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**Perspectives of digital law: Visualization, audiovisualization, and  
multisensorization**

Brunschwig, Colette

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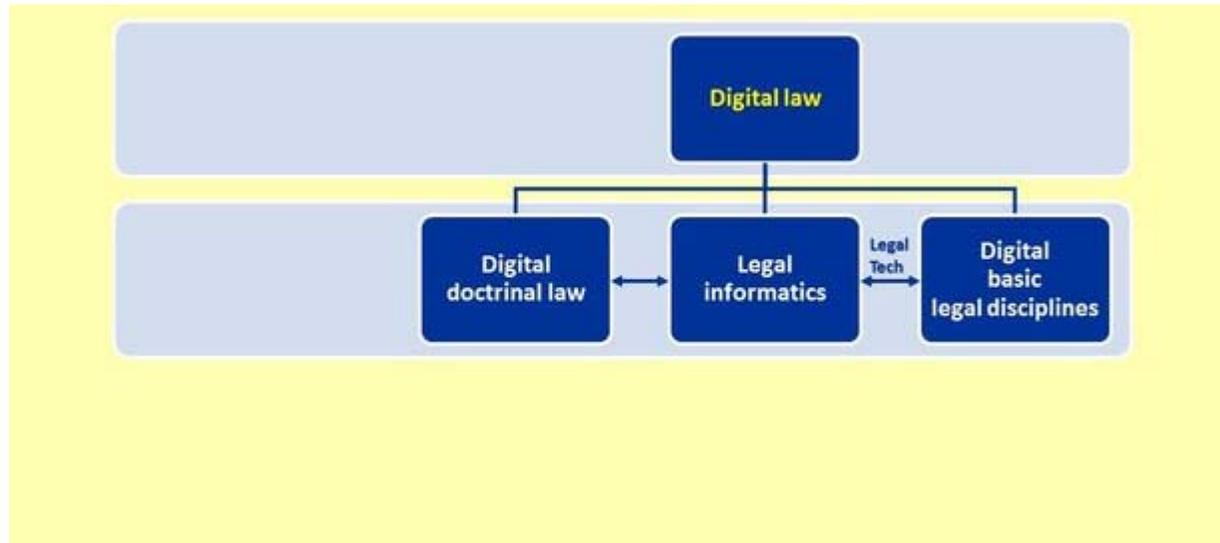
Colette R. Brunschwig\*

## **Perspectives of Digital Law: Visualization, Audiovisualization, and Multisensorization**

### 1 Prelude

- 1 To mark its centenary, the Zentralbibliothek Zürich (Zurich University Library, hereinafter ZBZ) hosted a one-day multi- and interdisciplinary conference on "The Networked Library: Infrastructures for Research Data in the Humanities."<sup>1</sup> The event explored digital research data in the present and the future. Coming from different fields, the various speakers considered the developments and challenges brought about by ongoing digital transformation.
- 2 I attended the conference as a legal scholar whose research focuses chiefly on "visualization," "audiovisualization," and "multisensorization."<sup>2</sup> These topics belong mainly to the basic legal disciplines, which include legal history, legal theory, legal sociology, legal psychology, legal pedagogy, and legal informatics.<sup>3</sup>





3 Fig. 1

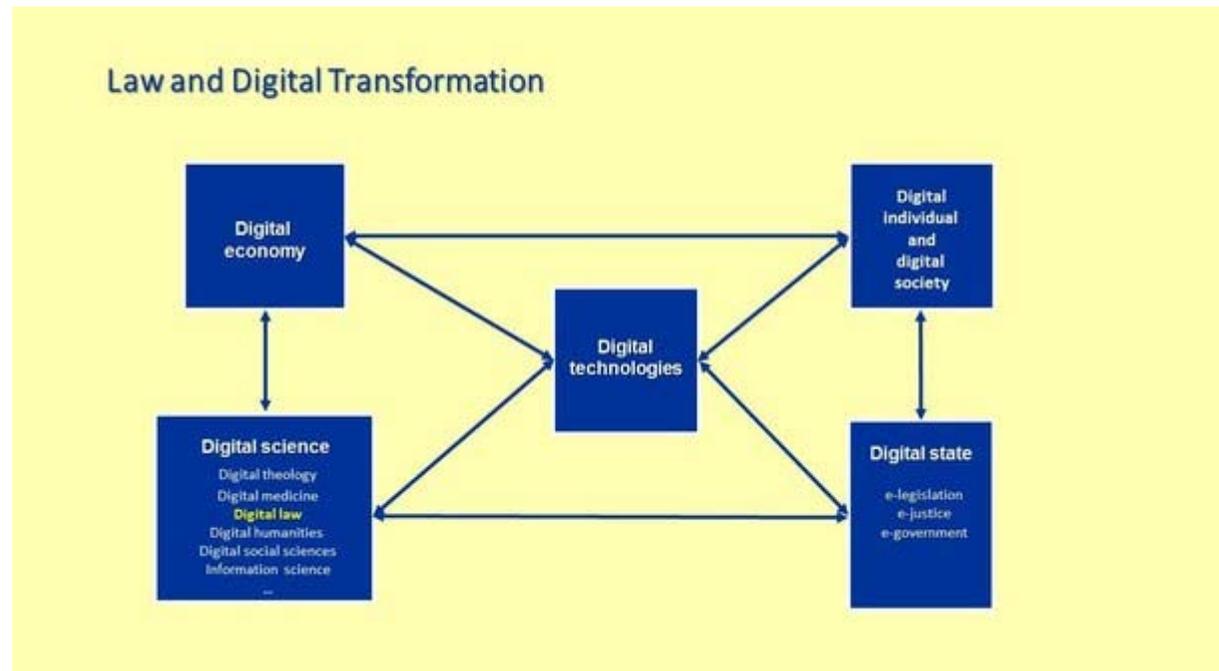
4 What is meant by “visualization”? On the one hand, the term refers to the *process* of visualization, on the other to its *product*. From a legal perspective, the visualization process raises several basic questions:

- Who visualizes (legal professionals, law students, lay persons, e.g., designers, computer scientists, etc.)?
- Why (for which reasons and purposes) are legal contents visualized?
- Which legal contents are visualized? These can be enacted norms, sections of court orders and rulings, legal scholarship (research and teaching), state and private legal practice (contracts, etc.), legally relevant facts, and so on;
- Which media (analog and/or digital) are used to visualize legal contents?
- Which semiotic code is used?
- Which visualization methods are applied?

- 5 Visualization as a product raises further basic questions:
  - Which legal contents appear in verbo-visual or in visual form?
  - In which medium does a particular visual product manifest itself (mediality)?
  - In which semiotic code does this product appear (codality)?
  - Which perceptual mode does a visualization appeal to and/or which mode is it capable of (e.g., a camera connected to the visualization) (modality)?
  - Who are the recipients (e.g., lawyers, law students, lay people)?
  - How does the visualization affect its recipients (how do the recipients experience the visualization? How do they behave towards it)?
  
- 6 The same questions can be raised—*mutatis mutandis*—about “audiovisualization” (animations, videos, films) and “multisensorization” (virtual realities, games, humanoid robots).

### **1.1 Background**

- 7 In terms of the philosophy of science, legal scholarship is considered part of the humanities and the social sciences. It is neither necessary nor possible to substantiate this assertion here. I refer instead to a few publications that reason this basic view.<sup>4</sup> This paper concentrates on the relation of legal scholarship to the humanities.
  
- 8 Considering law a humanities discipline, or at least assuming that some basic legal disciplines (e.g., legal history, legal theory, the philosophy of law) are intertwined with the humanities, has various crucial implications. Among others, the members of these disciplines need (or would need) to illumine how their disciplines are related to the digital humanities (hereinafter DH).



9 Fig. 2

### 1.2 Problems and Questions

- 10 Among the basic legal disciplines, legal history seems to be playing a leading role with regard to the DH. Fairly recently, BIRR asked: "Will legal history be fundamentally changed by the new digital tools and practices? Will the 'new,' 'digital' legal historians ask different research questions than those colleagues who are still working more traditionally?"<sup>5</sup> I would add: Will the questions raised by digital legal historians differ from those of analog legal historians, especially concerning the visualization, audiovisualization, and multisensorization of past legal contents? Research gaps are waiting to be filled in this area. *Mutatis mutandis*, it seems both useful and necessary for other basic legal disciplines to ask such questions.
- 11 Against this background, I approached the ZBZ Conference with two questions in mind: First, how far were the various talks important for the basic legal disciplines, especially regarding visualization, audiovisualization, and multisensorization? Second, how far could my experience and knowledge as a legal

scholar contribute to the talks with pertinent questions, information, and assessments? While writing this paper, a third question arose: Which reflections, beyond those voiced at the conference, might be made from the perspective of legal scholarship, yet without losing sight of the focus on visualization, audiovisualization, and multisensorization?

