materialize across three aspects of institutions: data infrastructures (Chapter 6), economic processes (Chapter 7) and governmental frameworks (Chapter 8). In the analysis chapters corresponding to each of these aspects, this thesis has highlighted how the Norwegian library system adopts platform qualities and incorporates platform strategies. This analysis has also shown how the Norwegian library system *differs* from typical commercial platforms such as GAFAM, in an effort to uphold public values. In each analysis chapter, the resulting implications for governance and ownership have also been addressed.

Chapter 6 found that the Norwegian library sector's *data infrastructures* embody qualities of both infrastructures *and* platforms. Discourses describe its infrastructures as both interoperable and programmable, based on a mode of governance that is both centralized and distributed, and with data flows that are both open and closed. The result is an infrastructural design based on *technical-ethical principles* (van Dijck, 2020b)*,* which may aid in preventing the consolidation of infrastructural power through vertical integration and infrastructuralization.

Chapter 7 considered the ways platformization is transforming the Norwegian library system's *economic processes*, and the implications for the development of its digital offering. As a multi-sided platform, the library is an intermediary between end-users and service providers. By partnering with service providers to develop its digital offering, its digital content becomes a *contingent cultural commodity* (Nieborg & Poell, 2018). This offering thus becomes dependent on its service partners, and is shaped by market trends. While this gives service providers greater governing power and ownership over content, the library takes on a regulatory role by managing these service providers.

Chapter 8 explored the *governmental frameworks* which structure relations between the library, its service providers and its users. As platforms become an extension of the library's infrastructure, users are simultaneously governed *by* the library and its service providers. While this may be complex for the library user, distinguishing between these two modes of governance demonstrates *democratic-civil principles* (van Dijck, 2020b), which help to hold each party accountable. At the same time, digital tools and services facilitate opportunities for *citizen-led governance,* by fostering a sense of ownership of the library space and opportunities for social participation.

Across all of these dimensions, the motivation for adopting platform strategies and qualities is consistent: the Norwegian library system seeks to pursue innovation, while still maximizing economic and operational efficiencies. Working with service providers to supplement its digital offering is a means of achieving both of these objectives. At the same time, the library desires to democratize access to information both within the library system and toward its users. This poses a challenge for the library, and requires it to take on a greater regulatory role in order to maintain the public values it seeks to uphold. Nevertheless, the library seems to find a balance between the platform qualities that drive innovation, and infrastructural qualities that promote public values such as openness and interoperability. Just as the Internet transformed the way libraries operate, so too are platforms transforming the way the library operates. This research finds that the library is not threatened by platformization, but has found ways of incorporating platform strategies to stay innovative while maintaining a commitment to democratic values. The result is a *living platform* spanning the boundaries of the physical and the digital, which continues to develop in response to its users.

9.2 Toward a platform model for public institutions

The ultimate hope for this research is to illuminate the possibility for an alternative platform future: one in which public institutions may co-opt the affordances of the platform model to *further* democratic ideals and public values, while avoiding the pitfalls often associated with platformization. This thesis has presented the Norwegian library system as a potential example of such a model. The library draws on platform strategies to develop its digital infrastructure and offering, while retaining a balance between public and private governance. In addition, it seeks to leverage digital tools and services to *promote* democratic ideals and public values, while maintaining regulatory oversight of its complementors.

Looking beyond the context of the library, platforms have become a preferred infrastructural model for connecting users with governments, public agencies and public institutions. During the COVID-19 pandemic alone, we have seen the potential for platforms to form widespread public infrastructure—from infection-tracking platforms, to 'vaccine passport' platforms that track and regulate the movement of populations. Many of these platforms have been developed as public-private partnerships, for the purposes of public management. As public institutions enter the platform space, this raises questions about how data is shared, the economic factors driving the development and use of such platforms, and how they configure governance between citizens and those in power.

