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Digital Theology: New Perspectives on  
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# Digital Theology: New Perspectives on Interdisciplinary Research Between the Humanities and Theology

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## Abstract

This article analyses the usage of methods from Digital Humanities within Theology and tries to find synergies and limitations. (1) We propose a fourfold characterization schema for methods within DH. Understanding the different perception of methods from DH used in Theology and Religious Studies we propose the term “Digital Humanities in Theology” as best match to describe the research within Theology using methods from DH. (2) Since DH always include a methodological transfer of a scientific domain to computer science which includes the representation of domain data with data points and data records even before applying methods from DH in Theology we have a step of interpretation. We support the idea of a double act of interpretation but see the need to extend this process with feedback towards Theology as a re-interpretation step. This suggests three steps of knowledge representation and data re-interpretation and supports the requirement of basic knowledge within three domains: Theology, a humanity and Computer Science. (3) We discuss some interdisciplinary ideas from the field of Data and Computer Science underlining the need for further research within the field of Findable, Accessible, Interoperable and Reusable (FAIR) data management, open source software and open science approaches within DH and Theology. These research questions on the interdisciplinary field within Theology, Humanities, and Computer Science lead to new perspectives on the interdisciplinary research between Theology and Humanities.

**Keywords:** Digital Theology, Digital Humanities, Theology, Interdisciplinary Research, Biblical Studies, Social Network Analyses

*INTRODUCTION*<sup>2</sup>

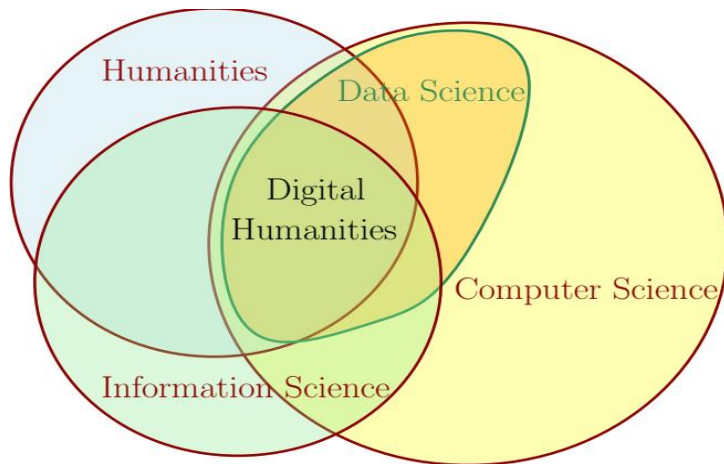
We are living in a computer-based world with digitalization being an important part of emerging research and development. Digital content has also become more essential for theological research, education, and ministry. For some time these approaches followed the development of the Digital Humanities (DH). Although they are only hesitantly gaining acceptance in some parts of theological research, they have become a vital factor in Practical Theology and ministries.

Few researchers have addressed the interdisciplinary aspects of what is also called Digital Theology. This naming has been fostered by ODEC Research Centre at Durham University (Phillips, Schiefelbein-Guerrero, and Kurlberg 2019). Previous work has been mostly limited to application of particular methods to religious or theological research questions. To open the whole toolbox of Computer Science and Digital Humanities to religious and theological research there is an urgent need to clarify the possible methodical synergies between Humanities and Theology with respect to Computer Science. In other words, shall we talk about “Digital Theology,” “Digital Humanities in Theology,” or just “Digital Humanities?”

In addition, there is still much controversy surrounding the application of digital methods in Theology. “Theologians have shown scant interest to this point in the tools for linking data, mapping, network analysis, text mining, and visualizing information that are fueling digital scholarship in other disciplines.”(Anderson, 2018) Thus it is also crucial to start a discussion on the interdisciplinary field between Theology and Computer Science: What are particular requirements, not only technical but also with respect to ethics and philosophy of science? How can we guarantee reproducibility and accessibility of quantitative research? Yet there are also little discussed issues concerning the intersection between different scientific fields. DH can be found where Humanities and Computer and Information Science intersect (see Figure 1). There is also an intersection with Data Science, a subdomain of Computer Science mostly known for having applications in technologies like IoT, business, and marketing. While the question of where exactly DH is placed in this picture was heavily discussed in recent years, the question remains unclear – and is mostly ignored – within the field of Theology. We will also discuss how the emerging results of Data Science within recent years raise new questions for DH and applications within Theology.

