

Vladimir Popov

Artist; PhD student, Faculty of Media and Communications, Singidunum University, Belgrade, Serbia

The Transformative Role of Digital Tools in Comic Book Preservation

Abstract: Traditionally viewed as static repositories, archives are now seen as dynamic entities capable of continuous reconfiguration and reinterpretation. This study examines how digital practices in comic book archiving maintain historical and emotional integrity, while making these artefacts relevant to contemporary audiences. This paper explores the theories of Wolfgang Ernst, Michel Foucault, Lev Manovich, and others in order to explain digital archiving as a dynamic and interpretive act that shapes historical narratives and cultural memory. Digital restoration of comic books focuses on preserving the original aesthetic and historical context, while recoloring revitalizes visual elements to enhance appeal. Reimagining involves comprehensive reinterpretation and aligns with new media theories in order to offer fresh perspectives on historical narratives. The discussion shows how these practices democratize access to cultural heritage, transforming archives into active sites of cultural engagement and potentiality. By balancing technical precision and interpretive insight, digital artists and archivists aim at ensuring that comic books remain vibrant and meaningful cultural treasures for future generations.

Keywords: digital; archive; comic books; restoration; recoloring; reimagining.

Introduction: From print to digital, the evolution of comic books

From the moment of their inception in the late 19th century until today, comic books went through a significant process of transformation and evolution, going from basic black-and-white sketches all the way to the vibrant digital masterpieces. The earliest forms of comics typically appeared in newspapers.¹ The superhero genre emerged in the 1930s with the creation of Superman in *Action Comics No. 1*. This genre quickly gained popularity, leading to the Golden Age of Comics, marked by the iconic superheroes such as Superman, Batman, Captain America etc., and became a cultural phenomenon that reflects and shapes societal values and ideals to this day.²

¹ Rocco Versaci, *This Book Contains Graphic Language: Comics as Literature* (New York: Continuum), 2007, 10.

² Albert Robertson, "Truth, Justice, and the Birth of the Superhero Comic Book, 2017," retrieved from the Digital Public Library of America, <https://dp.la/primary-source-sets/truth-justice-and-the-birth-of-the-superhero-comic-book>, acc. on August 2, 2024.

Graphic novels, a new form of visual storytelling that often tackled mature themes that appealed mostly to adult audiences, emerged as a distinct and separate form of sequential storytelling in the 1980s, which offered much more complex narratives and sophisticated art than traditional comic books did.³ Japanese manga, which gained global popularity in the late 20th century, has also significantly influenced comic book culture worldwide with a broad range of genres and styles.⁴

Comic book manufacturing in its essence is a collaborative action that involves various roles in the production. Writers are responsible for developing storylines and scripts, while artists (sometimes referred to as pencilers) create visual representations of those scripts. Inkers add depth and detail to pencils, colorists bring it to life with color, and letterers add dialogues and captions. At the beginning of the 20th century, comic book artists based their craft heavily on traditional hand-coloring techniques, limited palettes and manual application methods. These early techniques often resulted in inconsistencies and became worse over time due to the limitations of available materials and technologies.⁵ With the development of digital technologies in the 21st century, comic book production, preservation, and restoration got a remarkable technological upgrade. Newly developed digital tools such as Photoshop offer unlimited color spectrum and precision, a type of technology that was previously unimaginable for artists to attain. This shift not only improved the production quality of illustrations overall, but also preserved the original artistic intent by allowing artists to create consistent and high-quality reproductions.⁶ Distribution methods for comics went through several iterations and changes since their inception as well. Initially, comic strips were distributed through newspapers. Then in the second half of the 20th century, specialized comic book shops appeared beside newsstands. The rise of digital distribution platforms in the early 21st century, as the latest iteration of distribution channels, has revolutionized access to comics, making them available globally through various online retailers and digital subscriptions.⁷ This created the need to transfer comic books from print to digital format which led to the creation of electronic files, digital archives, and other artistic practices and opportunities.

Preserving the original artistic intent in mass-produced comics today poses significant challenges. The collaborative nature of production means that each creator's contribution must be maintained and respected. Additionally, physical materials used in early comics, such as low-quality paper, are prone to deterioration over time, which further complicates preservation efforts. Digital archiving, on the other hand, offers solutions to these challenges by enabling the preservation of high-quality digital versions of original works, ensuring that the artistic intent and cultural significance are maintained with care for future generations of audiences. Or in the words of Tom Nesmith:

³ Versaci, *This Book Contains Graphic Language: Comics as Literature*, 10.