As with the Norwegian library, the platforms being developed by international organizations, governments and public institutions will not necessarily rely on the 'big five'— Google, Apple, Facebook, Amazon or Microsoft. While these major players dominate the market as a whole, focusing on these platforms alone will miss many of the smaller, local partners that governments work with. A focus on major platforms is useful for identifying concerns and patterns on a large scale, but these are not the only place these patterns may play out. Open government initiatives provide a good example of the ways in which public entities draw on digital technologies to create opportunities for collaboration and participation (Lathrop & Ruma, 2010). Scholars have also considered the growing trend of public-private partnerships taking place in the public sector (Klievink et al., 2016), but there is still opportunity to situate these discussions within screen cultures and media studies.

As this thesis emphasizes, platformization processes are not confined to technology companies alone; the same processes can lead to a consolidation of power in the hands of either corporations *or* governments. De Kloet et al.'s (2019) discussion of platformization in China acknowledges the ways public-private platform partnerships may produce and reinforce undemocratic results. This also highlights the reality that "public values" may not always be equivalent to democratic values, depending on the sociopolitical context. This thesis has operated within the Norwegian context and subsequently drawn on Western-centric platform scholarship. In light of authoritarian regimes on the rise across the globe, it becomes even more important to identify the regulatory mechanisms that keep *governments* themselves accountable as well. A continued look at platformization in the context of public-private partnerships may be useful in this regard.

These discussions also raise the question of what kind of values we *want* to see in the platform society. Not only that, but whose values get implemented, and who has a say. This thesis has addressed notions of governance and ownership as a means of assessing the

negotiation of power between platforms, complementors and end-users. Governance and ownership are useful entry points into a larger discussion of how social values are established and maintained. Van Dijck (2020) encourages a reimagination of platform development based on a, "set of principles that prioritizes the *common good* by empowering *citizens* and *civil society organizations* to help governments design *an open and diverse ecosystem*" (2020b, p. 14). Taking a wider view, Vallor (2018) has laid forth a framework approaching our relationship to technology through the lens of virtue ethics. This fundamental question of what kind of future we *want* to create may then lay the foundation for a critical re-imagination of platform model.

9.3 Limitations of the study

Given the limited scope of this study, a limited number of libraries participated in the research process. In a larger-scale study, it would be useful to look at a broader spectrum of libraries in municipalities of varying sizes, to get a more accurate picture of the library's development. Involving service providers in this study would also have provided an alternate lens to understand these developments. Lastly, the body of policy documents could be expanded in a larger-scale study. This could involve looking at the evolution of library strategies over time, and even individual library strategies at the municipal and county levels. Part of the Foucauldian Discourse Analysis lens is a historical change-over-time perspective, and a range of materials over a wider timeframe would allow for this. In particular, it would be useful to examine how platformization discourses have evolved over time across a larger body of policy and strategy documents.

9.4 Future research

As discussed above, there is a need for platform scholars to look beyond the realm of commercial platforms alone, and consider platformization within the context of public and public-private platforms. This study hopes to initiating this scholarly discussion, by presenting one means of approaching this problematic. There are a number of public and public-private platforms, many of which have been recently developed, which could be taken as a case study. Future research could benefit from looking more closely at the ways in which these models function, how they differ from commercial platform models, and the implications for the ways publics are governed. Such an approach may broaden the understanding of what platforms are and how they function, as well as support a more nuanced approach to platform studies overall. This study is situated in screen cultures, which

is interdisciplinary in nature. As screen interfaces and technologies evolve, the form and methods by which platforms are studied may also evolve. Maintaining an interdisciplinary approach will assist in understanding the multitude of ways platforms continue to penetrate and shape everyday life. In particular, platform urbanism will continue to be helpful for research focused on the merging of screen technologies and infrastructures. An increased focus on open governments may also prove useful in the specific context of public and public-private platforms.

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Appendix A

Interview Informants

Interview 1, December 2020.

Trondheim Public Library, library director. Involved in the digitalization of the library sector and digital development projects, with over 30 years of library experience.

