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Digital Humanities in Biblical Studies and Theology

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The Impact of Digital Research: Thinking about the MARK16 Project

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Abstract: This article presents the challenges of developing Humanities research in a digital environment in relation to a New Testament test-case: the MARK16 project. The first section argues that virtual research environments (VREs) have become an excellent milieu in which to develop a digitized research project based on collaborative work. The second section presents an overview of VREs and digital projects on the New Testament. The third section demonstrates the ways in which the MARK16 project participates in the development of VREs and fosters new modes of engaging material in digitized NT research.

Keywords: Digital Humanities, New Testament, Humanities, Gospel of Mark, VRE, digital culture, research, history, DARIAH, digital practices

Preamble

The research question of this paper is simultaneously simple and boundless: does it matter if we practice Humanities research in a digital culture rather than in traditional print cultures? And what does the answer to this question mean for New Testament research in particular? Such abyssal questions are fundamental and should at least be considered when a scholar is planning a research project in biblical studies, theology, or religious studies. Indeed, the number of digital research projects are increasing at the international, European, and national levels.[1]

Such questions closely accompanied the preparatory phase of the SNSF PRIMA grant MARK16, a five-year project supported by the Swiss National Foundation.[2] These interrogations are deeply embedded within the opening phase of the project and will remain so throughout, as MARK16 aims to build a new Digital Humanities research model. This will be based on a test case that is well known in New Testament textual criticism (NTTC): the ending of the Gospel according to Mark.

Consequently, this article explores the epistemological digital turn in the Humanities and relates it to the MARK16 project, hoping to inspire further research and engagement in NTTC and New Testament studies. The first section outlines some challenges for digital research, pointing to the fact that virtual research environments (VREs) seem to be the main emergent digital milieu in which this work occurs. The second section presents an overview of VREs in New Testament and Early Christian research, and the third discusses the challenges presented by MARK16 in building a new Humanities research model around a NTTC test case.

1 To my knowledge, neither international nor European complete databases of projects in the Digital Humanities exist. One can for example gain perspective on their expansion by looking at this catalogue of digital editions published in 2016: Franzini, Terras, Mahony, "A Catalogue of Digital Editions."
2 http://p3.snf.ch/project-179755; https://digitalhumanitiesplus.sib.swiss/#/project/mark16.

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1 Towards virtual research environments as a digitized research milieu

If the roots of the Digital Humanities can be dated to the end of the Second World War, with the notable works of Vannevar Bush and Roberto Busa,[3] the name "Digital Humanities" (DH) itself only surpassed the label *Humanities and Computing* at the beginning of the 21st century, a switch I discussed in detail in a previous book.[4] Accompanied by a lively debate,[5] the effect of this change on the Humanities is summarized by Steven E. Jones:

> New practices and areas of interest for computing in the humanities correspond to changes associated with the eversion of cyberspace in the culture at large. In one sense, the new digital humanities is humanities computing, everted. [...] The term also reflected a larger change: from implying a separation between the stuff of the humanities – manuscripts, books, documents, maps, works of art of all kinds, other cultural artefacts – and computing, to more of a mixed reality, characterized by two-way interactions between the two realms, physical artefacts and digital media.[6]

Depending on the authors, this overwhelming aversion in culture can sometimes be perceived as a dramatic turn, as suggested by Bernard Stiegler who describes digital expansion as a phenomenon of "disruption over all the earth."[7] It is difficult for us today to discern and predict exactly what our cultural future will be. Meanwhile, humanists can only continue to work patiently, observing and analyzing transformations with a critical mind. Jones' observation of the emergence of a "mixed reality" in the Humanities is particularly appropriate for describing what is at stake in the transformation of practices and research. I give two examples of this mixed reality below – one regarding the digital practices in the Humanities and the second the transformation of a textual printed corpus into a digital collection. I conclude this section by arguing that, in a similar way, research in the Humanities is presently a mixed reality with a tendency to develop its forefront research through virtual research environments (VRE).

In 2004, John Houghton, Colin Steele and Margaret Henty published one of the first analyses of digital scholarly practices. If their volume underlines the emergence of a new kind of knowledge, their editorial overview points principally to the access and dissemination needs of scholars: "research databases, related software and other analytical objects are new core tools, as the very nature of discourse shifts from hypothesis testing towards collecting processing and analyzing primary data."[8] This is a recurrent and universal point of DH: the first DH developments are almost always provoked by the needs of archiving and accessing to primary and secondary sources. As a major feature of a potential new kind of digital knowledge, Houghton et al. point to emergent collaborative research.[9] Eleven years later, in 2015, ERIC DARIAH led a European inquiry into digital practices that can be compared to Houghton et al.'s earlier study on many levels.[10] 2,177 respondents across Europe responded to the inquiry and six national profiles have been analyzed in detail in the countries that gathered the required quantity of responses.[11] The need to develop digital infrastructures is largely shared in this inquiry:

> Asked to rate the importance of different needs in a scale from 1 to 10, three quarters of digital humanists rated improved findability and access to existing digital research resources or data as the most important, with a score exceeding 9.5 out of

3 Bush, "As we May Think"; Jones, *Roberto Busa, S.J.*
4 See Clivaz, *Ecritures digitales*, 46-51 and 83-84.
5 See, for example, Svensson, "Humanities Computing."
6 Jones, "The Emergence of the Digital."
7 See notably Stiegler, *Dans la disruption*, 22: "l'accélération du phénomène de l'innovation [...est] un facteur planétaire de désintégration sociale. Ce pouvoir automatique de désintégration réticulaire s'étend sur toute la Terre à travers ce qu'on appelle depuis quelques années la *disruption*."
8 Houghton, Colin, and Henty, "Research practices," 247.
9 Ibid.
10 The inquiry has been led by the DARIAH working group DIMPO: https://www.dariah.eu/activities/working-groups/wg-digital-methods-and-practices-observatory-dimpo/.
11 Chatzidiakou and Dallas, *DARIAH-EU Scholarly Practices Survey.*

