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**DIGITAL TECHNOLOGY IN HISTORICAL RESEARCH:
CONTEMPORARY SCHOLARLY CURRENTS**

Abstract. The purpose of the article. This article summarises developments in contemporary Ukrainian history regarding the use of digital technology in historical research, examining both

successes and challenges. In writing it, we fill a need within Ukrainian historiography by highlighting the challenges of using digital technologies in historical research, broadly, along with particular obstacles to doing history in the digital era. **The methodology** of the study is based on a combination of the principles of historicism, objectivity, systematicity, and the use of general scientific methods – analysis, synthesis, abstraction and generalisation; historical methods – chronological, typological and comparative historical; historiographical methods – specific historiographical analysis and synthesis. **The scientific novelty** of the article is that it is the first attempt at historiographical reflection on scientific publications that highlight the problem of using digital technologies in historical research, the peculiarities of their implementation in the context of the global information society as a new post-industrial form of social organisation. **We conclude** that a digital turn in history has indeed occurred, as others have argued, and that information technologies have significantly expanded the possibilities for research, storage, and publication. While the field of history remains independent-with its own disciplinary rules, methods, and norms-digital methods have nevertheless irreversibly entered its space. In the last ten years, there has been a certain amount of research around this topic in Ukrainian-language scholarship, which we cover in this paper. Nevertheless, we find that the historiographical and methodological problems posed by digital history have been covered by scholars in an ad hoc and uneven manner. More work is needed, because while the opportunities presented by digital technology are significant, a common understanding of its elements, and even a common definition of digital history itself, will be required for historians to benefit fully from this promise.

Keywords: digital history, digital humanities, digital turn, digital methodology, historical research, internet, contemporary historical discourse, digital numismatics.

ЦИФРОВІ ТЕХНОЛОГІЇ В ІСТОРИЧНИХ ДОСЛІДЖЕННЯХ: СУЧАСНИЙ НАУКОВИЙ ДИСКУРС

Анотація. Мета статті. Ця стаття підсумовує розвиток сучасної української історичної науки щодо використання цифрових технологій в історичних дослідженнях, розглядаючи як успіхи, так і виклики. Її написанням ми заповнюємо прогалину в українській історіографії, висвітлюючи виклики використання цифрових технологій в історичних дослідженнях у широкому сенсі, а також конкретні перешкоди на шляху історичних студій у цифрову епоху. **Методологія дослідження** ґрунтується на поєднанні принципів історизму, об'єктивності, системності та використанні загальнонаукових методів – аналізу, синтезу, абстрагування та узагальнення; історичних методів – хронологічного, типологічного та порівняльно-історичного; історіографічних методів – конкретно-історіографічного аналізу та синтезу. **Наукова новизна** статті полягає у тому, що вона є першою спробою історіографічної рефлексії наукових публікацій, які висвітлюють проблему використання цифрових технологій в історичних дослідженнях, особливості їх впровадження в умовах глобального інформаційного суспільства як нової постіндустріальної форми соціальної організації. **Висновки.** Цифровий поворот в історії справді відбувся, а інформаційні технології значно розширили можливості для дослідження, зберігання та публікації. Хоча історична наука залишається незалежною – із власними дисциплінарними правилами, методами і нормами – цифрові методи, тим не менш, незворотно увійшли в її простір. За останні десять років в україномовній науці з'явилася певна кількість досліджень на тему, яку ми висвітлюємо в цій статті. Тим не менш, вважаємо, що історіографічні та методологічні проблеми, які ставить цифрова історія, висвітлювалися науковцями ситуативно і нерівномірно. Необхідна подальша робота, оскільки, незважаючи на значні можливості, які надають цифрові технології для того, щоб історики могли повною мірою скористатися ними, потрібне спільне розуміння їхніх елементів і навіть спільне визначення самої цифрової історії.

Ключові слова: цифрова історія, цифрова гуманітаристика, цифровий поворот, цифрова методологія, історичні дослідження, інтернет, сучасний історичний дискурс, цифрова нумізматики.

Problem Statement. Over the last twenty or so years, the humanities have experienced what has been called a “digital turn” – namely, the emergence of the digital humanities,

a promising field combining the methods and subject-matter of the humanities with computational approaches, databases, and visual styles of presentation. History has not stood on the sidelines in this process – indeed it is one of the foundational contexts within which the digital humanities developed. One can speak of “digital history” arriving on the scene in the early 21st century as a subset of digital humanities – although even today there is still no canonical definition of either. Broadly, we define digital history as a methodological current within history that focuses on the use of information technology, digital media, quantitative methods, and data analysis in service of organizing, visualizing, and presenting historical materials.

This article focuses on scholarship in Ukrainian history and Ukrainian scholars – primarily those working in Ukrainian research universities (though we touch on work by some Ukrainian scholars working abroad). We do not describe the history of the digital humanities as an international movement or its development in other national contexts – nevertheless, this is a necessary part of the story and it is our hope that this work will also be read with that in mind. The goal of this article is to more accurately evaluate the engagement of Ukrainian historical scholarship with digital approaches (be it digital humanities or historical informatics), to acknowledge its main achievements, but also chart areas where further work is required.

