CHAPTER ELEVEN

Methodological Optimism Regarding the Digital Future

Critical Remarks on the Recommendations on the Future of the Scholarly Communication System

Volker Gerhardt

Acceleration. The digital acceleration of communication sucks everything into its wake. It does not leave any country out, and it is as inevitable on the seven seas as it is in aviation. It advances everywhere nearly simultaneously. The pace alone at which changes have taken place over the past few decades, and which include everything that people do publicly or privately in the most remote corners of the world, is a historic innovation.

The domestication of fire, after which the natural history of humankind entered its decisive phase, as well as the utilisation of images, symbols and signs, through which humankind's cultural history has become narrative, have taken millennia. It took more than ten centuries before the autonomy of law found constitutional recognition in ancient Athens and Rome.

Only with science, and its supporting, promoting and eventually overpowering technology, did the pace of innovation increase significantly. However, throughout its longest phase of development, science remained restricted to comparatively few individuals. The printed book ignited a movement which, after only a few decades, dragged an ever-increasing number of people into a rapid and unpredictable process. The history of the Reformation, which nobody expected to turn out the way it did, demonstrates what it means to be sucked in by a technological novelty.

The pace and extent of the world's digital change, however, surpasses everything that human culture has produced to date with respect to

technological advances. Electronic information technology is developing at a speed that is only beaten by its distribution; even before a person learns how to read or write, he/she is captivated by technology's spell. Without any difficulty, information technology crosses the boundary between work and leisure that has existed for thousands of years and even tears down the barriers between private and public consciousness which have taken the utmost institutional effort to erect. And, of course, the sciences themselves are not unscathed by the revolution they initiated.

A recommendation that is long overdue. Against this background, it is not only understandable, but as necessary as it is commendable, that science deals with the consequences of those fundamental changes which concern its lifeblood – publication and the dissemination of knowledge. Today, one can characterise the significance of scientific publishing in the seemingly paradoxical coupling of an older and newer term: in this central function of knowledge and science, the substance of both comes to the fore and without which neither would be possible, nor perhaps even necessary.

The aforementioned dramatic changes have been the topic of discussion for years, not only within the sciences but in every field where knowledge, education and information – thus also books, journals and newspapers – are involved. Here, experts speak about the so-called print media.

Thus, it is high time that an academy of sciences takes a position on the opportunities and risks of electronic publishing. Not only because the promotion and maintenance of the interdisciplinary solidarity of the sciences belongs to publishing's core tasks, but also because, freed from predefined performances for teaching and research, it has a duty to ensure the mutual exchange of knowledge as well as the public exposure of scientific insights.

In addition, the topic is of great importance today. This is especially true with regard to the Berlin-Brandenburg Academy of Sciences (BBAW), formerly the Prussian Academy of Sciences. The BBAW's publication department has used electronic computers for 35 years, and spent several hundred thousand euros on its long-term programme to digitise and retro-digitise its back list. Moreover, it is involved in highly complex and legal negotiations with publishing companies with respect to affordable conditions for open-access publishing. Its globally distributed editions of ancient, medieval and contemporary texts have to tackle overwhelming volumes of written work, so the transition to digital recording, surveying and dissemination in fact began some time ago.

If the present recommendations for the future of scholarly publishing lead the BBAW to take on a major part of its electronic data processing, this has to be heartily welcomed. As a scholar of the humanities, my hope was that there would at least be some acknowledgement of the history of academic publishing in general. Anyone who has been somewhat involved in the

intense public debate about the political and legal consequences of Internet communication would have welcomed a clear academic statement on widespread fears. Moreover, reference to the fundamental significance of publishing for the internal health of science is expected from a philosophy of science which is not tied to any particular discipline. It is not the 'diversity of scientific publishing, the media and associated organisations'[1] that contribute to the 'differentiation' and 'productivity' of science. Rather, the public itself makes science possible. Knowledge as such, as we know from a renowned member of the Berlin Academy, is bound to be communicated and, as the member not only gathered from his reading of Kant but also from his preoccupation with Plato, science can only exist under the conditions of critical scrutiny.[2]

Thematic focus on one single question. The drawbacks mentioned in the recommendations can also be viewed positively: they illustrate the authors' noteworthy degree of abstraction. They refrain from historical reminiscence as well as from political or systematic corollaries and dedicate themselves entirely to the question of how publishing's digital revolution can be used for the promotion and development of the sciences.