> 10. A slightly lower score of 9 was granted to digitization of research resources or data currently not in digital form by three out of four respondents. Two other needs, improved findability and access to digital tools or software, and networking with other researchers, research groups and institutions, share third place with a score exceeding 7 by more than three out of four respondents.[12]

Among the results of this interesting inquiry, the future face of digital research can be perceived. However, collaborative DH remains a non-majoritarian approach. Only one third of respondent scholars engage regularly in collaborative research.[13] This collaborative aspect is certainly a crucial one in the emergence of new research practices in DH. It is also the case in digital editing, the second example of a mixed reality in digital scholarly practices. As developed in a previous publication, the traditional set of "textual corpus" is evolving into the digital collection.[14] According to Sarah Mombert, the digital collection attests to an effect of "decanonization"[15] by putting texts considered as marginal in print culture at the forefront, and can be defined in the following way:

> In the digital edition domain, where the use of the term "collection" is still not fixed, I would propose this minimal definition: a potentially evolutionary set of interlinked digital objects, with the intention of producing some meaning.[16]

This rather flexible definition has nevertheless some decisive features that underline the exodus from the traditional form of the textual corpus. According to Elena Pierazzo, a digital edition "firstly is a website, a digital and physical artefact which is infinitely extensible"; secondly, it is characterized by "its collaborative nature."[17] As Mombert suggests, time and financial resources frame the new limits of such collections.[18] However, their most eminent feature is surely their multimodal aspects, their capacity to gather together texts, images, and sounds to build new digital knowledge objects.[19] In this general evolution of the digital edition, its "collaborative nature" can be connected with the remarks about the transformation of digital scholarly practices mentioned above. The evolution of the notion of "limits" is another important point: the book cover is not here anymore to secure the delimitation of a collection of items. The sense of the limit is apparently essentially given by "time and financial resources," since a website is "infinitely extensible."

By considering these two examples – scholarly digital practices and digital edition – we begin to see that a new form of research in the digital scholarly landscape is progressively emerging. It could take the name and the form of the "virtual research environment," in which the collaborative dimension is particularly important, as Annamaria Carusi and Torsten Reimer have pointed out.[20] In a clear and synthetic 2013 article, Leonardo Candela, Donatella Castelli, and Pasquale Pagano have explained that they "envisage a future where regardless of geographical location, scientists will be able to use their Web browsers to seamlessly access data, software, and processing resources that are managed by diverse systems in separate administration domains via Virtual Research Environments."[21] In other words, VREs could be the new way to define research *loci* and serve as the new "covers" of the scientific objects, replacing the paper covers of printed books as signs of knowledge territories. These three authors give the following definition of a VRE:

> Virtual Research Environment (VRE) is used with a comprehensive scope, i.e., it represents a concept overarching all the environments cited above and identifies a system with the following distinguishing features: (i) it is a web-based working environment; (ii) it is tailored to serve the needs of a community of practice (Lave & Wenger, 1991); (iii) it is expected to provide a community of practice with the whole array of commodities needed to accomplish the community's goal(s); (iv)

12 Ibid., 7.
13 Ibid., 6.
14 See Clivaz, *Ecritures digitales*, 196–217 and 224–230.
15 Mombert, "From Books to Collections," l. 5128.
16 Ibid., l. 5186.
17 Pierazzo, *Digital Scholarly Editing*, 193.
18 Mombert, "From books to collections", l. 5248.
19 Clivaz, *Ecritures digitales*, 210-217.
20 Carusi and Reimer, "Virtual Research Environment Collaborative Landscape Study."
21 Candela, Castelli, and Pagano, "Virtual Research Environments," 75.

> it is open and flexible with respect to the overall service offering and lifetime; and (v) it promotes fine-grained controlled sharing of both intermediate and final research results by guaranteeing ownership, provenance and attribution.[22]

As we see, two of the five features that describe a VRE are focused on the community of practice and so foster collaborative research. For the authors, such a "web-based working environment," is expected to become "the 'default' approach for scientific investigations as well as for any societal collaboration-based activity" within ten years.[23] This perspective might sound ambitious, but now, five years later, this intuition seems more and more correct every day. The MARK16 project, discussed in Section 3, concludes in five years and thus accompanies the end of the "VRE establishment decade" announced by Candela, Castelli and Pagano.[24] This successful VRE story, presented in 2013, has been notably illustrated by JISC, the UK service for education and research. Over a period of eight years, ending in 2012, JISC developed a research program on VREs.[25] In 2010, Carusi and Reimer published a full study about this "collaborative landscape" within the JISC framework.[26] Last but not least, Craig Bellamy argued in a 2012 article that a VRE is not only a possible future research model, but also a way to reshape academic teaching in its entirety:

> Many of us learned interdisciplinarity the same way we learned about computing: the hard way. But a new generation of projects in the digital humanities may lessen the need for programming whilst to exposing to critique the underlying technical decision-making process. Whilst it is important to 'make stuff' in the digital humanities, different schools have different capacities to do this and VREs may be one way to impart digital humanities values and processes without the need to build projects from scratch.[27]

Like the concept of "digital collection," the definition of a VRE remains malleable, a description of a new place to lead scientific research. Digital culture forces scholars to constantly rethink and reconsider their work and tasks. Despite its open-ended definition and description, and considering its wide diffusion as a research model in recent years, I propose in Section 2 a non-exhaustive but representative overview of some VREs in New Testament studies. Section 3 will then explain how a MARK16 VRE will bring something new into this developing digital research landscape.

