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Exploring ideologies of information

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Abstract

This article explores the intertwinement of state, information, and ideology, prompted by the question of why modern states consider more information and ever more sophisticated information infrastructures to be the ideal solution to every problem or crisis. These views are shaped by an ideology of information that originated in the immediate postwar period – an ideology that eradicates the longer history of information and instead stresses it as a quantitative phenomenon characterized by a constant newness. Yet a better understanding of the role of information calls for a critical history that focuses on, for example, the durability of the information state and how information has been understood and managed in previous societies. Such a historical focus will serve to strengthen critiques aimed at debunking current ideological constructions of information.

Introduction

Spring 2020. The coronavirus is spreading across continents and affecting billions of people. States respond differently and according to different governmental traditions. Many apply a range of digital technologies in their fight against the virus: facial recognition, data from credit cards, and forced or voluntary use of apps for tracking temperature and other health conditions.[1] Digital infrastructures – normally a little noticed backbone of society – suddenly become a central issue for everyone. Besides exposing the digital infrastructures, the coronavirus pandemic also amplifies the role of information in late-modern societies in two ways: 1) how information, misinformation, and disinformation mingle and produce a so-called infodemic;[2] and 2) the tight intertwinement between the state and information: tracking and tracing the trail of the virus relies on gathering massive amounts of information. The state needs to understand its own situation vis-à-vis the virus (how

1 https://www.berlingske.dk/internationalt/ny-app-sporer-coronavirus-har-du-delt-tog kupe-med-en-smittet (30/6/2020).

2 https://www.who.int/dg/speeches/detail/munich-security-conference (30/6/2020).

many people are ill? how does the virus spread? what is the hospital capacity?). At the same time, it needs to control and to direct that information (as well as populations).[3] In any case, the crisis exposes underlying assumptions about information and ideologies of information, comprising efficiency as well as problematic issues of quantity and superficiality.

Visions of a digitized, effective society constitute a strong undercurrent in digital politics. The increased use of digital infrastructures affects not only the relationship between state and citizen, leading to the construction of the digitally competent citizen and an entirely new understanding of digital citizenship.[4] It also transforms the traditional encounter between public authorities and citizens and has consequences for how information is understood and the role it plays in the interactions between public authorities and citizens.[5] However, information is not tied only to digital infrastructures, computer databases, and the digital itself. As Edward Higgs argues, the exchange, collection, storage, and use of information and data have been a central element for states for centuries. But the purposes for which information has been gathered, displayed, and stored have differed according to different types of states.[6]

This essay explores the intertwinement of state, information, and ideology prompted by the question of why states today think that more information and ever more sophisticated information infrastructures are ideal solutions to every problem or crisis.[7] Presumably, the idea of information's applicability partly stems from a specific ideological framing of information

3 Patrick Joyce, The State of Freedom: A Social History of the British State since 1800, Cambridge 2013, p. 59.

4 Arne Hintz et al., Digital Citizenship in a Datafied Society, Cambridge 2019.

5 Ida Lindgren et al., Close Encounters of the Digital Kind: A Research Agenda for the Digitalization of Public Services, in: Government Information Quarterly, 2019, 36: 437–436.

6 Edward Higgs, The Information State in England: The Central Collection of Information on Citizens since 1500, Houndmills 2004.

7 In understanding infrastructure, I rely on Geoffrey C. Bowker et al., Toward Information Infrastructure Studies: Ways of Knowing in a Networked Environment, in: Jeremy Hunsinger et al. (eds.), International Handbook of Internet Research, Dordrecht 2010.

as quantitative and always new. In discussing ideologies of information, I subscribe to Ronald Day's rather pragmatic understanding of ideology as «cultural, social, and political constructions of taste and action».[8] This understanding does not, however, make it less complicated to investigate and identify past ideologies. It is equally important to keep in mind the distinction between the political and discursive level and what sources reveal about everyday practices involving information.

Understanding the current intertwinements between state and information means questioning the particular ideology behind the diverse views of information as either disease or efficiency.[9] My claim is that both views depend on an ideology of information that eradicates its longer history and instead stresses information as a quantitative phenomenon characterized by constant newness. I begin by mapping contemporary 21st-century perceptions of information as defined by quantity. This line of reasoning also implies a particular construction of information in the past. I argue that these understandings are rooted in a conception of the history of information which – according to tradition – began in 1948 and emphasized information's newness. These understandings have led to a popular narrative that addresses the revolutionary transformations of the internet as a technology where information and communication are woven together.[10] I then show how the conceptualization of the information state presents a much broader view of the history of information. By invoking this broader view of past information cultures and exposing a variety of notions and ideological claims of information, I argue for a history of information that questions its inevitability and power in today's society.

