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Archives in Liquid Times

Jaarboek 17

edited by

Frans Smit, Arnoud Glaudemans, Rienk Jonker



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Frans Smit

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Erg goed in Erfgoed

Foreword

Almost two decades ago, in an article in *The American Archivist*, I argued that research in archivistics (or: archival science) would save the archival profession, because research is the instrument for experimenting, inventing, changing, and improving – and a profession that is not involved in “*The endless cycle of idea and action, endless invention, endless experiment*” (T.S. Eliot) is doomed (Ketelaar, 2000). Often, archive professionals do not realize that many if not all managerial or practical questions can be solved more fundamentally when one allows for some theoretical and methodological reflection. “*Research*,” Barbara Craig (1996) wrote, “*cultivates a habit of examining received notions for their continuing pertinence and relevance.*” (p. 110) Such a habit is essential for the archival professional who has to be equipped to deal with the constant change in his or her environment, effecting changes in records creation, preservation, communication, and use. As Arnoud Glaudemans and Jacco Verburgt declare in the first sentence of their essay in this volume: “*Any account of present-day archives should not only address practical, operational or managerial issues but also explicate the relevant theoretical issues regarding the specific nature and societal impact of digital information – if only because practical, operational or managerial issues, important as they obviously are, always presuppose some underlying theoretical framework.*”

Archivistics offers such a theoretical framework, drawing on concepts like context, authenticity, findability, and access. In researching the ontological and epistemological archive(s), archivistics applies the archival method that is specific for the discipline, but it also adopts methods from other disciplines. This is evidenced by the various chapters in the recent book *Research in the Archival Multiverse* (Gilliland, McKemmish, Lau, 2016). But not only in methods: archivistics is increasingly profiting from what other disciplines can offer in conceptual and theoretical understanding of archival phenomena. So, for example, in performance studies dance may be understood as “*the choreographic activation of the dancer’s body as an endlessly creative, transformational archive*” (Lepecki, 2010, p. 46). This resounds archivistics’ concern with the fluidity of the archive as keeping former instantiations of a record ‘in reserve’, to be released not as exact copies but as re-enactments. And just as “*the originating instantiation*” of a dance keeps possibilities for later re-enactment in reserve, so gets each activation of a record along the records continuum extra significance in the light of subsequent activations.

Other ‘archival turns’ are also relevant to the theory, methodology and practice of archivistics. This volume shows what is brought to the archivistics’ table from fields like media archaeology, speech act theory, information science, data science, philosophy, semiotics, genre studies, and organization science. At the same time, several essays in this volume indicate how archival theory and methodology can enrich other disciplines. In this way *Archives in Liquid Times* tries to cross disciplinary boundaries which so often keep scholarly and professional communities locked in their own discourse.

Eric Ketelaar

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Introduction

Archives are a reflection and a result of what happens in society. This means that they also (re)present society's changes and dynamics. Today, archives are undergoing fundamental changes in every aspect that one might think of. Digitisation and globalisation are turning our world upside down and reshape it. The same applies for archives, the archival profession and archival science. Therefore, in the entitling of this book, we decided to follow the metaphor of sociologist Zygmunt Bauman (2006), who characterized contemporary society as being in "*liquid*" times. By this he meant that present-day (western) society is in such a state of dynamics that it is difficult to get a grip on life. All foundations are shaking. In our opinion, Bauman has a case in stating that it is the main feature of the period we are now witnessing and are living in. That is why you are now reading a book that has the title: "*Archives in Liquid Times*".

This book is inspired by several motivations and convictions. First, the editors are convinced that discussions and debates about archives in the digital age should become part of the broader discourse on information quality. This discourse should take place on several levels, for example on fundamental, conceptual and ethical issues. Our observation is that this integration is hardly happening. Archives and the archival community are in danger of being marginalised and 'doomed', when – and because of – losing connection to debates about for example the ethics of the internet and the development of data science. On the other hand, archival science's rich and detailed knowledge of the nature and function of records is hardly considered in fields like information science or philosophy. Building bridges between communities dealing with information quality is not a mere luxury – it is a necessity.

Our conviction is that paradigms and concepts that formed the basis of recordkeeping in the analogue world have lost their central place. Attempts to create a new paradigm or a new overall concept on archives in the digital information society have not yet been convincing. This reflects our liquid times, which the archival profession is also going through. The recent, extensive publication by Monash University tries to cover as much as possible research developments in the "*Archival Multiverse*" (Gilliland, McKemmish, Lau, 2016). In our view this multiverse *itself* is subject to radical changes regarding its own context, its subject matter, and its relevance to society.

Maybe we are all in the new landscape that Alessandro Baricco (2006) has described in his socio-cultural critique "*I barbari*". In his account we are witnessing a mix in which all former boundaries between for example high and low culture and between fields of research fall apart. Most importantly he argues that present-day society is not interested in "*Why?*" questions anymore, but only in "*How?*" questions. His Barbarians surf their network all the time trying to find correlations without wondering about a reason or explanation of their environment. This network is essentially very liquid.

Several years ago, the editors of this volume concluded that, as professionals and experienced practitioners, they were getting a little lost. In their daily work, they could not derive enough grip and guidance from their own archival silo of concepts and methods anymore. They were also curious if these might be found elsewhere. Therefore, they decided to try to open their doors and look for new answers. They decided to make this journey in the unknown by trying to connect to the information philosophy of Luciano Floridi. The next step was decided upon during a lengthy discussion over some excellent Belgian beers at the ICA-congress in Brussels in 2013: we should produce a book on Information Philosophy and Archives. Our efforts have resulted in this publication. We hope it will be beneficial to academics, students, professionals and everyone else who is interested in disciplines like information philosophy, archival science, library science and data science. Its main emphasis however, still lies on the function and relevance of archives, and on how to keep and curate a necessary quality and accessibility of information – in between all other information professions in this digital age.

The contributions in this book are now summarised in the order in which they are published in this edition.

The first and second chapter are by Geert-Jan van Bussel. The first chapter is an overview of archival theories and their philosophical foundations, including modern digital diplomacies and the concept of the records continuum. In his second contribution Geert-Jan van Bussel presents a new theoretical framework for the archives in organisational context, based on a pragmatic approach. The “archive-as-is” is a part of Enterprise Information Management (EIM). In this framework the value of information, and the ensuing criteria for quality of records play a central part. The theoretical framework is positioned between modern diplomacies and the records continuum.

Rienk Jonker’s essay is a theoretical exploration in which concepts of Luciano Floridi and concepts from archival theory are linked. It introduces an information model and a new definition of an information object. In this way a framework can be established that can be both of use to the archival professionals and community, as well as to disciplines like information philosophy and information theory.

In his contribution, Geoffrey Yeo concentrates on several theoretical perspectives, most notably on speech act theory (or philosophy). His essay considers how notions of ‘information’ might relate to a view of record-making and record-keeping that take account of speech act philosophy. It concludes that records have both social and informational roles. Speech act theory reminds us that records are not mere information objects or containers of facts, and it affirms that records do not simply dissolve into interpretation. At the point of inscription, a record and an action are interlinked: assertive, directive, commissive, or declarative.