One may regret this focus. But science feeds off abstraction and, since its Babylonian beginnings, is founded on the division of labour. As a result, one will not blame the recommendations for abstaining from discussing many things that have dominated public debate in the two years since the authors developed their text. Their aim was to contribute to clarifying the current challenges involved in the public funding of research publications. In addition, they have noted the need for action to restrict private publishers' monopolistic power.

In carrying out this task, the authors intentionally put themselves under time pressure and knowingly took the risk that their recommendations would not mirror the broad spectrum of the large academy of sciences. There is no mention of the symbolic function that is universally attributed to books, no mention of the tradition of education that books represent, not the slightest hint of nostalgia for the disappearing culture of reading.[3] The text reads like the commentary of a – highly qualified – consulting agency. This underlines the specialised scope of the recommendations. However, it is questionable as to whether the underlying cost–benefit calculation corresponds to the tasks of an academy of sciences with large, not yet completed anthology projects.

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1 Cf. *Empfehlungen zur Zukunft des wissenschaftlichen Publizierens* (BBAW 2015: 18).

2 I refer to the co-founder of the Berlin University and reformer of the Academy, Friedrich Schleiermacher: the complete edition of his works (co-edited by the BBAW) has not yet appeared.

3 During the consultations on the *Recommendations* Michael Hagner's *Zur Sache des Buches* (Hagner 2015) appeared.

Indeed, the value of the recommendations lies in their focus on the technological, scientific, financial and administrative issues that emerge with the new media. The general knowledge that is applied here is impressive, and the effort to secure the quality standards of academic thinking, to ensure competence as well as transparency in every respect, is not only noteworthy but also highly commendable.

Trust in the success of one's own actions. One also has to show appreciation for the techno-pragmatic optimism that defines the future-oriented tenor of the recommendations. What this means can be illustrated with one example. The scientific advisory board for the preparation of the 350th anniversary exhibition of the Peace of Westphalia in 1998 also included leading figures from the numerous German federal archives who provided a significant number of the exhibits shown on that occasion in Münster and Osnabrück. When the leaders of the archives came together, they had already discussed the cost of re-digitising their already digitised inventory in 1996. And the dreaded question was when the third round of digitisation would become necessary.

Today a leader of one of Germany's most important literature archives, a renowned cultural historian who surely is not aversive to modern technology, warns against the 'digital junk room' that archives could become if they put their trust in a technology that suddenly becomes unavailable because the technological, legal or political situation has changed. The scenarios for such an always possible break in continuity are apparent with regard to the current political situation in the world.

The authors of the recommendations are also aware of these fears. They speak of technological development's 'incompleteness' that 'cannot be foreseen today' (BBAW 2015: 31). But they do not let their methodological optimism mislead them into thinking that technology will solve existing problems. Thus they emphasise the need for further development work: 'So that the principle of a permanent availability of scientific publications can be realised, ongoing efforts such as the investment in means for adapting the pathways of accessibility to the changing standards and technologies are necessary' (BBAW 2015: 31).

This is true, and it implies the cost of an unlimited amount of time that would have to be added to the already enormous costs of each phase of digitisation. Wouldn't it have been obvious, then, to add that the continuation of publishing and printing large anthologies not only fulfils a promise to existing buyers and users, but also ensures an almost 'permanent availability' from the moment of their delivery? And should the financial considerations underlying the overall comments not have included an additional statement to the effect that books, at least for the editing academy, are significantly cheaper?

This is a pragmatic question to a pragmatism that is solely fixated on electronic media. But there is another theoretical warning: the recommendations could have approximated the public understanding of science if the objections and alternatives, of which there are many, had been mentioned and discussed with regard to their pros and cons. Surely this would have increased the depth of the recommendations. One can imagine that the authors of the recommendations had been concerned that their considerable effort would have been less convincing.