Review of the Recent Research. The question of digital technology as a historical research tool has received a certain amount of attention among Ukrainian scholars. Two issues of the *Annual of the Historical Institute of Ukraine* – “Specialized Historical Disciplines: Theory and Method” – have taken up this topic, specifically the 2013 and 2015 volumes – “Electronic Information Resources.” The first of these surveys resources, especially in the digital humanities and social sciences, broadly construed. Articles focus on theory and methodology, but also on case studies in “historical informatics,” questions of academic honesty and intellectual property online, challenges in creating and maintaining digital reference tools, online historical publications, and resources in specialist fields (e.g., numismatics, paleography, historical geography, mapping, and sigillography). Hennadiy Boryak (Boryak, 2013), for instance, provides a broad overview of the development and direction of online resources in the social sciences and humanities. Volodymyr Kulikov (Kulikov, 2013) meanwhile surveys the rise and current state of digital history, along with its prospects going forward. Hryhoriy Papakin (Papakin, 2013) covers the concerns and scholarly state-of-the-art in digital paleography. Kateryna Lobuzina (Lobuzina, 2013) discusses challenges associated with digital resources in the cultural heritage space, and Olha Ivanova (2013) discusses the intersection of digital manuscripts and database resources.

The 2015 volume – “Specialized Historical Disciplines: Theory and Method, Electronic Resources” – focuses on digital resources of a more narrowly historical nature. A major topic is the use of contemporary social networks as historical sources. Hanna Kalynychenko (Kalynychenko, 2015) and Larysa Yurkova (Yurkova, 2015) both focus on Facebook as a rich source for the Revolution of Dignity. The collection also covers issues in historical informatics, digital paleography, electronic resources for bibliographic, archival, and manuscript projects, as well as digital resources for cultural heritage. Heorhiy Papakin (Papakin, 2015) focuses on online publishing in the United States and western Europe. Hennadiy Boryak and Natalia Kashevarova (Boryak & Kashevarova, 2015) examine online resources for the history of eastern Europe. Lesia Khaletska (Khaletska, 2015) focuses on preservation and UNECSO world heritage resources, and Iryna Khromova (Khromova, 2015) discusses digital approaches to numismatics.

It should be said that – outside of the literature review above, and outside of scattered publications that discuss narrow aspects of it – digital history has not been systematically treated by Ukrainian historians. Heorhiy Papakin has previously discussed the “digital turn” in the social sciences and humanities with respect to source studies¹. Yuriy Svyatets (Svyatets, 2024) elaborates on the differences between the “digital humanities” and “historical informatics” – the latter being basically unknown in western European and American scholarship. In another paper (Svyatets, 2019), he discusses theoretical and methodological considerations in relation to digital sources and the practice of historians. Kalakura and Palienko (2021) consider the place of electronic archival studies in an increasingly digital Ukrainian society. A new study dedicated to the reflection of Ukrainian history of the 17th – early 18th centuries on leading Ukrainian historical YouTube channels was prepared by Liudmyla Vovchuk and Wiktor Werner (Vovchuk & Werner, 2024).

Numismatics is perhaps the biggest exception to this generalization. The question of information technology and its use in numismatic research was the topic of a separate section of the seventh issue of the *Ukrainian Numismatic Annual* in 2023: several articles appear therein, including Viktor Kotsur, Svitlana Orlyk, and Oleksandr Bondarenko (Kotsur, Orlyk & Bondarenko, 2023), Mark Pyzyk (Pyzyk, 2023), and Olena Shvets (Shvets, 2023). The topics overwhelmingly deal with the digitization of numismatic objects and digital approaches to numismatic research. Numismatics – a sub-branch of historical studies – is perhaps the most internationally active area of Ukrainian digital historical research. Starting in 2021, a group of researchers under V. Orlyk participated in a series of collaborative numismatic projects in cooperation with scholars at Princeton University through the Framing the Late Antique and Medieval Economy (FLAME) project (Pyzyk, 2021). V. Orlyk has published a number of articles, either himself or with co-authors along these lines (Orlyk, 2013; Kotsur, 2016; Orlyk, 2021a; Orlyk, 2021b; Orlyk & Mekh, 2022; Orlyk, 2023a; Orlyk, 2023b; Orlyk & Pyzyk, 2023; Shvets, 2023b).

Numismatic efforts have extended beyond the borders of Ukraine, often through the efforts of Ukrainian scholars abroad. Thus, several concurrent efforts are afoot to document coins discovered on the territory of Ukraine. The Coin Finds of Ukraine (CFU) project, an international effort staffed by Ukrainian, Canadian, and American scholars – supported by the Canadian Institute of Ukrainian Studies, Stanford University, and the American Numismatic Society (ANS) – collects and publishes information on ancient Greek coins, roughly from the 6th to the 1st century BCE (Pyzyk, 2023). The German Archaeological Institute (DAI) has launched a similar effort, also staffed by an international group of scholars that includes Ukrainians, to document Roman coin finds in Ukraine – the so-called AFE-UKR database. AFE-UKR dovetails neatly with CFU, chronologically, since it runs from the 1st century BCE to the 6th century CE and thus provides more than a thousand years of numismatic coin find history across both databases (Yanov, 2024). Both projects engage heavily with western European and American numismatics, and both tie into a recent trend in the digital humanities – Linked Open Data. Linked Open Data is not quite new – having been formalized as a technical standard in the late 1990s. It was first proposed as a solution for reconciling