In their article, Arnoud Glaudemans and Jacco Verburgt address the topic of today’s archival transition from analogue to digital, by discussing and comparing Jacques Derrida and Vilém Flusser. Derrida stresses that, traditionally, an archive is largely defined by what he calls domiciliation, involving a hierarchical and centralized gathering and structuring of information. According to Flusser, the realm of digital,

algorithmically processed, information consists of what he calls technical images, which impose a shift from discursive (or textual) to dialogical (e.g., hyperlinked) information. This shift would make the traditional, centralized structure of the archive gradually obsolete, not from a Derridean ‘deconstructivist’ perspective, but from a techno-functionalist perspective. The discussion results in raising some theoretical and practical questions regarding the present-day archive, including the operational functionalities that need to be built into the digital for reasons of accountability.

The two following contributions are by Wolfgang Ernst. The first essay is inspired by Michel Foucault’s *‘L’Archéologie du Savoir’*. It explores media archaeology as a cross-disciplinary field of inquiry, that consists of a radically material and mathematical approach to the study of cultural change, memory, and knowledge tradition, and even the very category of time itself. The second essay concentrates on audio-visual information. Archives, today, can be re-defined in terms of negentropic systems. How can not only material traces and textual documents, but temporal expressions (or movements) themselves be preserved for future historiographies? Ernst’s answer lies in discovering, reflecting and techno-mathematically realising new options of flexible access.

Fiorella Foscari and Juan Ilerbaig reflect on the basic concept of context. They use a semiotic approach in which they provide insights that point to an expanded and more dynamic view of text-context relationships. Rhetorical Genre Studies (RGS) offer a set of concepts and analytical tools that shed light on the social context of records creation and use. By looking at intertextual relationships in the archives, archivists can develop a better insight as to the mechanisms involved in the choices made by record creators and users; an insight that in turn elucidates context as a situated construct.

The following chapter is a reflection by Charles Jeurgens on the position of recordkeeping in the digital age, and on accountability and transparency in view of the current data-flood. He argues that the present and mainstream views of appraisal in the recordkeeping community should radically change. We should focus on understanding and managing the assemblages between data and the processing mechanisms (for instance algorithms) in situated practices.

Anne Gilliland’s essay is about metadata. It puts the concept of metadata in historical perspective. In the past decades the concept has had a profound influence on archival theory. The essay raises fundamental questions about the relationship between records and metadata, about metadata practices and standards and about their ethical implications.

Another basic concept in archival theory: provenance is the subject of the essay of Giovanni Michetti. Provenance in the archival domain has moved from a simplistic one-to-one relationship to a multi-dimensional approach. It is now being understood as a network of relationships between objects, agents and functions. Any lack of control over provenance determines some uncertainty which in turn affects trust in digital objects, so we will have to develop new ways to approach and ascertain digital provenance.

Frans Smit reflects on another basic concept in archival theory: authenticity. His essay gives an overview of how this concept is used regarding archives. He argues that to gain a better understanding of the authenticity of records in a digital environment, it is necessary to redefine the nature of records and their context. He uses the concept of hyperobjects, originating from ecological philosopher Timothy Morton, to gain a better understanding of records in a data-immersed society, and as a starting point to rethink the way authenticity of records in such an environment can be asserted.

Information ethics is the central issue of the essay by Martijn van Otterlo. He explores the ethics concerning digital archives from the perspective of data science, and with an emphasis on the role of algorithms. Ethical principles, about access, have been formalised and communicated in the form of ethical codes, or: codes of conduct. This last topic brings us from the intended, human archivist in physical domains to the intentional, algorithmic archivist, of: *algivist*, in the digital domain. Which codes of conduct should be made for the latter, and how to implement them?

The book concludes with interviews in which two internationally renowned scholars. Archival theorist Eric Ketelaar and information philosopher Luciano Floridi share their reflections on the subjects raised in this book. The interviews mainly concern the nature (and future) of records, the (digital) ethics concerning archives, and the role that the various professional communities on information should play nowadays.

As editors we hope that this book will stimulate the exchange of ideas, concepts and critical thinking from different areas. We also hope that it can be of help in taking further steps in building bridges between archival thinking and the many other fields of research concerning the quality of information. We hope that the book offers some anchors of thought in these liquid times, maybe even anchors for new programs of research into the nature, the position and the societal importance of archives in our data-immersed digital information society.

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Arnoud Glaudemans
Rienk Jonker
Frans Smit

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Documents, Archives and Hyperhistorical Societies: An Interview with Luciano Floridi¹

EDITORS: Our book, the subject of this interview, contains several essays and/or articles, mostly written by people from the archival community, some by people from elsewhere. We named the book *Archives in Liquid Times*. It is a metaphor from Umberto Eco, who got it from Zygmunt Bauman, a sociologist. This came from the idea or feeling, that today we cannot and should not treat archives from a single paradigm. Our times are way too dynamic for that. The idea of the book is to reflect this dynamic state, and to give a sort of 'snapshot' of our situation. As a preparation we sent you five questions with some clues about the topics we would like to address in this interview.²

FLORIDI: The project of your book is very interesting. I remember our past conversation.³ It is clearly a challenging time, not only for archives. We all know that the analogue world is becoming increasingly digital. I can see that we (you editors and I) belong to the same generation. We experienced the world when it was still entirely analogue, the digital was not present yet. Then, in a matter of just a few

¹ The interview was held on September 6th, 2017 at the Oxford Internet Institute (OII).

² The interview did not exactly follow the sequence of these questions. The questions were:

1. A proper, contemporary definition of records is given by Geoffrey Yeo in 2009: (...) *it now seems appropriate to characterize records as persistent representations of activities or other occurments, created by participants or observers of those occurments or by their proxies; or sets of such representations representing particular occurments*. The elements of representing and keeping persistency in this definition points to a functional approach instead of an approach where records are seen as material objects. Should the record-based approach to the archive be replaced by this functional approach in terms of algorithmic processing? Obviously, all digital information, including digital records, is processed algorithmically. Could the impact on the archival function of the intrinsic, content-technical, effects of digital mediality (without analog counterpart) be better accounted for from the functional approach?
2. As to data science: Can existing archival concepts, and the specific detailed archival knowledge they entail, be (re-)used in the approach of algorithmic processing, to enhance and enrich the desired functionality in this particular field? And which particular concepts would be relevant in this respect? One could think of concepts like authenticity, provenance, and accessibility.
3. As to cultural criticism ('Kulturkritik'): Which function(s) should the archive and archival theory fulfil today? It seems that historico-cultural criticism, in which the archive functions as a source, is becoming increasingly obsolete and even counterproductive in a more and more post-historical society. Should cultural criticism not be complemented by an account of the archival function within a critique of the infosphere?
4. As to governmental accountability and control: Should the effects of the current and progressing transition to the digital not be accounted for better, in order to avoid an increasingly diffuse allocation of responsibility and distribution and execution of power? A lacking account of the impact of digitalisation might thus have undesirable effects on democratic accountability. What are your views on this matter?
5. As to ethics: In what areas – as addressed in questions one to four – can ethics play a particularly vital and guiding role? Especially, how do 'personal' or 'societal' ethics relate to (an account of) the institutional changes as caused by the digital?

³ For the 2014 interview see: Glaudemans, A., Jonker R., Smit F. (2015).

decades, we found ourselves living in a world that is completely mixed, with analogue and digital features intertwined. And within this mix, the digital is leading. It takes 'two to tango', but the leading dancer is the digital, at least most of the time. In that sense, the topic of your book and our discussion now, the area of archival studies, is part of 'the big book of revolution'. It is part of the huge transformation we are undergoing.