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<sup>2</sup> This article is based on a talk given at the GBFE seminar on Biblical Studies held at Wiedenest in September 2021.



**Figure 1: Illustration of several intersections between Humanities, Computer Science (with its subdomain Data Science) and Information Science**

This paper is divided into five sections. After the introduction, the second section gives a short review of DH with special focus on theology. The third section describes the limitations and possible synergies between DH and theology. Here we will try to answer whether it is appropriate to talk about “digital theology,” “digital humanities in theology,” or just “digital humanities.” The fourth section is dedicated to interdisciplinary challenges from computer and data science. Our conclusion and outlook is drawn in the final section.

#### *A SHORT REVIEW ON DIGITAL HUMANITIES IN THEOLOGY*

There is a considerable amount of literature on digital humanities (DH) and its history, and we can only give a short overview on that topic<sup>3</sup>. The anthology (Terras, Nyhan, and Vanhoutte 2016) describes the development from “humanities computing” to “digital humanities.” The work by Oliver Le Deuff (2018) presents a more technical overview. Both describe the several paradigm shifts within the last decades. On the one hand, technologies are constantly improving and lead to new applications like natural language processing with artificial intelligence or augmented reality. On the other hand, definitions or research questions within the humanities are changing. DH is not only an auxiliary science helping to visualize or query databases, but is also emerging as a valuable counterpart to creating new research questions. Still, DH assume “that these approaches cannot and will not make obsolete other existing interpretive frameworks”(Dobson 2019, 23). To sum up, with DH we obtain computational methods which are not only auxiliary, but will remain a crucial methodological part of the domain in the scientific field.

Within DH numerous methods are used. Phillips, Schiefelbein-Guerrero, and Kurlberg (2019, 31) discussed the temporary widening of DH to the “big tent” which comprises not only all digital methods but also other institutions of cultural

<sup>3</sup>There were several attempts at developing a definition of DH. We will use the definition given by Clifford Anderson (2018): “My standard rubric is that the digital humanities applies computational methods to the analysis of classical problems in the humanities.” For further information, refer to the unique CODEC Research Centre for Digital Theology at <https://www.dur.ac.uk/digitaltheology/>.

heritage. On the other hand, this leads to digital scholars who do research in a completely new way (Terras 2013, 264–66). A selected list of topics and methods cover data modeling, digital objects, digital methods, law, and ethics but also in particular natural language processing and analysis, sound and music processing, visual computing (visualization, 3D animations, computer games), image analysis, databases, and information systems. (See for example Levenberg, Neilson, and Rheams 2018, or Berry 2012.) It is not surprising that we can also find nearly all these methods with their applications in the field of theology and religious studies. Basically, all areas — humanities as well as theology and religious studies — share the same methods. For example, within the field of Practical Theology we see “research on preaching in the contemporary church, and [scholars] began to explore the impact of digital culture on the training of Christian ministers and within the Church in general” (Phillips, Schiefelbein-Guerrero, and Kurlberg 2019, 29). Here, we also find the topics “media ethics” and “communication on the Internet.” But, as Clivaz (2013) stated, we have to raise the question of why some scholars see only limited research in this field, in particular in digitized manuscripts and digital academic research and publishing (see also Anderson 2018). In addition, the field of Theology is barely noticed within the DH community<sup>4</sup>. We will continue with a detailed analysis of this issue.