- 12 Not only my personal research preferences justify the “multisensory” orientation of these questions. Indeed, the DH themselves suggest such an epistemological orientation. For instance, MCPHERSON and SVENSSON’s typology of the DH includes the *multimodal* humanities: “The *multimodal* humanities bring together scholarly tools, databases, networked writing and peer-to-peer commentary while also leveraging the potential of the visual and aural media that are part of contemporary life.”<sup>6</sup>
- 13 BURDICK et al., commenting on multimodality and multisensorism in “What defines the Digital Humanities?,” observed:
  - 14 *And the notion of the primacy of text is being challenged. Whereas the initial wavers of computational humanities concentrated on everything from word frequency studies and textual analysis (classification systems, mark-up encoding) to hypertext editing and textual database construction, contemporary Digital Humanities marks a move beyond a privileging of the textual, emphasizing graphical methods of knowledge production and organization, design as an integral component of research, transmedia crisscrossings, and an expanded concept of the sensorium of humanistic knowledge.*<sup>7</sup>
- 15 This nonverbo-centric perspective on the DH implies that “some of the major sectors of Digital Humanities research extend outside the traditional core of the humanities to embrace quantitative methods from the social and natural sciences as well as techniques and modes of thinking from the arts.”<sup>8</sup>
- 16 What follows is structured along the lines of the ZBZ Conference. I aim to answer the above questions,

without claiming to exhaust my subject.

## **2.1 Critical Edition of the Lavater Letters**

- 17 The ZBZ manuscript division holds more than 20,000 letters by JOHANN CASPAR LAVATER, the 18<sup>th</sup> century Swiss poet and theologian.<sup>9</sup> The project presented by URSULA CAFLISCH-SCHNETZLER and BARBARA NAUMANN sets out to digitize these letters and to make them accessible in a historical-critical edition. The two scholars are also planning an analog edition of LAVATER'S correspondence, which covers religious, philosophical, educational, literary, and scientific topics. The digitized letters will also provide readers with insights into his communicative network and its structures. For this reason, CAFLISCH-SCHNETZLER and NAUMANN are visualizing these networks as graphs composed of edges and nodes.<sup>10</sup> The graph displayed in their talk is a geographic map<sup>11</sup> of Europe. It presents the many dyadic relationships purportedly engaged in by LAVATER with his correspondents.<sup>12</sup>
  
- 18 Today, it is common DH practice to produce new visualizations and to use, describe, interpret, and evaluate existing ones.<sup>13</sup> In this respect, CAFLISCH-SCHNETZLER and NAUMANN'S visualizations raise various questions: What is visualized? Which methods and media (tools) are used? Which types of visualizations are evident? How might these be described, interpreted, and assessed? CAFLISCH-SCHNETZLER and NAUMANN'S combined graph and geographic map might prompt viewers to wonder what these visual media are capable of achieving—and of course what not. While the large number of lines provides some sense of LAVATER'S many different correspondents, nodal attributes (e.g., gender, nationality, scientific background) are missing. These would provide more details on individual correspondents. The edges are line- rather than arrow-shaped, which prevents establishing whether LAVATER'S relationship with a particular correspondent was unilateral (asymmetrical) or reciprocal (symmetrical). The equally thin lines provide no information on the intensity of a specific correspondence. Their talk left me conjecturing whether CAFLISCH-SCHNETZLER and NAUMANN have created other visualizations that contain the missing information.
  
- 19 In 2117, when the ZBZ will celebrate its 200<sup>th</sup> anniversary, future legal historians might choose to investigate the electronic correspondence engaged in by legal scholars (as key actors in the field) in the years 2000 to 2017. I am thinking, for instance, of scholars currently researching the visualization and audiovisualization of legal contents. If this electronic correspondence has not yet been deleted in 2117,

future legal historians could establish which legal actors corresponded with one another, where did they come from, and which topics were discussed. I could imagine that—in a hundred years from now—legal historians will also be including audio elements in their graphs and edges.

## **2.2 Variant Grammar of Standard German**

- 20 The second talk was CHRISTA DÜRSCHIED and DON TUGGENER's on their "Variant Grammar of Standard German." This project aims "to record the variation in German grammar based on a corpus of almost 600 million morphemes."<sup>14</sup> The findings will be "relevant to grammar research and language teaching and will be of practical benefit to all those seeking information on the standard language of grammatical variants."<sup>15</sup>
  
- 21 As far as I could tell, this project "adds nothing" substantial to further understanding the visualization, audiovisualization, and multisensorization of legal contents. It does, however, raise the question whether legal linguistics (language and law; philological approach) or law and language (legal-scholarship approach)<sup>16</sup> might not benefit from the DÜRSCHIED-TUGGENER project: How should legal texts (laws, ordinances, contracts, etc.) enacted in Germany, Austria, and German-speaking Switzerland be interpreted? Moreover, will legal linguistics have established itself in 2117 as an independent basic legal discipline at German-speaking law schools? Or will it continue to lead an undignified existence in the shadows?

## **2.3 Capturing Switzerland's Multilingual Discourses**

- 22 The title of computer linguist MARTIN VOLK's presentation appears in the conference program in English ("Capturing Multilingual Discourses of Switzerland"). This project strives to digitize various kinds of multilingual texts written in Switzerland, to enrich the digitized versions with relevant linguistic information, and to make the texts available in XML.<sup>17</sup> VOLK's example were the multilingual yearbooks of the Swiss Alpine Club (SAC).<sup>18</sup> Using automatic content analyses, he examined SAC texts from the period 1925–2009, in order to establish which linguistic knowledge was assumed among readers, and how far sentence complexity changed during the period studied. VOLK created column diagrams to identify the thematic focuses of the texts. Positioning vertical "columns" on the x-axis allowed him to illustrate how

frequently certain topics were discussed over a certain period of time.

- 23 As is well known, Swiss laws are multilingual, as are the *regesta* published in the rulings of the Swiss Supreme Court, whose reproduction is undertaken as precisely and concisely as possible. It seemed to me that VOLK's approach could probably provide fertile ground for trilingual or even quadrilingual Swiss law, not to mention multilingual European law. In 2117, juridical and philological legal linguists may well be able to determine how fruitfully VOLK's computer-linguistic approach had served 21st century multilingual Swiss laws, the Supreme Court's multilingual *regesta*, and multilingual European law.

#### **2.4 The "Swiss Educational History" Knowledge Portal**

- 24 Education researchers CHRISTINA ROTHEN and THOMAS RUOSS presented a project titled "Bildungsgeschichte Schweiz."<sup>19</sup> Their research traces the development of the various educational levels ("preschool," "compulsory education," "upper secondary schools") and "teacher training" during the 19<sup>th</sup> and 20<sup>th</sup> centuries in the various Swiss cantons. It also shows how these levels resisted change. As such, this perspective might prompt legal scholars in 2117 to consider how research on the visualization, audiovisualization, and multisensorization of legal contents developed or resisted change in European and Anglo-American countries in the period 2017–2117, especially in institutional terms.

#### **2.5 Lives in Transit: Steamship Passages in the Late 19th and Early 20th Centuries**

- 25 MARTIN DUSINBERRE, Chair of Global History (and a native English speaker) at the University of Zurich, raised the question "What does it mean to tell global history through the digital humanities?" His research explores ship passages "as a transit period between two places [...] in which social orders and relationships [...] are renegotiated."<sup>20</sup> Transit affects passengers' feelings, psychopathology, and physiology.<sup>21</sup> His work, so DUSINBERRE, attempts to initiate scholarly debate between maritime history, medical history, and digital history. Unless I am mistaken, he is not yet able to formulate concrete questions that would permit integrating his research into digital history.
- 26 Digital history, which has developed into an independent research discipline, refers to both the DH and

conventional, “analog” historical studies.<sup>22</sup> Nevertheless, “for the time being [it is] a path, not a condition.”<sup>23</sup> Thus, its problems, questions, and methods are in constant flux.<sup>24</sup> DUSINBERRE should therefore hardly be blamed for, as he quite candidly admitted, not yet being ready to reveal just which elements of the DH or digital history he intends to incorporate into his project. A corresponding Google search suggests that he is not alone in approaching “history through the digital humanities”:

27 *Historians of the future will be born of a culture that values the images, sounds and movement of video games over the silent, placid words of books. It is reasonable to suppose, therefore, that these historians might begin to encourage their apprentices to represent the past through similar visual/aural/kinesic environments.*<sup>25</sup>

28 Slightly modifying STALEY’s words, DUSINBERRE could multisensorize his research using an interactive virtual reality—given the necessary funds to create such an environment. It would be desirable to depict the actual circumstances aboard the ship and to visualize the social relations among its passengers. Their emotional and physical states might be depicted in virtual reality through the experiences of some selected individuals.<sup>26</sup> A hundred years later, historians will have probably realized just how much knowledge such digital multisensorization has provided. Another question would be just how far global legal history could be done through the digital humanities.