¹ The specific field – “Джерелознавство,” literally “source-studies” – has no exact equivalent in Anglo-American scholarship. Textual criticism – originally dealing with the reconstruction of biblical and Greco-Roman texts – is perhaps a good analogue, but “source studies” in the eastern European mode has added to this additional theoretical structures/concerns, such that modern databases and digital platforms are explicitly included in this scaffolding. Topics like this are more or less separate in textual criticism (even the most explicitly digital textual projects, like the *Thesaurus Linguae Graecae*, treat their project as a straightforward extension of 19th century publishing efforts like the Oxford Classical Text series – which is to say, with little methodological self-consciousness).

data between – and often even within – subjects and disciplinary fields, by formalizing data structures, conceptual models, and terminology. In terms of the digital humanities, it has primarily been used – beginning in the early 2010s – in the museum and collections-management space through organizations like the DAI, ANS, Getty Research Institute, and Yale’s Beinecke Library (all dealing with material culture and collections).

In summary, with the exception numismatics, Ukrainian scholarship’s adoption of digital methods in historical research has been quite modest, and in general, there is no cohesive movement and no comprehensive research program towards this goal.

Purpose of the Research. This article summarises developments in contemporary Ukrainian history regarding the use of digital technology in historical research, examining both successes and challenges. In writing it, we fill a need within Ukrainian historiography by highlighting the challenges of using digital technologies in historical research, broadly, along with particular obstacles to doing history in the digital era.

Results of the Research.

Problems of Digital History. The emergence of digital history is a response, first, to advances in digital technology over several decades, and second to changes in the discipline of history itself. The anthropological and post-structuralist turn in history (lasting perhaps from the 1970s to the 2000s) – which gave rise to new theoretical and methodological emphases (resulting in a focus, for example, on social history, microhistory, and histories of thought) – has by now (but beginning in the early 2000s) either been folded into or given way to a digital turn (focusing on quantification, network analysis, and visually-oriented communication styles). New methods of collection, processing, storage, analysis, and publication have become standard in contemporary historical research.

It should be noted that there is no uniform consensus among Ukrainian scholars on the nature of digital history. Indeed, there are competing definitions that align along highly charged partisan lines. Consider, for instance, the Moscow school of Historical Informatics. Pavlo Yeremeev, Volodymyr Kulikov, and Yuriy Sviatets survey this field, defining it as a specialized historical sub-discipline that, according to P. Yeremeev, “today, in one way or another... remains a significant branch of historical studies in the successor states of the USSR” (Yeremeev, 2015, p. 186). However, the majority of contemporary historians in Ukraine seem to agree with the position, in line with American and western European scholars, that digital history should be grouped under the digital humanities (and by implication, separated out from historical informatics).

From this perspective, then, the most pressing problem is to define “digital history” – conceptually and typologically. Ukrainian scholars have put forward several definitions. Most broadly, it is considered a sub-species of the digital humanities, a discipline at the intersection of computer science and the humanities. Kulikov, for instance, understands the term “digital history” to mean “a direction in historical research aimed broadly at collecting, storing, presenting and visualizing historical and historiographical information with the assistance of information technology (e.g., virtual reconstructions, three-dimensional representations, online reference sources, and interactive technologies), in addition to the formation of virtual scholarly communities (‘collaboratories’), ‘cloud’ projects, etc.” (Kulikov, 2013, p. 29). It is notable that Kulikov’s article was one of the first Ukrainian articles to discuss digital history and the use of digital technology in historical research. In it, he surveys the development and landscape of digital history, international journals and digital history projects, outlining prospects and challenges moving forward.

Svyatets defines digital history as “a scholarly and applied historical field dealing with the creation and use of digital resources with respect to history. A digital resource is a synthetic informational product, created by means of digital technology. Thus, a historical digital resource... can be defined as a synthetic informational product, created by the historian – independently or in their capacity as a domain expert – through digital technology by synthesizing information from traditional historical sources” (Svyatets, 2024, p. 370).

Defining the subject is a crucial step in clarifying the best use of digital technology in historical research. Yu. Svyatets discusses the similarities and differences between historical informatics and digital history. First and foremost, both involve the use of computers and communication technologies to advance historical studies. According to him, historical informatics as a field can be traced to March of 1987 and the foundation of the International Association for History and Computing, the goal of which was to “promote the use of computers in all manner of historical study – both in the course of teaching and in research” (Svyatets, 2024, p. 366). According to him, however, today developments in the digital humanities have taken on a more dynamic aspect. Digital history as a constituent of “digital humanism” emerged in the 2010s, aiming to “expand and support digital research and education in the arts and humanities” (Svyatets, 2024, p. 366). He is firm that there is a difference between digital history and historical informatics. Despite their use of the same tools and pursuit of parallel subject matter – history – they have different aims, which condition different approaches to their subject. He emphasizes that the ambit of historical informatics is largely defined by “questions, theoretical and practical, of the use of information technologies for the conduct of historical research” to elicit further information in order to solve historical problems of fact (Svyatets, 2024, p. 374). The subject of historical informatics, according to Svyatets, is mainly the carriers of historical information and the media by which they “are delivered to historians, who further interpret them as particular narratives which embody bygone knowledge” (Svyatets, 2024, p. 374).