First, we need some coordinates to map the research results in the areas of DH and theology. For this, we will extend an initial idea provided by Stegbauer and Häußling (2010, 21) to evaluate methods.<sup>5</sup> They introduced a fourfold characterization depending on the usage of methods from computer science and their feedback or dialogue to the original research domain:

1. The usage of models derived from methods used in DH to evaluate thesis or to create new thesis within the field of theology or religious studies.
2. The usage of models and methods from DH to work with empiric data within the field of theology or religious studies.
3. Using methods from visual computing (e.g. visualization and interactive tools) to explain, present and discuss the results generated when applying 2.
4. Generating a mathematical and/or computational model which abstracts the data from 2 to create novel models or method within the field or DH.

Each category of this schema includes the preceding categories. This means, for example, the usage of models and methods on empirical data (2) includes the usage and theoretical reflection of existing models and methods (1). These categories include methods and approaches from DH on a different level. We will discuss some short examples from the field of social network analysis (SNA) in theology to illustrate the schema.

1. In this category, scholars examine social relations between actors, i.e. individuals or institutions. Here, scholars do not yet collect data empirically. This

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<sup>4</sup>Although a European perspective, we refer to Czmiel, Druskat, and Schrade (2018).

<sup>5</sup>It was originally introduced within the field of social network analysis: “(1) die Analyse der sozialen Beziehungen zwischen Akteuren als wichtiger Bestandteil gesellschaftlicher Ordnung, (2) die systematische Erhebung und Auswertung empirischer Daten, (3) die graphische Präsentation dieser Daten und (4) mathematische und computergestützte formale Modelle, um zu Abstraktionen dieser Daten zu gelangen.” (Stegbauer and Häußling 2010, 21) [(1) The Analysis of social relations between actors, (2) working with empirical data, (3) graphical visualization and (4) mathematical and computer-based models for abstract models.] The following schema was also discussed by Dörpinghaus (2021).

includes, above all, works that use methods and ideas of SNA to build theories or models and bring them into argumentative discussion with the biblical text. See, for example, the works of Thompson (1998), Chzachesz (2011), and Roitto (2019).

2. Since scholars usually apply visualization in this category, we continue with (3).

3. Theology is generally not an empirical science, but empirical data can be generated using Biblical texts. Besides exegetical findings and historical sources, cities, roads, harbors, and especially archaeological findings can be integrated. Scholars collect data empirically and visualize accordingly. See, for example, the works of Duling (1999, 2000, 2013) and Kloppenborg (2020).

4. In this category, we go one step further, to heuristic models, which are formally computer-aided models in the form of data points. These are mathematical models in the sense of graph theory. See, for example, the works of McClure (2016), Massey (2016), and Dörpinghaus (2020).

Depending on the scholars' perspective and how broadly we see the field of DH in theology, we find more or less literature and scholars using the above methods. This explains why we see divergent views on the usage of digital methods within theology.

It is easy to see that in different levels of DH and theology, different limitations and synergies exist. We will continue discussing these aspects in the next sections. And in category 4 many interdisciplinary challenges from computer and data science occur. Before proceeding with these topics, however, we need to discuss the special position of theology within the field of humanities to discuss some interdisciplinary challenges here. For some scholars, it is without any doubt that theology is part of the humanities, and universities often organize like this. However, a long history of discussion and solutions tries to place theology in the classic schema between natural sciences and humanities.

Theology is, of course, a specific discipline. Theology is not the same as the sociology of religion, information studies, or communication studies. Theology is the critical study of the nature of God, or of God's interaction with the world, or of the world's exploration of the mystery of faith. Theology is about thinking through that connection with the other. As such, digital theology is distinct from its sister discipline digital religion which is much more focused on the exploration of the phenomena of religion in digital culture and their meaning (Phillips, Schiefelbein-Guerrero, and Kurlberg 2019, 37).

To keep a long story short, we must consider the dialectic nature of theology. Whereas in the field of practical theology it is much more clear what the subjects and objects of research are and how the dialectic nature of theology may be tackled, other subjects like Old and New Testament studies need to do much more reflection on that before applying methods from the humanities. In other words, the overlap between humanities and theology depends on the subfield of research.