## **2 Research Projects at the University of Zurich: Services and Infrastructure Requirements**

### **3.1 DARIAH-DE**

29 DARIAH, a German acronym, translates “Digital Research Infrastructure for the Humanities and Cultural Sciences.” DARIAH-DE covers Germany, while DARIAH-EU is European. The talk about DARIAH did not address the topics of interest here, leaving me to refer readers to its project website.

30 Searching the site for “visualization” yielded 44 hits (March 10, 2017). Closely investigating the individual hits would be worthwhile, especially to establish which actors have visualized which contents and

produced which kinds of visualizations. In contrast, searching for “audiovisualization,” “multisensorization,” “legal history,” “legal theory,” and “legal informatics” yielded no hits. I found one hit for “multimedia,” seven for “design.”

- 31 In summer 2015, the Swiss Academy of Humanities and Social Sciences (SAHS) became a DARIAH cooperation partner.<sup>27</sup> The SAHS is responsible for “Science in Transition,”<sup>28</sup> a thematic focus that involves various projects, including “Digital Humanities: Infrastructures, Research Projects, Networks.”<sup>29</sup>
- 32 Together with the Alliance of Digital Humanities Organizations (ADHO)<sup>30</sup> and the Research Infrastructure for Language Resources in the Humanities and Social Sciences (CLARIN),<sup>31</sup> DARIAH is helping to consolidate (i.e., institutionalize) the digital humanities. Such “institutionalization contributions” are also being made by specialist journals (e.g., the *Zeitschrift für Digitale Geisteswissenschaften ZfdG*,<sup>32</sup> *digital humanites quarterly dhq*,<sup>33</sup> and the *Journal of Digital Humanities JDH*),<sup>34</sup> as well as by conferences,<sup>35</sup> research,<sup>36</sup> and teaching.<sup>37</sup>

### **3.2 CLARIN-D**

- 33 “CLARIN” means “Common Language Resources and Technology Infrastructure.”<sup>38</sup> Its “Find” menu opens three sub-menus: “VLO: Search for Resources,”<sup>39</sup> “FCS Search in Resources,”<sup>40</sup> and “Reference Resources.”<sup>41</sup> Performing the same keyword search as with DARIAH-DE would lead too far, but exploring the CLARIN website is nevertheless worthwhile. For instance, no working group of legal scholars has (yet) been founded.<sup>42</sup> Thus, establishing an international working group for the basic legal disciplines would be feasible as this would incentivize law faculties in German-speaking countries (Germany, Austria, and Switzerland) to join CLARIN.

## **3 European Networks and Research Services**

### **4.1 Overview**

- 34 In the second half of the conference, participants could choose from three sessions. Considering my

questions (1.2), I chose the second ("University Focus on Language and Space," UFLS and its laboratories),<sup>43</sup> which promised a closer look at my area of interest and explored several key questions: Which infrastructures and services already exist for linguistic projects? Who can access these infrastructures and services? How long are they set up for? Speakers emphasized that under the current regulations funding for fixed-term digital projects needs to be ensured from the outset, i.e., once initial funding ceases. In general, much depends on the host institution's "goodwill."<sup>44</sup>

- 35 After static visualizations, let us consider moving (dynamic) visualizations and, if relevant, audiovisualizations produced by the UFLS VideoLab.<sup>45</sup> Here, the importance and significance of the GISLab<sup>46</sup> and CorpusLab<sup>47</sup> must also be underlined. Especially lawyers interested in legal linguistics should be encouraged to more closely explore the work of these two labs, to establish which problems, questions, and findings could be transferred—*mutatis mutandis*—to law.

#### **4.2 The VideoLab**

- 36 KLAUS WOLFGANG KESSELHEIM, head of the UFLS VideoLab, discussed "Open Sensors: From Sensors to Data." He explained that various media are used to gather visual and audiovisual data: standard video cameras, action cameras, miniature cameras, omni-directional cameras ("capable of capturing images from all directions in a range of 360 degrees horizontally and vertically"<sup>48</sup>), as well as eye trackers (capable of recording and analyzing eye movements). The VideoLab examines how far humans create spatial conditions for their interactions and how they activate elements in their spatial environment to pursue their interactional goals. Among others, they simultaneously anchor their interactions in temporal-spatial and situational contexts. KESSELHEIM cited a dental practice and a church interior as examples for which research data were already available.

- 37 Further details can be found on the VideoLab website:

- 38 *Unlike other methods, such as questionnaire studies, video recordings permit studying the behavior of the participants while they are carrying out their everyday*

*interaction. And, unlike field notes, for example, video recordings make it possible to repeatedly watch the interaction and to scrutinize even the smallest details of the temporal and spatial organization of the event.*<sup>49</sup>

- 39 Recording media could also be installed in the legal context, in order to collect visual and audiovisual data (e.g., at law firms, the Swiss Lawyers Day, the Conference of the Swiss Lawyers Association). Such projects might involve legal sociologists interested in the sociology of science, legal psychologists researching communication and media psychology, and legal linguists. However, any such endeavor would be hampered by serious obstacles: Not only is the legal profession bound to secrecy rules (attorney-client privilege, official secrecy), but lawyers are also highly reluctant “to show their hand”—least of all on camera. Overall, members of my profession only play with open cards if and when this seems appropriate and advantageous. Thus, privacy and data protection laws would most likely prevent such visual and audiovisual recordings.

#### **4 Research-Related National Infrastructures under Construction: Infrastructures and Services for Linguistic Projects (Session 2)**

##### **5.1 Questions to Funding Bodies**

- 40 “First food for thought:” True to this motto, the ZBZ Conference concentrated on Switzerland’s two main funding bodies (SNSF and SAGW), but only towards the end of its proceedings. Two questions were crucial in my mind: First, how do these bodies differ with regard to funding duration? Second, are any legal scholarship projects on the visualization, audiovisualization, and/or multisensorization of legal contents currently receiving funding? The speakers’ slides are available online.<sup>50</sup> Useful information on “EURESEARCH, European Programmes—Horizon 2020” is also available online.<sup>51</sup>

##### **5.2 SNSF and SAGW**

- 41 BRIGITTE ARPAGAUS, Head of the SNSF Humanities Division and Deputy Head of the Division of Humanities and Social Sciences, explained that researchers seeking funding are free to choose their research topics. The SNSF funds projects for one to four years, with grants intended as “start-up funding.”

- 42 Searching the SNSF website for “visualization” yielded 37 hits (July 14, 2017), while “audiovisualization,” “multisensorization,” and “legal design” yielded none. I examined the 37 hits to establish whether any pertain to visualizing legal contents. I found no matches.
- 43 BEAT IMMENHAUSER, Deputy SAGW Secretary General, reported that a clear division of tasks exists between the SNSF and the SAGW. The SNSF supports editorial projects lasting less than ten years, while the SAGW is responsible for those exceeding that time frame.
- 44 The current SAGW focal topics are “Languages and Cultures,” “Sustainable Development,” and “Science in Transition.” Among these, I found no project that explores the visualization, audiovisualization, and/or multisensorization of legal contents. While the DH are part of “Science in Transition,” law is not included among the DH.<sup>52</sup> Only the project “Digitalisierung der Sammlung Schweizerischer Rechtsquellen (SSRQ); Digitizing the Collection of Swiss Legal Sources” is subsumed under “History” and the sub-category “Networks.” The project is overseen by the Legal Source Foundation of the Swiss Lawyers Association.<sup>53</sup> Thus, it seems as if the DH have not (yet) cut any ice in Swiss legal scholarship. This is regrettable, especially because the DH would provide a deep and expansive vessel capable of accommodating the visualization, audiovisualization, and/or multisensorization of legal contents as viable areas in research and teaching.
- 45 We researchers have too little time to read, reflect, and write. The information explosion is a perennial problem. Let us be honest: Developments have now reached the point where we can no longer properly manage the information deluge. Many scholars therefore consider it advisable to limit their research to the narrowest possible questions *intra muros* and, in the same vein, to ensure from the outset that the relevant literature remains fairly manageable. Those who nevertheless dare to enter *magnam terram incognitam intra et extra muros* run two risks: The four-year funding period will be too short, and their epistemological excursion will fall short of its envisaged goal due to a lack of essential supplies.
- 46 The visualization, audiovisualization, and multisensorization of legal contents is such a *magnam terram incognitam*. Why? The basic legal disciplines, let alone the legal dogmatic disciplines, have so far largely

neglected this topic.<sup>54</sup> Scholars exploring the visualization, audiovisualization, and multisensorization of legal contents must therefore undertake longer, at times even arduous, expeditions into the mostly unknown territory of the humanities and social sciences. Once there, they must first examine whether the knowledge discovered in these fields might be applied—*mutatis mutandis*—to visualizing, audiovisualizing, and multisensorizing legal contents. Within and beyond jurisprudence, further *magnae terrae incognitae* are most likely to emerge.