8 Ronald Day, The Modern Invention of Information: Discourse, History, and Power, Carbondale 2001, p. 115.

9 My contribution builds on a presentation that I gave on 27 September 2019 in a workshop titled Digital Federalism in the History of Technology and Knowledge, 1970–1995, organized by Prof. David Gugerli and Dr. Daniela Zetti, both at the Collegium Helveticum. The argument is a slight paraphrase of Colin Koopman's main argument: to scrutinize information before communication – see Colin Koopman, Information before Information Theory: The Politics of Data beyond the Perspective of Communication, in: New Media and Society, 2019, 21: 1326–1343.

10 Ibid., p. 1327.

An era of information overload

One way of analyzing information as a quantitative phenomenon is through information overload as one of the prominent tropes of today's information society. A popular understanding of information overload connects it with the birth of the internet as a crucial threshold against which previous examples of information overloads and ways of handling them are measured and compared. However, as I show in this section, such measurements and comparisons tend to ignore different ideological conceptions of information. The risk of this approach is that current tendencies become impossible to describe, analyze, and understand because they lack a historical context.

The World Health Organization's (WHO) recent use of the term infodemic to describe the current flow of information suggests that we are perhaps on the brink of a significant new way of perceiving information. An infodemic is more than just an (over)abundance of information. The term evokes catastrophic images of a flood of unhealthy, unreliable information, of misinformation, disinformation, myths, and rumors that refers to the quality of information. But infodemic primarily implies a quantitative perception. As such it builds on the idea of information overload as a compelling and recurrent trope in today's ideological construction of information. The trope includes a view of information as simultaneously disease and cure. As Evgeny Morozov argues, new apps that organize and help people select and navigate the wild rivers of information reflect a «technological solutionism».[11]

For scholars seeking to compare present and past societies by putting numbers on the growth of information and data, sheer quantity is the only relevant measure in today's information ideology.[12] Quantity and technology are key identifiers of information as media scholar Mark Andrejevic writes:

> [T]he amount of mediated information – that which we self-consciously reflect upon as information presented to us in constructed and contrived formats (TV shows, movies, newspapers, Tweets, status updates, blogs, text messages, and so on)

11 Eugenia Siapera, Understanding New Media, London 2018, p. 263.

12 For one way of calculating the growth, see, for example, Viktor Mayer-Schönberger and Kenneth Cukier, Big Data: A Revolution That Will Transform How We Live, Work, and Think, New York 2014, pp. 8–10.

> via various devices including televisions, radios, computers, and so on – has surely increased dramatically, thanks in no small part to the proliferation of portable, networked, interactive devices.[13]

Andrejevic defines information as constructed by humans and mediated and dispersed by media. The focus on media in the definition facilitates a distinction between past and present in which information scarcity emerges as a dominant feature of past societies. However, the nature of media remains unclear, and this omission reproduces a general conception of individuals in the 17th century: How could they possibly experience an information overload given what would appear to be limited access to media?[14] Implicit in this conception is an understanding of media as printed mass media, which neglects the role of newsmongers and orally transmitted information. Andrejevic notes that a scarcity of media does not mean that no information was available. People have always had to process other types of information – just not of the mediated kind.[15] As Andrejevic points out, the amount of information typical for today stems from electronic devices: the more devices, the more information. According to Andrejevic, technology was a prominent factor in producing much more information, thus emphasizing an alleged increase in information quantity (and speed). This supposition evokes a particular construction of the past based on a pronounced difference in quantities of information between scarcity (the past) and abundance (the present), without considering whether information in the 17th century was the same as information in the 21st century.

13 Mark Andrejevic, Infoglut: How Too Much Information Is Changing the Way We Think and Know, New York 2013, p. 3.

14 Ibid., pp. 4, 9.

15 Ibid., p. 2. One might speculate whether Andrejevic's distinction between mediated and other kinds of information reflects the distinction between natural information and non-natural information. Any such distinction does, however, not make the assumption of increased quantity of information more valid. For a discussion of natural and non-natural information, see Sille Obelitz Søe, The Urge to Detect, the Need to Clarify: Gricean Perspectives on Information, Misinformation, and Disinformation, PhD thesis, University of Copenhagen 2016, https://komm.ku.dk/ansatte/?pure=da%2Fpublications%2Fthe-urge-to-detect-the-need-to-clarify(3ec2a23c-cac9-45de-8689-8a7e51b53998).html (15/11/2020).

Trivial counting of quantities of information and data becomes problematic when combined with equally trivial comparisons of technological revolutions. Such comparisons between the arrival of the internet with either the telegraph or, more notably, with the printing press often reflect a partial technological determinism because such comparisons tend to focus on the technology. In particular, comparisons with the printing press refer to the unprecedented amount of information that it churned out at the end of the 15th century and the beginning of the 16th century.[16] The stories of technological revolutions run the risk of neglecting the role of information and technology in the centuries between these technological leaps and even out differences in attitudes towards information. Information is neither universal nor naturalized. Hence, attention must be paid to differing perceptions of information in past societies that might not have focused on quantity or at least that might have understood it in distinctly different ways. Perhaps the 21st-century conception of information is unique in identifying quantity as a problem. Yet early modern scholars also reflected on an abundance of information. As Ann Blair has argued, far from regarding it as a problem, they enjoyed it with a kind of information lust. Blair's analysis shows how information overload is not a real quantity, but rather a perceived one. For early modern scholarship it became a crucial task to store, sort, select, and summarize information in order to preserve as much of it as possible.[17]