Svyatets describes the digital humanities, on the other hand, as a scholarly field that focuses on the creation of digital tools that synthesize “various historical sources, the historian’s domain expertise, with computers and communication technologies” (Svyatets, 2024, p. 374). Broadly speaking, the resulting digital resources may be designed to appeal to a wide circle of history buffs, not merely researchers. Specialists in the digital humanities (a growing field over recent decades) do, of course, pay attention to the question of how history is transmitted in digital form, and apply technology to the task of analyzing, producing, and ultimately distributing historical knowledge (Svyatets, 2024, p. 374).

Liudmyla Chekalenko, in defining digital history, considers disciplinary boundaries, noting that it already includes historical informatics within it – e.g., “e-history” – which uses computer technology to process historical sources. She emphasizes that these concepts – e-history and digital history – are more or less interchangeable in western countries (Chekalenko, 2021, p. 158). She nevertheless notes that there are differences between digital history and historical informatics. The former aims mostly “to develop digital infrastructure – the digitization of materials from libraries, museums, and archives, and also to create online interactive experiences in the form of historically-minded websites.” The second uses computer technology for the purpose of historical analysis – “that is, digital history – through digital technology – gathers and popularizes historical knowledge, while e-history focuses on its generation – purely an applied branch of historical studies” (Chekalenko, 2021, p. 158). It ought to be said that this assessment departs from the understanding of most western

European and American academics – e-history is not interchangeable with digital history. In fact, the field of e-history is relatively narrow, being promoted above all by the public historian, John Steinhauer, in a 2021 book about social media, technology, and new digital forms of history (Steinhauer, 2021). It is perhaps a growing, but nevertheless niche, corner of digital history and is otherwise unknown to most historians or digital humanists.

Olena Betlii has expressed her view on digital history, noting her agreement with Gerben Zaagsma, that the “digital” component is more or less ephemeral – history remains, and will remain, history. The appeal of the “digital” is mostly due to its novelty (Betlii, 2019). Indeed, the main problem that digital history raises, according to her, has to do with the essence of the historical discipline itself – precisely in so far as digital history seems to pose some sort of challenge to traditional history. The author claims that, faced with new digital approaches, the ordinary “habits of the historian” (focusing on historical method, office work, and the publication of research monographs) are no longer sufficient. So, on one hand, historians should begin to consider digital tools, algorithms, and so forth as academic contributions, being the basis upon which modern digital research is conducted. On the other hand, it should be acknowledged that digital projects are typically undertaken in teams and that its results are collaborative. In this context, Betlii’s assertion that “digital history concerns new knowledge and new research skills, new approaches to the work of research, new understanding of the possibilities for representing historical knowledge, and dynamic engagement with readers” (Betlii, 2019). On top of this, Betlii asserts that historians needn’t engage with all features of digital history – they can choose how computers should supplement the process of working with the past, either as data stores or as means of communication. Nevertheless, even here, the required conditions are absent in contemporary Ukraine (Betlii, 2019).

Liudmyla Chekalenko (2021) further considers the application of digital history through the prism of a relatively new historical sub-field – Public History – in a monograph on the topic, *Public History: Challenges in the 21st Century*. In this context, the proper subjects of digital history are the theoretical and practical problems of digitizing information about historical and cultural heritage and publishing it online – an opinion with which we concur. According to her, digital history is in fact a historiographical re-orientation, focusing not merely on theoretical but also practical consideration in digital publication – and for this reason she defines digital history as the particular sphere within which historical sources are processed for the sake of meaningfully representing them in contemporary media (Chekalenko, 2021, p. 157). The various ways to format historical data – including its sources, reference works, and scholarly literature – pose a serious problem. Primary among them, according to L. Chekalenko, is the basic question of authenticity of source documents, which has knock-on effects for their digitization. Another question she attempts to tackle (as most discussants of digital history do, to be fair) is how and to what extent digital sources can replace original documents in historical research. After this, the next question is how communities of historians and research specialists might, first, generate demand for digital research products and, second, participate in their development, maintenance, and improvement (Chekalenko 2021, p. 157). She argues, fairly, that the answer to this question will largely determine whether digital history will remain a series of vague promises or the basis for ongoing research. Thus, much depends on whether the needs of historians will come to conform – or be made to conform – to the shape of contemporary digital technologies, or whether historians will continue to take a wait-and-see approach, in which case digital humanities tools will continue to focus primarily on education and entertainment – not the needs of historical researchers:

“procrastination... can result in significant delays in historical research, especially for those relying on local source materials [archaeological, archival, etc.]” (Chekalenko, 2021, p. 158).