- 47 These “naked” facts raise the question whether the SNSF might not at least commit itself partly to supporting fewer projects over a longer period of time than “only” for four years—perhaps also in consultation with the SAGW. The relevant statutory bases, set forth in the Federal Act on the Promotion of Research and Innovation (FIGG), would probably need to be amended to this end.<sup>55</sup>

## **5 Funding Bodies**

### **6.1 Scientific Yield**

- 48 The ZBZ Conference yielded much scientific fruit, even from the perspective of legal scholarship. In sum, visualization, audiovisualization, and multisensorization are core DH “business.” The individual presentations (or specific aspects) revealed clear linkages with the visualization, audiovisualization, and multisensorization of legal contents. Still, as PETER VON MATT, former chair of Modern German Literature at Zurich University, recently observed:

- 49 *Entire [university] chairs thrive on producing semiotic concepts and dismantling their predecessors. Students believe in this enterprise, orient themselves accordingly, write dissertations about it, and one day they are forced to realize that no one cares less about their doctrine of scientific salvation.*<sup>56</sup>

- 50 I hear echoes of Gryphius’s sonnet “Es ist alles eitel” (“All is Vanity”) (1637):

51 *Wherever you look, you see but vanity on earth.  
What this one builds today, another will tear down tomorrow;  
Wherever there are cities and towns, there will be a meadow,  
Where a shepherd's child will play with the flocks. [...]*<sup>57</sup>

52 So to return to VON MATT's gloomy assessment of academia: Hopefully, I have neither dismantled nor plucked anything to pieces, but have instead picked some of the nascent fruit of the DH for the benefit of digital law.

### **6.2 Jurisprudentia semper reformanda est**

53 Based on the ZBZ Conference, I would urge scholars in the basic legal disciplines (legal historians, legal theorists, legal sociologists, legal psychologists, scholars of legal pedagogy, and legal linguists) to engage with the DH. My call is addressed especially to scholars already researching or intending to research the visualization, audiovisualization, and/or multisensorization of legal contents. Accordingly, legal visualization, legal audiovisualization, and legal multisensorization might be suitably referred to as "multisensory legal design."

54 Vice versa, I also encourage DH scholars to engage in interdisciplinary exchange with the basic legal disciplines, in order to draw their attention to the many treasures to be unearthed in the DH, especially where visualizing, audiovisualizing, and multisensorizing legal contents are concerned.

55 Let me conclude on a fictitious note, by feigning my own death: I imagine writing a letter to the ZBZ in 2117—on the occasion of its 200<sup>th</sup> anniversary. While ending a research paper in this way might be deemed inappropriate, this sleight of hand affords me a fool's license. It enables me to make certain points more plainly than in a conventional "outlook" more befitting a conventional research paper. This fictitious retrospective "look-ahead" also permits surveying a longer period of time. SUSSKIND, for instance, dares to look "only" as far as the year 2035 to describe tomorrow's lawyers.<sup>58</sup>

## **6 Final Notes**

### **6.3 Fictitious Letter from the Hereafter**

56 Hereafter, January 2117

57 Dear ZBZ Staff and Humanoid Robots,

58 Thank you for your letter earlier this year, in which you declare your intention to celebrate the ZBZ's 200<sup>th</sup> anniversary with a conference in Zurich University's main auditorium. If I understand you correctly, you are contacting former faculty members to find out more about the conditions prevailing at the *Alma Mater Turicensis* in those days. I am honored that from among former members of the law faculty you have invited me to answer your questions about the state of affairs in 2017:

1. Who was newly appointed to the law faculty's basic disciplines in 2017? Which research subjects mattered most to the new appointments? How far were their research priorities linked to the DH?
2. Did newly appointed staff conduct "pure" basic legal research and teaching? Thus, did their research and teaching provide fundamental insights into the development of the law, its structures, functions, and effects? Or did their scientific activities instead promote knowledge that could be applied to legal practice?
3. What did you hope to achieve with your essay "Perspectives of Digital Law: Visualization, Audiovisualization, and Multisensorization"?

59 Forgive me if my answers, conveyed from my otherworldly perspective, occasionally seem slightly eccentric. The souls of the deceased, in whose community I now live, tend to consider matters *sub specie aeternitatis*.

### **6.3.1 New Appointments in 2017 and their Activities**

- 60 JOSÉ LUIS ALONSO, Full Professor of Roman Law, Legal Papyrology and Private Law, and ELISABETTA FIOCCHI, Assistant Professor of Legal History, took up their posts in the first half of 2017.<sup>59</sup> When I wrote my essay “Perspectives of Digital Law: Visualization, Audiovisualization, and Multisensorization,” I knew neither new faculty member personally, but retrieved details about their teaching and research from their respective websites (April 2017). Incidentally, I have long been wondering whether the Faculty of Law has meanwhile archived the “history” of its emeritus professors’ websites. ALONSO and FIOCCHI have probably taken well-deserved retirement by now.
- 61 ALONSO’s *curriculum vitae* noted: “The core of my research to the present date has been private law, particularly obligations and real securities. My work in these fields arises from an interest in the structure of legal institutions in ancient legal thought and practice.” Elsewhere the trained Roman law scholar and Egyptologist (specialized in ancient Egyptian law) asserted:
- 62 *In the last decade, my attention has turned to the legal practice of the papyri, an interest nurtured at the department of Papyrology of the University of Warsaw, home to the leading publication in the field, the Journal of Juristic Papyrology. It is, in my view, urgent to reconnect papyrology and Roman law: [...]. Papyrologists, in particular, have been left abandoned to their own forces, without the assistances of legally trained experts [sic] facing an enormous mass of documents whose nature is prevalently legal.*
- 63 At the time, FIOCCHI was pursuing a digitization project titled “Natural Law in Italy,” which was part of a larger project, “Natural Law 1625–1850.” She had also helped establish a project on “Natural Law and Law of Nations across the Ocean: Domingo Muriel and his *Rudimenta Iuris Naturae et Gentium* (1791).” It would go beyond the scope of this letter to detail her many activities.
- 64 FIOCCHI’s digitization project could be linked to the DH. In the late 20<sup>th</sup> and early 21<sup>st</sup> centuries, many

historically-minded legal scholars were digitizing (their) legal historical sources. I therefore assume that, among other sources, ALONSO or his staff were scanning books dealing with legal papyrology. Incidentally, in 2017, neither scholar had any connection with the DH (yet).

### **6.3.2.1 Demands on Early 21<sup>st</sup> Century Science**

- 66 In 2017, I discovered the message of DREW GILPIN FAUST, President of Harvard University and Lincoln Professor of History at the time.<sup>60</sup> Unsure whether this document is still available online, I quote the relevant excerpts. FAUST began with the words: "WE UNDERTAKE THE HARVARD CAMPAIGN AT A MOMENT WHEN HIGHER EDUCATION IS BEING CHALLENGED TO REINVENT ITSELF, [...]." This campaign "calls upon us to articulate and affirm the fundamental values and purposes of higher education in the rapidly changing *environment of a global and digital world*—a world filled with promise for *improving lives* [my emphases], a world in which talent recognizes no boundaries, a world in which creativity and curiosity will fuel the future."<sup>61</sup>
- 67 Her programmatic address went on to specify the requirements for doing "science": "We must harness the power of One Harvard<sup>62</sup> to advance discovery and learning across fields, disciplines, and our broad range of Schools to *change knowledge* and to *change the world*." Under the title "Advancing Meaning, Values, and Creativity,"<sup>63</sup> on the one hand, she demanded that science orient itself toward history: "[...], Harvard must reinforce the significance of transcending the immediate and instrumental to explore and understand what humans have thought, done, and been, and thus to imagine where they might best seek to go."<sup>64</sup> On the other, she postulated: "We must offer more prominence to innovation and hands-on discovery<sup>65</sup> inherent in engineering, the arts, and *design*, as well as to experiential learning beyond the classroom."<sup>66</sup> She concluded by saying: "[...] Universities are unique in their commitment to the long term, to *uniting the wisdom of the past with the urgency of the present and the promise of the future*."<sup>67</sup>
- 68 In a Features column in the *Neue Zürcher Zeitung* (March 25, 2017), the late 20<sup>th</sup> and early 21<sup>st</sup> century Slovenian philosopher and cultural critic SLAVOJ ŽIŽEK demanded:
- 69 *What we should reject here is the basic premise of this discourse: "Students must feel*

*safe in classrooms." No, they must not. Rather, they must learn to leave the comfort zone, to openly confront and fight against all the humiliations and injustices of real life.<sup>68</sup>*

70 FAUST's und ŽIŽEK's views seemed to be linked with postulations and statements made in some contemporaneous law publications. Thus, for instance, VOLPATO observed in 1991:

71 *One feature about legal outputs is their unabashed textuality. It is (still) uncommon to see advice, advocacy or judgments presented as videos, animations, graphs, or simulations. In informatic terms there is a strong rigidity about which channels and codes are appropriate and a resistance to testing the communication efficiency of trying something else. In many instances, more information would be conveyed through these non-textual "channels."<sup>69</sup>*

72 In 1995, KATSH took up VOLPATO's idea: "The digital lawyer will both see things differently and see different things since he or she will have some expertise in employing graphical and other nontextual capabilities to describe, characterize, and represent conflict, [...]."<sup>70</sup> And in 2008, BRINKTRINE and SCHNEIDER stated: "The ability to explain legal questions to other people in words, writing, and pictures is crucial for the ability of lawyers to communicate."<sup>71</sup>

### **6.3.2.2 Visualizing, audiovisualizing, and multisensorizing legal contents—in the context of FAUST'S, ŽIŽEK'S, and BRINKTRINE'S and SCHNEIDER'S demands**

73 At the time, I began gauging the visualization, audiovisualization, and multisensorization of legal contents in terms of FAUST's, ŽIŽEK's, as well as BRINKTRINE's and SCHNEIDER's demands. It might be insightful to revisit my preliminary answers through their various lenses.

