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Innovative Digital Infrastructures: The Issue of Sustainability

An Online Rountable Discussion

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Innovative Digital Infrastructiures:

The Issue of Sustainability

An Online Roundtable Discussion

In response to the issue's theme, *Imagining the Future of Digital Archives and Collections*, a number of key players in the Dutch arena are invited to address a specific opportunity and challenge of digital infrastructures for archiving and exchange of cultural data: the issue of sustainability. While innovative digital infrastructures often receive project funding in the start-up phase, their technical, organizational, and financial sustainability are often challenging. What happens to these infrastructures when their funding period ends? What are the lasting impacts of such infrastructure projects? Does the project-based nature of these infrastructures undermine their attempts to create sustainable solutions within their fields? How can we safeguard and imagine sustainable projects in the future?

The discussion is divided into three parts. Part one reflects on the concept of "imaginaries." It explores how this concept might be made productive to assess the processes and outcomes of digitization projects of memory institutions in light of presumed promises of innovation and increased functionality. Part two discusses the topic of governance and political economies in such digital heritage projects. Part three explores what type of digitization projects are desirable or required in the future and reflects on the role of artists in imagining the future of digital archives and collections.

Present during the round table discussion are Annet Dekker (Assistant professor of Archival Studies, University of Amsterdam), Johan Oomen (Head of R&D Netherlands Institute for Sound and Vision [only present during the first hour]), Harro van Lente (Professor of Science and Technology Studies, Maastricht University), Gaby Wijers (director of LIMA), Geert Mul (artist), Marcel Ras (Digital Preservation Program Manager, Netwerk Digitaal Erfgoed [NDE]). Organized by Gwen Parry (Managing editor

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of *Stedelijk Studies*, Editor at Stedelijk Museum Amsterdam). Transcript edited by Dutton Hauhart.

The round table discussion is moderated by Vivian van Saaze (Associate professor of Museum Studies and Conservation Theory, Maastricht University) and Claartje Rasterhoff (Project leader at National Culture Monitor, Boekmanstichting), guest editors of *Stedelijk Studies* #10, who conceptualized this issue and round table in collaboration with Karen Archey (Curator of Contemporary Art, Time-based Media, Stedelijk Museum Amsterdam), also in attendance.

1. Imaginaries (expectations, promises, visions)

Vivian van Saaze

To kick off the conversation, we've been using this term "sociotechnical imaginaries." Harro, could you help us to understand this concept and its value by briefly describing how you use it? Where do you find imaginaries, what is it not, and could we consider what the value would be for the particular field that we are addressing today?

Harro van Lente

I started my research with the role of expectations in technology, because in technological developments there is so much reference to the future. Everybody is embedded in thinking about what will be the next step, what will happen, and how can we stay in the race. Everybody has to make decisions, while they are surrounded in this sea of expectations. The issue for all parties is to decide what is the right expectation and what is not, what is a likely expectation and will thus come true. What intrigues me is the question of what this obsession with the future does to the present. Expectations are not innocent. While these expectations and promises are there, they will do things, so they are performative. They legitimize investments and decisions.

They also coordinate. So, if you feel, well, there is this overall movement towards digitization, raising questions about what could we do and what are others doing. Everybody is part of this game, so what you then will see is that it becomes a bit self-fulfilling, because there is a lot of interest, a lot of investments. You will get a sort of self-fulfilling direction, and also self-justifying, because everybody now is investing in this promising direction. And when everybody is doing it, it is a good thing to also be part of that development.

Even when you understand this, you cannot escape it. On the one hand, you feel that you are being smart, because you understand that what is promising shapes the next step, but on the other hand, you're also not so free, because everybody is going towards the future and you cannot miss the boat or the train and all those metaphors.