Blair's investigation of early modern information managing practices reveals that both the perception and understanding of information have changed over the centuries. In particular, quantity appears to have had a different meaning for learned scholars in early modern Europe. Consequently, it is tempting to wonder, as Frank Webster does, when and why quantity became the most influential denominator of today's information society to the extent that it led to qualitative changes.[18] Webster is highly critical of quantity of information as a decisive factor for modern society as opposed to

16 Mayer-Schönberger and Cukier, Big Data, p. 10.

17 Ann Blair, Too Much to Know: Managing Scholarly Information before the Modern Age, New Haven 2010.

18 Frank Webster, Theories of the Information Society, 4th ed., London 2014, p. 11. Webster is an English sociologist and author of the standard work on the information society.

previous social formations. Views on quantity lead to determinist understanding of the information society and a reductionist conceptualization of information as reified and itemized.[19] Quantity alone does not explain the prominent role of information in the modern world; but its importance emphasizes the need for exploring how information gained such momentum.

The information narrative

In this section I will discuss how information apparently emerged out of nowhere as a bright new phenomenon in the immediate postwar period. In many ways, the ideology of information as a quantitative phenomenon is tied to the development of communication technologies and computers in the postwar era. From the late 1940s to the 1960s, computers were basically advanced calculators capable of processing stunning amounts of information and doing it faster than previously. Their binary structure and their digital organization required a specific understanding of information as coded, binary numbers. Originating in the 1960s, the idea of networked computers (i.e., that computers could also transmit information) brought computers and communication theory together and resulted eventually in the common conception of information as bits.[20]

Many information historians seek to understand how information became a central element in the ideological construction of the information society as a social formation from the 1960s to the beginning of the 21st century. Webster argues that this entanglement calls for a critical investigation in the form of a «Foucauldian account of the genealogy of ‹information›».[21]

A genealogical approach focuses on how the construction of the past is a crucial element in the ideology of information. Such an approach emphasizes

19 Frank Webster, The Information Society Revisited, in: Leah A. Lievrouw, Sonia Livingstone (eds.), The Handbook of New Media: Social Shaping and Social Consequences of ICTs, London 2006, pp. 449–451.

20 Paul. E. Ceruzzi, Computing. A Concise History, Cambridge MA 2012, pp. 4–12. See also Ronald R. Kline, The Cybernetics Moment: Or Why We Call Our Age the Information Age, Baltimore 2015, p. 6.

21 Webster, Revisited, p. 452.

critical questioning of the platform from which scholars today present, discuss, and criticize information ideology.[22] A genealogical approach thus addresses the blind spots of current information ideology, and also invites investigation of the past by looking at everyday routines.[23] Though I do not apply a fully genealogical approach in this essay, I share the commitment of such an approach: to elucidate the past's much more complicated dealings with information than the question of quantity suggests.

The critical promise of a genealogical approach is apparent in the identification of a consensus of tradition which argues that contemporary understandings of information were fully established in 1948 with the publication of Norbert Wiener's and Claude Shannon's individual seminal works and the overall acceptance of so-called information theory in the following decades.[24] As the American philosopher Colin Koopman argues, the tradition states that information gained an entirely new meaning through the work of Wiener and Shannon, as well as of Warren Weaver. Yet, asserts Koopman, this meaning was actually not new but was already culturally accepted by the end of the war.[25] The strength of this tradition can be seen in how quickly Shannon's theory was renamed information theory, though he devised it as a theory of communication having to do primarily with information carriers and very little with information in and of itself.

In the following, I briefly recapitulate the postwar narrative of the birth of information and how it became identified with information theory. Claude Shannon was an American engineer who worked for Bell Labs. Shortly after the Second World War, he devised what he called the mathematical theory of communication.[26] The aim of this theory was to solve the problem

22 For a detailed argument for choosing a genealogical approach see, for example, Colin Koopman, How We Became Our Data: A Genealogy of the Informational Person, Chicago 2019, pp. 22–24.

23 Michel Foucault, Nietzsche, Genealogy, History, in: Paul Rabinow (ed.), The Foucault Reader, New York 1984, pp. 76–101, on p. 76.