Interview 2, December 2020.

Trondheim Public Library, ICT adviser. Responsible for the development of digital services and tools for the library, focusing on hardware. Over 30 years of experience in the library sector.

Interview 3, December 2020.

Skien Public Library, user services adviser. Focused on the development of digital services. Involved in the planning of the new Ibsen Library in Skien, scheduled to open in 2026.

Interview 4, December 2020.

Skien Public Library, library director. Involved in the planning of the new Ibsen Library and member of the National Library's strategic board.

Interview 5, December 2020.

Deichman Stovner Public Library, specialist librarian. Works on the floor in the library on a day-to-day basis, assisting patrons and facilitating daily operations.

Interview 6, January 2021.

Deichman Stovner Public Library, adult education and multicultural adviser. Works with integration and inclusion programs for immigrants, as well as daily operations in the library.

Interview 7, January 2021.

Vestfold & Telemark County Library, adviser. Focused on the county library's digital development projects. Background in collection management within local public libraries.

Interview 8, January 2021.

National Library, senior adviser in the Secretariat for Library Development. Works with library development, primarily public libraries. Responsible for project funding, and has worked on several reports on the future of Norwegian libraries.

Interview 9, February 2021.

National Library, head of metadata standards development team. Part of the department for bibliographic services and acquisitions. Responsible for the cataloguing systems and bibliographic formats, and metadata development in general.

Appendix B

Sample interview guide

Purpose

This project aims to explore the ways the Norwegian public library system imagines itself as a platform, both in theory and practice. Interviews with library planners will provide insight into how the library's digital offering is conceptualized, and the ways this digital offering fits into the larger role of the library.

Question	Follow-up questions	Notes
Background		
Can you tell me about what you do, and your role at the library?		
How long have you been working in the library?		
How is the planning going for the new Ibsenbibliotek?		
Can you tell me what your vision is for the new library?		
Planning digital tools		
Can you tell me about the kind of digital offering you're imagining?	What do you consider when you evaluate different digital services or tools?	
Is this different from how you have thought about the current Skien Library?		
Do you consider different factors when planning the digital offering versus the physical offering?		
The library in community		
Can you describe how you've tailored the digital offering to suit the community in Skien?		

What do you feel the library's digital services can offer to patrons?		
Have you heard the library described as a platform?	Does this idea of a 'platform' resonate with you?	

Appendix C

Sample information letter for interview participants

<div align="center">

Are you interested in taking part in the research project
"A living platform: The public library beyond four walls"?

</div>

This is an inquiry about participation in a research project where the main purpose is to understand the ways in which the public library in Norway imagines itself as a platform, both in theory and in practice. This letter will give you information about the purpose of the project and what your participation will involve.

Purpose of the project

As platforms increasingly become a part of our society's infrastructure, the public library has also been positioned as an educational and social platform. In an effort to adapt to an increasingly digitized society as well as attract new users, the Norwegian public library system has expanded beyond its four walls. Today's public library exists as both a physical and a virtual institution. This project aims to address the question, *How does the public library in Norway envision itself as a platform both in theory and in practice?* As a part of answering this question, I will conduct interviews with two groups—librarians and library planners—who are experts within the field. I hope to better understand the role of the librarian, their engagement with digital tools, and their view of the library as a social and educational platform. By interviewing library planners I hope to gain insight into the ways in which the library's digital offering is conceptualized, and the ways this digital offering fits into the larger role of the library.

This project is part of a master's thesis for the Screen Cultures program at the University of Oslo, and has been approved by the Institute of Media and Communication at UiO. The data collected in connection with this project will solely be used for the purposes of writing the master's thesis, and no data will be shared or used for any other purpose.

Who is responsible for the research project?
The Institute for Media and Communication (IMK) at the University of Oslo is the institution responsible for the project.