⁴ Paul Gravett, *Manga: Sixty Years of Japanese Comics* (New York: Harper Design, 2004), 156.

⁵ Scott McCloud, *Understanding Comics: The Invisible Art* (MA: Kitchen Sink Press, 1993), 187.

⁶ *Ibid.*, 192.

⁷ *Ibid.*, 210.

The postmodern outlook suggests an important new intellectual place for archives in the formation of knowledge, culture, and societies. It helps us to see that, contrary to the conventional idea that archivists simply receive and house vast quantities of records, which merely reflect society, they actually co-create and shape the knowledge in records, and thus help form society's memory.⁸

This implies that even though archiving is a form of mediation, it is also more than just that. The intersection of technical skills and archival interpretation in digital comic book restoration, recoloring and reimaging shows us how much evolving role digital artists have in preserving cultural heritage of comic books. Today's contemporary art and theory often represent the archive as a somewhat dynamic and contested space where various historical narratives are being constructed and reconstructed over time. In this paper, my aim is to explore the technological themes and theories of how and why digital restoration, recoloring, and reimaging are being used in digital archiving of comic books and what implications that has on digital archiving and comic books.

Preserving authenticity: The art and science of digital comic book restoration

When it comes to preserving comic books as a print media art form, the significance of comic book restoration lies not only in preserving their physical form but also in maintaining the cultural and historical narratives that were embedded within these comics in the first place. Physical restoration of comic books involves the manual repair of physical copies, which may include tasks such as mending torn pages, deacidifying paper, and retouching faded colors using traditional art materials. While physical restoration aims to preserve the tangible artefact, it is often labor-intensive and can only slow down, not prevent, the degradation of materials.⁹ In contrast, digital restoration uses advanced technology to repair and enhance digital versions of comic books. This method can create high-quality reproductions that maintain the visual integrity of the original work without further physical handling, thereby preserving the original artefact's condition. A crucial step in digital comic book restoration is digital scanning and cleaning, which is both a technical and interpretive task.¹⁰ This process requires not only technical skill but also an artistic understanding of what constitutes the comic book's authentic state. It can be argued that technical process of digitization itself can be seen as a form of historical mediation, where temporal layers of the past are made dynamically present within the digital medium, even when the

⁸ Tom Nesmith, "Seeing Archives: Postmodernism and the Changing Intellectual Place of Archives," *American Archivist* 65, 1 (2002): 26–27.

⁹ Ariellazo, "Comic Restoration: What You Should Know," GoCollect, last modified March 13, 2021, <https://gocollect.com/blog/comic-restoration-what-you-should-know>, acc. on August 2, 2024.

¹⁰ *Ibid.*

outside world vanishes.¹¹ This means that digital tools (such as Photoshop) enable artists to examine and restore various aspects of the comic book, ensuring that even the slightest elements are preserved with high precision. This level of detail is crucial for maintaining the comic book's original aesthetic and historical integrity, allowing artists to capture nuances that contribute to the comic's authenticity. However, archive is not merely an accumulation of documents meticulously organized according to an all-encompassing classification and imposed power structures. It is also a dynamic and interpretive space where decisions about what to preserve and how to present it influence the way history and culture are understood.¹² Michel Foucault explains it the following way:

The archive defines a particular level: that of a practice that causes a multiplicity of statements to emerge as so many regular events, as so many things to be dealt with and manipulated. It does not have the weight of tradition; and it does not constitute the library of all libraries, outside time and place; nor is it the welcoming oblivion that opens up to all new speech the operational field of its freedom; between tradition and oblivion, it reveals the rules of a practice that enables statements both to survive and to undergo regular modification. It is the general system of the formation and transformation of statements.¹³

In other words, we can look at archives as if they are systems of knowledge production engulfed in statements that reflect and shape societal discourses. This means that we can see the restoration process as a means of not just preserving individual works, but also as a means to maintain and reinforce the cultural narratives and artistic practices of their time. When we digitally restore comics, we are engaging in the act of selecting which elements of these works to preserve, thus influencing how they will be interpreted by future audiences. This act of restoration is then a form of historical mediation, where we determine the significance and meaning of these cultural artefacts in the context of our present understanding and technological capabilities.¹⁴ These decisions contribute to the construction of historical knowledge, influencing which aspects of the comic are highlighted and which may be inadvertently minimized or altered. By acknowledging these factors, artists and restorers can strive to be more transparent and deliberate in their work, ensuring that the restored comics faithfully represent their original context and artistic intent while also being accessible to contemporary audiences.