24 Koopman, Information Theory, p. 1328; see also Kline, Cybernetics Moment, pp. 102–135.

25 Koopman, Our Data, p. 182.

26 Claude Shannon, A Mathematical Theory of Communication, in: The Bell System Technical Journal, 1948, 27: 379–423, 623–656. Reprinted in Claude E. Shannon and

of sending messages undistorted through a communication system, which implied a particular definition of information. Shannon's main interest was communication and information related to the uncertainty of information selection – not the actual message to be communicated.[27] In Shannon's work information was a purely quantifiable phenomenon and the inherent definition of information was devoid of semantics and meaning.[28] However, as Robert Kline shows, this inherently mathematical theory of communication gained momentum and, in combination with Wiener's different and at the same time closely related cybernetics, became the core of the increasingly popular and popularized information theory – as a naturalized narrative.[29] Combined with Wiener's definition of information as a function of communication, information theory made its way into the social world beyond its origin in engineering.[30]

Whereas this shift in labelling might not be new to historians of information or scholars of information studies, the annexation of Shannon's theory by a wider scientific community and its renaming were important elements in the hyperbole of information in the years that followed. According to prominent information studies scholars such as Ronald Day and Geoff Nunberg, the consequence of the naturalized narrative was that it made it almost impossible to question the ideological formations of information and information theory.[31] Moreover, the narrative created the foundation for a common discourse that defined digital media by their newness.[32]

Warren Weaver, The Mathematical Theory of Communication, Urbana 1964, pp. 29–125.

27 Kline, Cybernetics Moment, p. 16.

28 Shannon, Mathematical Theory, pp. 31–32.

29 Kline, Cybernetics Moment, p. 6. Under the name of *information theory*, Shannon's brief conceptualization of information had a huge impact on how information was understood in, for example, information science.

30 Ibid., p. 123 ff. One step in this process was an article published by Warren Weaver that introduced Shannon's work to a wider audience in 1949. See Shannon and Weaver, Mathematical Theory.

31 Day, Modern Invention, and Geoffrey Nunberg, Farewell to the Information Age, in: Geoffrey Nunberg (ed.), The Future of the Book, Berkeley 1996, pp. 103–138.

32 Koopman, Information Theory, p. 1328.

Kline investigates how the information society and information technologies became central tropes in what he identifies as the techno-revolutionary narrative of 21st-century society.[33] As Kline defines it, the naturalized narrative consisted of a tight intertwinement between communication, technology, and information, which resulted in information becoming an inseparable element of communication. Information was even presupposed in communication, making it untouchable from a communication theory perspective.[34] Information gained status as a «reified token» that information professionals and theorists only rarely questioned critically. For those who did engage in such questioning, the «‹pregiven› character» of information hampered proper investigation.[35] It is just such a naturalized reified social construction that genealogy as a theoretical approach aims to debunk by repositioning it, as Koopman suggests, chronologically (before 1948). He further adds an epistemological repositioning by emphasizing the «in-for-mat-ting» aspects of information prior to any communication.[36]

An important assumption underlying Koopman's approach is that neither Shannon nor Wiener ever invented an entirely new definition of information unconnected to common language usage.[37] Koopman's assumption corresponds well with the findings of John Durham Peters, who in an article from 1988 on the history of information gave a general outline of the different meanings and uses of information from its first appearances in the English language in the Middle Ages until the Second World War.[38] Peters argued that one of the many changes stemmed from the incorporation of information into bureaucratic usage with reference to statistics.[39] According to Koopman, Shannon and Wiener did not so much contribute to the forma-

33 Kline, Cybernetics Moment, p. 203.

34 Koopman, Information Theory, p. 1332.

35 Day, Modern Invention, p. 115; Nunberg, Farewell, p. 107.

36 Koopman, Information Theory, p. 1334.

37 Koopman, Our Data, p. 182.

38 John Durham Peters, Information: Notes toward a Critical History, in: Journal of Communication Inquiry, 1988, 12: 9–23. Colin Koopman explicitly refers to Peters' analysis as justification for his own view.

39 Ibid., pp. 14–15.

tion of information as merely presuppose it for communicative means.[40] In other words, Shannon and Wiener relied on an existing understanding of information as quantifiable and universalizable that made it possible to transfer information to the emerging problem of communication.[41]

Information's status as pregiven and presupposed in communication theories across the technology and social sciences lays emphasis on another feature of information: it ostensibly lacks a history.[42] Information has a particular relationship with temporality that can be characterized by newness and its connection to the present moment: new information makes existing information obsolete and irrelevant.[43] New information tends to wipe out the past, Peters assumes, due to its inherent connection with science where results only stand until they are surpassed by new results.[44] As newness, information marks a difference, a short range of time that makes a difference. It is almost like a switch. Information possesses two important features for becoming ideologically important: first, it was (and still is) a word that is used in everyday life; second, as a word without history it is open to present and future ideas and utopian imagination.[45]

Peters argues that the success of information theory resulted from making a familiar experience from everyday bureaucratic meetings «into a lofty concept of science and technology».[46] The humble and very mathematical theory of communication became popularized as a general theory for understanding human communication. In that form, information became connect-

40 Koopman, Our Data, p. 183. Shannon was definitely cautious about the differences between what he saw as communication theory in a narrow sense (for engineering purposes) and information theory (the popularized and expansive version that Wiener embraced). However, Kline convincingly argues that Shannon did use information theory in his own writings, and his boundary work did try to restrain and yet also expand information theory. Kline, Cybernetics Moment, p. 103.