About this term “imaginaries,” in our field [Science and Technology Studies] it has a particular meaning, which is a bit different from expectations and promises. The sociotechnical imaginary is more an overall vision, whereas expectations, those are just building blocks, and you can see all kinds of small expectations, economic or technical or artistic or societal, and together these expectations connect and are sort of houses of cards. They help to propel things forward. It is good to remind us that imaginaries are not fixed and made from numerous expectations and promises.

Vivian van Saaze

To make the connection to the field of digital cultural archives, if we talk about promises, what kind of promises do you identify, do you recognize, for the art field?

Johan Oomen

The ones that you mentioned communicate with inclusivity; I would like to add one reflection, that is that cultural archives are indeed plural, so it’s just not one collection that is being made available, but it’s this combination of distributed collections from institutions, but also the writer’s creative production on Wikipedia, for instance, which are also part of this network. Cultural heritage institutions are embedded in historical practices where production, preservation, and access to knowledge and culture are limited to the few, rather than shared among the many. Such practices have exasperated the promotion of mainstream historical artifacts, positioning the sector somewhat outside of the fabric of everyday life, where they could instead be utilized for societal development and economic growth. The cultural heritage sector needs to be elevated to a status where it is seen as an essential agent to ensure societal well-being and economic prosperity, and a shared resource created by and for the many.

To this list I would add the idea that institutions have permanence and provenance in their core missions. Hence, the fact that these organizations are tasked to look after the objects can be a powerful weapon to counter misinformation. This is quite a strong imaginary; these collections are trustworthy. Secondly, this notion that, through digitalization, collections can be used in different sectors that are currently not using archives. What I see is a renewed interest in the field of data-driven journalism, for instance, and also in the more creative use of collections.

Claartje Rasterhoff

We identified overarching promises of improved connectivity, inclusivity, and easy and unlimited access. So, you say to that list we can add authority or trustworthiness, due to the institutionalized nature of these distributed collections. The second one is more related to the re-use, if I understand correctly. How this type of collections and

everything that comes with it can be re-used as a resource to leverage other forms of change, creative or economic or social.

Johan Oomen

Exactly.

Marcel Ras

I do want to add a “but” to this promise, because in interconnectivity between collections and between institutes, you have to take into account that these institutes are in fact able and have the knowledge to digitize their collections, to connect their collections in the larger infrastructures, and while working within the digital heritage network we are also working with a lot of small-scale organizations which are not yet able to play their part in this interconnectivity, so their collections are not always the collections seen by the broader public or by the designated communities.

Gaby Wijers

I would say memory and context and understanding have to be added as well. There is a deep hope that this will be achieved in the future, because having all these data, having all this, it still needs meaning and it still needs understanding and context to make all these different narratives and to see all these stories, or to understand it or memorize it.

Geert Mul

As an artist, my primary concern with digital data was, first of all, as a source of inspiration. Like, as a child from the ’80s, and coming from sample-culture in the ’90s, the access to a huge amount of visual and auditive data on the newly accessible internet functioned as a great source, but later on there was the gradual awareness and thinking about the database itself as a medium. The database can work as a creative medium and storage in the same time. This was the truly innovative part, to have the same medium functioning as storage and as a creative medium in real time; that was for me always the big promise. My curiosity was always driven by uncovering the hidden database ideology by experimenting with it.

Claartje Rasterhoff

How do you reflect on that now?

Geert Mul

I'm very influenced by Jos de Mul and his writings about the database, but of course he is not the only philosopher who thought about digital media. I think the database is a creative medium and still very present. In a more philosophical discourse, the database as a cultural form, and also, even in times of fake news and the whole discussion about media and what's real, this is a very relevant political and artistic topic.

Annet Dekker

I think there was an expectation and perhaps also a promise that digitization was a reliable way to organize and preserve paper processes. Within a few years it turned out to be less reliable, as the technology had its own set of problems. In the early days there was a lot of optimism and also expectation that the digital would change the world, almost a utopian belief or hope. While it didn't necessarily turn out that way, it did bring new ways of working, and it transformed archival practices in many ways. For instance, digitization made it possible to more easily do research in large swaths of data, in order to show correlations or make predictions based on "big data" analysis.