The opposite, however, would have been the case. If the authors had at least shown, by means of the only relevant case for academies of science, which long-term benefits are connected to the editions of large documentaries and volumes that appear in print, then their plea for parallel digitisation would have been much more convincing.

This can be said openly because each member of the BBAW has the conviction that the sciences naturally and increasingly have to adapt to the electronic media, which they already use intensively. And one can also say this without moving away from the principled optimism that, for better or worse, we need when dealing with new technologies. For this reason, pointing out the weakness of the recommendations because they refrain from discussing basic objections and suggesting alternative approaches relevant for the BBAW, does not put the methodological optimism related to the use of digital technology into question.

Civilisational consequences of digital innovation. The faith guiding the recommendations is necessary in everything that concerns our future, regardless of whether we do research, advise politicians or award renowned prizes. Thus, one cannot and should not object to the recommendations. They take the side of the new, and demand, one should note, 'ongoing' support for further innovations. That is, even if it causes extreme 'permanent' costs, truly in the sense of science, which, especially in view of a rather destructive public debate, should be emphasised here.

The performative self-contradiction of critics of Internet communication is obvious – they use that very same communication to voice their concerns. One could say it is tragic that no criticism of the Internet can exist without the Internet. Thus, there is no better confirmation of the indispensability of the digital media than their being supported by a contradictory cultural critique.

The reasons for this critique do not simply emerge from a vague fear of what is new; in many cases the criticisms are also valid. However, no one should expect the digital revolution's anticipated profound ethical, legal and political consequences for human life to occur all at once. Instead, it will take decades until appropriate institutional measures have been taken to do what is necessary to protect an individual's integrity and fundamental rights.

Digitisation saves us time, digression and repetitive work. But it also requires new rules and qualitatively transformed institutions to protect and respect the rights of individuals. Enormous financial resources will be required to make receiving and processing information cheaper. Whoever brings up economic arguments in the Internet debate should take this fact into account.

We have yet to gain the experience that will show us how to maintain a humane future under the conditions of global Internet traffic. Since the knowledge necessary for this will likely never be sufficient, we can only guess how big the future challenges will be – even if seemingly satisfactory solutions have been found for current challenges.

This is to some extent also true for a scientific academy. It is wise to think about how to manage electronic media, and there are surely good reasons to first of all focus on optimal procedures for open access. The BBAW recommendations do this in an exemplary manner. My critique regarding their final draft in the spring of 2015 was due to the fact that one of the central tasks of the BBAW was only vaguely mentioned.[4] Furthermore, it could not be overlooked that, in spite of all the praise for digital techniques, the contribution of the cultural sciences and humanities to the utilisation of electronic data processing was neglected.

The objections of several members from the humanities prevented the worst omissions.[5] However, while this does not make the recommendations satisfactory, it no longer has to be feared that they will harm the BBAW. Thus, one can hope that the recommendations will find an audience that will lead to a cross-disciplinary discussion. The test will then be whether the recommendations – with their critical position towards publishers as well as their confidence in the self-steering mechanisms of science – point in the right direction.

Moreover, it is hoped that the cultural and historical frameworks, which are not mentioned in the recommendations, will also be elaborated on. Even if the focus is only on technological and economic issues, it must not be overlooked that it is not only the long-term safeguarding of academic freedom that depends on the systemic conditions underlying the monopoly of a few enterprises controlled by one national judicial system.

We thus not only need more diversity in the sciences but also more competition in their digital environment. If an economically secure and legally protected plurality in the global village of the worldwide web cannot be created,

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4 This pertains to the Academy's projects, i.e. ca. 180 research projects in the eight science academies in the Federal Republic with a total budget of € 60 million. The largest share of these are the editions of inscriptions, text collections, dictionaries and critical editions from history, philosophy, theology, art, literature and music. These belong not only to Germany's, but (it must be said nowadays) also to the world's cultural heritage. The largest share by far of the BBAW budget is made up of funds appropriated separately by federal and state governments for the Academy editions.