74 In response to the ongoing (and relentless) digital transformation of society, business and industry,

science, and government in the late 20<sup>th</sup> and early 21<sup>st</sup> centuries, some legal scholars began to explore the visualization, audiovisualization, and multisensorization of legal contents. At the time, digitization had facilitated visual, audiovisual, and even multisensory communication—even in an otherwise predominantly verbocentric legal context.<sup>72</sup> Investigating the nonverbocentric dimension promised to improve certain areas of legal life, including legal-lay communication and reducing the day-to-day stress faced by legal actors (judges, lawyers, prosecutors, police officers, etc.).

- 75 *Improving legal-lay communication.* Yours truly was convinced that visualizing and audiovisualizing legal contents would enable legal practitioners to better explain and illustrate legal concepts, problems, and proceedings for the benefit of lay people (e.g., in lawyer-client communication and communication between judges and legal parties).<sup>73</sup> Moreover, I encouraged lawyers and judges to motivate laypersons to describe the facts of their case not only verbally, but also to draw these legal facts or even to record them audiovisually with their smartphone. Laypersons, I suggested, should also be supported in outlining legal concepts and problems relevant to their case, and in visualizing (in digital or analog form) their goals and ideas. This, I was convinced, would help lawyers and judges to establish whether laypersons had actually understood the legal contents affecting them. Multisensory legal communication, I argued, would make it easier for laypersons to make meaningful decisions, for instance, in family law disputes (separation, divorce), labor law, corporate law, as well as in conflicts involving other areas of the law, criminal proceedings, etc.<sup>74</sup>
- 76 *Reducing stress for legal actors.* Both lawyers and judges faced high stress levels for various reasons: time pressure; permanent and at times emotionally distressing conflicts into which these actors were drawn; long working hours; “juggling” several cases at the same time; enormous case resolution pressure; spending long hours sitting and working in front of a screen; information deluge; a deluge of incoming and outgoing telephone calls, etc.<sup>75</sup> This deplorable state of affairs prompted a host of reactions. Especially in the US, various scholars proposed measures for alleviating the most serious distress. They issued guidelines on reducing work-related stress: *Yoga for Lawyers*,<sup>76</sup> “Mindfulness for Lawyers,”<sup>77</sup> *A Lawyer’s Guide to the Alexander Technique*<sup>78</sup> were just three publications tailored specifically to the urgent needs of under-pressure legal actors. At the time, the e-bookstore of the American Bar Association (ABA)<sup>79</sup> had a section on “Professional Interests.” Besides the aforementioned publications, this category also contained materials on “Lawyer Wellness,” “Mentoring,” and “Work/Life Balance.”<sup>80</sup> Guidance was also presented audiovisually on the Internet, especially *YouTube*.<sup>81</sup> My search for corresponding German-

language legal literature and suitable legal audiovisualizations was unsuccessful. At least the detailed online program of the 9<sup>th</sup> Swiss Lawyers Congress (“Judicial Actors Close Ranks,” 2017)<sup>82</sup> included a reference to GABRIELE HOFMANN-SCHMID’s<sup>83</sup> “Stress Management and Time Management: Putting Good Intentions into Practice.”<sup>84</sup> I found no other relevant sources, although I would of course have liked the Swiss Bar Association—similar to the ABA—to have made such references available.

- 77 American legal education did not remain unaffected by the developments occurring in legal scholarship. While papers and books on “mindfulness for law students” were published in the USA, none dealt with “yoga for law students” or “Alexander Technique for law students” (yet). However, American law schools were offering students courses on “mindfulness in law”<sup>85</sup> and “yoga for law students.”<sup>86</sup> Some relevant *YouTube* videos were also produced specifically for law students.<sup>87</sup> Despite these positive developments in the USA, the law faculty at the University of Zurich offered its students no comparable assistance. Arguably, the university’s Academic Sports Association (ASVZ) ought to have catered to the needs and wishes of students from *all* faculties. Thus, special provision for law students would probably have been superfluous, indeed exaggerated. While this is probably true, it would have been useful had law professors motivated and instructed their students to do specific physical exercises. Becoming an integral part of professional life, these exercises would have helped avoid stress in the legal profession, or at least reduce it to a manageable level.<sup>88</sup>
- 78 The fact that legal scholars researched and in some cases even taught the visualization, audiovisualization, and multisensorization of legal contents brought about a decisive change in traditionally verbocentric legal knowledge. This “multisensory” turn occurred through legal research incorporating theoretical, methodological, and historical findings from non-legal disciplines. Located on the periphery of established scholarly discourse, these publications initially only included journal articles and blog posts, with monographs and essays following later. The production of legal visualizations drew on the findings and insights of *visual design* (visual communication);<sup>89</sup> that of legal audiovisualizations (legal videos, legal films, audiovisual legal animations) on *audiovisual design* (audiovisual communication, film studies); and that of *legal games (legal gamification)*<sup>90</sup> and *legal virtual realities*<sup>91</sup> on *game design*<sup>92</sup> and *interaction design* (e.g., legal actor-robot interaction).<sup>93</sup> Legal visualizations were analyzed and assessed based on the insights of art history, as well as those of media and communication studies; understanding the reception of legal audiovisualizations (legal videos, legal films) drew on insights gained from film studies, media and communication sciences, and *popular culture studies*. No programs in visual legal design and

audiovisual legal design existed (yet)—neither at Zurich University's Faculty of Law, nor at Zurich University of the Arts (ZHDK), nor at Winterthur's ZHAW School of Management and Law. Still, I believed it would merely be a matter of time before legal videos were produced systematically, perhaps even for video walls in government buildings, courthouses, parliaments, etc.

79 *"The Janus head" of legal scholarship.* Anyone exploring the visualization, audiovisualization, and multisensorization of legal contents must accept the visual,<sup>94</sup> audiovisual,<sup>95</sup> and multisensory legal tradition, not only "synchronically" but also "diachronically." Back then, interested legal scholars were thus encouraged to study legal history, which shed light on past sensory legal phenomena. Writing in 1992, HIBBITTS, an American legal historian and legal information scientist, remarked:

80 *In the twelfth and thirteenth centuries, the immediate European progenitors of our culture turned increasingly to writing to help preserve information and customary lore that had been primarily perpetuated and celebrated in sound, gesture, touch, smell, and taste. Once this corpus was inscribed, and thus removed from its original multisensory context, it slowly but indubitably became the creature of the medium [i.e., the written text] that claimed to sustain it.<sup>96</sup>*

81 Three years later, CARLEN, a Swiss legal historian familiar with the multisensory legal tradition, observed in his foreword to a collected volume titled *Sinnenfälliges Recht [Law Manifest to the Senses]*:

82 *The first aim of the present collection, which might also amount to a scientific accountability report, is to awaken and promote understanding of the fact that ancient law was readily intelligible and vivid; the ancients had to see and hear, to symbolically clarify the law as an ordered mental structure, and to embody it symbolically. The law was meant to enter the senses, to manifest itself to the senses. Thus people became aware that on the other hand they themselves knew how to imprint their thoughts and feelings on the law. [...] Perhaps it is good to remind both abstract law and a law that has strongly distanced itself from the "people" of the law*

*that manifests itself to the senses.*<sup>97</sup>

- 83 Thus, the visualization, audiovisualization, and multisensorization of the law could be rooted in the legal historical past—if one so desired. This gave the subject two faces, one looking forward, the other backward. On the one hand, this idiosyncratic Janus head now turned its attention to what had long been thought and done in terms of visualizing, audiovisualizing, and multisensorizing legal contents. On the other, it contemplated what was being thought and done, as well as what needed to be considered and undertaken in this direction. Regardless of whether one looks back into the past, at the present, or into the future, the same questions remain crucial. For the sake of simplicity, I formulate them here in the present tense, however without aiming to exclude either the past or the future: Which legal contents are visualized, audiovisualized, and multisensorized? Which types of legal visualizations, legal audiovisualizations, and multisensorizations are produced? Why are legal contents visualized, audiovisualized, and multisensorized? What are the effects of visual, audiovisual, and multisensory legal products?
- 84 *High significance of art history and design.* I have already explained that art history and design were hugely important for visualizing, audiovisualizing, and multisensorizing legal contents.
- 85 *Last but not least,* I was convinced that visualizing, audiovisualizing, and multisensorizing the law would help law students both during *and* after their studies—or to reiterate ŽIŽEK’s idea—to “confront and fight against all the humiliations and injustices of real life.”<sup>98</sup>