Why are you being asked to participate?
You have been asked to participate in this project because of your involvement in the development of digital tools and services at the National Library. I received your contact details from Henriette Stoltz at Skien Library, and have her permission to contact you.

What does participation involve for you?

The primary method of research will be individual interviews, with the objective of understanding the library's infrastructure and developments on a national level. The interviews will be conducted in English to aid transcription, and the final project will be published in English.

Interviews will take approximately 30-45 minutes, and will include questions about the role of the National Library in relation to local libraries, the development of national technical infrastructure, and the future of the library in Norway.

Due to current COVID-19 restrictions, interviews will be conducted digitally via Zoom, and will be recorded as a sound and/or video recording with the interviewee's consent. In addition, I may take written notes during the interview.

Participation is voluntary
Participation in the project is voluntary. If you chose to participate, you can withdraw your consent at any time without giving a reason. All information about you will then be made anonymous. There will be no negative consequences for you if you chose not to participate or later decide to withdraw.

Your personal privacy – how we will store and use your personal data
We will only use your personal data for the purpose(s) specified in this information letter. We will process your personal data confidentially and in accordance with data protection legislation (the General Data Protection Regulation and Personal Data Act).

Those with access to the personal data collected include the student researcher, Kayla Holderbein, and project supervisor, Taina Bucher. The data processor will be Kayla Holderbein, who will be collecting and storing the data. In order to ensure that no unauthorized persons are able to access the personal data, all data will be stored on an encrypted memory stick. Upon transcription, I will replace your name and contact details with a code, and the list of names, contact details and respective codes will be encrypted and stored separately from the rest of the collected data. Digital backup copies of this information will be stored in the UiO-approved Office 365 storage service. All email correspondence will take place via UiO's own Outlook email server for added security. Video interviews will take place via UiO's own contracts with Zoom or Teams.

Participants will not be explicitly named in the final publication, but will be identified as a library staff member at a particular library location. Because the name of the library each librarian works at will be included in the publication, it may be possible to identify participants. Name and age will not be published, but occupation and length of time working in the field may be included.

Contact details for the student and data processor: (omitted)
Contact details for the project supervisor: (omitted)

What will happen to your personal data at the end of the research project?
The project is scheduled to end on June 4th, 2021. Upon the completion of the project, all digital recordings of interviews, notes taken during interviews and/or observation, and any corresponding personal information such as email addresses or phone numbers will be subsequently on the date the project ends. Any identifying personal information will be anonymised in the final publication of the project.

Your rights
So long as you can be identified in the collected data, you have the right to:
   - access the personal data that is being processed about you

- request that your personal data is deleted
- request that incorrect personal data about you is corrected/rectified
- receive a copy of your personal data (data portability), and
- send a complaint to the Data Protection Officer or The Norwegian Data Protection Authority regarding the processing of your personal data

What gives us the right to process your personal data?
We will process your personal data based on your consent.

Based on an agreement with the Institute for Media and Communication at the University of Oslo, NSD – The Norwegian Centre for Research Data AS has assessed that the processing of personal data in this project is in accordance with data protection legislation.

Where can I find out more?
If you have questions about the project, or want to exercise your rights, contact:
- The Institute of Media and Communication at the University of Oslo, via Kayla Holderbein. You may also contact the supervisor of the project, Taina Bucher.
- Our Data Protection Officer
- NSD – The Norwegian Centre for Research Data AS

Yours sincerely,

Project Supervisor   Student

Consent form

I have received and understood information about the project *[insert project title]* and have been given the opportunity to ask questions. I give consent:

☐ to participate in an interview

I give consent for my personal data to be processed until the end date of the project, approx. 4 June 2021.