Johan Oomen

There is also quite a lot of thinking now about public organizations and their relation to big internet platforms. The PublicSpaces initiative in the Netherlands tries to see how you can counterbalance the US-based monopoly on the Web with Google, YouTube, Facebook, and all these VOD [Video On Demand] platforms. You basically have two cultural archives: one is positioned in a public space (operated by memory institutions), and then there are cultural archives that are using commercial platforms. Many people would argue that YouTube is an archive. The interesting thought now is, can these public organizations retain their independence, given the cost of storage and playback? Can you have an archive without using cloud services offered by, say, Amazon? How can publicly funded institutions work towards digital sovereignty from for-profit platforms and support a future internet that serves the public good?

2. Organization and coordination (governance of innovation)

Claartje Rasterhoff

For the second theme we were also looking for the more performative elements that Harro talked about. How these

promises affect, what their value or role is in the projects that we see around us. We are also wondering, in that respect, what examples are there of successful digital repositories or infrastructures?

Marcel Ras

I think the most promising and successful examples are those in which collaboration is involved. I always give one example, of the National Archives and the Netherlands Institute for Sound and Vision, how they collaborate together in preserving the recordings of the Dutch parliament. There is a responsibility for the National Archives to do so, to archive them and to play them back, but they don't have the infrastructure to do so. But Sound and Vision does have the infrastructure, so the National Archives asked Sound and Vision to do the actual archiving, whereas the National Archives still remains responsible. That's a good example, how you can share roles and responsibilities instead of building over and over again infrastructures which actually do the same thing.

There are all kinds of collaborative initiatives, so individual heritage organizations do not have to invent the wheel over and over again. But they are able to share infrastructures, to share thoughts, and even share collection policies. On a global scale, a good example for collaboration is Web Archiving. There are many institutes, organizations worldwide, archiving bits and pieces of the Web, especially national libraries have taken up that task. They work together in the IIPC[International Internet Preservation Consortium] to share infrastructure, knowledge, approaches, and collection care. A very good example of this is the COVID-19 collection, a collection of websites from everywhere in the world, created as a collaborative effort of the partners in the IIPC. This collection consists of almost 9,000 websites related to the COVID-19 outbreak and crisis, and is a great example of collaboration and a great source for research.

Gaby Wijers

In the Netherlands, the media art collections of the museums and other institutions were collaboratively digitized and stored, and from that LIMA started; a knowledge and research center with a shared digital repository for media art, in use by over thirty collections, so not all institutions and museums have to install their own repository. In this way, larger and smaller collections of media art can be stored effectively and sustainably. We gain and share our knowledge worldwide; it's a rather small but growing field of expertise. It has many points where it touches on IT, contemporary art conservation, or different approaches, and within a diversity of networks the research is done that again brings it to another level. Also, not only looking at institutional practices, we look into artistic practice: how to

document, preserve, store, and access. Collaboration and knowledge exchange are key.

Marcel Ras

Again, the example of the IIPC is an example in which all types of institutes are working together in a global way. I think the strength of this is, at the first place, the collaborative approach, but also that there are a strong infrastructure and tools available. One of the driving forces behind the IIPC, delivering most of the infrastructural needs, is the Internet Archive.

Another, more technical, example is the File Format Registry called PRONOM, which is hosted by the National Archives in London. All types of file formats are registered, having a unique identifier. Almost every digital archive in the world is using this registry. Again, the strength is that there is one central point of information. There is one strong organization hosting this initiative. That makes it at least much easier to work together on a practical level, because we do work very much together internationally, but that's basically based on sharing knowledge. It's much easier to share knowledge and to talk about topics and knowledge than to actually do something together.