### **6.3.3 Low Hopes**

- 86 You might be wondering what I had hoped to achieve with my essay. The sociology of scientific knowledge discourages great hopes in this respect: 20<sup>th</sup> and 21<sup>st</sup> century scholars, as suggested, faced a deluge of literature. Countless scientific texts were courting the scientific community, forcing scholars to devote their time and energy to a very limited number of publications and to confine themselves to what best suited their own research and teaching purposes.<sup>99</sup> The German sociologist of science PETER

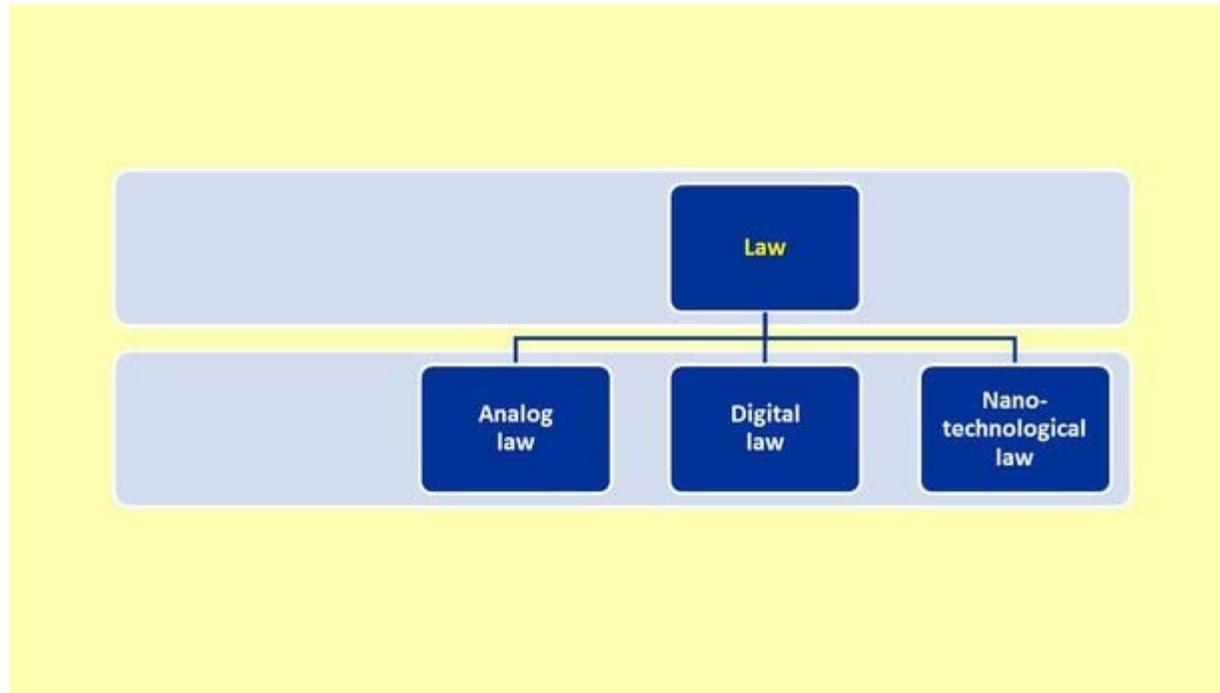
WEINGART complained that “part of the total amount of knowledge produced is simply ignored. More than half of all publications are never quoted, i.e., fall out of the communication process ([...]).”<sup>100</sup> RICHARD POSNER, a representative of the law and economics approach, also agreed with this lament. Closer scrutiny reveals that he was thinking mainly of the basic interdisciplinary-oriented legal disciplines: “Only a small percentage of works of interdisciplinary legal scholarship receives sustained critical attention, [...]”<sup>101</sup> Legal decrees, legal-dogmatic literature, and judicature were indispensable sources of information for lawyers. The unmanageable amount of legal information compelled legal scholars to pay all but selective attention to other sources, leaving no time to consider visualization, audiovisualization, and multisensorization from the perspective of the digital humanities and digital law. My only hope was that my essay would be received in 2117, or later, as a document of the times, from which insights into the history of science might be gained: an essay for posterity, thus, not one for the present world. POSNER concluded his essay “Legal Scholarship Today” (2001) as follows: “My conclusion is that interdisciplinary legal scholarship is problematic unless subjected to the test of relevance, of practical impact.”<sup>102</sup> Although some passages in my essay would have been relevant for legal practice at the time, I imagined already prior to publication that my legal contemporaries would disregard it.

### **6.3.2 Benchmarks for Early 21st Century Science**

- 65 Perhaps I ought not answer your second question. I was not familiar with ALONSO’S or FIOCCHI’S publications and teaching when I wrote “Perspectives of Digital Law: Visualization, Audiovisualization, and Multisensorization.” Howsoever, I was and am convinced that science should be able to develop freely—within the confines of the law, ethics, and morality.

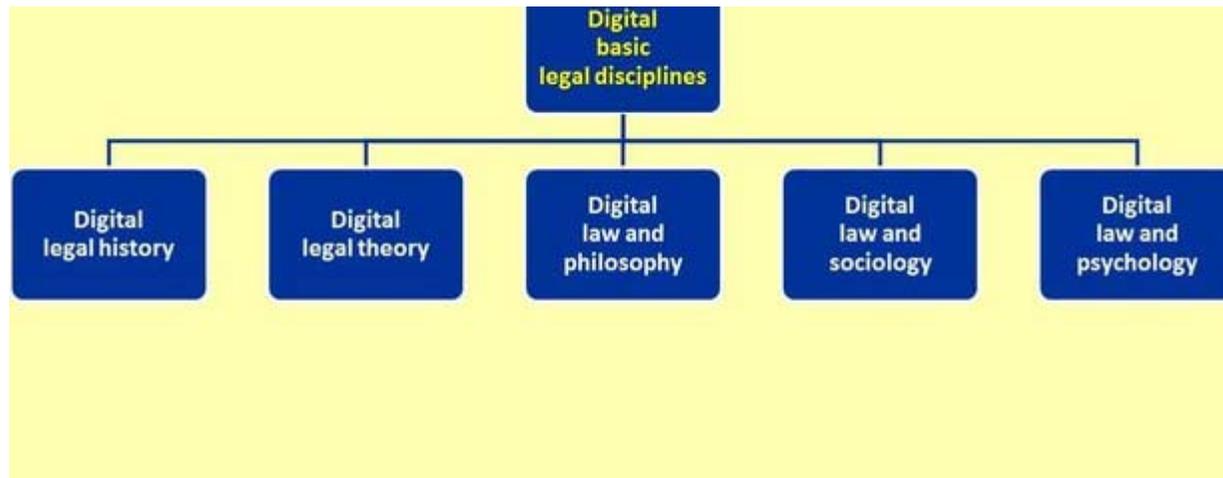
### **6.3.4 Questions for Posterity**

- 87 I hope my answers have satisfied your historical curiosity. Your questions have certainly aroused mine: Lacking an earthly Internet connection, I would be interested to learn more about the state of legal scholarship in 2117:
- 88 Can legal scholarship now be divided into analog, digital, and nanotechnological streams?
-



89 Fig. 3

- Has digital law developed on an equal footing with the digital humanities, the digital social sciences, digital medicine, digital theology, and the digital natural sciences?
- If so, does digital law encompass digital legal dogmatics and the basic legal disciplines such as digital legal history, digital legal theory, digital legal philosophy, digital legal sociology, and digital legal psychology?



90 Fig. 4

- Can the legal image database, created by the Legal Visualization Unit, Center for Legal History Research, where I worked in 2017, still be accessed via the Internet? Does the database now form a network with other legal image databases—under the aegis of the Max Planck Institute for European Legal History? Has this verbo-visual legal database meanwhile become a model for designing other verbo-visual and audiovisual legal databases?
- To what extent can the websites and blog posts cited in my “Perspectives of Digital Law: Visualization, Audiovisualization, and Multisensorization” still be accessed?
- What became of the research focus on legal papyrology initiated by JOSÉ LUIS ALONSO? Has this developed into a research center of its own? Does it still exist and, if so, how is it related to the basic legal disciplines now being taught and researched at the University of Zurich?

91 Questions, nothing but questions. They crowd my—well, actually our—otherworldly space. As former

members of the earthly scientific community, we are buzzing around in this space. We mumble—and keep muttering—critically as if we were no different, as if our opinions still enjoyed currency on earth. Meanwhile escaped from corporeal imprisonment, our souls are simultaneously male and female. The separation of the sexes has been abolished, and male (“old boy”) networks are obsolete. No *old boys* lift *young boys* onto university chairs anymore. No female colleagues are bloodying their heads—despite “equal qualifications”—against the glass ceilings of academic palaces, “getting stuck” in inferior positions, and—perfectly womanlike—tormenting themselves with self-criticism—instead of taking the peacockish rhetoric of some men just ever so slightly as an example that permits the latter to win the favor of mostly male-dominated selection committees.