This can also be interpreted as a form of remediation, where new media re-configure old media, thus affecting how archival materials are understood and

¹¹ Wolfgang Ernst, *Digital Memory and the Archive* (Minneapolis: University of Minnesota Press, 2013), 57.

¹² *Ibid.*, 3.

¹³ Michel Foucault, *The Archaeology of Knowledge* (New York: Pantheon Books, 1972), 72.

¹⁴ Joan M. Schwartz and Terry Cook, "Archives, Records, and Power: The Making of Modern Memory," *Archival Science* 2, 1–2 (2002): 1–19.

experienced.¹⁵ It can be argued that new media are doing exactly what their predecessors have done: presenting themselves as refashioned and improved versions of other media.¹⁶ This process of remediation enables digital tools to reimagine and reinterpret traditional comic book art, enhancing its visual and narrative appeal for contemporary audiences. In other words, the desire for immediacy leads digital media to borrow avidly from each other as well as from their predecessors.¹⁷ Similarly, digital reconstruction of comic books draws upon and transforms earlier artistic techniques. By employing advanced digital methods, reconstructed artwork is not merely a reproduction but a transformation that enhances the original content's depth and detail. This transformation shows us that remediation always operates under the current cultural assumptions about the media that are being remediated.¹⁸ This further suggests that digital reinterpretation of comic books also reflects and responds to contemporary aesthetic and cultural values. Therefore, the restoration process is both a technical and a cultural act that reshapes the manner in which archival materials, such as comic books, are understood and experienced in the digital age.

Furthermore, the archive can become a living and activated site that we can use to rethink art and its institutions. According to Lev Manovich's theory, database logic of new media (which means not having beginning, middle and end) contrasts the traditional narrative forms with its structure of individual items of the same significance.¹⁹ This means that in the process of comic book restoration, we can see that a restored comic book is not just restored as a linear narrative, but also as a database of images and textual elements. Each restored element then becomes a discrete piece of data that can be manipulated, stored, and retrieved, which makes the concept of new media a form of cultural expression with modularity and variability. Another approach to this argument is that this type of digitization process often reduces complex artefacts to mere data, which can undermine the authenticity of the original objects. This reductionist approach can then further lead to a loss of contextual and material aspects that are essential for understanding the historical and cultural significance of the artefacts.²⁰ While this might be true for some artefacts, in the case of comic books archiving, the artist's engagement adds new elements to the process that enable archived files to keep their artistic value. And in combination with modularity, variability and remediation, readers can experience restored comic books in multiple ways through various desktop and mobile digital media such as laptops, tablets, phones and apps, which effectively expands their artistic, cultural and historical value.

Action Comics No. 1, which introduced Superman to the world, stands as one of the most iconic examples of a comic book restoration. Originally published in

¹⁵ Jay David Bolter and Richard Grusin, *Remediation: Understanding New Media* (Cambridge, MA: MIT Press, 1999), 45.

¹⁶ *Ibid.*, 15.

¹⁷ *Ibid.*, 9.

¹⁸ *Ibid.*, 55.

¹⁹ Lev Manovich, *The Language of New Media* (Cambridge: MIT Press, 2001), 194.

²⁰ Ernst, *Digital Memory and the Archive*, 71.

1938, this comic book has suffered significant degradation over decades (see image #1).²¹ The paper has yellowed, the ink has faded, and physical damage has occurred. This made digital restoration process crucial in preserving this seminal piece of comic book history. Restoration experts digitized the entire comic book using high-resolution scanners. This process required careful handling of the delicate pages to avoid further damage. After digitizing the images artists proceeded to the next phase, which was the Photoshop cleaning process. Technical experts removed stains, repaired tears, and corrected color fading of comic book's physical appearance while also restoring its readability and visual appeal (see image #2).