Karen Archey

I wanted to add that I think the usage of collection content management software, and the conversations regarding them, are quite regional in nature. This is exemplified by Adlib, which is well-adopted in the Netherlands, but not so much in other parts of the world. Generally, the system used by institutions internationally is The Museum System [TMS]. How one goes about creating complementary asset management systems that supplement Adlib or TMS depends of course on which one you use, because their capacities, design, and functionalities are quite different. So, I think that our conversations around supplementing Adlib have been actually quite national in basis.

I also wanted to add that, from my perspective as a museum curator, I've noticed art institutions shy away from dependence on newer proprietary software, even if they promise to resolve existing information storage problems, because there are doubts in terms of the sustainability of software created by start-ups. This is because there is a massive amount of time and effort needed to migrate all of our data into new systems and, once there, it may be only a matter of years before that software is considered not profitable enough and is no longer supported. After the immense investment of migrating this data, it is not always possible to extract and easily transfer it into a new system.

Thus, while many people would think that new software could offer new and even exciting capabilities for institutions, I would actually think the other way around—that museums are rather quite limited by the software they can use due to the combination of risk aversion and because proprietary software is seen as not very sustainable.

Marcel Ras

I do agree with this; the use of proprietary software is a huge problem for heritage institutes. This is especially the case in the area of collection management software, like Adlib. The most important issue is to be able to make a division between the software and the content. Collection descriptions are metadata, stored in collection management systems, and you should always be able to extract the metadata from the software system as a bunch of data and migrate them into another system. It's more about interoperability than about having a system, because a proprietary system has problems, but so do open-source systems. Being able to manage your own data is key.

Within the field of digital preservation, most tools are open-source software, developed in a series of open-source communities. There we see other problems, mostly around the sustainability of the software. The open-source software community is not primarily focused on the durability of the software developed, whereas for heritage institutes these tools can be crucial in their workflows.

Gaby Wijers

It's not only the limitation, it's also the dependency. Either you are dependent on huge multinationals or you are dependent on highly skilled technology people.

Claartje Rasterhoff

So, I guess it's the value of the collaboration, but also tying it to the needs of organizations, also in terms of skills, resources, and more practical considerations. There is often a kind of overarching vision that supersedes the institutional needs and interests. There is real added value in getting people to collaborate and talk to each other, because there is this idea of a public good that everyone should be contributing to, and that has societal value that goes beyond personal or institutional policies and planning strategies.

Vivian van Saaze

There are lots of projects that receive public funding, but these repositories are no longer accessible. Is there a graveyard for these kinds of projects, is it a problem that expectations are not met? Or should we just accept that?

Harro van Lente

It's common in innovative projects that not everything will succeed, because it takes so much more than you can see at the beginning. I think what is interesting is that it's usually not clear whether it's a failure or a success. Typically what

happens is different from what was expected, not just in terms of how much but also in different directions, so new things appear and then the discussion is whether the project failed or that it shows that it's still promising, but not yet there. So close, yet so far, so we have to add more money into it, otherwise all the efforts we have made so far are lost. So, it's really a constant negotiation whether something is failing or not. The temptation is to look at the facts, but the facts don't talk for themselves, so you have to add an interpretation and then a whole political game starts.

Gaby Wijers

I'm currently writing a text about the rise and fall of GAMA [Gateway to Archives of Media Art][i], a European project started in 2007 with a portal to media art archives. In 2007 some technical universities collaborated with media art institutions and huge archives like the Ars Electronica Archive, the Ludwig Boltzmann Institute, and others to have this central portal for media art, which at that time lacked search engines based on image recognition and all kinds of advanced technology. The project as such failed. After the project we started a foundation to get other institutions in and update the technology, but then all these developers at these universities were doing something else and were not available anymore. There were detailed manuals, really well documented, but finding someone new who would go through that and help out was quite a challenge; it never happened.