2 Digital New Testament online resources and VREs: An overview

Much like the Digital Humanities in general,[28] digital research in New Testament studies has first been developed around texts and editorial challenges.[29] For about two decades, the digitization of manuscripts and the exploration of new editorial possibilities have fostered new trends in NT research and sparked lively reflections and conversations among NTTC scholars.[30] Whereas the reference edition of the Greek New Testament *Nestle-Aland* 28 is available online in open access[31] – but without the critical apparatus – a digital common working place has opened for NTTC scholars under the leadership of the INTF and ITSEE:

22 Ibid.
23 Ibid., 77.
24 Ibid.
25 https://www.jisc.ac.uk/rd/projects/virtual-research-environments.
26 Carusi and Reimer, "Virtual Research Environment Collaborative Landscape Study."
27 Bellamy, "The Sound of Many Hands Clapping," §16.
28 See for example Busa, "Foreword": "Humanities computing is precisely the automation of every possible analysis of human expression (therefore, it is exquisitely a 'humanistic' activity), in the widest sense of the word, from music to the theatre, from design and painting to phonetics, but whose nucleus remains the discourse of written texts."
29 Other fields in biblical studies, Early Jewish, and Christian studies have of course also developed VREs. The present article is focused on NT VREs.
30 See e.g. Epp, "It's all about variants"; Parker, *An Introduction to the New Testament*; Wallace, "Challenges in New Testament Textual Criticism"; Schmid, "Transmitting the New Testament Online"; Clivaz, "The New Testament at the Time of the Egyptian Papyri."
31 http://www.nestle-aland.com/en/read-na28-online/.

the New Testament Virtual Manuscript Room (NTVRM).[32] Without doubt, the NTVMR is one of the most important VREs for the study of the NT and is largely interactive: scholars, when enrolled, can collaborate on the manuscript transcription tool. The NT Transcripts tool presents the state "in real time" of the *Editio Critica Major* (ECM),[33] in the form of an "unedited realtime collation." The user enters the room of the ECM's making, and one can of course wonder at which point something available online is really "unedited." But the expression points to the flexible state of the online collation, always subject to revision. Allowing researchers access to past versions would be a useful modification. This digital collaborative editing has been presented and analyzed in detail in Troy A. Griffits' PhD.[34] If a 29th paper edition of the Nestle-Aland Greek New Testament is in preparation, as well as the paper editions of each ECM NT fascicle, the online ECM is positioned as an evolving, consultable tool. The examination of scholars' uses of the online ECM in comparison to print editions will indicate which form they will more commonly consult in their work.

Other NT VREs with digitized manuscripts are in development, such as the website of the *Center for the Study of New Testament Manuscripts*, PAVONe – the platform of Arabic versions of the New Testament – and in the project *Paratext of the Bible* that "catalogues all available material in an e-Clavis [and…] develops a set of categories according to which each paratext of the New Testament is edited according to internal criteria."[35] A special mention could also be made of the project of the Jerusalem School, *The Bible in its Traditions*,[36] which seeks to establish the biblical text by reconstituting a polyphony, offering translations that make as much as possible to "taste an original flavor" and presenting annotations "drawing new and old from its treasure."[37] The ambition is to propose references in the history of the tradition including visual arts, film, etc. The project can be described as an "augmented paper Bible." The structure follows the textual logic, with references, comments, and all information listed synoptically.[38] It is important and useful for all scholars and Bible readers, but apart from the OA aspect, it follows the model of the book overall. As such, it is not formatted according to a VRE perspective but could evolve in this sense. For a subfield like biblical studies or New Testament studies to really innovate digitally, it is necessary to collaborate with wider DH projects, such as the H2020 project ReIReS, *Research Infrastructure on Religious Studies*.[39]

The field loses nothing if it is also inspired by wider projects, even if there is clearly a tendency for a digital edition to evolve in the sense of a digital collection, as we have seen in Section 1. However, the canonical delimitation of the Bible remains a way to draw a limit in a digital collection.[40] The impact of this canonical delimitation, even in a digital world, can be noticed, for example in NT or biblical VREs with more pedagogically focused resources, like *Early Christianity: the Letters of Paul* or *The Bible Odyssey*.[41] As I argued in Section 1, VREs naturally tend to combine teaching and research material, and by looking at *Early Christianity* or *Bible Odyssey*, this fact is largely confirmed, depending on how one values scholarly videos.[42] Simple reference lists or resources are also available on multiple sites, such as on the reference website of the SBL, or on personal scholarly websites like Mark Goodacre's NT portal.[43] Besides these independent projects, institutional structures are emerging: the first European digital theological center is in Durham – the CODEC Center – and it is leading several projects to bring digital biblical literacy to a wider audience.[44]

These examples give an idea about the diversity of online projects in New Testament studies. They

32 http://egora.uni-muenster.de/intf/index_en.shtml; https://www.birmingham.ac.uk/research/activity/itsee/index.aspx; http://ntvmr.uni-muenster.de/.
33 http://ntvmr.uni-muenster.de/nt-transcripts.
34 Griffts, "Software for the Collaborative Editing of the Greek New Testament."
35 http://www.csntm.org/; http://pavone.uob-dh.org/; http://paratexbib.eu/.
36 https://bibletraditions.org/.
37 https://bibletraditions.org/vd/en/2.Definition.en.pdf.
38 See the demonstration chapter: https://bibletraditions.org/bible/Jas5.13-18.
39 https://reires.eu/.
40 Clivaz, *Ecritures digitales*, 167–195 and 218–223.
41 https://www.edx.org/course/early-christianity-letters-paul-harvardx-hds1544-1x; https://www.bibleodyssey.org/.
42 This point will be developed in Section 3.
43 https://www.sbl-site.org/educational/default.aspx; http://www.ntgateway.com/.
44 https://www.dur.ac.uk/codec/project/; https://www.dur.ac.uk/codec/project/.

cannot all be considered VREs, but they all contribute to extending the digital space devoted to research on, and the teaching of, the New Testament. This overview reveals also that there has never been a VRE designed to lead research on a chapter or section of the NT text, whereas the VRE MARK16 allows researchers to gain information and discuss hypotheses on this particular chapter. Trying to design such a VRE first requires adressing an important question: are we doing serious scholarly work in VREs, or are they useful essentially for teaching? The question is not an exaggeration considering, for example, that the Society of Biblical Literature has classified the material available on its *Bible Odyssey* website as "educational resources," although the rubric presents many research tools.[45] It is obviously beyond the ability of the present article to predict whether VREs will regularly welcome NT exegesis beyond the linear nature of books. However, Section 3 argues that it is worth attempting to develop such a trajectory to mobilize all digital potential in order to renew perspectives on Mark 16.