Notably, L. Chekalenko recommends some particular applications of digital history – for example: the reconstruction of museum objects using 3D modeling and the use of geo-spatial systems for presenting historical information on maps; the development of online references tools, encyclopedias, dictionaries, atlases, etc. (in some cases, soliciting contributions by users); the use of interactive formats for conveying historical information through the medium of videogames; the creation of “social media” that envisions an active role for its users in shaping the function of these collective resources (Chekalenko, 2021, p. 158). She asserts that the “technological horizons of digital history have gradually expanded, and in historically-oriented education, digital technologies have taken on an important role of their own. This is clearest in museum studies, which is no accident, since the term digital history wasn’t really coined by historians – neither by educators or researchers – but by specialists working in the technology departments of museums, archives, and other cultural heritage institutions” (Chekalenko, 2021, p. 158).

H. Papakin addresses digital history in a lengthy article – “The Digital Turn in Source Studies: Fact, Opinion, or Fiction?” – which examines the humanities and social sciences, but in particular source studies. He notes that “growth in digital technology has imposed significant changes on the academic work cycle in the social sciences and humanities” (Papakin, 2021, p. 153). In his view, the 1990s inaugurated a digital turn for humanity in general, considerably affecting history, philosophy, cultural studies, law, linguistics, and so on. This has led to the perverse outcome that, while all contemporary researchers use these technologies, they simultaneously criticize these new sources – “surrogates” for the real ones.

His goal is to assess the consequences of the digital turn for the humanities – in what ways is it helpful, in what ways harmful (Papakin, 2021, p. 157)? According to him, there are two primary factors at play in this digital revolution. The first is the very rapid growth in digital sources. The second is the almost complete lack of methodological agreement on how they ought to be processed. He concludes that, for these reasons, the consequences of the digital turn remain largely unknown to humanists (Papakin, 2021, p. 157). His basic conclusion – that we cannot ignore the emergence of new sources – seems entirely reasonable. Nevertheless, there is no guarantee that his advice – about the nature of the digital turn and the need to adjust to it – will be taken, since there remains a basic lack of understanding concerning the advantages and disadvantages of digital resources (Papakin, 2021, p. 168). H. Papakin urges fellow historians not to ignore the digital turn or to try to wait it out – defending the Ivory Tower against the digital hoards: this is an illusion that will harm the discipline. According to him, “it is a myopic professional conservatism, clinging to old, tested research practices.” In fact the goal should not be to subvert these, but to channel them such that “new digital methods and tools might actually expand and complement traditional ones” (Papakin 2021, 168).

Oksana Yurkova considers the question of the social network Facebook as a novel kind of historical source – its characteristics, various means of capturing information, description of its contents, and strategies for archiving it. According to her, the potential in analyzing such a historical source seems to be limitless. When paired with standard historical methods, one gleans not merely substance (along the lines of a traditional historical source), but also meta-substance: one can also identify network connections, track collective initiatives, measure the dissemination of information and ideas, as well as support or opposition for them. It enables historians to examine the influence of the state over society, or conversely society over state – depending on the goals of the researcher (Yurkova, 2015, p. 37). Nevertheless, despite the importance of Facebook as an “e-source,” and aside from efforts to collect, classify, and

process Facebook data, she considers the most important task to be the snapshotting, storage, and archiving of Facebook data – which is deceptively ephemeral, vulnerable to editing and outright destruction of information. This is a “significant challenge for archival studies and applied archeography – since, if we fail to save data here and now, there will be nothing to classify and analyze in the future” (Yurkova, 2015, p. 38). In the end, Yurkova offers some terminological proposals. Acknowledging that the internet is a broad “e-field” with diverse “e-sources,” new sub-fields should emerge: e-archaeology, e-archive-studies, and e-source-studies (Yurkova, 2015, p. 47).

H. Kalynchenko has considered these issues, namely the potential of Facebook as a historical source, in relation to the Euromaidan in Ukraine, emphasizing the particular value and advantage that it offers. Her goal is to taxonomize Pro-Maidan sources, while raising issues of collecting, storing, visualizing, and preserving them – emphasizing methods that can, in her words, “de-virtualize” these sources. She emphasizes that “we ought specifically to discuss Facebook as a modern historical source tracing the course of the Euromaidan. Historians are left with an unprecedented trove of research materials. And they ought to prioritize the organization, storage, and use of that information, whose value and significance will be determined by users. In [her] opinion, this enables not merely the preservation of memory around these events, but also envisions a history of the revolution, written by its participants, as Ukrainians saw it – with their own eyes, without censorship, without spin” (Kalynchenko, 2015, p. 27).

Two of the present authors, in an article co-written with V. Kotsur (Kotsur, Orlyk & Bondarenko, 2023), discuss the history of digital numismatics as a flavor of digital history. They begin by noting that the emergence of digital technologies have introduced “new sources of information – for instance, online forums – which require methodological adjustments but which can allow us to preserve information about numismatic coin finds (e.g., their type, provenance, etc.) [which was previously impossible]” (Kotsur, Orlyk & Bondarenko, 2023, p. 270). Analyzing the current state of digital numismatics, they distinguish between two related processes – digitization and digitalization – emphasizing that “they are not, either in numismatics or in other fields, simply fads. The two are instead fundamental processes creating new avenues in numismatic research, which require the development of new methodologies for collection and analysis, as well as the development of critical attitudes toward digital sources” (Kotsur, Orlyk & Bondarenko, 2021, p. 270). Shvets reaches the same conclusion in her analysis of digital methods in seal analysis. She notes that digitization in numismatic research “has already demonstrably improved quality and efficiency in research, cutting time and improving accuracy in obtaining results and reaching conclusion” (Shvets, 2023, p. 303).