5 I recall the critique by Horst Bredekamp and Jürgen Trabant in the spring session of the Academy's advisory board as well as my letter to the President of the BBAW on 10 March 2015.

all BBAW recommendations are either only printed pieces of paper or soon to be forgotten traces of data on the Internet.[6] This may be acceptable in the case of one statement, but, with respect to the cultural heritage, development, safeguarding and realisation of the task of the sciences, this must not happen.

What to do?[7] From the perspective of the BBAW's projects, on whose behalf I speak, it is necessary that the series of the complete editions (*Gesamtausgaben*), which have been in the editing process for years, come to completion in a form that has been long recognised. This is my first point.

In order to illustrate its significance, two examples may suffice: for Immanuel Kant, there are more than 30 printed half-leather editions; therefore, the missing eight or nine volumes, which we should have completed in Berlin by 2024, have to be in precisely the same format.[8] This holds especially true for cases in which older editions, which have been developed according to early 20th century standards, need to be revised. This, too, should be completed by 2024.

For the Marx–Engels edition (MEGA), more than half of the planned 120 volumes are available: The second unit of economic texts has been completed. Twenty published books of the 32 planned volumes of the first unit with writing by both authors have been completed. Half of the 32 volumes of the exchange of letters has been completed; as have half of the 32 volumes with excerpts, notes and drafts. In view of the enormous international interest in this edition, it would be a disaster for libraries and a political humiliation of the highest degree if the rest of these works were only provided in a digital version.

Thus, a *binding agreement* of all the sciences is necessary which states that, for all those involved and in view of the historic complete editions, a *point of no return* has been reached; the government, states and assigned departments are obligated to complete the book editions in the form in which they were begun.

My second point is that one does not have to be a visionary to see that open access provides science and the public with a number of benefits, but that its realisation is not cost free. Open access advocates have tried to give the impression that this was the case; they claimed that the costs presented by publishers was merely the pursuit of profit, and that it would be an easy exercise for editors to simply go onto the Internet themselves.[9]

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6 See Gerhardt (2014).

7 After submitting this chapter, the editors of this volume, Peter Weingart and Niels Taubert, asked me to add an additional point to the previously indicated measures. I agreed to do so even if it is difficult to look into the future and that undoubtedly specialists, economists, net technologists and specialised politicians should be the first to speak out.

8 The Academy is obligated to do so through the contract with the publisher.

9 See Gerhardt (2009).

Today everybody knows how cost-intensive and difficult digitisation is; the advocates have finally admitted that there are additional costs.[10] With regard to numbers, experts could be a bit more precise. Regardless of whether we edit the volumes in the form of books or not, we need more personnel for processing texts and significantly more money for electronic conversion, which should not only present reading versions but also involve extensive development, broad networking and permanent availability. Additional costs should already be taken into account for ongoing projects – not only in annual budgets but also in the basic decisions of the presidency (*Präsidium*) and the Scientific Commission of the Union of Academies (*Wissenschaftliche Kommission der Union der Akademien*).

Third: In the above argument, the uncertain future of the digital world has been emphasised. The technological optimism expressed in the recommendations is without alternative; I am not aware of any reasons with regard to science or technology that would suggest not sharing such optimism. But who can guarantee the political and economic continuity underlying the hopeful expectations for the future? Surely none of the open access advocates! Thus, the future safeguarding of our scientific knowledge exclusively via a technological system should always be viewed with extreme caution. There is no protection from international law! What was self-evident for the postal service in the 19th century has not even begun yet. But it is obvious that global Internet traffic can only operate in a global legal framework.

It is true that written laws can be lost. Today, however, it does not even take centuries, a paradigm change or epochal change, an economic crash or a clash of civilisations, but merely the market-effective replacement of some monopolists by a stronger competitor and large parts of the stored data will no longer be available to those in whose name one has posted them onto the Internet.

It would be easy to paint an even drearier picture. However, only a slight shift in technological competence suffices to prevent the emphatically proposed benefits of electronic publishing. In order to not let this risk become a danger for the science system as a whole, one is obligated, in my view, to advocate for a plurality of established and new publishing procedures. To only speak of the benefits of open access without addressing its risks may be admissible if done by lobbyists. If, however, a scientific academy becomes the advocate of a single method, it not only renounces its own scientific diversity but also neglects its responsibility for the future safeguarding of its scientific output.