41 Koopman, Our Data, p. 182.

42 Ibid., p. ix. See also Peters, Information, p. 10.

43 Peters, Information, p. 19.

44 Ibid., p. 20.

45 Ibid., p. 17; Day, Modern Invention, p. 117.

46 Peters, Information, p. 18.

ed with visions of utopia and it came to encapsulate the idea of the modern society.[47] Information became ideologized:

> «Information» is a central term of ideology because it determines and patrols its own meaning over a vast expanse of social and cultural spaces. Through information, vocabularies for the future are included or excluded, shaping history in a way that is fit for information and for little else.[48]

Day not only discusses how Weaver's and Wiener's popularization of information theory as a general theory encapsulated utopian promises. He also argues for how early European documentation scientists such as Paul Otlet and Susanne Briet contributed to and were part of connecting information with utopian visions of a better and peaceful world based on efficient systems of knowledge organization and information management.[49] Day's analysis of documentation science provides a welcome perspective on the scientific enlistment of information before 1948. Kline's and Day's analyses of how information became interwoven with technocratic visions of a more efficient society during the 20th century illuminate a central condition in the futuristic vision of information: that the industrial society in and of itself could not fulfill the utopian promises of an information revolution which paved the way for the information society and its ideology of information highways.[50] Information as an ideological construction would thus seem to be a child of the 20th century based on quantity and technology as central components. Big data melds these two together.

Unraveling histories of information

From my position within information history, I share Koopman's insistence on investigating information before the 1948 crystallization of information theory. But the question is how to scrutinize a totally ideology-infected concept that seems impossible to investigate. Or, as Koopman asks: What was

47 Kline, Cybernetics Moment, p. 203.

48 Day, Modern Invention, p. 117.

49 Ibid., pp. 7–38.

50 Webster, Revisited, p. 445.

information before information theory?[51] In his own analysis he turns to the beginning of the 20th century, where he identifies a shift in information – from being universal to becoming universalizable.[52] In other words, information is not only «already everywhere» (universal) but now also «can be mobilized to operate anywhere we want it to»[53] (universalizable). The distinction has an important role in Koopman's argument, because it facilitates a demarcation of information technologies of previous centuries. As «antecedents» or «prototypes» they missed the scalability of universalizable technologies and represent not yet stabilized technologies.[54]

However unintended, Koopman's differentiation between information as universal or as universalizable runs the risk of predating the birth of information – now at the beginning of the 20th century. This leads to a crucial set of questions: How far back can we trace the history of information? And with what understanding, definition, or conceptualization of it? Inherent in the formulation of these questions seems to be the acknowledgement of a change in the meaning of information: a historical meaning and a «new» meaning. Koopman's definition of the change regards the claim of «universality» in information, and he positions it at the beginning of the 20th century. Other historians, such as Neil Postman and Toni Weller, argue for a mid-19th-century intersection between an early modern and a modern conception of information partly brought about by the telegraph but also by cultural notions.[55] They both argue that information became abstracted in this period as morsels of communication. Robert Darnton, however, argues for information as snippets in 18th-century Paris.[56] Apparently, we can keep pushing the threshold for a modern understanding of information back in time. As Geoff Nunberg argues, being abstracted seems to be the most prominent character-

51 Koopman, Our Data, p. 17

52 Ibid., p. 9.

53 Ibid., p. 10.

54 Ibid., p. 28.

55 Neil Postman, Building a Bridge to the 18th Century: How the Past Can Improve Our Future, New York 1999, and Toni Weller, The Victorians and Information: A Social and Cultural History, Saarbrucken 2009.

56 Robert Darnton, Poetry and the Police: Communication Networks in Eighteenth Century Paris, Cambridge MA 2010.

istic of the 20th-century definition of information. But he also points to etymological explorations of information indicating that this «abstractedness» has been inherent in information from its first appearances in medieval English.[57] In early modern Venice, *communicazione* signified how information was passed from one governing council to another.[58] Information is already always there in the shape of the presupposed content of communication. Koopman's distinction draws needed attention to a discussion of whether information suddenly gained a new meaning and also when (if ever) this shift took place.

Two points are worth keeping in mind in discussing the birth of information. First, the history of information is not just about dating when information first appeared in its modern meaning. Second, as both Nunberg and Paul Duguid emphasize, historians need to be highly sensitive towards the risk of presentism in locating 21st-century understandings of information in historical periods where information had entirely different meanings.[59] Perhaps a history of information could benefit from another aspect of Michel Foucault's genealogical approach that is attentive to emergence rather than origin.[60] What is interesting within a Foucauldian line of reasoning is not the true origin (birth) of information but emergences and transformations of information practices.[61] It remains crucial to investigate information before it became naturalized as information theory. What is at stake here is addressing the given historical, cultural, and social contexts of information – not determining it in relation to its present meanings. This is in line with Darnton's suggestion to regard all ages as information ages, but then to carefully scrutinize shifts and ruptures.[62] Weller argues for a longer horizon when

57 Nunberg, Farewell, p. 110.

58 Filippo de Vivo, Information and Communication in Venice: Rethinking Early Modern Politics, Oxford 2007, p. 4.

59 Nunberg, Farewell, p. 110, and Paul Duguid, The Ageing of Information: From Particular to Particulate, in: Journal of the History of Ideas, 2015, 76: 347–368.