Conclusions. In the course of this article, we have surveyed recent work in contemporary Ukrainian history around the use of digital technologies, and note that there has been growing scholarly interest in the problems and possibilities that it raises. In the end, this collective work may encourage the emergence of some scholarly consensus. Of particular note, we identify a need for conceptual and definitional structure – i.e., what is digital history? – in order to better create research tools, systematize principles behind their development and use, and settle on some methodological standards for the field.

We define the term “digital history” primarily in terms of preserving historical and cultural heritage through the use of digital technology. This is facilitated through historians’ increasing familiarity with digital historical resources, which have become more and more prominent over time. In this way, digital history functions as a tool for research, education, and publication. And indeed, scholars’ idea of digital history is still evolving. In the early 2000s it had to do with the role of computer technology in the historian’s work, but today it

has considerably expanded through ongoing digitization of sources, publications, electronic libraries, journals, and databases – all of which are available to practicing historians.

Scholars have derived several significant benefits from digital history. First, they use the digitized collections and online libraries – full of traditional works – that are available online. Second, they add to these – creating, sifting, analyzing, and preserving the past in new ways online. Third, they access sources that, in the past, would have been remote, inaccessible, or simply unavailable, doing “archival research from their home office.” The single biggest demand for digital history is in museums, which are experimenting with novel means to reach audiences, including virtual tours and exhibitions.

Nevertheless, even within Ukrainian historiography, we have managed only to touch briefly upon the conceptual challenges involved in using digital technology for history, and we have considered the development of conceptual and methodological rigor only in outline. The problems are complex, but the solutions – which involve tackling theoretical questions around the role of the computer and communication technologies in history, the development of research tools, systematic principles for new methodologies, and even the comprehensive definition of digital history – are of critical importance.

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BIBLIOGRAPHY

Betlii, O. (2019). Tsyfrova istoriia – osuchasnene maibutnie istoryka? [Digital history – the modernized future of the historian?]. *Kyyiv interaktyvnyy*. URL: <https://kyiv.lvivcenter.org/tsyfrova-istoriia-osuchasnene-maibutnie-istoryka/>. [in Ukrainian]

Boriak, H. (2013). Do pytannia pro stan i perspektyvy rozvytku merezhevykh informatsiinykh resursiv sotsiohumanitarnykh nauk [To the issue of the state and prospects for the development of network information resources of social and humanitarian sciences]. *Spetsialni istorychni dystsypliny: pytannia teorii ta metodyky – Special historical disciplines: questions of theory and methodology*, 21, 9–25. [in Ukrainian]

Boriak, H., & Kashevarova, N. (2015). Informatsiini resursy z istorii krain Skhidnoi Yevropy nimetskomovnoho sehmentu merezhi Internet [Information resources on the history of Eastern European countries of the German-speaking segment of the Internet]. *Spetsialni istorychni dystsypliny: pytannia teorii ta metodyky – Special historical disciplines: questions of theory and methodology*, 25, 197–222. [in Ukrainian]

Chekalenko, L. (2021). *Publichna istoriia: vyklyky XXI stolittia: monohrafiia* [Public history: challenges of the 21st century: monograph]. Kyiv: Vydavnychiy dim “ArtEk”. [in Ukrainian]

Ivanova, O. (2013). Formuvannia informatsiinoho resursu rukopysnykh knykh u bazakh danykh: kodykologichnyi aspekt [Formation of the information resource of manuscript books in databases: codicological aspect]. *Spetsialni istorychni dystsypliny: pytannia teorii ta metodyky – Special historical disciplines: questions of theory and methodology*, 21, 131–139. [in Ukrainian]

Kalakura, Ya., & Paliienko, M. (2021). Kontseptualizatsiia elektronnoho arkhivoznavstva v konteksti tsyfrovizatsii ukrainskoho suspilstva [Conceptualization of electronic archival science in the context of digitalization of Ukrainian society]. *Arkhivy Ukrainy – Archives of Ukraine*, 3, 36–65. DOI: <https://doi.org/10.47315/archives2021.328.036> [in Ukrainian]

Kalynychenko, H. (2015). Yevromaïdan v Ukraini: ohliad informatyvnoho potentsialu merezhi Facebook (lystopad 2013 – liutyi 2014 rr.) [Euromaïdan in Ukraine: review of the informative potential of the Facebook network (November 2013 – February 2014)]. *Spetsialni istorychni dystsypliny: pytannia teorii ta metodyky. Elektronni informatsiini resursy. Zbirka naukovykh prats. – Special historical disciplines: issues of theory and methodology. Electronic information resources. Collection of scientific papers*, 25, 7–30. [in Ukrainian]

Khaletska, L. (2015). Tsyfrove zberezheniia ob'iektiv svitovoi spadshchyny yunesko v Ukraini ta frantsii (na osnovi analizu veb-saitiv sofii kyivskoi ta shartyrskoho kafedralnoho soboru bohomateri)