Perceiving digital archives as not only time capsules but also as depositories of alternative futures suggests that archives hold potential narratives and futures that have yet to be realized. In other words, digital comic book restoration process opens up possibilities for reinterpretation and reimagining of the past and provides a foundation for a space where alternative histories and futures can be further explored while maintaining the original artistic intent and improving the quality and consistency of comic book illustrations.

Revitalizing visuals: The impact of digital recoloring on comic books

Digital comic book recoloring, another essential process in the preservation of visual art of comics, shows us the transformative potential of digital archives. Marvel Comics has embarked on an extensive journey to recolor its classic comics for their Marvel Masterworks series. A notable example of this effort is the recoloring of *The Silver Surfer* series.

The recoloring process here involves several steps. First, artists scan the original comic book pages to create high-resolution digital versions (see image #3). Then, based on the original color composition, they use advanced digital tools, like Adobe Photoshop and Clip Studio Paint, and they recolor pages, correct any color fadings and fix inconsistencies. This recoloring process also allows for the enhancement of hues and the introduction of more vibrant color palettes, which were not possible with the original printing technology. This modernized color palette helps attract new readers while maintaining the emotional and narrative integrity of the original artwork. In the provided images from *The Silver Surfer*, we can see the dramatic difference between the original (see image #3) and the recolored versions (see image #4). With the enhanced visual appeal, the Marvel Masterworks series demonstrates how digital recoloring can breathe new life into these stories, making them accessible and engaging for contemporary audiences. Furthermore, Wolfgang Ernst's theory of digital memory provides another layer of understanding. Ernst discusses how digital archives and restorations can alter the perception of historical artefacts, preserving them in a dynamic form.²² In other words, The Silver Surfer's digital recoloring not

²¹ Les Daniels, *Superman: The Complete History* (San Francisco CA: Chronicle Books, 1998), 33.

²² Ernst, *Digital Memory and the Archive*, 128.

only preserves the comic, but it also revitalizes it by transforming classic comics into visually enhanced digital versions.

Roland Barthes, in *Camera Lucida*, discusses how certain visual elements can trigger deep emotional responses,²³ which implies that archives can be seen as dynamic repositories of human experience and memory. As for the digital realm, Wolfgang Ernst argues:

From the development of mathematical stochastics and statistical dynamics in the nineteenth-century thermodynamics (Ludwig Boltzmann's and Josiah Willard Gibbs's insight into the nature of entropy) up to Norbert Wiener's Cybernetics, the historical mode describing temporal processes has been confronted with alternative modelings of time. When it comes to describing media in time, this aporia becomes crucial, because one can no longer simply subject media processes to a literary narrative without fundamentally misreading and misrepresenting their *Eigenzeit*. Historical media narratives take place in an imaginary time. Storage technologies, on the other hand, take place in the symbolic temporal order, and the contingent can now be dealt with by stochastic mathematics as implemented in real-time computing.²⁴

This means that a form of archival entropy can develop and manifest itself as data corruption or loss of original context during a digital preservation process. In terms of digital recoloring, the importance of preserving the original color intent and context is as essential as updating the visual presentation. The definition of an archive, therefore, is not confined to its physical structure or the documents it houses. Instead, archives embody narratives, emotions, and cultural significance of their content, see image #4. Scott McCloud's theory of color in storytelling shows us the importance of the role of color in shaping reader's experience. McCloud argues further that colors are not just some mere decoration on a comic book page, but actually an essential element that affects mood, tone, and emotional resonance, which compliments Barthes' theory as well.²⁵ Thus, digital recoloring not only preserves but also revitalizes the emotional and visual appeal of comic books. Lev Manovich argues that digital media, such as video games for example, enable new forms of cultural expression, narration and interaction.²⁶ These types of media by their nature have the technological ability to turn passive archives into dynamic, participatory platforms. This process involves not just technical adjustments but a remaking of the artwork's potential to convey emotions and narratives, or in the case of comic books, recolored pages. Another role of digital media is in shaping human cognition and cultural practices, which aligns

²³ Barthes, *Camera Lucida: Reflections on Photography*, 21.

²⁴ Ernst, *Digital Memory and the Archive*, 58.

²⁵ McCloud, *Understanding Comics: The Invisible Art*, 190.