The upshot of these reflections is that theologians aspiring to work in the digital humanities must perform a double act of interpretation. [...] [T]heologians must engage with the methodologies of the digital humanities, or at least approach them from the margins, ascertaining their possibilities and limits for theological research. (Anderson 2018)

Having finished this discussion, it is ultimately irrelevant whether theology belongs in the humanities. At this point the digital toolboxes, tools, and methods are similar across disciplines. Thus, we argue that the term "digital humanities in theology"

may be used. The term “digital theology” may be misleading, because it suggests that the methods within DH and DT differ — which they don’t. On the other hand, using only “digital humanities” is also misleading, because it omits the double act of interpretation.

### *DIGITAL HUMANITIES AND THEOLOGY: LIMITATIONS AND SYNERGIES*

When talking about limitations and synergies between DH and theology, first, we have to discuss some foundations within philosophy of science. Theology itself has several subdomains like practical theology, historical theology, systematic theology or biblical studies in New and Old Testament. All these fields have a different methodological overlap to other disciplines and sciences. Although this topic is not widely discussed,<sup>6</sup> we have to consider this for further approaches.

The most important question to discuss is whether methods from the humanities can be applied without any methodological precondition within Theology. Not long ago, theology was widely skeptical about interdisciplinary approaches. “It seems that the emphasis on the so-called ‘empirical’ method in theology has not grown out of actual theological demands but has been imposed on theology under the pressure of a ‘methodological imperialism,’ exercised by the pattern of natural sciences.” (Tillich 1947, 16) But there was a paradigm shift within the last three or four decades.<sup>7</sup> For example, Heimbrock (2005, 274) introduces the “Experiential Dimension of Faith” when establishing his hypothesis about empirical methods within practical theology. The main challenge remains for subdomains in theology which do not need a prior condition. In other words, can we think about a subdomain in theology without thinking about God? Without going into the depths of philosophy of science, we argue that some areas in theology have this methodological freedom, for instance, archaeology<sup>8</sup> or classical philology.<sup>9</sup> But we have to consider the preconditions in other fields. Heimbrock (2005) had some thoughts about these in the field of Practical Theology:

To understand the character of empirically based practical theology, one needs also to explicate specific questions like the following. How do we discern valuable bits of reality during the research process? How does one interpret these findings in an appropriate way? What are the necessary sources or data of empirical research? What is the appropriate involvement of the researcher-subject during the research process? What are appropriate presentations of research findings, and how are valuable re-presentations of reality determined in empirical research? A further question regards the

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<sup>6</sup>For example, Hildebrandt and Brocker (2008) assume that this topic is only discussed when problems occur. “Dies mag zum Ersten damit zusammenhängen, dass die fundamentalen Begriffe einer Disziplin nicht regelmäßig zum Gegenstand grundlegender theoretischer Überlegungen werden, sondern nur dann, wenn sie als problematisch erscheinen.” [The basic definitions of a subject are only discussed in theory once they seem problematic.] The situation differs within different scientific traditions See, for example, Klein (2012, 100) and Hass (2009).

<sup>7</sup>For a detailed discussion, see for example Zachhuber (2013).

<sup>8</sup>See Cantwell and Petersen (2021), Krawiec and Schroeder (2021), Horne (2021), and also the works of Collar (2013), and Huebner and Nathan (2016).