Recently, in a different context, I was discussing similar issues within the banking system. It might seem a bit far-fetched to compare archives to banks. But when I got your message, it did ring a huge bell. I thought, just imagine how many branches of any bank are closing down for digital reasons. Who needs to go to the bank to do business? Most of the time we are doing everything online. If you need cash, you get it from an ATM. If you need to transfer money or receive a payment, you can do everything online. You do not need to go to a bank anymore. The bank was a place where your *location* physically, and your *presence* interactively, were the same thing. This whole is now split. My interactive presence is now online. My physical, geographical location is no longer necessary. This split has caused the closing down of more than a thousand branches of different banks in this country (the United Kingdom) over the past five years. As to our public libraries, we have the same problem. Location and presence are now *split*. The public libraries are becoming useless if they are only warehouses where to store and get analogue documents. What if I get the documents digitally online, what if I buy the book on Amazon for a fraction of the price that it would cost me to go to the library? To me it seems that the archives are also part of this huge challenge that you, as editors, denote as 'liquid'.

I would like to answer some of your questions concerning the state of affairs.

EDITORS: The first question concerns the nature of records. There are quite some essays in this book which use the word 'materiality' of records. Of course, as old fashioned, but not very traditional people, we know how the record is really the object in the paper world. What we think that is happening, is that – fortunately – many scholars in archival science are drifting away from the idea of materiality, and into the digital world – which is a good thing. The nature of records tends to be defined much more in terms of functionality of information. When we take the definition of records from Geoffrey Yeo as persistent representations (Yeo, 2008, p. 136), we could analyse and understand them in a functional way. This would imply that, in a digital world, a record should not be understood as an object anymore but as functionality through algorithmic processing. Maybe you have some thoughts about this way of thinking?

FLORIDI: Out of your five questions, I found this the most difficult one to answer. So, let me start with a couple of clarifications.

The first is, that there is a misconception about the non-materiality of the digital. It is a dangerous misconception that we are still endorsing these days. It is dangerous because we are relying so much, and increasingly so, on the digital to record our present and future. It is crucial not to forget that the digital resides somewhere. It is usable according to a particular technology and subject to an enormous amount of

risks, like a virus or a wrong click of the mouse. The materiality of digital information is not immediately clear and obvious, as is the case with printed information. The materiality of the digital is more remote and hence less visible. So it is not immediately clear how to take care of the materiality, the physicality of the digital. Any big company that moves to the digital knows exactly the problems that arise here. At the Bodleian Library we had this case of someone famous donating his entire collection to the library – including all the floppies. To read them you need to buy some old piece of hardware. There is nothing to put the floppies in anymore and the software is not available. I know that I am telling you things that you know by heart. But I think what is happening in our culture – generally speaking – is the following. On the one hand, there is the obvious physicality, the materiality, of a piece of paper. We know how to take care of it. The material nature of the digital, on the other hand, is more remote, and therefore we feel less involved. It is also more difficult to explain that we need to invest resources (financial but also intellectual and human) to take care of the materiality of the digital. We have to be very careful about the distinction of digital 'nonmaterial' and analogue 'material'. It is not adequate, because the analogue and the digital do overlap in many ways.

Let's move to the second clarification, which concerns the distinction between *functional use* versus *material identity*. When I first read your question, I thought: the archive is one of the places of memory, like the museum, the library, or the gallery. These are places where we accumulate and curate memory. The question is: what for? Is it just to enable different forms of functionality, like going to an art gallery to enjoy it, or consulting some documents for a research? Or is it also because we think memory must be collected in order to protect, preserve and foster our identities and give sense to our lives; otherwise we would not be who we are and could not interpret our existence constructively? *Continuity* is what counts here, because it makes construction of our identity possible. The digital tends to stress functionality and hence usability more than identity construction and hence the continuity and meaningfulness of the narratives. Memory is the basis of identity. The digital is much more about functionality, purpose, usefulness, accessibility, availability, and so on. The digital again pushes us in that direction, making us forget that artefacts are the historical memories of who we are and can be. Archives are full of beautiful things that are not just usable but also fruitful, insofar as they can make us grow in our self- and mutual understanding.

Given the previous two distinctions, I am not impressed by the definition of 'record' that you give, as 'persistent representation'. It is not that I disagree, or think it is a bad definition. I just think it is restrictive, in terms of what archival items are in their varieties. People who have been to an archive or work with old documents will know that, for instance, a page was read many times, because the corner of the page is totally black. The materiality of the thing is consumed by people as well. The digital does not get licked. It does not fade. If you look at some manuscripts – years ago I did quite a lot of research on medieval and renaissance manuscripts⁴ – there is a lot of information in the specific materiality that can easily get lost by digitising everything. When a document is digitised we of course have the picture, the high resolution of the reproduction. But the digital version comes short in not providing this kind of materiality. When defining records as a persistent representation in a

⁴ See Floridi, L. (2002).

functional way, this tends to be forgotten, and that would be a pity. We run the risk that memory may be memorialised (mummified in some permanent, immutable form) by the digital, instead of being kept alive as a trace of the past.

Then there is the whole debate about authenticity, which is of course complicated. The authenticity of the digital has gone through a variety of technical solutions. With the new and ongoing development of solutions like blockchain, the digital seems to regain some credibility in terms of authenticity. In general, though, the digital kills authenticity: there is no sense in asking what the authentic digital document is and what an exact duplicate of it. A file and its copy are identical. There might be a timestamp, but the timestamp is just meta-information, an addition to the file. The two files themselves are interchangeable. They pass the Leibniz test, so to speak: they are not distinguishable, and therefore they are interchangeable. Leibniz used to talk about the identity of indiscernibles. If you cannot discern the difference between A and B, A and B are the same thing. We are used to that, since we started producing things in a repetitive way, from identical vases to identical books. The digital has exacerbated a problem already caused very visibly by the industrial. The more you produce indistinguishable things, like two instances of the same iPhone, the more you lose authenticity as a concept that applies to singular objects (call them tokens) instead of their model (call that type). In this vein, the impact of the digital on authenticity is profound. However, with new technologies, we are trying to find a solution 'with the digital for the digital'. Blockchain is a solution, and there may be others. You can have a series of records that keeps track of a particular file, giving a full history of who originated it, when it was modified, by whom, and how.

This brings us back to the materiality of the digital. Because that blockchain 'lives' somewhere. It lives off electricity, on computers that need energy. That is not trivial. For instance, bitcoin is one of the currencies that use blockchain. And if massively adopted, it would be an environmental disaster. To simplify, it would be like having every coin in your pocket, every banknote you have in your wallet, behaving like an electric bulb that needs to be kept switched on. Clearly, if we were to implement bitcoin as a currency (like the Euro), this would consume a massive amount of energy. That is the materiality we are talking about.

Now let us go back to the distinction I introduced before. The materiality of the digital is of a different type than the materiality of the analogue. You cannot just say that the archives are losing materiality through digitalisation. We are talking about a different kind of materiality. So, we should better discuss the differences of the materiality of the analogue world and the materiality of the digital world. Because there is a difference. We need to figure out what care both kinds of materiality need. To make a difference between material versus immaterial or nonmaterial, is highly misleading.