3 The MARK16 Project as innovative New Testament Virtual Research Environment

It is a well-known enigma that a diversity of endings are found in manuscripts containing Mark 16.[46] The two oldest witnesses we have are Codex Sinaiticus and Codex Vaticanus (4th century CE), both of which conclude the second gospel in this way: "So they [the women] went out and fled from the tomb, for terror and amazement had seized them; and they said nothing to anyone, for they were afraid" (Mark 16:8).[47] Apart from these two codices and the 12th century minuscule 304,[48] all the other manuscripts present endings that continue on after Mark 16:8, most often preserving the longer ending of Mark 16:9-20.[49] For centuries, readers apparently preferred to continue the story after Mark 16:8, or otherwise to stop prior to this verse, as seen in the traditional Easter liturgy that ends the reading at Mark 16:7 on Easter night. The enigma is reinforced by the fact that there is no evidence from the early papyri of the Markan ending(s): no manuscript evidence of Mark 16:8 preceding the fourth century has survived. To renew the quest about this classical *locus* of NT research methodologically, the MARK16 project will build a VRE.[50] In this Section, I firstly present the features of MARK16 that fit with the analysis presented in Sections 1 and 2, then I discuss changes in scholarly practices illustrated by MARK16: the access, definition, and presentation of the sources and secondary literature, and the representation of the diversity of opinions in the past and today.

3.1 MARK16 and the research challenges of the VREs

MARK16 will be lead by a team of three researchers, the PI, Claire Clivaz, a post-doc, Mina Monier, and a bioinformatician, Martial Sankar. An international scientific committee accompanies the project composed of Leif Isaksen (University of Exeter, UK), Jennifer Knust (Duke University, USA); Valérie Nicolet (IPT, France), Laurent Romary (INRIA, France), Joseph Verheyden (Catholic University Leuven, Belgium), and Peter Williams (Tyndale House, UK). At the end of this five year project, the VRE should become a place of reference for research about MARK16, providing material related to this chapter (sources and secondary

45 https://www.sbl-site.org/sitemap.aspx.

46 For the most recent article on the question, see Hultgren, "'A Vision for the End of the Days'"; see also my conference paper given on 7 November 2018 at the conference "Textual plurality in the Bible" in Paris: Claire Clivaz, "Mk 16,8 and the manuscripts evidence: listening to the scribal voices" (article in preparation).

47 I am using the *New Revised Standard Version*.

48 Elliott, "The Last Twelve verses," 82.

49 For a summary of the existing Mark endings, see Focant, "Un silence qui fait parler," 342–344. Focant details six categories of existing variants (pp. 342–343), whereas they are commonly summarized as four (see for example Robinson, "The Long Ending of Mark as Canonical Verity," 41–42).

50 MARK16 VRE is scheduled to be open at the end of 2019: https://mark16.sib.swiss; the blog of the project is already open: https://digitalhumanitiesplus.sib.swiss/#/project/mark16.

literature), the visualization of the data, the project outputs (publications and activities) and an important innovation: the interpretation tool that is presented below. Of course, as usual in a Humanities project, the PI and the post-doc will also have the opportunity to develop and present their own hypothesis about the NTTC enigma in Mark 16. Before discussing two main features of the MARK16 VRE, I will evaluate it in light of the points presented in Section 1 and 2.

MARK16 will fit with the five features of a VRE given by Candela, Castelli, and Pagano, and quoted in Section 1. It will be "(i) a web-based working environment," promoting "(v) fine-grained controlled sharing of both intermediate and final research results by guaranteeing ownership, provenance and attribution."[51] The web-based MARK16 will give access, as far as possible, to all relevant material for the study of this biblical chapter, with hyperlinks to the material available online, or with pdf or images of the material available in Open Access licenses. As MARK16 is supported by the Swiss National Foundation institution (SNSF), the material produced during the project itself has to be OA, normally in the golden way. In the SNSF project HumaReC, our team has already established its VRE publication model: HumaReC received an ISSN from the National Swiss Library[52] and all the material produced by the team and published on the VRE is in license CC-BY 4.0, including the code available on GitHub.[53] MARK16 will apply the same publication model to its data. The fourth criteria – to be "(iv) open and flexible with respect to the overall service offering and lifetime"[54] – is also on the MARK16 agenda. In fact, since October 2017, all the projects submitted to the SNSF must present a data management plan, including the mention of a public depository for their data at the end of the project.[55] We have chosen to discuss with the Huma-Num services to deposit our data, with HAL and Nakala.[56]

Finally, Candela, Castelli, and Pagano's VRE criteria 2 and 3 point to community practices: a VRE is "(ii) tailored to serve the needs of a community of practice", and "(iii) is expected to provide a community of practice with the whole array of commodities needed to accomplish the community's goal(s)."[57] These two criteria summarize a VRE's generic features underlined in Section 1: it is a collaborative workspace. MARK16 is completely tailored for a community of practice, NTTC scholars and students, willing to develop DH practices. Although the PI and the post-doc will develop and present their own hypotheses about MARK16, the VRE is intended to allow scholarly debates between the diverse hypotheses in research, allowing users to build their own paths within research material. To create such a result, several collaborations have been established. First, members of the team will spend time in the institutions of the members of the scientific committee, in order to test the VRE with colleagues and students, and get regular feedback on the project from the users' point of view. Certain tools will be open to all interested scholars on request, such as a common Zotero bibliography online.[58] Second, several collaborations will be developed to build, for example, a small manuscript room with the interesting folios of Mark 16, collaborating with the *Virtual Manuscript Room Collaborative Environment* designed by Troy Griffits.[59] Regarding data visualization, we will collaborate and be in touch with Leif Isaksen's team and the *Pelagios* project.[60]