<sup>9</sup>We refer to those works on manuscripts, see Hamidović, Clivaz, and Savant (2019), Streza (2021), or Dell (2021). Here also the works of Flexsenhar (2016) and Rollinger (2014 and 2010) should be mentioned. (there is no reference for Rollinger 2014, only 2010)

point during the research process when a specific theological element and interest is best introduced. (Heimbrock 2005, 275)

These questions remain closely connected to the methodological preconditions used in the humanities. Some scholars argue that these are omitted,<sup>10</sup> but it is widely agreed that an interpretation of analysis does need a hermeneutic fixation of data points and knowledge representation (Beetz and Franzheld 2016, 59). Thus DH always includes a methodological transfer of a scientific domain to computer science which includes the representation of domain data with data points and data records.<sup>11</sup> This step always relies on hermeneutic preconditions. For an analysis, the data needs to be re-transformed to the original scientific domain, which again relies on hermeneutic preconditions. In this case the methodological difference between theology or any other domain within humanities can be found in this step of interpretation and re-interpretation. Thus we argue that in these cases where theology and humanities have a broad overlap, we may say that methods from the humanities can be applied without any (further) methodological precondition.

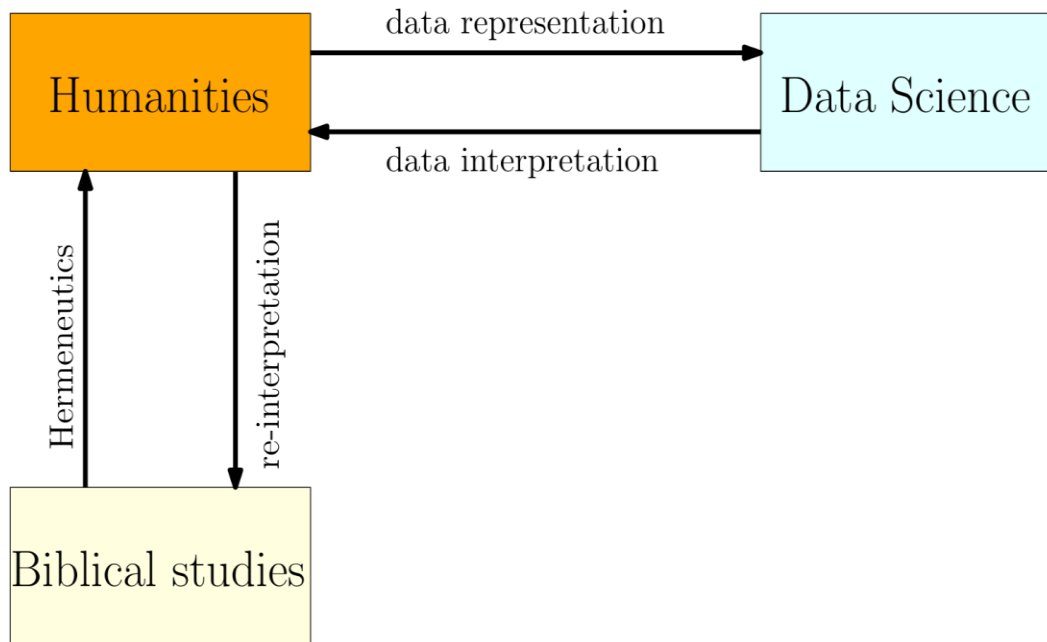
The situation is slightly different when it comes to subdomains of theology where methods from the humanities are not that present. For example, biblical studies work with biblical texts, and thus use computational methods only in a particular setting like cross-lingual semantic concordances, manuscript management, or parallel bible corpora. Here these settings are embedded within an exegetical context of (re-)thinking sources and Biblical texts. Here theologians already use hermeneutics within their scientific activities. It “entails critical reflection on the basis, nature, and goals of reading, interpreting, and understanding communicative acts and processes” (Thiselton 1998, 95). It is the nature of biblical studies to apply hermeneutics to the interpretation of biblical texts (Oeming 2007; Danneberg 2018). Thus even before applying methods from DH we have a step of interpretation. We are coming back to “perform a double act of interpretation” as Clifford Anderson (2018) suggested. But — and this fact is widely omitted — we also need this double act of interpretation on the way back. Once we have results from DH, we not only need to interpret them within the framework it departed from, but we also need to go one step ahead and re-think this result within the context of the hermeneutics we used, for example in the exegesis of biblical texts (see Figure 2).