- 92 Let me conclude with an offer: If you wish, I would be willing to provide the organizers of the 2217 ZBZ Conference with my insights and experience. I would not fear communicating with intelligent software, which might have replaced your neural networks by now. Here, on the other side, we are currently reading HARARI’s *Homo Deus* [*Man as God*]. Some of us consider the title hubristic and feel that the author ought to have placed *Deus* between citation marks. Nevertheless, we are discussing certain passages, including the following:

- 93 *Yet even cyborg engineering is relatively conservative, inasmuch as it assumes that organic brains will go on being the command-and-control centres of life. A bolder approach dispenses with organic parts altogether, and hopes to engineer completely non-organic beings. Neural networks will be replaced by intelligent software, which could surf both the virtual and non-virtual worlds, free from limitations of organic chemistry. After 4 billion years of wandering inside the kingdom of organic compounds, life will break out into the vastness of the inorganic realm, and will take shapes that we cannot envision even in our wildest dreams. After all, our wildest dreams are still the product of organic chemistry.*<sup>103</sup>

- 94 HARARI concludes: “Breaking out of the organic realm could also enable life to finally break out of planet Earth.”<sup>104</sup> In contrast to this conclusion, an overwhelming majority in the hereafter have endorsed GRYPHIUS’s poem “Menschliches Elende” [“Human Misery”], whose last two verses I cite here in conclusion:

- 95 *Just as a vain dream easily falls into disregard /And just as a stream gushes into the distance, which no power arrests, so our name, praise, honor, and fame must also disappear.*  
*What now draws breath, must escape with the air, /What comes after us follows us into the grave. /What do I say? We vanish, like smoke by strong winds.<sup>105</sup>*

96 With sincere greetings from the beyond.

97 Colette R. Brunshwig—Nicolas R. Brunshwig

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\* Senior Research Associate, University of Zurich, Department of Law, Center for Legal Historical Research, Legal Visualization Unit, Raemistrasse 74, PO Box 52, 8001 Zurich, Switzerland, colette.brunschwig@rwi.uzh.ch; <http://www.ius.uzh.ch/de/research/units/zrf/abtrv/brunschwig.html>. I wish to thank Dr. Mark Kyburz for translating this essay.

1 See Universität Zürich, "Fachtagung anlässlich des 100-Jahr-Jubiläums der ZB"; see <http://www.bibliothek-ernetzt.uzh.ch/de.html> (last accessed July 14, 2017).

2 See Brunshwig, *Visualisierung von Rechtsnormen* (2001), Brunshwig, "Multisensory Law and Therapeutic Jurisprudence" (2012), Brunshwig, "Law Is Not or Must Not Be Just Verbal and Visual in the 21st Century" (2013), and Brunshwig "Multisensory Law" (2016).

3 Legal informatics can be considered a basic legal discipline insofar as it deals with tools and methods while transcending the problems, questions, and topics of legal doctrine. It seems to have become popular to use the terms legal technology or legal tech for this branch of legal informatics. A lot of money is being made with this buzzword or under this label.

4 On law as a humanities discipline, see Obermayer, "Rechtswissenschaft als Geisteswissenschaft" (1987); see also Kretschmer, *Rechts- als Geisteswissenschaft* (2007) and Balkin and Levinson, "Law and the Humanities," 156. On law as a social science, see Büllsbach, "Rechtswissenschaft und Sozialwissenschaft," 401, 403.

5 Birr, "Die geisteswissenschaftliche Perspektive," 332; my emphasis. On digital legal history, see also Robertson, "Searching for Anglo-American Digital Legal History," 1049–69.

6 Svensson, "The Landscape of Digital Humanities," para 14.

7 Burdick et al., *Digital Humanities*, 122.

8 Ibid.

- 9 See <http://www.lavater.uzh.ch/en.html> (last accessed July 14, 2017).
- 10 See Stegbauer and Rausch, *Einführung in NetDraw*, 4–10.
- 11 On using geographic information systems (GIS) in the DH, see Murrieta-Flores, Donaldson, and Gregory, "GIS and Literary History," footnotes 1–39.
- 12 This graph was the fifth slide in CAFLISCH-SCHNETZLER and NAUMANN'S PowerPoint presentation. All presentations delivered at the ZBZ Conference can be downloaded from <http://www.bibliothek-vernetzt.uzh.ch/de.html> (last accessed July 14, 2017).
- 13 See, for instance, Katrien Verbert, "On the Use of Visualization for the Digital Humanities," conference abstract, dh2015.org, [s.d.], see [http://dh2015.org/abstracts/xml/VERBERT\\_Katrien\\_On\\_the\\_Use\\_of\\_Visualization\\_for\\_t/VERBERT\\_Katrien\\_On\\_the\\_Use\\_of\\_Visualization\\_for\\_the\\_Dig.html](http://dh2015.org/abstracts/xml/VERBERT_Katrien_On_the_Use_of_Visualization_for_t/VERBERT_Katrien_On_the_Use_of_Visualization_for_the_Dig.html); see also Bubenhofer, "Drei Thesen zu Visualisierungspraktiken in den Digital Humanities," 351–55 (last accessed July 14, 2017).
- 14 Christa Dürscheid and Don Tuggener, "Abstract," *Kurzbiographien und Abstracts zu den Tagungsbeiträgen*, ed. Zentralbibliothek Zürich, 3. For details, see [http://www.variantengrammatik.net/en/index\\_en.html](http://www.variantengrammatik.net/en/index_en.html) (last accessed July 14, 2017).
- 15 Ibid.
- 16 The Centre for Legislative Studies (University of Zurich) holds regular colloquia on legal linguistics. For details, see <https://www.rwi.uzh.ch/en/oe/ZfR/weiterbildung.html> (last accessed July 14, 2017). The humanities department at the University of Cologne runs a program on "European Legal Linguistics." For details, see <http://erl.phil-fak.uni-koeln.de/11925.html> (last accessed July 14, 2017).
- 17 Martin Volk, "Abstract," *Kurzbiographien und Abstracts*, 3–4.
- 18 See <http://www.sac-cas.ch/en/metanav/home.html> (last accessed July 14, 2017). On the yearbook of the Swiss Alpine Club, see <http://www.e-rara.ch/zuz/content/titleinfo/7265103> (last accessed July 14, 2017).
- 19 See <http://www.bildungsgeschichte.uzh.ch/en.html> (last accessed July 14, 2017).
- 20 Martin Dusing, "Abstract," *Kurzbiographien und Abstracts zu den Tagungsbeiträgen*, 4–5.
- 21 See *ibid.*
- 22 On digital history, see, for instance, Seefeldt and Thomas, "What Is Digital History?" [s.p.]. There is also a blog entitled *Digitale Geschichtswissenschaft*: see <http://digigw.hypotheses.org/> (last accessed July 14, 2017). The *Association of German Historians* has initiated a working group on digital history. For relevant information, see <http://www.historikerverband.de/arbeitsgruppen/ag-digitale-gw.html> (last accessed July 14, 2017).

- 23 Schmale, *Digitale Geschichtswissenschaft*, 37.
- 24 On the possible components of digital history, see, for instance, Schmale, *Digitale Geschichtswissenschaft*, 61ff.
- 25 Staley, "Digital Historiography," 1.
- 26 See, for instance, Staley, "Digital Historiography," 1–4; see also Kheraj, "The Presence of the Past," [s.p.].
- 27 See Beat Immenhauser, "SAGW wird Cooperating Partner von DARIAH," *Schweizerische Akademie der Geistes- und Sozialwissenschaften: Aktuelles*; see <http://www.sagw.ch/en/sagw/aktuelles/news-2015/Mitglied-dariah.html>.
- 28 See <http://www.sagw.ch/en/sagw/schwerpunkte.html> (last accessed July 14, 2017).
- 29 See <http://www.sagw.ch/en/sagw/laufende-projekte/digital-humanities.html> (last accessed July 14, 2017).
- 30 See <https://adho.org/> (last accessed July 14, 2017).
- 31 See <http://de.clarin.eu/de/> (last accessed July 14, 2017).
- 32 See <http://www.zfdg.de/> (last accessed July 14, 2017).
- 33 See <http://www.digitalhumanities.org/dhq/> (last accessed July 14, 2017).
- 34 See <http://journalofdigitalhumanities.org/> (last accessed July 14, 2017).
- 35 See <https://dig-hum.de/aktuelles> (last accessed July 14, 2017).
- 36 See <https://dig-hum.de/forschung/projekte> (last accessed July 14, 2017).
- 37 See <https://dig-hum.de/digitale-geisteswissenschaften> (last accessed July 14, 2017). On "disciplining" the DH, see also Klambauer, "Einführung in das Fach" [s.p.].
- 38 As with "DARIAH," I again refer readers to the corresponding website: <https://de.wikipedia.org/wiki/CLARIN> (last accessed July 14, 2017).
- 39 "VLO" means "Virtual Language Observatory"; see <https://www.clarin-d.net/en/accessing> (last accessed July 14, 2017).
- 40 "FCS" means "Federated Content Search"; see <https://www.clarin-d.net/en/accessing> in connection with CLARIN and <https://www.clarin.eu/glossary/fcs> (both last accessed July 14, 2017).
- 41 On reference resources, see <https://www.clarin-d.net/en/accessing> (last accessed July 14, 2017).
- 42 See <https://www.clarin-d.net/en/disciplines> (last accessed July 14, 2017).
- 43 UFLS is tasked with introducing innovative approaches by providing scientific infrastructures and by supporting interested stakeholders, including students and researchers. For details, see <http://www.spur.uzh.ch/en.html> (last accessed July 14, 2017).