In summary, one can say that MARK16 fits exactly with the five VRE criteria proposed by Candella, Castelli, and Pagano. It also builds on the VRE decade of development. To establish a VRE, one has to become conscious of the renewal of research practices it implies, and this analysis has been done so in the preparatory steps of the project. MARK16 fits also with the important scholarly expectation in the DIMPO 2015 inquiry about digital practices: to construct a digital research infrastructure.[61] Moreover, it represents

51 Candela, Castelli, and Pagano, "Virtual Research Environments," 77.
52 https://humarec.org.
53 https://github.com/humarec/humarec-tei.
54 Candela, Castelli, and Pagano, "Virtual Research Environments," 77.
55 http://www.snf.ch/SiteCollectionDocuments/DMP_content_mySNF-form_en.pdf.
56 https://www.huma-num.fr/; https://hal.archives-ouvertes.fr/; https://www.nakala.fr/.
57 Candela, Castelli, and Pagano, "Virtual Research Environments," 77.
58 https://www.zotero.org.
59 http://vmrcre.org/.
60 http://commons.pelagios.org/.
61 Chatzidiakou, and Dallas, *DARIAH-EU Scholarly Practices Survey*, 7.

an original way to give an answer to the open-ended potential of a digital collection, essentially limited by "time and financial resources," as Mombert underlined.[62] Indeed, focusing on a biblical chapter as research object illustrates the fact that the canonical delimitation of the Bible remains a way to draw a limit in a digital collection, as I underlined in Section 2.[63] Of course, such a delimitation is produced by NT scholarly community practices, and the VRE will allow it to be opened up to a diversity of related texts and sources. Several studies devoted to Mark 16 simply bypass all the apocryphal Christian literature,[64] a limitation that is clearly overcome in the MARK16 project. Finally, by referencing the multimodal material available online relevant to Mark 16, our VRE will fully belong to the development of digital collections towards a multimodal digital culture,[65] as the next points develop.

3.2 The MARK16 VRE as illustration of changes in scholarly practices

A VRE attempts to pass from a paper-based context to a digitized research environment. Scholars doing research on textual variants within printed culture are used to ending up with many boxes full of photocopied articles and abstracts of books, as material used to write a final book on a topic. Thanks to the migration from paper-based research to VREs, one is able to have access in the same place to many sources, secondary literature, and materials, as well as the results of the research itself. This switch has deep consequences for research and publications by reshaping the relationship of the researcher to the sources and secondary literature. Inscribed within the "intrinsic VRE nature," in order to build "a 'collection' of existing systems and resources,"[66] MARK16 presents, in chronological order, the sources and secondary literature available in open access. Other sources can also be signaled in an online bibliography.

All items will be clearly referenced and situated in a timeline. Paradoxically, the chronological aspect is often neglected when it comes to VREs. See for example Rob Nelson in *Mining the* Dispatch,[67] a VRE that uses topic modeling to explore the Confederacy's paper based records during the Civil War. As far as I have observed, this website does not indicate when the material was produced. The VRE *Virtual St Paul's Cathedral Project*[68] is another example that, although anchored in the field of English literature,[69] is largely interdisciplinary with elements coming from acoustics, architecture, theology, and history. However, this interdisciplinary website generally does not provide references for its items:[70] a VRE must provide clear chronological references for each source, document, or secondary literature presented. The mockup in Figure 1 gives an idea of the organization of the timeline.

The referenced manuscripts will be consultable, as far as is possible, in a manuscript room focused on the folios of Mark 16. The section "texts" will sidestep the usual categorization of ancient Christian texts, in particular the separation between canonical and non-canonical texts, a separation too often present in most research on Mark 16. Moreover, the MARK16 timeline will transform the usual partition between ancient sources[71] and modern secondary literature. Indeed, chronological factors provide the basis of their essential distinction, and nothing prevents one from integrating them in the same temporal section simply entitled "texts." This large classification is a Copernican revolution of sorts within the MARK16 VRE, and

62 Mombert, "From Books to Collections," l. 5248.
63 Clivaz, *Ecritures digitales*, 167–195 and 218–223.
64 For example, nothing is told about the eventual relationship of Mark 16 with apocryphal Christian literature in Black, *Perspectives on the Ending of Mark*, Hester, *Does Mark 16:9-20 Belong in the New Testament?* or Lunn, *The Original Ending of Mark*.
65 Clivaz, *Ecritures digitales*, 210–217 and 228–230.
66 Candela, Castelli, and Pagano, "Virtual Research Environments," 77.
67 http://dsl.richmond.edu/dispatch/pages/home.
68 https://vpcp.chass.ncsu.edu/.
69 Wall, "Recovering Lost Acoustic Spaces."
70 See for an example https://vpcp.chass.ncsu.edu/donne-preaching/.
71 Until the 4th or even the 7th century in Early Christian studies, see Clivaz, Mimouni, and Pouderon, *Les judaïsmes dans tous leurs états*.

the impact of this methodological decision will be monitored. This section will be open-ended by definition and of course open to collaboration with all the interested scholars.