EDITORS: There is also another aspect of persistence: that of the informational content. Is it still useful to make it persistent? Information nowadays becomes more fluid in how it works, functions, has meaning and is used. Should the term 'record' be interpreted as a function to retain the persistency of the information contained in it?

FLORIDI: Yes, that is a very good point. So, the persistence is not what qualifies an archive. Of course, it has to be there, you have to go back to it, it has to be the same. You might have grasped that my general strategy here is reshuffling existing distinctions rather than endorsing them or abandoning them. In the case of the digital, we have the problem of the fluidity. The digital rewrites itself and is easily modified. How do we cope with the persistence of it? In the best scenario, persistency is kept when a record is going through a series of modifications. Consider for example Google docs. When you write a document, it keeps time stamped copies, so that you can go back to previous versions. That document is not persistent in the same way as a printed piece of paper is, it is malleable, and yet it has a history of continuous changes that we may be able to reconstruct, contrary to the single version of a paper document. This means that the digital can provide a longitudinality of memory (all the several copies of a manuscript, for example) much more easily than the analogue. This is very different from the recent past, when all you could do was rewrite your file every time you saved it. The digital is in a way keeping its 'persistence' by making sure that it keeps a record of the sedimentation of versions. These are like snapshots of its development. Unfortunately, most of the digital information that we have does not enjoy that persistence, like for instance most websites.

The question is: what is the value of persistence? To me, it goes back to authenticity, being able to say: that is what we agreed upon. You could say that it is truthfulness that we are preserving in a document or in a record. Remember that writing was not invented for postcards, or to tell people about our holidays. It was for legal reasons. It was for keeping reliable answers to questions like: how many sheep do I have? how many cows do I owe you? whose land is this? which rules have we agreed upon? I think that that legal ability of records makes people coordinate their actions. It seems to me that the value of persistency goes back to authenticity and therefore to providing the reliability that something was "like this".

In the digital environment, we need to bind the record with the technologies required to read it. Analogue records are not very demanding in terms of technology. As long as there is a bit of light, as long as you can see, as long as you can read, then it is okay. Today that is clearly not the case. A digital record without the right soft- and hardware is as good as a magnetic pattern. In this sense, we are making the materiality of records an issue that is even more serious than in the past. Because now, not only do we have to take care of the material record, but we also have to take care of the software and the hardware required to make it accessible. The problem is so much present that it tends to disappear. It is difficult to explain to people because for us materiality is what you bump into. But we also have the materiality supporting the digital.

EDITORS: You could say that materiality has a lot of layers, which we have to take into account. We account for the necessary layers and the rest we trust until otherwise proven. It is all about trust, not truth. There was always a kind of trust in the paper world. In the digital world it could work the same way. With some processes it is necessary that there is for example a third party to authenticate, and thus provide in this trust.

FLORIDI: I think that is a good way of putting it. There are cultures or societies where there is so little trust that you would want to check everything. I think that there are these flexibilities within our societies about where the trust stops. We really are on the verge of the transformation of the digital, where the digital is becoming more trustworthy by blockchain and the versioning of files. I hope we will always have someone somewhere to certify and authenticate. We need a kind of authority that generates the trust. This is an argument for the authorial sources of trust, like archives, museums, libraries, or galleries, and the ability to generate trust, which would make our digital world much better.

There is one point that connects trust to persistent representation. When you list these values of trust, authenticity, persistence and truthfulness, you can see that, morally speaking, they are not necessarily good in themselves. I can have, for instance, an authentic, legal decision where Jesus is condemned to be crucified. It is not morally good, but it is very authentic, truthful and trustworthy. I think our society is now at a certain point of maturity of thinking about ethics. We finally realise that a lot of things we call morally good are not necessarily morally good in themselves, but they help the moral good to develop. They are conditions that facilitate the morally good. I like to call this *infraethics*. It is the infrastructure of practices that facilitates morally good behaviour. The crucial role of records in our society is conditional and infrastructural. They enable and empower a better society.

Archives and records are maybe more useful than ever, given the massive communication on social media. All that 'liquidity' is not necessarily good. You need stable records to check the value. I disagree with the view of the library and the archive as a warehouse, as essentially a place where you store documents. That was never the real nature of either the library or the archive. They have, and had, a social and political function. Thinking of archives and libraries as warehouses would mean their end. Just as it happened with those bank branches I referred to earlier. We do not need a warehouse. Who goes to the warehouse these days? The view that we are just collecting things like butterflies to put them on shelves or inside drawers is wrong. We will pay for this mistake politically through the gradual corruption and the pollution of the space of information. And this will happen precisely because, in a variety of ways, everybody involved – the archival and library sources included – did not play their role properly.

We should hear the archival people in this country (UK) say 'this is rubbish, this is not true, we have the records if you want to check, you are welcome any day, here is all the good information you need'. There is a political or socially committed role for the archivist to play. The preservation of memory is only half the task, the other half is to ensure that the preserved memory plays a fruitful role in society, reminding us who we are, and what we may be able to achieve collectively.

Of course, there is always a tension here. But archives involve more than just storing and giving information. They should help form and inform the social debate. If we reduce the role of archives and libraries, the places of memory, to warehouses, then we stop talking to society, and this can have very negative effects.

EDITORS: You think it has to be an active role and not a passive one?

FLORIDI: An active role, absolutely. And it is time because society is not going in the right direction. When you see that millions of French people are voting for a fascist party, it is clear that they have forgotten history. Their archives are not talking. And they are silent because they are warehouses. And if you do not go there, they are not telling you anything. And that is a scandal.

EDITORS: We could analyse this in terms of the distinction between *strong* and *weak* authenticity. Strong authenticity is as we discussed earlier: a thing is what it 'purports to be', as the archivists call it. Next to that you have weak authenticity in which for example records are used to construct identities. There the political aspect comes in. For example, the Amsterdam Museum, formerly the Amsterdam Historical Museum, has a city marketing website. The Amsterdam Museum contributes to deliberate citybranding by saying: we are the city of tolerance, the city of Spinoza and the city of higher arts. And in one little sentence they say: oh yes, we cannot avoid talking about it (although we would like to) but the city was also guilty of slavery offences. The curators should play an active role here and say: everything we curate is strong authentic material. Irrespective of any political or marketing argument our collection should be accessible without any restrictions and without any framing based on political or economical bias.

FLORIDI: Yes, the spin here, the story-telling, the framing, the selection of 'forgets', the edits, the undertones... all this is, by the end of the day, the way history is treated, and it is a scandal. Consider the UK. The way we understand British history is not realistic. Many have this deluded view about colonialism for example, where the British are the only ones who actually have a "good colonial past". If you also read other sources, say Indian reports about what colonial Britain was like in India, about the massacres, the wars, the killing, the expropriation, the violence, the arbitrary borders. It is not that all this is denied, but it is never highlighted.

Records are always incomplete, but not all incomplete records are born equal, so to speak. What do you celebrate during the year? One does not apologise once a year for the massacre of some people in some distant colony, of course not. What one celebrates may be the winning of a war, or the day of the declaration of independence. This is what creates social memories and social identity and cohesion. But it is also dangerous. If we 'edit' our memory too easily, like the digital very much enables us to do, we end up in a filter bubble. The people of strong authenticity should act. But it is a big call for a profession that has been a little bit shy and less prone to be in the limelight.