[Digital preservation of UNESCO World Heritage sites in Ukraine and France (based on the analysis of the websites of Saint Sophia of Kyiv and Chartres Cathedral of Our Lady)]. *Spetsialni istorichni dystsypliny: pytannia teorii ta metodyky – Special historical disciplines: questions of theory and methodology*, 25, 161–172. [in Ukrainian]

Khromova, I. (2015). Prohramne zabezpechennia v numizmatychnomu doslidzhenni. Kolektsii [Software in numismatic research. Collections]. *Spetsialni istorichni dystsypliny: pytannia teorii ta metodyky – Special historical disciplines: questions of theory and methodology*, 25, 173–179. [in Ukrainian]

Kotsur, V., & Orlyk, S., & Bondarenko, O. (2023). “Otsyfruvannia” i “tsyfrovizatsiia” v numizmatytsi: teoretyko-metodolohichni ta dzhereloznavchi aspekty [“Digitization” and “digitalization” in numismatics: theoretical? methodological and source science aspects]. *Ukrayins'kyi numizmatychnyy shchorichnyk – The Ukrainian Numismatic Annual*, (7), 258–276. DOI: <https://doi.org/10.31470/2616-6275-2023-7-258-276>. [in Ukrainian]

Kotsur, V. (2016). Methodological issues of modern numismatic research: materials of black archeology and scientific research. *Forum Numizmatyczne: Peniadz i mennice*, 1, 7–9. [in English]

Kulikov, V. (2013). Digital history: stanovlennia, suchasnyi stan, perspektyvy [Digital history: development, current state, prospects]. *Spetsialni istorichni dystsypliny: pytannia teorii ta metodyky – Special historical disciplines: questions of theory and methodology*, 21, 27–44. [in Ukrainian]

Levchuk, O. (2020). Arkhivni elektronni informatsiini resursy yak dzherelo istorichnoi informatsii [Archival electronic information resources as a source of historical information]. *Arkhivy Ukrainy – Archives of Ukraine*, 4, 52–70. [in Ukrainian]

Lobuzina, K. (2013). Problemy stvorennia kompleksnykh tsyfrovyykh resursiv istoriko-kulturnoi ta naukovi spadshchyny [Problems of creating complex digital resources of historical, cultural and scientific heritage]. *Spetsialni istorichni dystsypliny: pytannia teorii ta metodyky – Special historical disciplines: questions of theory and methodology*, 21, 121–129. [in Ukrainian]

Orlyk, V., & Mekh, N. (2022). The Hoard of Copper Coins of the Pontic State of Mithridates VI Eupator from Romny District of Sumy Region. *Skhidnoievropeiskyi istorichnyi visnyk – East European Historical Bulletin*, 25, 8–20. DOI: <https://doi.org/10.24919/2519-058x.25.269571> [in English]

Orlyk, V., & Pyzyk, M. (2023). A hoard of Pontic coins from the time of Mithridates VI Eupator from the chora of Olbia. *Revista Arheologica*, XLIX/1, 87–99. [in English]

Orlyk, V. (2013). Informatsiyni potentsial WEB-resursiv u numizmatychnykh doslidzhenniakh (na prykladi monet derzhav Khrestonostsiv) [Information potential of WEB-resources in numismatic research (on the example of coins of the Crusaders)]. Materialy naukovi konferentsii z mizhnarodnoiu uchastiu: *Arkhivoznavchi ta dzhereloznavchi haluzi znan: problemy vzaiemodii na suchasnomu etapi (Kyiv, 14 bereznia 2013 r.)*, (pp. 129–133). Kyiv. [in Ukrainian]

Orlyk, V. (2021a). Coins in Byzantine Style with the Latin Letters R–E–X. The Royal Numismatic Society. *The Numismatic Chronicle*, 181, 233–246. [in English]

Orlyk, V. M. (2021b). Novyy tip ol'viyskoy mednoy monety vremen Mitridata Yevpatora [The New Type of the Olbian Copper Coin from the Time of Mithridates Eupator]. *Stratum plus*, (6), 87–92. [in Russian]

Orlyk, V. (2023a). Davn'ohrets'ki monety ta yikhni imitatsiyi z terytoriyi Volyni [Ancient Greek coins and their imitations from the territory of Volyn]. *Ukrayins'kyi numizmatychnyy shchorichnyk – The Ukrainian Numismatic Annual*, (7), 5–24. DOI: <https://doi.org/10.31470/2616-6275-2023-7-5-24> [in Ukrainian]

Orlyk, V. (2023b). A grouping of chance coin finds from the time of Mithridates VI Eupator on the territory of the Dnipro Right-Bank Forest-Steppe (in the villages of Moshny, Budysche, and Lozivok of Cherkasy district, Cherkasy province). *Acta Archaeologica Lodziensia*, (69), 61–70. DOI: <https://doi.org/10.26485/AAL/2023/69/7> [in English]

Papakin, H. (2013). Suchasna elektronna arkheohrafiia: predmet, spetsyfika, skladovi, stan doslidzhennia [Modern electronic archeography: subject, specifics, components, state of research]. *Spetsialni istorichni dystsypliny: pytannia teorii ta metodyky – Special historical disciplines: questions of theory and methodology*, 21, 45–60. [in Ukrainian]