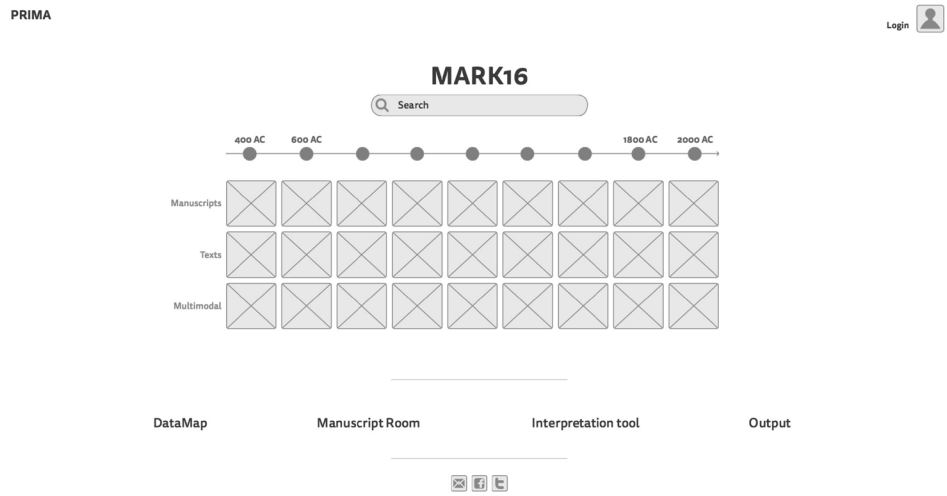

Figure 1. Model of Chronological Layout of Material in MARK16

The third section of the timeline is the multimodal material available on Mark 16. The online videos on the topic are notably increasing, including examples by Helen Bond on *Bible Odyssey*, or by Bart Ehrman and Dan Wallace.[72] Such material has to be considered, analyzed, and compared to the written production of these scholars: what does the oral rhetoric change about their argumentation? What does it reveal or make unclear? The interplay between images, texts, and sounds is one of the major features of digital culture, and invites the production of multimodal editing tools, such as eTalks. We have published two eTalks[73] presenting the first step of the project:

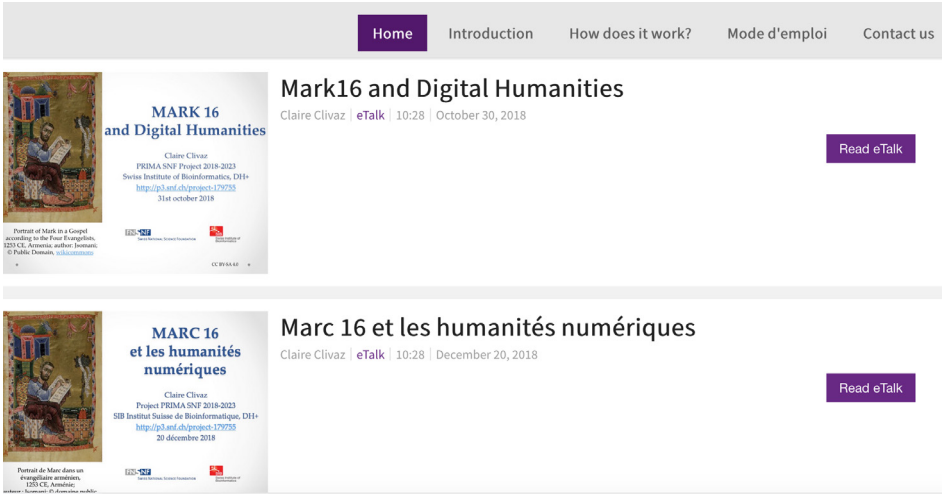

Figure 2. eTalks https://etalk.sib.swiss/dh/

Another important change in digital scholarly practices that the project wishes to inculcate is the fostering of diversity in opinion. The challenge here is to translate into a VRE the preoccupation of the French historian

72 http://www.bibleodyssey.org/tools/video-gallery/w/what-is-the-ending-to-marks-gospel; https://www.youtube.com/watch?v=c1zmaVU UzMU; https://www.youtube.com/watch?v=wEnKMLpclUc.

73 https://etalk.sib.swiss/dh/. For a presentation of this new multimodal editing tool, see Clivaz, Pache, Rivoal, and Sankar, "Multimodal literacies." This video explains how an eTalk works: https://etalk.sib.swiss/dh/mode-demploi/.

François Hartog: is it possible to write history from the point of view of both the losers and the winners?[74] In principle, within a VRE, DH research provides several skills worth discussing from diverse points of view. However, previous historical VREs are often focused on making resources available and mapping them, rather than on debates.[75] MARK16 will build a new tool to allow for scholarly debate around MARK16 to be visible on the VRE, that is the interpretation tool. It is an editor that allows scholars to answer a particular scientific question or hypothesis by browsing and selecting items that could support their hypothesis. Then the collected items will be classified by argument to build an argumentative section and to allow for oral comments. The collection of items and their classification can be easily performed using a user-friendly editor interface.

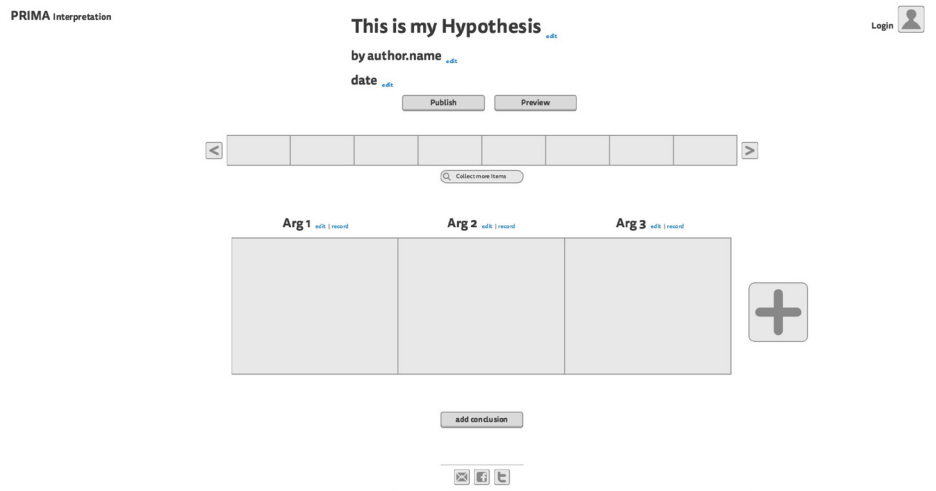

Figure 3. Sample Hypothesis Template

By relying on visual elements and orality, the visualization of the hypothesis will be feasible using a viewer interface. This historical "digital storytelling" should be "able to design content that makes a lasting impact on [the] audience."[76] Considered from this angle, the project nears the traditional task of the historian as described by the second century CE author Lucian of Samosates, a historian's audience was supposed to applaud to express its agreement.[77] A voting function will allow MARK16 users to vote for their preferred MARK 16 "historical digital storytelling."