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<sup>10</sup>For example Kuckartz (2010, 16) concludes that it is a new trend to pay attention to these methodical preconditions. In social sciences methods for quantitative analysis are little discussed [“In den Sozialwissenschaften fand die Frage einer Methodik zur Auswertung von qualitativen Daten ohnehin lange Zeit nur wenig Beachtung.”] (unclear whether this is the original German for the preceding sentence. Suggest using quotation marks around the English translation if it is a quote, otherwise suggest adding translation of the German quote)

<sup>11</sup>Mehl (2021) for example states that “we cannot simply transfer them into our field in unexamined ways without intellectual integrity.” (See also Cosgrave 2021).





**Figure 2: Illustration of the double act of interpretation when using theology (or in this example: “biblical studies”) and digital humanities**

As an example, when applying methods from SNA to biblical studies, it is not only important how social networks are created (which is a similar step to the hermeneutics used in social sciences), but also how we interpret biblical texts. Once having created a social network, how is it interpreted and what kind of questions does it bring to the original step of exegesis? If we miss this step, we are doing DH applied on the result of an exegetical analysis of a biblical text, but we are not doing DH in theology, because this would return scientific questions or results back to the starting domain of theology.

When an SNA reconstruction of Acts based on narrative exegesis and literature analysis discovers central actors, for example Barnabas or Philip, what does that imply for the initial step of exegesis? For example, Philip may be seen as a bridge-building person or Barnabas as a central person with a lot of connections to different clusters within the social network of early Christianity. But these claims simply omit the last step of discussion with the preliminary exegetical step. The question should rather be: Why does Luke describe both like that? What is his theological goal? Why does he omit other things which are indicated by the social network or which we might expect because of the network structure? The application of methods from DH lead to new research questions within the original field<sup>12</sup>.

To sum up: first, we consider the theological subdomains which apply methods from the humanities without any methodological precondition. Due to the great methodological overlap between humanities and theology we see basically no

<sup>12</sup>This was only considered in other research fields, for example in information science. Here methods “including information retrieval, information systems, tool science, user interface design and information behavior – can be transferred to novel research questions and applications in the Digital Humanities”(Burghardt and Luhmann, n.d.).

limitations when applying methods from DH. There might be ethical limitations, but the problem can be summarized with the hermeneutical discussion which needs to be tackled beforehand.

Second, considering the subdomains of theology where methods from the humanities are not widely used, the synergies are not that clear because of the double act of interpretation. The most limiting factor is that scientists need to be capable of doing hermeneutical steps both in theology and a domain in humanities *and* apply computational methods from digital humanities. This is a great challenge in rethinking theology with the eyes of two different disciplines using a twice interdisciplinary approach. But it is also a great chance, because there is a growing awareness of hermeneutic transfer processes within DH, and theology could be a good matching domain field to improve scientific results also within the other scientific domains. Here, we find another broad field of possible synergies — but they are yet to come.

### *INTERDISCIPLINARY CHALLENGES FROM COMPUTER AND DATA SCIENCE*

This section is dedicated to the interdisciplinary challenges from computer and data science to theology when using methods from DH. We will also discuss how the emerging results of data science within the last years raise new questions in DH and in particular to applications within theology. In many empirical disciplines, like psychology and social sciences, there was a great crisis of reproducibility. If data as basis for computational analysis or their results are not publicly accessible, results cannot be scientifically reproduced and thus cannot be confirmed or falsified. See for example (Renkewitz and Heene 2019) or (Miyakawa 2020) who stated, that “a lack of raw data or data fabrication is another possible cause of irreproducibility.” We will first discuss several issues of availability of data in theology, then some impacts of Findable, Accessible, Interoperable and Reusable (FAIR) data and then how the open science movement may broaden the perspectives of theology.