EDITORS: Our next question is more about data science. Are archival concepts, like authenticity and provenance, be relevant in the data science setting? We observe they are not used very often in practice. Or should we assume that these concepts are already part of the functions that are developed in data science?

FLORIDI: No, I think the question you are asking is open. As you know I chair the Data Ethics Group of the Alan Turing Institute, which is the British institution for data science. One of the things we are talking about more broadly is *information quality*. Authenticity is one of these qualities. But reliability, timeliness, accessibility and availability are important as well. One debate we are having at the moment is

about data science being applied and used to obtain information from huge quantity of data, no matter what the quality of the data is. Sentiment analysis of tweets is a good example for analysing how people react to news, for example. When there is an election people tweet a lot of details. Then you have literally millions of messages to analyse. It is a really difficult and slippery job to have a massive algorithmic analysis of data in terms of data science. How can you take all the data and squeeze some good information out of it? This question comes up all the time, especially when you deal with huge databases which have not been curated. Another strategy, which you see taking place in some corners – especially in medical research – is having access to highly curated, high quality small datasets. A typical example here is Google working with health organisations in England, with access to medical records that are way more reliable, truthful and authentic. Here you do not need a million records, but maybe a thousand, as long as they are very good. You must be able to trust them. So, there are two strategies: take huge quantities of data, throw lots of statistics at them and try to squeeze something good out of them, or take smaller, very highly curated sets, and work very precisely on the sort of training of algorithms and useful information you wish to obtain. That is where data science is now exercising different levels of influence.

Now, when it comes to the archival world, you normally find highly curated documents there. That is why the great companies of the world are so interested. Archival material combines two important features: high quantity and high quality. Remember that data science is about using the data – and in this case to train algorithms on them – to get the kind of information you want. Once the training is done you do not need the data anymore. For instance, the machine needs to see ten thousand pictures of cats. Once the machine knows how to recognise a cat, the pictures are not needed anymore. So, when I have many radiographies of a particular kind of cancer, the machine will learn that it is cancer. Once the training is complete, there is no longer need for massive quantities of data. So, in that sense the archival material is a training ground for data science, and it is very precious. All the effort that has been put into providing high quality material is exploited to provide good input or for training the algorithms. The point here is that all the work that has been put into it should be paid.

EDITORS: A lot of those data are in possession of governments. It is free in the sense of open data. So, the government cannot ask money for the data they are delivering.

FLORIDI: This is something I actually had a discussion about in the past. The opening of national archives to free public use should be the norm. However, when the free access to public archives generates income for companies, we might start having a so called *freemium* solution, where people start paying increasingly for how much they actually are exploiting the particular archive, to the point where it is at a full price. Take for example the huge archive of an NGO that contains a massive amount of agricultural data. There may be a discussion about whether to make it public and freely available. Maybe to farmers and to the public, but free of charge to a private company? I do not think so, because of the value and potential benefit of the data, and the cost that the community has borne to collect and to curate the data. The materiality of the digital, as we discussed earlier, is expensive.

Another example is free access to data about their ancestors for any individual in, for instance, the archives in the Netherlands. This is all classic and very popular, and it is a beautiful thing. Now, if you start using these data for more than just genealogical reasons, e.g. by combining them with the DNA database, or start selling products, it is a different story. For, who has the power to reorganise all those data in a sort of profitable way? Companies yes, but not single individuals. It would be naïve just to open everything and welcome anyone to take advantage of the data resources made accessible. It is very expensive to collect and to curate all those data. So some of the value should go back into the community. A private company should pay an extra fee to use data from public archives. That funding could go back to the archives, and more archival resources could be made available to the public. There is an argument, at least here in the UK, in favour of opening databases and archival material from the government for entrepreneurial use by start-ups, which could have the opportunity to find ways of monetising the data. This is fine, but the data will not be used only by start-up companies. This is why I think something like a *freemium* model would be much preferable: free for individuals, more expensive for companies, and the bigger the company the higher the fee may be.

EDITORS: This kind of regulation does not exist yet in the public sphere. It would be very difficult to implement.

FLORIDI: Perhaps, but it is not unprecedented. Companies that for instance have financial data and sell them, put online only some bits of data that is free for you to see. But if you want ‘the real thing’ then you have to pay. It is not a model that everybody knows, and it is not in use with public databases, but it provides a good example.

As to open data, remember that the open data movement started as a political movement in terms of transparency of government. However, it soon became something else, once it became coloured by financial, and not longer political, interpretations. Initially, the open data discussion was about making the government more transparent and hence more accountable: one may see where the money goes, who does what, and who is responsible for what kind of program, for example. From there, the goals slowly morphed into commercial (re-)use by start-ups for innovation, and things ended up with potential exploitation by big companies. What transparency is there in giving access to let’s say records of hospitals to a private company? It is not about transparency. It is not about a start-up. It is about a company that is taking a huge advantage of costly public records. I am very much in favour of it, but I would add a price.

EDITORS: Could you elaborate on the term ‘*hyperhistory*’? It might be that the hyperhistorical result in more or other tasks and goals for the archival community.

FLORIDI: Hyperhistory is a neologism I introduced in a recent book called *The Fourth Revolution – How the Infosphere is Reshaping Human Reality*. It is based on a simple idea. Time has classically been divided into prehistory and history. Prehistory refers to any stage of human development where there exists no means of recording the present for future consumption; in particular, societies without writing. Prehistory ended around 6000 years ago in Europe and China where –

simultaneously – writing was invented. Since then, we have been increasingly living in information societies. Only a few people in the Amazonian environment still live prehistorically. Today, if we describe history as our interaction with information and communication technologies from writing to press, printing, the radio, cinema, mass media and so forth – we have exponentially increased our dependence on these technologies to the point where, with the advent of digital, our *dependence* on technology is *absolute*. In some corners of the world we live more ‘historically’ than ever before. The wellbeing of the individual and the welfare of the society is no longer just historically *related* to ICTs it is *dependent* on them, *hyperhistorically*. In many places in the world and certainly in Europe the proper functioning of society depends on digital infrastructure. This means they could be subject to cyber-attack, a good test to understand whether you live *hyperhistorically*. History has become even more historical than ever before. And the entire world is heading the same way. There is no ‘*end of history*’, because history is a technological concept not a political one.

Allow me now to speculate for a moment, as if we had all the means and possibilities of changing the world in one go. We then could provide in more anchoring and more stability in all the informational fluidity or liquidity of today. What we need is more anchoring in this liquidity. It is fine and great to have all this fluidity and, for example, all the fake news. It is fine that there is freedom of speech. However, we have opened a kind of Pandora’s Box, in the sense that now there are two billion voices on Facebook that can say whatever they want. That is freedom of speech, and that is a good thing. But they can also pollute, and then we end up not knowing anything. If any of them drops one piece of plastic in the sea you can imagine what happens. If each of them drops one piece of fake news in the infosphere, we no longer know what to believe, the noise obliterates the signal.