60 Foucault, Nietzsche, p. 80 ff.

61 Ibid.

62 Robert Darnton, 5 Myths about the «Information Age», in: Chronicle of Higher Education, 2011, 17 April, http://chronicle.com/article/5-Myths-About-the-Information/127105/ (15/11/2020).

studying information historically, because «notions of what constitutes information [...] have not remained constant over time».[63] Indeed, she maintains, a history of information should explore exactly such changing definitions.

Most prominent is Weller's interest in wringing information from technology's firm hold on it in favor of investigating it as a cultural and social phenomenon.[64] I suggested at the outset that the (information) state is a nexus for historical inquiry into information due to the state's present proximity to information. However, anchoring information within the state might not minimize the role of technology. «The government machine», as Jon Agar frames it, signals a close relationship between state, information, and technology. This closeness should not shade the importance of the impact of and the dualistic relationship between cultural perceptions of information and the state's implementation of different information technologies.[65]

Within the frames of state bureaucracy and the state's need to know, communication infrastructures and information mingled.[66] In Patrick Joyce's view, a state is always dependent on its lines of communication, and the relationship between the state and its communications systems reveals much about the nature of the state.[67] Agar adds to this by investigating the most prominent of all state metaphors: that of the machine. He ties the considerable standardization and routinization of British bureaucracy to the development of Babbage's analytical engine, Turing's universal machine, and finally the computer. Their similarities, he claims, are to be found at another level, «because they were imagined in a world in which a particular bureaucratic form – an arrangement of government – was profoundly embedded».[68]

63 Toni Weller, Information History – an Introduction: Exploring an Emergent Field, Oxford 2008, p. 18.

64 Ibid., pp. 11–22.

65 Jon Agar, The Government Machine: A Revolutionary History of the Computer, Cambridge MA 2003.

66 Joyce, State of Freedom.

67 Ibid., p. 20.

68 Agar, Government Machine, p. 69.

An ideology of weaponry

Going beyond 1948 and even beyond the 20th century opens a vast field of ideas and meanings about information. These included perceptions of quantity, technology, and temporality, but also control of information and anxiety about losing it. As Postman points out, information was invisible in 18th-century parlance, yet he argues that it was ideologically important and used as such by, for example, the French Encyclopedists.[69]

A multiplicity of ideologies and cultures of information was prevalent in early modern Europe. Cultural differences could be defined by different geographical borders or by intellectual aspirations. The English form of government had a totally different basis compared with continental absolutist regimes like those of the French and Danish. And even between these two examples of absolutism there were differences. Ann Blair and, to some extent, Jacob Soll point to how information gathering was defined by a desire for information and the urge to collect and compile as much of it as possible. Blair looks at scholars in the Renaissance period, whereas Soll has investigated the information system of French minister Jean-Baptiste Colbert during the reign of Louis XIV in 17th-century France.[70] The urge to know resulted in practices of managing, storing, and organizing massive amounts of information. Soll argues that Colbert's lust for information stemmed from an understanding of information and knowledge as a means of securing power. The ideology of the absolute state held that power was secured in the hands of the sovereign and confirmed by divine right. Accordingly, the sovereign also had the right to know and to decide what information «was» and to whom it should be dispersed. It is obvious that a pronounced ideological foundation would spill over into the understanding of information and the information infrastructures between state and society as strongly hierarchical and vertical in structure.[71] This assumption, however, raises the question of how infor-

69 Postman, Building a Bridge, p. 86.

70 Blair, Too Much; Jacob Soll, The Information Master: Jean-Baptiste Colbert's Secret State Intelligence System, Ann Arbor 2011.

71 Ellen Krefting et al., En pokkers skrivesyge. 1700-tallets dansk-norske tidsskrifter mellom sensur og ytringsfrihed, Oslo 2014.

mation was understood and how it was practiced, for example, in systems for managing information.

In order to approach information historically, the state offers huge potential for examining material manifestations of information.[72] Such material manifestations (e.g., in petitions, files, and ledgers) can also lead to exploring the views, conceptualizations, and ideologies of information in past societies. The challenge when referring to the state and its ties with information and technology lies in the state's long endurance and history. Throughout this long history, the state in very different forms has had a continuous tradition of collecting, storing, sorting, and managing information using a variety of technologies. Registers of people moving to or leaving parishes or districts in Copenhagen as a form of control over vagrants and strangers were, together with censuses, key examples of a state's need for numbers.[73] Implementing new technologies such as the steel pen as well as bureaucracy reflected a new need for processing and structuring information in ways that were considered more appropriate if not more efficient.[74] From the perspective of a *long durée*, information and technology might take on exactly this character of being pregiven, already always there, and with a universalistic element, which Paul Duguid warns against.[75] Being attentive to the specific cultural and social contexts remains crucial for all historians.