In this diversity, there will of course be a space for my own hypothesis on MARK16, which I will explore in the project. My working research hypothesis can be articulated in the following way: the key element to understanding what might have been erased from earlier Markan versions should be the analysis of the disciples' emotional reactions in front of Jesus' apparitions. These can be expressed by diverse feelings. For example: fear (Mark 16:8; Luke 24:37; *Gos. Pet.* 57), grief (Mark 16:10; *Gos. Pet.* 59), "unbelief of joy" (Luke 24:41), or the laughing of the resurrected Jesus himself (*Ap. Jas.* 3.35–38).[78] Sarah's laughing and fear in LXX Gen 18:15 belongs to Mark 16's cultural background, as well as trouble and sadness in LXX Gen 45:3.[79] Such a historico-cultural background will be explored in MARK16 to make visible the diversity of points of view regarding the Jesus appearance stories in early Christian communities.

In digital culture, scholarship should certainly be more concerned with promoting diversity of opinions rather than proclaiming one definitive point of view. With the possibility of representing various opinions

74 Hartog, "Le témoin et l'historien," 14: "Alors que l'histoire des vainqueurs ne voit qu'un seul côté, le sien, celle des vaincus doit, pour comprendre ce qui s'est passé, prendre en compte les deux côtés. Une histoire des témoins ou des victimes peut-elle faire droit à cette exigence qu'emporte avec elle le très vieux mot d'*historia*?"
75 Robertson, "The Differences between digital history."
76 https://storytelling.design/storytelling.
77 Lucian of Samosates, *How to Write History*, § 49.
78 For preliminary inquiries, see Clivaz, "Incroyants de joie"; Clivaz, "What is the Current State."
79 Iverson, "A Further Word," 87.

of the past in a VRE, scholars should invest their efforts in representing the views of both the historical winners and losers. They should become more interested in research that is open to diverse scholarly voices and, for example, attempt to understand the *raison d'être* of several Greek NT editions,[80] rather than arguing for one of them against the others. After all, the Bible was transmitted in diverse great codices at the earlier centuries, in diverse communities, of which the codices Sinaiticus, Vaticanus, Alexandrinus, and Ephraemi Rescriptus are only echoes. After all, early Christians renounced the Diatessaron edition of the gospels, keeping four of them in their New Testament canon. Let the digital culture allow for diverse early and present Christian voices to be heard as a profitable gift of its impact in research.[81]

References

Bellamy, Craig. "The Sound of Many Hands Clapping: Teaching the Digital Humanities through Virtual Research Environment (VREs)". *Digital Humanities Quarterly* 6/2 (2012), § 1–17. http://www.digitalhumanities.org/dhq/vol/6/2/000119/000119.html.

Black, Dan A. (ed.). *Perspectives on the Ending of Mark. 4 Views*. Nashville: Broadman & Holman, 2008.

Busa, Roberto. "Foreword: Perspectives on the Digital Humanities." In *A Companion to Digital Humanities*, edited by Susan Schreibman, Ray Siemens, John Unsworth. Edinburgh: Blackwell, 2004, http://www.digitalhumanities.org/companion/.

Bush, Vannevar. "As we May Think." *The Atlantic Magazine*. (9 July 1945), http://www.theatlantic.com/magazine/print/1945/07/as-we-may- think/303881/.

Candela, Leonardo, Castelli, Donatella, Pagano, Pasquale. "Virtual Research Environments: An Overview and a Research Agenda." *Data Science Journal* 12 (2013), 75–81. DOI: 10.2481/dsj.GRDI-013.

Carusi, Annamaria, and Reimer, Torsten. "Virtual Research Environment Collaborative Landscape Study. A JISC funded project." London: JISC, 2010, 1–106. http://www.jisc.ac.uk/media/documents/publications/vrelandscapereport.pdf.

Chatzidialou, Nephelie, and Dallas, Costis. *DARIAH-EU Scholarly Practices Survey. European survey on scholarly practices and digital needs in the arts and humanities*. Athens: IMIS-Athena Research Center, 2016, https://zenodo.org/record/260101. German translation by Beat Immenhauser: https://zenodo.org/record/260250; French translation by Claire Clivaz: https://zenodo.org/record/254112.

Clivaz, Claire. "'Incroyants de joie' (Lc 24, 41). Point de vue, Histoire et Poétique." In *Regards croisés sur la Bible. Etudes sur le point de vue. Actes du IIIe colloque international du Réseau de recherche en narrativité biblique. Paris 8-10 juin 2006* (*Lectio Divina*), edited by RRENAB. Paris: Cerf, 2007, 183–195.

Clivaz, Claire. "The New Testament at the Time of the Egyptian Papyri. Reflections Based on P^{12}, P^{75} and P^{126} (P. Amh. 3b, P. Bod. XIV-XV and PSI 1497)." In *Reading New Testament Papyri in Context – Lire les papyrus du Nouveau Testament dans leur contexte* (*BETL* 242), edited by Claire Clivaz and Jean Zumstein, with Jenny Read-Heimerdinger and Julie Paik. Leuven: Peeters, 2011, 15–55.

Clivaz, Claire. "What is the Current State of Play on Jesus' Laughter ? Reading the *Gospel of Judas* in the midst of Scholarly Excitement." In *Judasevangelium und Codex Tchacos. Studien zur religionsgeschichtlichen Verortung einer gnostischen Schriftensammlung* (WUNT I 297), edited by Edgar E. Popkes and Gregory Wurst. Tübingen: Mohr Siebeck, 2012, 213–242.

Clivaz, Claire, Simon Mimouni, and Pouderon, Bernard, eds. *Les judaïsmes dans tous leurs états aux Ier-IIIe siècles (Les Judéens des synagogues, les chrétiens et les rabbins). Actes du colloque de Lausanne 12-14 décembre 2012* (*JAOC* 5). Turnhout: Brepols, 2015.