Where do we establish a little bit of cleaning and re-anchoring? I do not believe in not allowing people to talk, but I do believe in contributing to the conversation with plenty of good information. So, you start cleaning by sort of out-spacing the negative elements. It might be science fictional and speculative, but imagine the following. The archival community should be openly and seriously vocal about all the silly things people are saying and communicate: we have the documents, here is the authentic version and, this is how it is or went. However, that is not in the understanding of, for instance, the library and information science community. They do not think in those terms. The risk is to think more in terms of being a warehouse. Using the hyperhistory terminology, in a world that is becoming increasingly dependent on the digital, the crucial question is: who is providing the ‘balancing act’, who is keeping the infosphere clean? I do not mean to dump all this on the archival community and ask it to save the world. There are a lot of professions there, like teachers, scientists, educators at all levels and others that should do a better job. They are all called to contribute to the problem management in the space of information. But at the moment, the archivist profession seems noticeable for its absence.

EDITORS: Apart from this not being active enough, we also might have a more structural, or more institutional, issue here. In the paper world there was mainly the government. Now there are a lot of companies and private organisations that,

structurally and institutionally, decide how things are and how things work. When you see these developments, governmental archives seem to become less relevant. The question would be: how do we cope with this?

FLORIDI: A problem that I face in another context looks at the same issue but from a quite different angle. It concerns the proprietary nature of databases. Let me give examples of two companies, Amazon and Apple. Neither of them would be immediately identified with education or health. But in terms of, for example, reading abilities, Amazon probably knows more about how the world reads than anyone else. Because Amazon has huge amounts of data about all the e-books. It knows where people stop reading, where people have to read the page twice and which words they actually click because they do not know the meaning of the word. This is a treasure that should be used, but it is proprietary. I do not know whether Amazon is considering exploiting these data. Apple, with the iWatch and the iPhone, is probably the biggest collector of health-related data in the world as we speak, and it keeps growing. It says it is not in the data mining business. Yet Apple owns these data and I am not sure it is going to share them with, for example, the World Health Organization.

This brings us to the point that, I think, addresses your question: are we to ask digital companies, and who should ask? Or are we to push them, and say for instance: you are having access to the free databases of the government, therefore we should have free access to the databases of your results? Where is the mutual exchange of value here? Now consider that many companies, like Facebook, Twitter, Microsoft or Google, do collaborate with universities for research purposes. In this, they may give access to some of their data. But even Twitter, which is quite famous for sharing its databases (and therefore their archive), does it in limited ways. This means that you are not always certain that the data you get are fully representative. It can get unclear and confusing as to how much you can do with the data reliably. Or speculate for a moment about an imaginary day when Facebook decides to close down. What would it do with its data? If it were to donate its data to a government, would you trust that government with those data more than you trust Facebook? I’m really not so sure.

We have a current project on data donation, supported by Microsoft. We are exploring the possibility, at the European level, to devise a simple code of practice to facilitate the donation of medical records by individuals after their death, a bit like organ donation. Personally, I would like to donate my medical data for research to the National Health Service. I will be dead by then, so privacy is not an issue for me. This example goes in the direction of your question, in terms of mutual interactions concerning who owns which data, and for what purpose the data are used. Private companies or organisations donating their archives for public use is, of course, not an entirely new phenomenon. What is new, is the staggering dimension. When you take the example I gave of Facebook, that is two billion people connected, and an enormous amount of records. It is staggering. It would be great to see all stakeholders taking steps towards a mutual interaction between what is public, governmental, propriety, and invite companies to contribute to the welfare of the world by sharing more of their data.

EDITORS: A book by Jaron Lanier: *Who owns the future* (2013) is about regulating the personal possession of data.

FLORIDI: I had several interactions with him, as we are members of the same committee on the European General Data Protection Regulation. I'm afraid I disagree with what I take it to be his vision. It is natural to think that data are a property and therefore that data usage can have a price that will be regulated by the market. But the truth is that personal information is not about what the 'market' should regulate. It is about social preferability of what we want to do. Data become useful and valuable only when hugely aggregated. That is why I keep stressing that what makes the difference here is the amount of data. Lately I checked the value of my profile, I think it was a service provided by the Financial Times. It was less than the value of a song on iTunes. I am sure that is the case for most people. Nobody cares about a grain of sand. Everybody cares about the beach. So I would argue exactly the opposite: precisely because money is left out we can care about personal information, because it is not a possession, but the priceless information that constitutes one's personal identity. If we start attaching one dollar of worth to a personal profile, we're done. If there is no price attached to those personal data, then the use of those data is not regulated by the forces of the market.

EDITORS: There is also another issue concerning ownership of information, at least in Dutch law. You cannot really own the information 'itself'. You only own the carrier: the floppy, the (piece of) paper, the disk drive or whatever. When you would regulate ownership of information 'itself', you could also regulate responsibilities concerning the information. What is your point of view on this?

FLORIDI: There is very little information that we own strictly speaking, unless you have the copyright on something. In that case you basically own the information, the content. Anything else is not covered by law, there is no contract.

I think it is important to understand that the private owes badly to the public. The private has taken huge advantage, rightly so and legally so, of public resources. It would be great to see the private put back into the 'common good' some of the value extracted from such resources. I am talking about data here, just data. Because when it comes to software services, it is the other way round, the public is taking an enormous advantage of the private. Take all the services we have that are free, just because someone somewhere is providing them in exchange of personal data and attention. The governments should have done that, but they did not. This brought us the current situation of data exploitation. I can image a world in which a company says to a government: you are using my software for free, so I am using your data for free.

Data donation, to me, is part of the solution for a better future. However, there has to be a shift in culture. It is a small shift from the philanthropic donation of money for the public good – which is not uncommon – to the donation of data. Today, data is the valuable resource. There must be a switch in perspective.

EDITORS: By way of finishing this interview, could you elaborate on what archivists and/or the archival community should or shouldn't do, maybe on the ethical side, given all the developments in archives and data we discussed?

FLORIDI: That is quite an open question, and it is a big one. I would like to address a more general ethical issue relating to current digital developments, that of self-determination. In this regard, the questions to ask are: how much do we want to have digital media empowering people to determine their lives and be well informed? Can people still decide to have a life apart from the constraining power of the profiling techniques? What can we do if the interest of the profiling or monitoring entity becomes mainly to influence and predict, so to manipulate the behaviour of the individual? We should not be too paranoid, they might just want to sell me another fridge, which is not the end of the world. But what if they stop selling me fridges and instead want to sell me ideas about what world I should live in? This is the scary bit, because what we have at the moment is basically a 'fingers crossed strategy'. At the moment, the immense power they have is exercised in a mostly benevolent way. But we are relying on hope, that nothing goes wrong, and that is not reassuring.

It is the self-determination and the autonomous individual that is at stake. Of course, basic trust is important in the present world. But should we just rely on trust? Should we not also have some constraints, accountability, liability, expectations? In English we use trust also as a verb. 'I trust you' means that I believe strongly that you are a good person, that you mean well, and will do your best to deliver on expectations. That is also the way we are trusting digital companies. I trust they will not do anything harmful. I trust that if they do not behave well is because it is a mistake, not a plan. Yet this looks to me like a weak strategy. What I do doubt is whether trust is a successfully strategy here; it is like leaving the door unlocked, and trust that no one comes in to steal anything. It is an unsafe kind of trust.