²⁶ Manovich, *The Language of New Media*, 214–216.

with the idea that archives, through processes like digital recoloring, can foster new ways of engagement and thinking about art.²⁷

Moreover, digital recoloring demonstrates how these archives can serve as platforms for alternative narratives and futures. By revisiting and reimagining classic comic books, we uncover new layers of meaning and significance of old art pieces. Recolored comic book archive, therefore, can serve as one form of a model for how archives can function as repositories of alternative futures. This means that recolored digital comic book archive can then become a site of continual reinterpretation that evolves with each new interaction.

Reinterpreting classics: The role of digital reimagining in modernizing comic books

Digital comic book reimagining is a transformative technique that reinterprets original comic book artwork using advanced digital methods to create (in a sense) a new version of a comic book page. On the occasion of their 40th anniversary in 2020, Marvel Comics released a digitally reimagined version of one of their most popular comics, *Star Wars: The Original Trilogy*.

Colors in the comic book got a completely new and overhauled look, with a new color palette that included richer, more vibrant hues and more nuanced shading. Using advanced digital tools, the artist added shading, highlights, and other effects, bringing a new level of depth and detail to the artwork that was not possible with the original printing technology (see images #5 and #6). The image #6 shows us a colored page from the original first printing, while the image #5 shows the reimagined new version. Modern visual effects were also applied to enhance the overall look and feel of the comic, making it more appealing to contemporary digital readers.

The role of comics as a medium today constantly evolves and adapts, while it reflects broader cultural shifts and technological advancements through the power of visual storytelling.²⁸ This dynamic nature of comics parallels the evolving nature of digital archives, which, through reimagining practices, challenge traditional notions of preservation and static documentation. This indicates that digital reimagining of comic books does not merely concern preservation but also enhancing and transforming the medium for modern audiences. Ethical considerations in this process to bear in mind include respecting the original artist's vision (where possible depending on intellectual property ownership), as well as the original narrative context. This means that when engaging with digital cultural artefacts, artists must pay close attention to ensure that new artistic elements complement the existing material rather than detract from it.²⁹ This can bring contemporary critique of traditional social hierarchies and what constitutes high and low art, as well as where these digital archives in the age

²⁷ N. Katherine Hayles, *How We Think: Digital Media and Contemporary Technogenesis* (Chicago: University of Chicago Press, 2012), 13.

²⁸ McCloud, *Understanding Comics: The Invisible Art*, 23.

²⁹ Manovich, *The Language of New Media*, 136.

of social networks belong today, as well as if they are part of contemporary culture or not, considering the fact that they are a collection of data, just like social networks.³⁰ So if we compare social media, for example an Instagram filter on a photograph, to a reimagined comic book page, we can see similarities in both structures. The original photo was remade with the use of a filter in a similar manner as the original comic book page was reimagined in color, which makes both of them digital cultural artefacts. Another notion to question here is whether these digital archives can act as sites of potentiality, where the past is not just preserved but is constantly reinterpreted and reactivated to address contemporary issues and envision future possibilities.³¹ By enhancing the visual appeal of comics through modern digital techniques, reimagining can make these works more engaging without compromising their original plot or character development. This approach respects the original creator's work and provides a balanced integration of new and old, fostering a dialogue between the past and the present.³² The archive, thus, becomes a site of continuous creative exploration, where unfinished or alternative narratives can be explored and expanded upon suggesting that the reimagining process is a testament to the evolving and dynamic nature of comic books in our digital age.