Clivaz, Claire, Cécile Pache, Marion Rivoal, and Sankar, Martial. "Multimodal Literacies and Academic Publishing: the eTalks". *ISU* 35 (2015/4), 251–258, http://content.iospress.com/articles/information-services-and-use/isu781.

Clivaz, Claire. *Ecritures digitales. Digital Writing, digital Scriptures* (*DBS* 4). Leiden: Brill, forthcoming.

Elliott, J. Keith. "The Last Twelve Verses of Mark: Original or Not?" In *Perspectives on the Ending of Mark, 4 Views*, edited by Dan A. Black, 80–102. Nashville: Broadman & Holman, 2008.

Epp, Eldon J. "It's All about Variants: A Variant-Conscious Approach to New Testament Textual Criticism." *HTR* 100 (2007), 275–308.

Focant, Camille. "Un silence qui fait parler (Mc 16,8)." In *Marc, un évangile étonnant, Recueil d'essais* (*BETL* 194), Camille Focant, 341–358. Leuven: Leuven University Press, 2006.

80 Beyond the Nestle-Aland edition and the ECM noted in Section 2, other Greek NT editions have been published in recent years: Pierpont and Robinson, eds., *The New Testament in the Original Greek Byzantine Textform* (2005); Holmes, ed., *The SBL Greek New Testament* (2010); Jongkind, Head, and Williams, eds., *The Tyndale House Greek New Testament* (2017). For comment, see Clivaz, *Ecritures digitales*, 33–35 and 42–43.

81 Many thanks are due to Elizabeth Monier and Garrick Allen for proofreading the English of this article.

Franzini, Greta, Melissa Terras, and Simon Mahony. "A Catalogue of Digital Editions." In *Digital Scholarly Editing: Theories and Practices*, edited by Elena Pierazzo, and Matthew Driscoll, 161-182. Cambridge: Open Book Publishers, 2016. DOI:10.11647/OBP.0095.

Griffits, Troy A. "Software for the Collaborative Editing of the Greek New Testament." PhD. Thesis. University of Birmingham, 2018, http://etheses.bham.ac.uk/8244/.

Hartog, François. "Le témoin et l'historien." *Gradhiva* 27 (2000), 1–15; reprint in *Evidence de l'histoire* (*Foliohistoire*). Paris: Gallimard, 2007, 236–266.

Hester, David W. *Does Mark 16:9–20 Belong in the New Testament?* Eugene: Wipf and Stock, 2015.

Holmes, Michael, ed. *The SBL Greek New Testament*. Atlanta: SBL/Logos Bible Software, 2010, http://www.sblgnt.com.

Houghton, Jones, Colin Stele, and Margaret Henty. "Research Practices and Scholarly Communication in the Digital Environment." *Learned Publishing* 17 (2004), 231–249.

Hultgren, Stephen. "'A Vision for the End of the Days': Deferral of Revelation in Daniel and at the End of Mark." *ZNW* 109 (2018), 153–184.

Iverson, Kelly R. "A Further Word on Final Γάρ (Mark 16:8)." *CBQ* 68 (2006), 79–94, https://www.jstor.org/stable/43725642.

Jongkind, Dirk, Peter Head, and Peter Williams, eds. *The Tyndale House Greek New Testament* (THGNT). Cambridge: Tyndale House, 2017.

Jones, Steven E. "The Emergence of the Digital Humanities (the Network Is Everting)." In *Debates in the Digital Humanities*, edited by Matthew K. Gold and Laura Klein, http://dhdebates.gc.cuny.edu/debates/text/52. Minnesota: University Minnesota Press, 2016.

Jones, Steven E. *Roberto Busa, S.J., and the Emergence of Humanities Computing. The Priest and the Punched Cards*. Oxford: Routledge, 2016.

Lunn, Nicholas P. *The Original Ending of Mark. A New Case for the Authenticity of Mark 16:9–20*. Eugene: Pickwick, 2014.

Mombert, Sarah. "From Books to Collections. Critical Editions of Heterogeneous Documents." In *Digital Critical Editions* (*Topics in the Digital Humanities*), edited by Daniel Apollon, Claire Bélisle, and Philippe Régnier. Champaign: University of Illinois Press, 2014.

Parker, David C. *An Introduction to the New Testament Manuscripts and Their Texts*. Cambridge: Cambridge University Press, 2008.

Pierazzo, Elena. *Digital Scholarly Editing. Theories, Models and Methods* (*Digital Research in the Humanities*). New York: Routledge Press, 2015.

Pierpont, William G. and Maurice A. Robinson, eds. *The New Testament in the Original Greek Byzantine Textform.* Philadelphia: Chilton, 2005.

Robertson, Stephen. "The Differences between Digital History and Digital Humanities." *Debates in the Digital Humanities* 2 (2016), http://dhdebates.gc.cuny.edu/debates/text/76.

Robinson, Maurice A. "The Long Ending of Mark as Canonical Verity." In *Perspectives on the Ending of Mark, 4 Views*, edited by Dan A. Black, 40–79. Nashville: Broadman & Holman, 2008.

Schmid, Ulrich. "Transmitting the New Testament Online." In *Text Comparison and Digital Creativity*, edited by Wido van Peursen, Ernst Thouthenhoofd, and Adrian van der Weel, 189–206. Leiden: Brill, 2010. DOI: 10.1163/ej.9789004188655.i-328.73.

Stiegler, Bernard. *Dans la disruption. Comment ne pas devenir fou?* Paris: Les liens qui libèrent, 2016.

Svensson, Patrick. "Humanities Computing as Digital Humanities." *DHQ.* 3:3 (2009), §1-62 http://www.digitalhumanities.org/dhq/vol/3/3/000065/000065.html.

Wallace, Dan B. "Challenges in New Testament Textual Criticism for the Twenty-First Century." *JETS* 52 (2009), 79–100.

Wall, John. "Recovering Lost Acoustic Spaces: St. Paul's Cathedral and Paul's Churchyard in 1622." *Digital Studies / Le champ numérique* (2014), https://www.digitalstudies.org/articles/10.16995/dscn.58.