On the other hand, we learned a lot, and most of the partners are still working together in a variety of projects. Also, from GAMA came another project, Digitizing Contemporary Art, with thirty-two participants, so a lot happened. One of the problems was that, next to maintaining your own database—the access to your own archive—on top of that came the other portal, and from the portal it would also be harvested for Europeana. So, there were a lot of extras, and in the end many smaller institutions couldn't handle doing all that. They didn't find a way to implement that in their organizations.

Claartje Rasterhoff

What's interesting is that these larger ambitions or visions can serve as a lever to not only get people to talk and to get them together but also to generate spin-offs, funding, new collaborations, new ideas, which then of course would also make it a success. If that would have been part of the expectation as well, and articulated at the beginning of the project, that the aim is not only to build something that might not actually be technically or institutionally feasible but also to have these unexpected values.

Karen Archey

I was wondering about some of the terminology we are using. When we say digitizing collections, I assumed this meant we are referring to collections that are being transformed from paper-based to computer-based records, but when Gaby was speaking about the project Digitizing Contemporary Art, it sounded more like she was referring to 3D-scanning museum objects—a different kind of digitization. So, I was wondering if we could talk a little bit more about how that was intended, and what digitizing collections literally means to us.

Gaby Wijers

There were many museums that also have many installations that they recorded, not necessarily in 3D, but in photographs, for instance, and then these photographs were digitized and used for access. Also, 3D models and all kinds of analog material, like video.

Marcel Ras

But there were no traces left?

Gaby Wijers

I'm looking at what's still available without doing too much archeology, and quite a lot of the deliverables are still available. For instance, at the time we made a whole mapping, not a thesaurus but a vocabulary. These kinds of things at that time were very valuable, and some of them you can still find.

Marcel Ras

One example of something which was perhaps too early: emulation as a preservation strategy. Already in the beginning of this century, the National Library of the Netherlands had done some innovative work with virtual computing and emulation. At that time, emulation was seen as too expensive, too technical, so not a valid strategy for preserving digital materials. Emulation was taken a step further by the EU-funded project KEEP (Keeping Emulation Environments Portable). This project resulted in a network of emulation tools, as not one single emulator can do the trick for all cases. But still, in 2012, this was too early, and emulation could only be used in few occasions and by few institutes, as it was still very complex and expensive. But, after another ten years, we find emulation becoming more and more feasible for heritage institutes to use. Emulation as a service offers a solution which is less complex and expensive, and therefore it becomes a viable preservation strategy for many heritage institutes.

Very helpful in this process was yet another collaborative effort and a good example of how the outcomes of a European project can be sustained. This is the Open Preservation Foundation, founded as the Open Planet Foundation after the end of the four-year, EU-funded project Planets. Millions of euros were given to the Planets project, and a lot of tools were being built, so at the end of the project its founders said, “We have to found an institute with a membership to sustain the tools we have been building in the project,” and that now is the Open Preservation Foundation, which is there to manage and develop further tools for use by the digital preservation community.

3. Collaboration and Artistic Practices

Claartje Rasterhoff

I get the feeling that there are quite a lot of foundations or intermediary groups, networks, formal or informal, very active in this digital heritage field, so that is perhaps something to discuss when we think about who the actors are in this field and how they also relate perhaps to the promises and the visions that we identified earlier.

I was thinking to maybe talk a bit more about the role of intermediary actors, but also the relationship between research and preservation, and perhaps more generally the relationship between universities and museums. What are dominant actors or relationships—collaborations that shape these imaginaries, but are also strongly impacted by them?

Annet Dekker

Yes, within our program at the university we collaborate a lot with museums and archival institutions. The Archival and Information Studies is a so-called “professional master,” which means that the emphasis is on the exchange between the theory and the practice. All the students conduct a half-year internship, next to being involved in other types of practice-led learning. We also engage guest lecturers from the professional field, who share their experience and converse about the challenges they encounter.