July 14, 2017). On Zurich University's research priority programs, see <http://www.uzh.ch/en/research.html> (last accessed July 14, 2017).

44 See <http://www.bibliothek-vernetzt.uzh.ch/de.html> [slide 5 of DERUNG's, KESSELHEIM's, and SAMARDŽIĆ's presentation] (last accessed July 14, 2017).

45 On the VideoLab, see <http://www.spur.uzh.ch/en/departments/videolab.html> (last accessed July 14, 2017).

46 On the GISLab, see <http://www.spur.uzh.ch/en/departments/gislab.html> (last accessed July 14, 2017).

47 On the CorpusLab, see <http://www.spur.uzh.ch/en/departments/korpuslab.html> (last accessed July 14, 2017).

48 [https://de.wikipedia.org/wiki/Omnidirektionale\\_Kamera](https://de.wikipedia.org/wiki/Omnidirektionale_Kamera) (last accessed July 14, 2017).

49 <http://www.spur.uzh.ch/en/departments/videolab.html> (last accessed July 14, 2017).

50 See <http://www.bibliothek-vernetzt.uzh.ch/de/Praesentationen.html> (last accessed July 14, 2017).

51 See <https://www.euresearch.ch/de/> (last accessed July 14, 2017).

52 For current projects, see <http://www.sagw.ch/en/sagw/laufende-projekte/digital-humanities/Gesellschaftswissenschaften.html> (last accessed July 14, 2017).

53 See *ibid.*

54 In the German-speaking area, LACHMAYER'S, RÖHL'S, BOEHME-NESSLER'S, and HILGENDORF'S publications stand out. While LACHMAYER and HILGENDORF focus on the visualization of legal contents, other authors also consider the audiovisualization of legal contents. Encouraged by Kenney's theories on multisensory communication and multisensory media, my own work continues to additionally explore the multisensorization of legal contents. Other than that, these multisensory theories should be made productive for legal theory. In the English-speaking area, for instance, AUSTIN, GOODRICH, KATSH, SHERWIN, FEIGENSON, and SPIESEL, and many other authors have made outstanding contributions to legal visualization and legal audiovisualization. Please consult the references for the works of the authors mentioned here.

55 See <https://www.admin.ch/opc/en/classified-compilation/20091419/index.html> (last accessed July 14, 2017).

56 von Matt, *Sieben Küsse*, 11.

57 Gryphius, "Es ist alles eitel"—Trans.

58 See, for instance, Susskind, *Tomorrow's Lawyers*, 149ff.

59 See <http://www.uzh.ch/news/info/berufungen/index.php> (last accessed July 14, 2017).

60 See <http://campaign.harvard.edu/presidents-message> (last accessed July 14, 2017).

- 61 Ibid.
- 62 See <http://campaign.harvard.edu/aspiration/advancing-power-integrated-knowledge> (last accessed July 14, 2017; my emphases).
- 63 See <http://campaign.harvard.edu/aspiration/advancing-meaning-values-and-creativity> (last accessed July 14, 2017).
- 64 See <http://campaign.harvard.edu/presidents-message> (last accessed July 14, 2017).
- 65 See <http://campaign.harvard.edu/aspiration/advancing-innovation-and-hands-discovery> (last accessed July 14, 2017).
- 66 See <http://campaign.harvard.edu/presidents-message> (last accessed July 14, 2017; my emphases).
- 67 Ibid. (my emphases).
- 68 Žižek, "Das Leben ist nun einmal krass," 43.
- 69 Volpato, "Legal Professionalism and Informatics," 215.
- 70 Katsh, *Law in a Digital World*, 174.
- 71 Brinktrine and Schneider, *Juristische Schlüsselqualifikationen*, 19.
- 72 See Feigenson and Spiesel, *Law on Display*, 2ff.
- 73 In this context, see Rambow and Bromme, "Was Schöns 'reflective practitioner' durch die Kommunikation mit Laien lernen könnte," 245–63.
- 74 See Brunschwig, "Multisensory Law and Therapeutic Jurisprudence" (2012).
- 75 On stress of lawyers and judges, see, for instance, Love and Martin, *Yoga for Lawyers*, IX, 2, 7ff.; see also Cho and Gifford, *The Anxious Lawyer*, 1–8.
- 76 See Love and Martin, *Yoga for Lawyers*, 21ff.
- 77 See, for instance, Rogers, *The Six-Minute Solution*, 10ff.; Riskin, "Mindfulness in the Heat of Conflict," 131ff., and Cho and Gifford, *The Anxious Lawyer*, 61ff.
- 78 See Krueger, *A Lawyer's Guide to the Alexander Technique*, 27ff. and 51ff.
- 79 See <http://www.americanbar.org/aba.html> (last accessed July 14, 2017).
- 80 See <https://shop.americanbar.org/ebus/default.aspx> (last accessed July 14, 2017).
- 81 See Rogers, "Mindfulness Exercise: Order in the Cortex," YouTube Video, 7:59. <https://www.youtube.com/watch?v=KB-OyDx7Tw> (last accessed April 17, 2012).

- 82 See <http://www.sav-fsa.ch/en/weiterbildung/anwaltskongress.html> (last accessed July 14, 2017).
- 83 See <http://www.legalcoaching.ch> (last accessed July 14, 2017).
- 84 See <http://www.sav-fsa.ch/en/weiterbildung/anwaltskongress.html> (last accessed July 14, 2017).
- 85 See the following programs: <http://www.law.miami.edu/academics/mindfulness-in-law-program>; <https://www.law.berkeley.edu/students/mindfulness-at-berkeley-law/resources/mindfulness-in-legal-education/>; and <http://hls.harvard.edu/dept/dos/wellness> (last accessed July 14, 2017). See also Rogers and Jacobowitz, *Mindfulness & Professional Responsibility*, 3ff. and 25ff.
- 86 For yoga programs at law schools, see <http://www.law.miami.edu/news/2011/june/yoga-law-students>; <http://www.allard.ubc.ca/events/yoga-law-students-1>, and <http://hls.harvard.edu/dept/dos/wellness> (last accessed July 14, 2017).
- 87 See, Rogers, "Mindfulness for Law Students." YouTube Video, 5:12. <https://www.youtube.com/watch?v=cEU5I1pYPPY> (last accessed October 7, 2014).
- 88 For further references, see Brunschwig, "Multisensory Law," 161f.
- 89 See, for instance, Brunschwig, *Visualisierung von Rechtsnormen*, 80ff.; Hagan, "Prof. Jay Mitchell on Visual Design for Lawyers" [s.p.]; see further Haapio and Passera, "Visual Law" [s.p.] and Salo and Haapio, "Robo-Advisors and Investors," 441–48.
- 90 See, for instance, Kimbro, "New legal gamification" [s.p.].
- 91 See, for instance, Baksi, "Virtual reality helps students to master criminal law" [s.p.].
- 92 See Lines, "Using game-design pedagogies to embed skills in the law curriculum" [s.p.]; see further Martin, "A Simulation Game to Help People Prep for Court" [s.p.].
- 93 See Hagan, "Make Interactive Visuals with D3" [s.p.].
- 94 See, for instance, Kocher, *Zeichen und Symbole des Rechts* (1992).
- 95 See, for instance, Delage, *La Vérité par l'image* (2006) [*Caught on Camera* (2013); title of the English translation].
- 96 Hibbitts, "Coming to Our Senses," 875.
- 97 Carlen, "Vorwort," XVI.
- 98 Žižek, "Das Leben ist nun einmal krass," 43.
- 99 See Weingart, *Wissenschaftssoziologie*, 36f.

- 100 Weingart, *Wissenschaftssoziologie*, 37.
- 101 Posner, "Legal Scholarship Today," 1325.
- 102 Ibid., 1326.
- 103 Harari, *Homo Deus*, 51ff.
- 104 Ibid., 52.
- 105 Gryphius, "Menschliches Elende" ["Human Misery"] — Trans.