An interesting perspective on available data regarding digital sharing of information is presented in the essay “Ad fontes — open sources as topic within Theology. Reflections from Fundamental Theology” by Matthias Gockel (2018 “Ad fontes – Offene Quellen als Thema der Theologie. Fundamentaltheologische Überlegungen”). He defines the “word of god” as “source” of theology and raises the question of how availability or openness can also be applied to it. Another interesting view can be found in Graham (2013) reflecting the living, construction, narrative etc. of theology. Gockel’s summarization is more simple but holds the most important contents.

Das Wesleyanische Quadrilateralundefined geht von vier grundlegenden Faktoren christlich-theologischer Reflexion aus: Schrift, Tradition, Erfahrung, Vernunft. Diese Faktoren stehen nicht einfach nebeneinander, sondern sind miteinander verbunden und nicht in demselben Maße normativ. [The Wesleyan Quadrilateral assumes four basic factors of Christian theological reflection: Scripture, Tradition, Experience, Reason. These factors do not simply stand side by side, but are interrelated and not normative to the same degree.] (Gockel 2018).

With experience, reason, and partly tradition we are back in the previous section discussing a broad intersection with the humanities. But when discussing sources in a historical sense, aiming at literature sources, manuscript fragments, or archaeological findings, we rely on textual or imaging data which can be made available easily in a digitized form. But Gockel also examines the place of theology to evaluate the position of the source for theology within dogmatics. In doing so, he comes to the conclusion that theology “should make strong the concept of open access in the sense of open access to the ‘sources’ [dabei den Begriff des Open Access im Sinne eines offenen Zugangs zu den ‚Quellen‘ stark machen]” (Gockel 2018). These demands become more concrete when it comes to quality or general access to digital information, for example accessing critical texts of New and Old Testament like Nestle-Aland (NA28) or *Biblica Hebraica Stuttgartensia* (BHS). For instance, it is reported that students were unable to find Greek editions of the New Testament on the Internet because it is not available as open access<sup>13</sup>. Here, the field of DH has intersections with the field of digital literacy and accessing fundamental digital information. But this is mostly omitted by DH scholars<sup>14</sup>. Pun (2015), for example, tries to examine the usage of projects within teaching digital skills. To be precise digital literacy is usually not — or at least no large — part of any curriculum. But it is obvious, coming from a computer-science perspective<sup>15</sup>, that it is a necessary part of DH. However, Berry goes one step ahead by not only stating the importance of digital literacy in DH as digital skill, but also the need of rethinking what “literacy” means.

Initially this has tended to be associated with notions such as information literacy and digital literacy, betraying their debt to the previous literary conception of the university, albeit understood through vocational training and employment. However, I want to propose that, rather than learning a practice for the digital, which tends to be conceptualized in terms of ICT skills and competences [...], we should be thinking about what reading and writing actually should mean in a computational age (Berry 2011, 7).

Berry is right in stating the importance of how DH can improve “computational literacy or computational pedagogy” (Berry 2011, 15). But we should not forget the need of digital skills or computational skills before applying methods from computational science. This is in particular important for the field of DH in theology; computational skills are usually not part of any theological curriculum, and we should carefully insist on the importance and the chances of interdisciplinary teaching and research.

Bringing both aspects — digital sources and digital literacy — together, we end up with another interdisciplinary challenge from data science: How shall we manage information and data to support reproducible science? Several approaches can be found in various disciplines of the humanities, see for example van Dijk,

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<sup>13</sup>It seems necessary that the German Bible Society should publish Nestle-Aland 28 as open access. Otherwise, other — less correct — critical apparatusi will be used.’ [„Es scheint mir ein dringendes Erfordernis zu sein, dass die Deutsche Bibelgesellschaft in Betracht zieht, den Apparat der 28. Auflage open access zu stellen. Solange dies nicht der Fall ist, werden vielerorts Apparate, die sich kritischen Standards allenfalls annähern, verwendet werden, nur weil sie open access zur Verfügung stehen.“ (Clivaz 2017, 50)]

<sup>14</sup>See for example (Lankshear and Knobel 2008; Hohls 2018, 5; Marci-Boehncke and Rath 2019, 1).