The history of the state normally pivots around concepts like modernity and the nation-state. The English historian Edward Higgs suggests that the notion of the information state might serve to bridge the divide between early modern and modern (nation)-states. The latter, in the terminology of Anthony Giddens, points to the major rupture that occurred in state organization in the 19th century. Giddens's argument is that the modern nation-state was characterized by a massive need for information that, combined with surveillance and capitalism, marked it as distinctly different from previous

72 Agar, Government Machine, p. 3.

73 Grethe Ilsøe, Den enkelte og forvaltningen. Registrering som parameter, in: Karl Peder Pedersen, Grethe Ilsøe, Ditlev Tamm (eds.), På given foranledning. En antologi om dansk forvaltningskultur. Copenhagen, 1994, pp. 149–168.

74 Joyce, State of Freedom.

75 Duguid, Ageing of Information, p. 348.

state forms and that relied on the state's centralized administration.[76] Higgs investigates the English state between 1500 and 2000 using the conceptualization of the information state. From this perspective, he points to how early modern states gathered information that was decentralized in accordance with their structure. The decentralized information-gathering strategy is no less sophisticated than the centralized efforts of the modern nation-state, as Giddens suggests. Joyce furthers Higgs's inherent critique of Giddens by pointing out that the local state was as much «the state» as the central state was.[77] The delegation of authority from the central to the local state relied, however, on surveillance by the central state and on control using information and intelligence.[78] Although the information state as an analytical concept has a tendency to focus on technologies in the form of death certificates, other printed forms, or the census, it raises questions about the underlying reasons and ideas for collecting information and for using particular technologies. The inherent critique that the early modern state lacked solid information technologies probably lies in the deduction that few archived records exist. The impact of communication technologies on society and state formations has been debated since Harold Innis and the Toronto School. The British anthropologist Jack Goody has also pointed out how the logic of writing formed bureaucracies and, eventually, states.[79] Written archival records do, however, reflect a certain understanding of information transactions. Oral oaths were legally just as conclusive as a signed document, and many disputes were negotiated and concluded orally. Even in oral situations, testimonies were needed and, as such, information was increasingly used as a basis for decisions. Information needed to be pegged and stabilized in order to be controlled.[80] The state, according to Joyce, emerged out of writing.[81] The need to know manifested itself in a need to secure the knowledge.

76 Anthony Giddens, A Contemporary Critique of Historical Materialism, 2 vols., Vol. 2: The Nation-State and Violence, Cambridge 1985.

77 Joyce, State of Freedom, p. 25.

78 Ibid., p. 25.

79 Jack Goody, The Logic of Writing and the Organization of Society, Cambridge 1986.

80 Laura Skouvig, The Raw and the Cooked, in: Johan Östling et al. (eds.), Forms of Knowledge: Developing the History of Knowledge, Lund 2020, pp. 107–123.

81 Joyce, State of Freedom, p. 78.

A central component of Colbert's information system was that all knowledge had practical value for politics. As a minister at the height of absolutism where royal power was discursively legitimized through religion, no further legitimization appeared necessary. Colbert, however, saw a stronger need for substantiating royal power with reference to historical documentation and evidence, making state maintenance into a craft for archivists and traveling informants.[82] Yet, in line with absolutism, Colbert's information system was highly centralized and also personalized, which meant that it basically did not survive him. Colbert seemed to be the embodiment of the «I am the state» trope in French absolutism, or at least his information system became a junction in statecraft, connecting policy with information-handling practices.[83] The state was in favor of technologies that helped it to gain information and relied on different kinds of communication technologies and infrastructures. In Joyce's examination of the British state in the 19th century, the pivot is the materiality of technology as well as the actual places – e.g., the local post office – that helped naturalize the state.[84]

Colbert was not of a scholarly mind, but as a high-ranking civil servant he shared the same interest in organizing and controlling information that, for example, learned scholars had. Control of information and the maintenance of secrecy were absolutely core issues in early modern state practices, though not necessarily addressed explicitly. The desire to control information is a striking difference between states and scholars as representatives of the rising public sphere. Particularly the state represented a need for securing information and keeping it secret from a wider public. This wish crossed cultural, temporal, and geographical lines, as Filippo de Vivo shows in his analysis of Venetian information practices in the 17th century – a practice that is also detectable in Danish absolutist information ideologies. Information was dangerous because it could incite the population to revolution, and thus needed to be controlled in order to control the population. Means of control involved limiting printed news media such as newspapers but also, for exam-

82 Soll, Information Master, pp. 140–153.

83 Ibid. It is disputed whether Louis XIV ever said «L'État, c'est moi». It has, however, been commonly accepted as a way of condensing absolutism.