Papakin, H. (2015). Dosvid elektronnoi publikatsii istorichnykh dzherel v SSHa ta Zakhidnii Yevropi: korotkyi ohliad (1971 – 2010) [The experience of electronic publication of historical sources in the USA and Western Europe: a brief review (1971 – 2010)]. *Spetsialni istorichni dystsypliny:*

pytannia teorii ta metodyky – Special historical disciplines: questions of theory and methodology, 25, 77–88. [in Ukrainian]

Papakin, H. (2021). “Tsyfrovyi povorot” u dzhereloznavstvi: realnist, perspektyva chy iluziia? [“Digital turn” in source studies: reality, prospect or illusion?]. *Ukrainskyi istorychnyi zhurnal – Ukrainian Historical Journal*, (1), 153–169. DOI: <https://doi.org/10.15407/uhj2021.01.153> [in Ukrainian]

Pyzyk, M. (2021). Regional bias in Late Antique and Early Medieval coin finds and its effects on data: three case studies. *Ukrayins'kyi numizmatychnyy shchorichnyk – The Ukrainian Numismatic Annual*, (5), 197–210. DOI: <https://doi.org/10.31470/2616-6275-2021-5-197-210> [in English]

Pyzyk, M. (2023). Digitizing the coin finds of Ukraine. *Ukrayins'kyi numizmatychnyy shchorichnyk – The Ukrainian Numismatic Annual*, (7), 277–287. DOI: <https://doi.org/10.31470/2616-6275-2023-7-277-287> [in English]

Shvets, O. (2022). Standartyzatsiya protsesu otsyfrovuvannya numizmatychnykh ob'ektiv [Standardization of the digitization process of numismatic objects]. *IX Forum Numizmatyczne Polska – Wschód. Dodatek do nr. 6 “Numizmatyczne forum. study i materiały”*, (pp. 56–59). Białystok. [in Ukrainian]

Shvets, O. (2023a). Shtempel'nyy analiz: suchasnyy stan zastosuvannya ta perspektyvy tsyfrovizatsiyi metodu [Die analysis: current state of application and prospects of digitalization of the method]. *Ukrayins'kyi numizmatychnyy shchorichnyk – The Ukrainian Numismatic Annual*, (7), 288–306. DOI: <https://doi.org/10.31470/2616-6275-2023-7-288-306> [in Ukrainian]

Shvets, O. (2023 b). Digital numismatics of Ancient Rome: the current state and prospects for the development of online databases. *Acta Archaeologica Lodziensia*, (69), 71–75. DOI: <https://doi.org/10.26485/AAL/2023/69/8> [in English]

Steinhauer, J. (2021). *History, Disrupted: How Social Media and the World Wide Web Have Changed the Past*. Palgrave Macmillan Cham. [in English]

Sviatets, Yu. (2024). Podibnist ta vidminnost istorychnoi informatyky ta tsyfrovoy istorii [Similarities and differences between historical informatics and digital history]. *Proceedings of the 9th International Scientific and Practical Conference: “Theory and Practice of Science: Key Aspects” (Rome, Italy, 19–20 February 2024 r.)*, 42(189), (pp. 365–375). Rome. DOI: <https://doi.org/10.51582/interconf.19-20.02.2024.037> [in Ukrainian]

Sviatets, Yu. A. (2019). Tsyfrovi dzherela v doslidnytskykh praktykakh istorykiv: teoretyko-metodolohichniy aspekt [Digital sources in research practices of historians: theoretical and methodological aspect]. *Universum istoriyi ta arkeolohiyi – The Universe of History and Archeology*, 2(27), (1), 47–68. DOI: <https://doi.org/10.15421/26190105> [in Ukrainian]

Vovchuk, L., & Werner, W. (2024). Between Rebellion and Loyalty: Decisive Moments of Ukrainian History of the 17th and early 18th centuries in Modern Public Reception of Ukraine. *Eminak*, 2 (46), 44–61. DOI: [https://doi.org/10.33782/eminak2024.2\(46\).705](https://doi.org/10.33782/eminak2024.2(46).705)

Yanov, D. Digitization of Roman Coin Finds from the South-Western Ukraine: AFE-UKR Database. *Journal of Ancient History and Archeology*, 11-1, 138–144. [in English]

Yeremeiev, P. (2015). Suchasnyi stan ta perspektyvy rozvytku istorychnoi informatyky: za rezultatamy XIV konferentsii Asotsiatsii “Istoriia i komp'iuter” [The current state and prospects for the development of historical informatics: according to the results of the XIV conference of the “History and Computer” Association]. *Spetsialni istorychni dystsypliny: pytannia teorii ta metodyky. Elektronni informatsiini resursy. Zbirka naukovykh prats – Special historical disciplines: issues of theory and methodology*, 25, 183–186. [in Ukrainian]

Yurkova, O. V. (2015). Facebook yak novyi typ istorychnoho dzherela: sprobha kharakterystyky ta praktychni zavdannia arkhivuvannya dokumentiv [Facebook as a new type of historical source: attempted characterization and practical tasks of document archiving]. *Spetsialni istorychni dystsypliny: pytannia teorii ta metodyky – Special historical disciplines: issues of theory and methodology*, 25, 31–48. [in Ukrainian]

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