<sup>15</sup>See (Schinzel and Kleinn 2001; Hartmann 1993).

Schatschneider, and Hart (2020, 1). In natural sciences, which are driven by data to an even greater extent, the principles of FAIR data are common (Dienlin et al. 2020; Abele-Brehm et al. 2019). Data should therefore be findable (e.g. on the web or in databases), accessible (even restrictively, for example due to data protection issues), interoperable (which means they should be shared in easily accessible data formats), and thus, reusable. Since the various theological sub-disciplines also work with digitally recorded empirical data as well as with digitally retrievable sources (e.g., historical texts, Hebrew and Greek basic texts, or other literature that is now freely available), the question must be asked why these principles are not echoed in theology. Instead of making the data available digitally, they are at best offered in expensive commercial software products.

It is obvious that open access — not to be confused with free access — to books, essays and information needs to be expanded. Thus, it is not only students who rely on digital literacy skills, but also every other person who searches for information on the Internet. The Greek text of Nestle-Aland mentioned above is certainly a special issue here, but it reveals in depth the need to have appropriate skills.

Open source software is just one aspect, but it also leads to the development of Open Science. This includes not only technical solutions which are shared with other programmers or developers in order to achieve a scientific (and maybe also social) benefit in this way instead of a private profit. These tools and programs need to be readable, copyable and improvable which is the counterpart to FAIR data. The thought of the free use format is not a contradiction to selling that software or support, as long as the independent further work on the product remains possible. It is thus concerning the freedom of the information that was generated with these tools.

The open science movement has gained considerable traction in the last decade. The open science movement tries to increase trust in research results and open the access to all elements of a research project to the public (van Dijk, Schatschneider, and Hart 2020, 1).

While this aspect is not covered in the humanities, we find an emerging discussion within DH concerning open science (Knöchelmann 2019; De Smedt et al. 2018; Führ and Alvarez 2021). We can learn two things with these interdisciplinary challenges: First, we need better communication with the field of data science. Digital infrastructures covering aspects of FAIR data and open science are widely available. Second, the field of theology needs also better participation and contribution to the discussions within DH<sup>16</sup>.

## *CONCLUSION AND OUTLOOK*

In this paper we examined several research questions on the interdisciplinary field within theology, humanities, and computer science. This leads to new perspectives on the interdisciplinary research between theology and humanities.

In the first section, we proposed a fourfold characterization schema for methods within DH. This helps to understand the different perception of methods from DH used in theology and religious studies. We pointed out, that digital toolboxes, tools, and methods are similar across disciplines. Thus, we proposed the term “digital

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<sup>16</sup>We should also note, that there might be a lot of intersections between Open Science, Philosophy of Science and Christian Ethics.

humanities in theology” as best match to describe the research within theology using methods from DH. In the next section we discussed synergies and limitations between these fields. DH always includes, as a hermeneutic step, a methodological transfer of a scientific domain to computer science which includes the representation of domain data with data points and data records. Thus, even before applying methods from DH we have a step of interpretation. We support the idea by Cheryl Anderson (2009) to “perform a double act of interpretation” but see the need to extend this process with feedback towards theology as a re-interpretation step. This suggests three steps of knowledge representation and data re-interpretation and supports the requirement of basic knowledge within three domains: theology, a humanity, and computer science.

In the last section we presented some interdisciplinary ideas from the field of data and computer science. This underlines the need for further research within the field of FAIR data management, open source software and open science approaches within DH and theology.

An essential conclusion is the need for an interdisciplinary discussion between the scientific fields. While DH usually not consider the many applications within theology, the field of theology needs to consider the ongoing and past discussions within the field of DH. In particular, the hermeneutic approaches in Theology might also help to foster the discussion about interpretation, re-interpretation and knowledge representation within the humanities.

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