One of the final, defining questions concerning the next step of information society is: where should we support trust with further, social, legal, political frameworks? As we speak, the major actors are realising that they have to be good citizens. They are no longer playing the sort of 'we-are-neutral', 'we are not involved', 'we just give people what they want' kind of game. They are also given big fines by the European Union, and they might start listening. The question here is, how do we start changing and getting on with implementing the good side of citizenship. That means not only trust, but also playing according to the right rules and taking responsibility. In short, the biggest challenge in front of us is the governance of the digital.

I am an optimist, so be careful when I say that this is the way things will go. More pessimistically, perhaps I should say that if we have a good future for our information society, then that is the way forward – which does not mean that we will take it. It is more like: if we want a good information society, which is socially preferable and something that we would sign out for, it is a society in which big corporate actors in the information world play their role as good corporate citizens.

It is not just about political governance anymore. We are past that stage of human history. It went as far as it could: it is modernity. Thinking that the State is going to fix all our digital problems it is not being in touch with the twenty-first century. The governance of the digital will have to involve all stakeholders.

The massive liquidity has to be counterbalanced by some *anchoring*. This reminds me of the logo of Aldus Manutius, the most famous Italian publisher and one of the founders of the modern book era. He had a logo with the anchor and a dolphin and the motto '*Festina Lente*' which means 'Go fast, slowly'. This logo, I think, stands for a good balance for information society. The dolphin represents liquidity, the anchor represents the necessary grounding. Because it is not just about liquidity of the digital, it is also about grounding the governance of the digital. We need a counterbalance to the excessive liquidity of our society. I think it would be a great motto and icon for the society we want to develop.

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Biographies

Geert-Jan van Bussel has studied medieval history, business administration, business informatics and archival studies. He is a certified archivist. He is assistant professor at HvA University of Applied Sciences Amsterdam. From 2012-2016, he was professor Digital Archiving and Compliance at that university. He is, with *Van Bussel Document Services*, an independent consultant, auditor and researcher. He is visiting lecturer at several universities in the Netherlands and Europe. He was president of the Special Commission for Archives, a commission of the Council of Culture, the most important advisory body on culture for the Dutch government. He is a (keynote) speaker on many seminars and conferences, mostly on the effects and influence of information processing and information management on people's work. He published extensively on digital archiving, accountability, and Enterprise Information Management. In 2001, he has been awarded the prestigious NMA Award, an award of excellence from the Dutch Association for Information Management to acknowledge his merits for the Document-, Workflow- and Record Management market.

Wolfgang Ernst is Full Professor for Media Theories in the Institute for Musicology and Media Studies at Humboldt University in Berlin since 2003. Having been academically trained as a historian (PhD) and classicist (Latin philology and Classical Archaeology) with an ongoing interest in cultural tempor(e)alities, he grew into the emergent technology-oriented "German school" of media studies and His academic focus has been on archival theory and museology, before attending to media materialities. His current research covers media archaeology as method, theory of technical storage, technologies of cultural transmission, micro-temporal media aesthetics and their chronopoetic potentials, and sound analysis ("sonicity") from a media-epistemological point of view.

Books in English: *Digital Memory and the Archive* (2013); *Stirring in the Archives. Order from Disorder* *Stirring in the Archives* (2015); *Chronopoetics. The temporal being and operativity of technological media* (2016); *Sonic Time Machines. Explicit Sound, Sirenic Voices and Implicit Sonicity in Terms of Media Knowledge*, Amsterdam (2016)

Luciano Floridi is Professor of Philosophy and Ethics of Information at the University of Oxford, where he is also the Director of the Digital Ethics Lab of the Oxford Internet Institute. Still in Oxford, he is Distinguished Research Fellow of the Uehiro Centre for Practical Ethics of the Faculty of Philosophy, and Research Associate and Fellow in Information Policy of the Department of Computer Science. Outside Oxford, he is Faculty Fellow of the Alan Turing Institute (the national institute for data science) and Chair of its Data Ethics Group; and Adjunct Professor ("Distinguished Scholar in Residence") of the Department of Economics, American University, Washington D.C.

His research concerns primarily Information and Computer Ethics (aka Digital Ethics), the Philosophy of Information, and the Philosophy of Technology. Other research interests include Epistemology, Philosophy of Logic, and the History and Philosophy of Scepticism. He has published over a 150 papers in these areas, in many anthologies and peer-reviewed journals. His works have been translated into many languages, including Arabic, Chinese, Dutch, French, German, Greek, Hungarian, Italian, Japanese, Lithuanian, Persian, Polish, Portuguese, Russian, and Spanish. His lifetime project is a tetralogy (not his term) on the foundation of the philosophy of information, called *Principia Philosophiae Informationis*.

Fiorella Foscari is an associate professor in the Faculty of Information at the University of Toronto, Canada. In 2014-16, she taught in the Department of Media Studies at the University of Amsterdam, The Netherlands. She holds a PhD in Archival Science from the School of Library, Archival and Information Studies at the University of British Columbia in Vancouver. Before joining academia, she worked as senior archivist for the European Central Bank in Frankfurt am Main, Germany. Prior to that, she was Head of the Records Office and Intermediate Archives at the Province of Bologna, Italy. In her teaching and research, she uses diplomatics, rhetorical genre studies, and information culture concepts to explore issues related to the creation, management, and use of records in organizational contexts. She is co-editor in chief of the *Records Management Journal*.

Anne J. Gilliland is Professor and Director of the Archival Studies specialization in the Department of Information Studies, Director of the Center for Information as Evidence, Graduate School of Education & Information Studies, and a faculty affiliate of the Center for Digital Humanities at the University of California Los Angeles (UCLA). She is also the director of the Archival Education and Research Initiative (AERI), a global collaborative effort amongst academic institutions that seeks to promote state-of-the-art in scholarship in archival studies, broadly conceived, as well as to encourage curricular and pedagogical innovation in archival and recordkeeping education locally and worldwide.

She is a Fellow of the Society of American Archivists and recipient of numerous awards in archival and information studies. She is an Honorary Research Fellow of the Centre for Global Research, RMIT University in Melbourne.

Her research and teaching relate broadly to the history, nature, human impact and technologies associated with archives, recordkeeping and memory, particularly in translocal and international contexts. Her recent work has been addressing recordkeeping and archival systems and practices in support of human rights, recovery and daily life in post-conflict and diasporic settings; the role of community memory in promoting reconciliation in the wake of ethnic conflict; bureaucratic violence and the politics and nature of metadata; digital recordkeeping and archival informatics; and research methods and design in archival studies.

Arnoud Glaudemans works at Streekarchief Gooi en Vechtstreek in Hilversum as supervisor of the information management at the six affiliated governmental organisations. He studied philosophy and archival studies in Amsterdam. As a member of the archival advisory committee of the Dutch association of municipalities (VNG) he is actively involved in the development of various practical tools in information management (e.g., appraisal, quality management).

Juan Ilerbaig holds a MSt from the University of Toronto (2011) and a Ph.D. in the History of Science and Technology from the University of Minnesota (2002). For the past few years he has taught courses as a sessional instructor at the University of Toronto, in both the iSchool (Archives and Records Management Concentration) and the Institute for the History and Philosophy of Science and Technology (History of Evolutionary Biology). His research interests focus mostly on three areas: the interactions between record keeping and the practice of science, particularly in the life sciences; the application of a genre perspective in both archival science and the history of science; and the history and philosophy of archival concepts and theories. Current work in progress focuses on the genre systems used by Charles Darwin in his natural history research and on the uses of geological and pictorial metaphors in archival thinking and theory.