84 Joyce, State of Freedom, p. 53 ff.

ple, distributing networks of ballad-mongers.[85] Gathering information was meant to prevent certain groups from accessing the information.[86] Information itself became a way of securing control. As de Vivo argues, communication – and consequently information – marked the limits of the state's authority. States did not gather only dangerous information but also information about those who spread it. The population could only become visible to the state as information, ultimately entangling the population in a net of writing that made them legible to the state.[87]

For the scholars of the Renaissance, the heavy loss of manuscripts during the early Middle Ages had a profound impact on their attitude towards information.[88] One way of protecting information was to share it with others. Openness, access, and transparency can be seen behind the explosion of reference books, compilations, and encyclopedias. The French Encyclopédie is a prime example of openness and access to information. Postman interprets the Encyclopédie as a manifestation of the 18th century as an information age and as a model for the universalistic endeavor. As an information technology, its universal aspirations were only relevant in a certain context, defined by a specific rhetorical purpose, and giving shape to a concept that was about empowering and facilitating skepticism and critique of the existing system.[89] Information was a weapon against the absolute state. Secrecy, as opposed to transparency, could be seen as a demarcation line between scholars and states in ideological perceptions of information; yet secrecy was also prevalent for guilds and fraternities, for example, not to mention associations such as the Freemasons.[90] For Colbert, it was a strong impetus for gaining control of information and of those who had access to information at least in the

85 Laura Skouvig, Records and Rumors: Surveillance and Information in Late Absolutist Denmark (1770–1849), in: Surveillance & Society, 2017, 15: 314–325.

86 De Vivo, Information and Communication, p. 12 ff.

87 James C. Scott, Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed, New Haven 1999, p. 2; Koopman, Our Data, p. 4 f.

88 Blair, Too Much, p. 22.

89 Postman, Building a Bridge, p. 86.

90 Elain Leong, Alisha Rankin (eds.), Secrets and Knowledge in Medicine and Science 1500–1800, London 2011; Reinhart Koselleck, Kritik und Krise. Eine Studie zur Pathogenese der bürgerlichen Welt, Freiberg (1959/1973) 2013, pp. 49–81.

form of «secrets of the state». In this respect, he needed to obtain control of parliament, and for this purpose he incorporated the Royal Library into his information management system. The Royal Library changed from aspiring to universalism to becoming a state information depot with selected papers, books, and other kinds of documents that Colbert considered to have political use.[91] Koopman points to the insufficiency of 18th- and 19th-century technologies in achieving their universalistic aims when implemented in practice. But this might be too simplistic an interpretation in light of Colbert's skilled exploitation of existing and new information management techniques.

To a large extent, however, the relationship or even opposition between state (information control) and the public sphere (transparency) neglects the influence of government agencies on the flow of information and also idealizes the public sphere. In the 16th and 17th centuries, the Venetian government was obsessed with secrecy – on a discursive level – because it proved difficult to conduct it in real life. Information was a tool and even a weapon in struggles over government strategies between secrecy and transparency.[92]

Conclusion: information as a recurring problem

Many scholars identify the period immediately after the Second World War as a central moment in the history of information. A certain ideological construction of information emerged that came to define the information society as it evolved from the 1960s onward.[93] This ideological construction not only defines information in a specific way. It also encapsulates a particular understanding of the role of history in the construction of information.[94] Although the hyped ideologies of information in the 1960s that focused on its utopian promises seem for now to have been replaced by a more dystopian worry about infodemics and the misinformation and disinformation they spread, information remains a highly ideological term. The naturalized narrative of

91 Soll, Information Master, pp. 95–97.

92 De Vivo, Information and Communication, p. 4.

93 Koopman, Information Theory; Kline, Cybernetics Moment.

94 See also Day, Modern Invention, and Peters, Information.

the birth of information, as a word without history, in the postwar period is reflected in, for example, WHO's use of the terms infodemics, misinformation, and disinformation.[95] Once again, in the present information society, information has become a problem caused by technology.

This brief look into early modern information cultures shows that information was prevalent and appeared in unprecedented formats and quantities. States and scholars alike produced more information (for different purposes) and sought to work out systems for controlling, managing, and disseminating information. The urge to keep up with information resulted in sophisticated tools and classifications that prevail to this day and has kept information stabilized and fixed. That we to some extent still rely on tools and managing systems developed in the period from the 17th century to the early 20th century is not, however, the way past information strategies are reflected in present ideological constructions of information and the information society. The past is used as an element in the construction of present information ideologies with a futuristic touch.

The present inclination to make information a problem looks for (new) technologies to fix it. However, new technologies do not necessarily fix the problem, because it stems from the ideological obsession both with quantity as precipitated by technology and, at the same time, with technology as the means of gaining control. My claim is that a critical history of information will strengthen current critiques that aim at debunking current ideological constructions of information.

95 For WHO's use, see https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200202-sitrep-13-ncov-v3.pdf (2/4/2020). In distinguishing between information, misinformation, and disinformation, I consider information to be alethically neutral. For more about the distinctions between this trichotomy, see Søe, Urge to Detect.