At the Centre for the Study of the Networked Image at London South Bank University, where I also work, it’s even more practice-based, which also has a longer tradition. The core of the research of the PhD candidates is about a collaboration with an institution or their own practice, and they analyze the practice from a theoretical perspective or vice versa. The interchange between the two is maybe not always beneficial on the short term, but often becomes more profitable on a longer term, whereas here in the Netherlands these collaborations are usually short-term exchanges, so it becomes more small-scale as well, and it’s less sustainable if you want to have more impact. What we also notice is that students, once they are working as an intern, they often are asked to continue on a project or something else within the

organization. At the moment, particularly in the archival field, there is a generation about to retire, and so there is a need for new people to replace them. So, there is more awareness for how we can best use these opportunities.

Gaby Wijers

There is quite a difference between cooperating with technical universities and humanities. I did collaborate a lot with technical universities, sometimes still do, but this is often very project-based.

You talked about preservation, and not so much about digitization. For digitization, I don't know, but for preservation of course there are more and more universities that also take over, I mean, in a positive way. Also, in research, knowledge transfer partly now shifts towards universities. Let's say fifteen years ago media art preservation was hardly addressed at a university, and now more and more.

Claartje Rasterhoff

Would you say that's often driven by opportunities for funding? My experience is that there is a call at some point and then a collaboration.

Gaby Wijers

Yes, but before that, there's always an idea or desire or something you want to research, and then you see how it fits a certain call.

Annet Dekker

I agree, but at the same time I think there is also a change happening at the moment, where you can see that more research is driven by the universities to do particular kinds of research. For instance, large collaborations between the University of Amsterdam, with EYE [Film Museum] or Sound and Vision or KB [National Library of the Netherlands], are usually "university-driven." Something you can see a lot in digital heritage or digital humanities research, these are programs that are integrated in the university systems with special master's, etc. So, in a sense, here it is perhaps the other way around, where it is not only funding-driven anymore and becomes more integrated in course programs.

Claartje Rasterhoff

Do you, in your work, also have examples of projects that, due to these political or economic or social factors or constraints, go into a direction where you didn't expect them to go, or you didn't want them to go?

Annet Dekker

It's hard to say, because if you talk about funded projects, to an extent you have to deliver according to what you said you were going to do. Either it is successful or it isn't, but even then, there is a result, and even failures can be rendered as successful. So, on paper, these projects are always successful. Whether they really are, is a different matter. I think inherent in academic research is that projects do change over the course of years, and that's actually a good thing. However, in the funding this is often not implied.

Harro van Lente

Yes, in funding applications there is always a claim that this is a very special opportunity and it's really promising, and it will deliver a lot. You see in the proposals this balance that you have to argue that it's very strong and therefore worthy of funding, but also very weak, because without the funding it will collapse. That's the sort of play that you see happening. Indeed, I would agree with Annet, there's always something that comes out of it and you have to turn this into a success, and then you could be the victim of your earlier promises, because now there's something more interesting that you would like to highlight, but that is a bit beyond the scope of what was promised in the first place.

One of the things I find intriguing with these imaginaries and promises is that they also change the way we look at the present, so the future becomes a sort of yardstick of the present. If the promised future is that there is unlimited access, if the future is that there is inclusivity and connection, then we look now at the present and we see the present failing in the light of the promise. It's not just a promise for a new direction, it also has implications for how we see what is currently happening, and we see it as something that is failing because of the promise, and thus needs repair. I was curious whether you see this dynamic happening as well?

Annet Dekker

Indeed, you hit the nail on the head. It is similar to science fiction, which says more about the present than the future and is less fiction and more real. In that way, I think the imaginary as you describe it may also relate to the notion of imagining and imagination in fiction, which can also have these aspects and elements of the future, when everything will be better, but it more often is about the present or recent past. Within a project we tend to focus on the negative side, the things that are not good enough and are in need of improvement, such as the data that is not accessible or as inclusive as it could be—as we imagine it could be, etc. But what would happen if we, rather than improving or disproving, think more speculatively to consider alternatives? Rather than moving to the next "innovation," we reflect and rethink from the imaginary? In a sense, it would be about presenting how and what is learned, instead

of showing a final result. Such critical reflexivity happens by activating the imagination to reconsider and—perhaps in the process—reinvent the outcome.