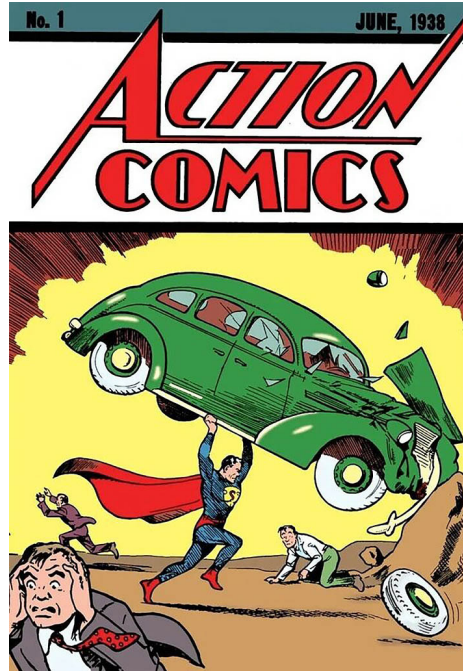
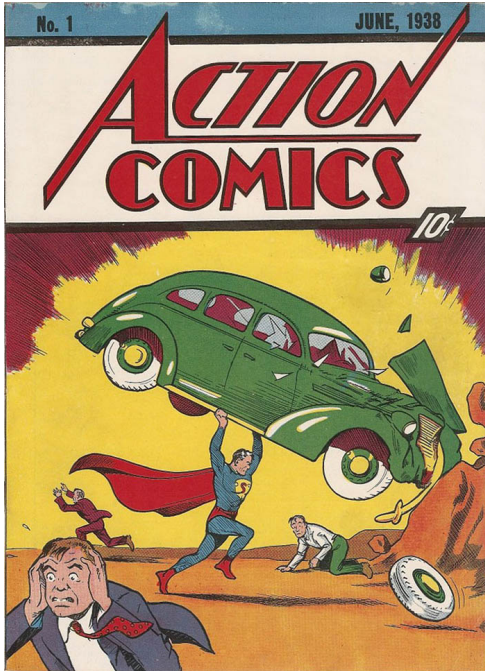
Conclusion

In conclusion, the evolving nature of archives, as demonstrated through the digital restoration, recoloring, and reimagining of comic books, highlights the dynamic and interpretive potential of these repositories. When archiving a comic book with any of these processes, artists must ensure that their interventions complement the existing material rather than detract from it. In other words, by redefining what constitutes an archive and by exploring new techniques for preserving and engaging with cultural artefacts such as old comic books, artists can become digital archivists that open up new possibilities for how we understand and interact with the cultural heritage of the art form of the comic book medium in the future. And that clasifies comic books as a form of a digital archive of a Foucaultian statement.

³⁰ Lev Manovich, *Cultural Analytics* (Cambridge MA: MIT Press, 2020), 150.

³¹ Ernst, *Digital Memory and the Archive*, 14–15.

³² Manovich, *The Language of New Media*, 80.



Images 1 and 2: Cover Illustration; Art: Joe Shuster; Property of DC Comics



Images 3 and 4: Comic Book Interior Page; Art: Jack Kirby; Property of Marvel Comics

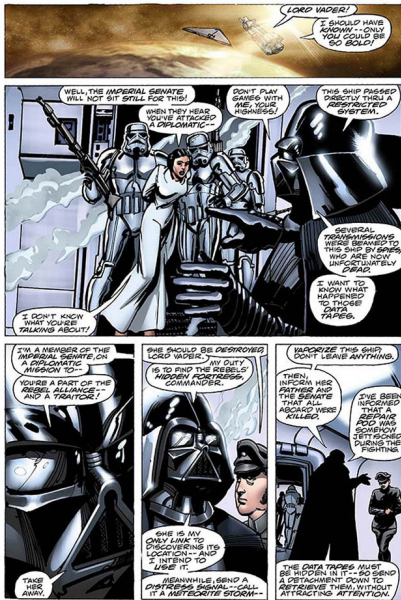


Image 5: Comic Book Interior Page; Art: Howard Chaykin; Property of Disney

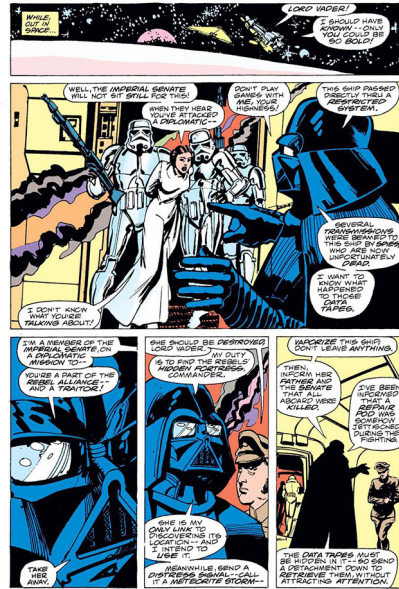


Image 6: Comic Book Interior Page; Art: Howard Chaykin; Colors: Sotocolor; Property of Disney

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