(Signed by participant, date)

Appendix D

NSD Approval
(Contact information omitted)

NSD NORSK SENTER FOR FORSKNINGSDATA

NSD's assessment

Project title

A living platform: The public library beyond four walls

Reference number

582525

Registered

12.11.2020 av Kayla Marie Holderbein

Data controller (institution responsible for the project)

Universitetet i Oslo / Det humanistiske fakultet / Institutt for medier og kommunikasjon

Project leader (academic employee/supervisor or PhD candidate)

(omitted)

Type of project

Student project, Master's thesis

Contact information, student

(omitted)

Project period

10.12.2020 - 30.06.2021

Status

14.06.2021 - Assessed

Assessment (2)

14.06.2021 - Assessed

NSD has assessed the change registered on 11.06.21.

The research period has been extended until 30.06.21.

Please note that in case of further extensions, it may be necessary to inform the sample.

NSD will follow up the progress of the project at the new planned end date in order to determine whether the processing of personal data has been concluded.

Contact person at NSD: (omitted) Good luck with the rest of the project!

17.11.2020 - Assessed

Our assessment is that the processing of personal data in this project will comply with data protection legislation, so long as it is carried out in accordance with what is documented in the Notification Form and attachments, dated 17.11.2020, as well as in correspondence with NSD. Everything is in place for the processing to begin.

SHARE THE PROJECT WITH THE PROJECT LEADER
For students it is mandatory to share the Notification form with the project leader (your supervisor). You can do this by clicking on "Share project" in the upper left corner of the Notification form.

NOTIFY CHANGES
If you intend to make changes to the processing of personal data in this project it may be necessary to notify NSD. This is done by updating the information registered in the Notification Form. On our website we explain which changes must be notified. Wait until you receive an answer from us before you carry out the changes.

TYPE OF DATA AND DURATION
The project will be processing general categories of personal data until 04.06.2021.

LEGAL BASIS
The project will gain consent from data subjects to process their personal data. We find that consent will meet the necessary requirements under art. 4 (11) and 7, in that it will be a freely given, specific, informed and unambiguous statement or action, which will be documented and can be withdrawn. The legal basis for processing personal data is therefore consent given by the data subject, cf. the General Data Protection Regulation art. 6.1 a).

PRINCIPLES RELATING TO PROCESSING PERSONAL DATA
NSD finds that the planned processing of personal data will be in accordance with the principles under the General Data Protection Regulation regarding:

- lawfulness, fairness and transparency (art. 5.1 a), in that data subjects will receive sufficient information about the processing and will give their consent

- purpose limitation (art. 5.1 b), in that personal data will be collected for specified, explicit and legitimate purposes, and will not be processed for new, incompatible purposes

- data minimisation (art. 5.1 c), in that only personal data which are adequate, relevant and necessary for the purpose of the project will be processed
- storage limitation (art. 5.1 e), in that personal data will not be stored for longer than is necessary to fulfil the project's purpose

THE RIGHTS OF DATA SUBJECTS
Data subjects will have the following rights in this project: transparency (art. 12), information (art. 13), access (art. 15), rectification (art. 16), erasure (art. 17), restriction of processing (art. 18), notification (art. 19), data portability (art. 20). These rights apply so long as the data subject can be identified in the collected data.

NSD finds that the information that will be given to data subjects about the processing of their personal data will meet the legal requirements for form and content, cf. art. 12.1 and art. 13.

We remind you that if a data subject contacts you about their rights, the data controller has a duty to reply within a month.

FOLLOW YOUR INSTITUTION'S GUIDELINES
NSD presupposes that the project will meet the requirements of accuracy (art. 5.1 d), integrity and confidentiality (art. 5.1 f) and security (art. 32) when processing personal data.

Microsoft Office 365 and Teams are data processors for the project. NSD presupposes that the processing of personal data by a data processor meets the requirements under the General Data Protection Regulation arts. 28 and 29.

To ensure that these requirements are met you must follow your institution's internal guidelines and/or consult with your institution (i.e. the institution responsible for the project).

FOLLOW-UP OF THE PROJECT
NSD will follow up the progress of the project at the planned end date in order to determine whether the processing of personal data has been concluded.

Good luck with the project!

Contact person at NSD:
Data Protection Services for Research