Claartje Rasterhoff

I think that's very intriguing, and possibly also a way to think about how artists and designers or actors from outside these university funding schemes might play a role in this.

Geert Mul

I've been watching how museums were attempting to disclose their collections through digital media, and at the same time storing it. Like Annet said, from an artist's approach, there's no ending to a project and there's never a failure. That, of course, is the typical artistic creative approach. When you were talking earlier about the failures, usually there's a disconnection between the things that are getting evolved and discovered in the project and the practical follow-up. The more ambitious the project is, the larger the risk and the possibility that there won't be a solid product afterwards that answers all the expectations and all the ambitions that were necessary to fulfill the subsidy request form.

If it's not long-term private money, then the financial injections are short-term and you get money for one project, and then, if you are lucky, you can have some follow-up, but you are always at risk of discontinuity. Then, like the GAMA project that Gaby mentioned, often it can look from a distance like a failure, like there was so much research and so much enthusiasm and so many ideals and we actually developed stuff, but now if you look around there's seemingly nothing left.

The advantage from an artistic perception is that it is not expected that there is a practical follow-up. So, from an artistic point of view, it's just a matter of tinkering and experimenting and developing fundamental new ways to work, experiment, think, construct with this type of technology, and that by itself is a tradition that is as old as art itself. So, from that point of view, there's nothing new, although the technologies are always new and the speed in which they are developing is continuously increasing. When I think back about, for instance, the first time that I encountered generative art, it must have been twenty or twenty-five years ago; and also, through work of artists, it's only now that these techniques get implemented, and not even on an industrial level, but more in the open-source community, as a shared attribute. From an artistic point of view, there is this continuation, although it can be under the surface for years, but the radical different perspective is that artists have the freedom because they don't have to deliver the practical stuff.

Claartje Rasterhoff

I'm wondering, Marcel, if you feel that this has a place in the governance structure or the infrastructure that we are developing collectively?

Marcel Ras

No, not yet. I don't think it has a place in the infrastructure we are building at the moment, because that infrastructure is very much driven by heritage institutes and by the current practice of digital preservation. One of the main things we are doing within the Dutch Digital Heritage Network is implementing linked open data as a means to open up the collections of as many institutes as possible. That takes a huge effort and a long time to get going. It takes a lot of knowledge, but also it takes a lot of funding, because you can come up with linked data initiatives and you can think that there is an infrastructure that should work like this. But then, all the institutes have to make use of that infrastructure, and they are still not able to do so. Here, also, we see an important role for software vendors, the developers of the collection management systems we as heritage institutes use. They should build options for linked data access and persistent identifiers into the systems, allowing institutes to manage and share their collections more easily and more sustainably.

I believe many heritage institutes, or institutes which have a role in archiving digital data in what type whatsoever, are not well connected yet to the current state of the digital society. They are still using very traditional ways of archiving. So, we really need other means of looking at archiving. That's not addressed yet in the network, but I think that also takes some time. What we are doing now is enabling many small-scale institutes to be involved in the network, to enable them to make their collections visible and usable and sustainable.

Gaby Wijers

I think it's very important that we also think about knowledge transfer, like all these old projects you cannot find any more, but from each project you take something; or, if you start entering this whole world of digital archiving now… what did we learn or what did it bring to us, and how can we transfer that to the next generation? I think that's extremely important. It's now mature. Also, if you have been engaged in this field for a long time, then you often forget that many people are just entering. I think it's very important to figure out how to make our field more accessible.