Charles Jeurgens is professor of archival studies at the University of Amsterdam (since 2016) and advisor at the Dutch National Archives (since 2009). He published extensively on issues of appraisal and selection, colonial and postcolonial archival cultures. He studied history and archivistics and did a PhD in the history of 19th century infrastructural planning in the Netherlands. He worked as editor of archival sources of the Batavian-French period at the Institute of Netherlands History in The Hague and he was municipal archivist of Schiedam (1994-1999) and Dordrecht (1999-2009). He was professor of archivistics at Leiden University between 2004 and 2016.

Rienk Jonker has been working as archivist since 1981. After ten years at the Centrale Archief Selectie Dienst in Winschoten, an agency of the Ministry of the Interior, he returned to the municipal archive of the city of Groningen, what later became part of the RHC Groninger Archieven, as archival inspector and later municipal archivist with the instruction to advise about and accompany the transition to the digital world from an archivist perspective. Since 2006 he has been working for the municipality of Leeuwarden with almost the same assignment. In 2008 he became the municipal archivist of Leeuwarden.

His main areas of interest are the basics of archival science, information architecture, metadata, information processing, appraising and appraisal of records, terminology, the digitization of the work environment and the management and preservation of digital records. From 1999 until 2011, he has on almost monthly basis provided colleagues with information about developments that touch the horizon of the archivist. From 2004, he maintains his own website on records and information management and archives under the motto there is nothing new under the sun (www.labyrinth.rienkjonker.nl). In 2009, he received the Van Wijnenpenning from the Royal Association of Archivists in the Netherlands (KVAN) as a token for his work.

Eric Ketelaar is Professor Emeritus at the University of Amsterdam, where from 1997 to 2009 he was Professor of Archivistics in the Department of Mediastudies. As an honorary fellow of his former department he continues his research which is concerned mainly with the social and cultural contexts of records creation and use. From 1989-1997 he was General State Archivist (National Archivist) of The Netherlands. From 1992-2002 he held the chair (part-time) of archivistics in the Department of History of the University of Leiden. Eric Ketelaar was visiting professor at the University of Michigan (Ann Arbor), Gakushuin University (Tokyo), the University of Toronto and Monash University (Melbourne), where he continues to be involved as a Senior Research Fellow. From the foundation, in 2001, of Archival Science, he was one of the editors-in-chief. Since 2014 he is a member of the Editorial Board.

Giovanni Michetti is Assistant Professor of Archival Science at Sapienza University of Rome. His research area is focused on contemporary and digital archives. His main research interests are records management, description models and digital preservation. He has been involved in national and international projects on digital preservation, including ERPANET (Electronic Resource Preservation and Access Network) and CASPAR (Cultural, Artistic and Scientific knowledge for Preservation, Access and Retrieval), both funded by the European Commission. He is currently leading researches within the InterPARES Trust project. He is heavily involved in standardization processes as the Chair of the Subcommittee "Archives and Records Management" and Vice-Chair of the Committee "Documentation and Information" in UNI, the Italian Standards Organization. He is also the Italian representative in a few ISO Working Groups on archives and records management.

Martijn van Otterlo obtained his PhD (artificial intelligence, A.I.) from the University of Twente (Netherlands, 2008) with a dissertation on expressive knowledge representation in machine learning from evaluative feedback. He published two books on such adaptive learning algorithms (2009 IOS Press; 2012 Springer, together with Dr. Wiering). Martijn has worked on robotics, vision and language and held positions in Freiburg (Germany), Leuven (Belgium) and Nijmegen (The Netherlands). His second research interest, which arose from his expertise in A.I., concerns the ethics and implications of adaptive algorithms on privacy, surveillance and society. He has served as committee member and reviewer for dozens of international journals and conferences on machine learning, data science and artificial intelligence. In his current position at the Vrije Universiteit Amsterdam (The Netherlands) he combines data science and ethics with his third interest: libraries. He currently studies the digitalization of physical, public libraries, and also the ethical consequences of datafication of library processes and services. More information can be found at <http://martijnvanotterlo.nl>

Frans Smit is Information Governance Officer at the Dutch Municipality of Almere, and Teacher of Archival Science at the University of Amsterdam. Educated as a historian, he has been working in fields like software engineering, archives, libraries and information policy departments as a developer, governance officer, manager and consultant. He publishes regularly in various journals, predominantly about cross-boundaries between information disciplines. He was co-editor of the S@P-Yearbook on archival inspection “Profiteer, profileer, prioriteer” (2013). He is a member of the archival advisory committee of the Dutch Association of Municipalities (VNG) as well as a member of the Records Management Expert Group (RMEG) of the International Council on Archives (ICA). He is a consultant and a trainer for among others the National Archives of Indonesia (ANRI, 2012-2013), the Dutch Archiefschool (2014-) and the Royal Association of Archivists in the Netherlands (KVAN, 2017-).

Jacco Verburgt studied philosophy and theology in Amsterdam, Leuven, Berlin, and Rome. He is a researcher at Tilburg University, the Netherlands. His current research focuses on Aristotle, Aquinas, Kant, and Hegel, but includes applied science topics too. He also is an editorial board member of Critique, which is an online publishing platform (see <https://virtualcritique.wordpress.com>). He teaches philosophy (especially courses on history of philosophy, philosophical anthropology, general and applied ethics, and philosophy of science) at various institutions of higher education in the Netherlands.

Geoffrey Yeo is an Honorary Senior Research Fellow in the Department of Information Studies at University College London (UCL), United Kingdom. Before joining UCL in 2000, he worked as an archivist for the Corporation of the City of London, for St Bartholomew’s Hospital, London, and for the Royal College of Physicians of London. He has also worked as a freelance archivist and records manager, and as a consultant to the International Records Management Trust, participating in records management and educational projects in The Gambia, Ghana, Botswana and Uganda. In 2010 he was Visiting Professor at the School of Library, Archival and Information Studies at the University of British Columbia, Vancouver, Canada.

His research interests include conceptual understandings of records; perceptions of the origins and scope of record-making and record-keeping; records’ contextualisation and description; and relations between records and the actions of individuals and organisations. He has published widely on description and on conceptual understandings of records and is a frequent speaker on these and related topics at international academic and professional conferences. His published work won the Society of American Archivists Fellows’ Ernst Posner Award in 2009 and the Hugh A. Taylor Prize in 2013.

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Archives in Liquid Times aims to broaden and deepen the thinking about archives in today's digital environment. It is a book that tries to fuel the debate about archives in different fields of research. It shows that in these liquid times, archives need and deserve to be considered from different angles.

Archives in Liquid Times is a publication in which archival science is linked to philosophy (of information) and data science. Not only do the contributors try to open windows to new concepts and perspectives, but also to new uses of existing concepts concerning archives. The articles in this book contain philosophical reflections, speculative essays and presentations of new models and concepts alongside well-known topics in archival theory.

Among the contributors are scholars from different fields of research, like Anne Gilliland, Wolfgang Ernst, Geoffrey Yeo, Martijn van Otterlo, Charles Jeurgens and Geert-Jan van Bussel. This book includes interviews with Luciano Floridi and Eric Ketelaar, in which they reflect on key issues arising from the contributions. The editors are Frans Smit, Arnoud Glaudemans and Rienk Jonker.