10 Cf. the present decision by the Berlin Senate: Open Access Strategy for Berlin of 10 July 2015. It states: 'Some of the recommendations imply an additional effort and need the pertinent financial backing. Other measures can be reached by adapting financial flows and reorganisations in the cultural and scientific institutions.'

Fourth: Since the BBAW considers policy advice as one of its genuine tasks, it seems appropriate that it informs itself about the opportunities and risks of modern information technology. It should at least consider how scientific reliability can be assured and increased in the area of data technology.

One essential point has already been mentioned: a global Internet can only function in the long run if there is global legal control. Since the world republic, as envisioned by Kant as the most reliable but politically unlikely solution, cannot be introduced, the goal should be a system of multi-lateral contracts, if possible, based on an internationally accepted resolution. The goal here must also be a cross-national criminal jurisdiction.

Fifth: There will not be legally binding international regulations as long as there is only one politically and economically dominant global player. Even though Europe and especially Germany have a lot to thank the United States (US) for, it is of utmost necessity that the digital–political monopoly of the US is broken. What Europe has attempted (and eventually achieved) with the development of the Airbus industry should also have been done a long time ago in the area of digital technologies.[11]

The European Union (EU) is limiting itself in this regard since the large number of member countries does not allow for a concentrated large-scale initiative. Large projects cannot be realized because the smallest partners, even if they are not able to pay, also want to play an influential role. This is indeed one of the structural problems of the EU. But this could be overcome by determined action on behalf of the more powerful partners (as well as by an innovative organisation that could provide smaller states with long-term benefits) – if possible, before there is only bilateral competition between the US and China. To point out new pathways is a task that would suit the BBAW better than being involved in the politics of self-interest that are already the domain of many corporations and special organisations.

Sixth: The threat to individual freedom and the restriction of personal rights as a result of the omnipresence of the Internet is one of the most dominant public debates in Germany. The BBAW does not refer to this debate at all while commenting on electronic publishing. Thus, it distances itself from such popular debate. This is, however, no longer simply an issue of style if, as a result of universal digitisation, intellectual property as well as the independence of intellectual work as a whole are put in jeopardy.

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11 The last attempt to create a special UN committee on issues of digital communication took place in 2012. At that time, the USA prevented the initiative by pointing out that a central steering/monitoring of the Internet would endanger its free development. Details can be found at http://www.thenewamerican.com/tech/computers/item/19235-un-october-summit-reopens-grab-for-global-internet-control (14.06.2016). Moreover, activities of the non-profit organisation ICANN should be pointed out here.

This is not just true in the plagiarism and fraud cases that ethics committees have to deal with. It is even more serious if access to research results is not given because of the one-sided security issues of individual states, or if an organised breach of secrecy occurs, or if confidential communication between researchers is no longer possible. Industrial espionage on a grand scale should not only concern industrial research organisations but also top-tier scientific research institutions.

One does not need to point out that this is something on which a scientific academy should issue a statement on. It should, however, be emphasised that it would be appropriate for an Academy to point out the legal means that already exist with respect to intellectual property as well as the protection of individual and institutional freedoms. As a result of a private Austrian citizen's complaint, the European Supreme Court made a far-reaching decision on 6 October 2015 regarding data protection.[12] The so-called Safe-Harbor decision is also important to science, whose practitioners and institutions should remember the significance of the already existing legal means to take control of their own achievements.

Each new development leads to new questions about the behaviour of the people involved. I have tried to point out how fundamental the changes that come with the digital innovation are. After almost 40 years of new media not simply being used by the military, the world has been changed more powerfully than by any other technological novelty. If this technology is to remain a means of serving human goals and purposes, then one can say without exaggeration that it poses the largest challenge ever for humanity – the innovations of the Internet allow humanity to experience itself for the first time as a subject that is challenged to act. In my opinion, the appropriate task of any scientific academy must be to make society aware of this.

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12 In the case of Max Schrem's complaint, the court ruled that EU states are obligated to develop measures for data protection individually. This can be the starting point for a global protection of the freedom of science and the freedom of people involved in it.