The Printing Press

Source Companion

Every load-bearing claim in the manuscript is tagged here to the source it was checked against, organised by chapter. Sources were accessed 1-2 November 2026 during writing. This companion is a separate document and is not counted in the manuscript's 115 pages.

Reading notes. Market sizes vary by research house and scope; where the manuscript quotes a figure, the companion tags the exact source and year, and forward-looking numbers are labelled forecasts. Encyclopaedia and reference entries (marked "tertiary cross-check") were used only for uncontroversial craft facts, never alone for a load-bearing number. One framework is cited as a book (Eisenstein, 1979) rather than a URL. All illustrations in the manuscript are AI-generated engravings in period style; no real person's likeness is synthesised or altered.

Ketineni Ramarao · Industries of India

Prologue and Chapter 1 - Clay, Silk and Mulberry Bark

1. Paper's invention is traditionally dated to 105 CE, when Ts'ai Lun reported it to the Han court; archaeological finds place papermaking earlier.

Early Papermaking · Robert C. Williams Museum of Papermaking, Georgia Tech
https://paper.gatech.edu/early-papermaking

A Tale of Papermaking along the Silk Road · De Gruyter (DOI)
https://doi.org/10.1515/9783110753301-022

2. Timeline of writing surfaces, inks and early printing used to cross-check the book's chronology.

APHA History of Printing Timeline · American Printing History Association
https://printinghistory.org/timeline/

Chapter 2 - The Block and the Diamond

3. The Diamond Sutra of 868 CE is the world's earliest dated printed book; found in 1900 in the sealed Library Cave at Dunhuang by Wang Yuanlu.

The world's earliest dated printed book: The Diamond Sutra, 868 CE · Cabinet, University of Oxford
https://www.cabinet.ox.ac.uk/worlds-earliest-dated-printed-book-diamond-sutra-868-ce

The Library Cave and Dunhuang Manuscripts · University of Washington Dunhuang Project
https://www.dunhuang.ds.lib.uw.edu/Dunhuang-Exhibitions/exhibits/show/library-cave-manuscripts/dimaond-sutra

4. The scroll is Kumarajiva's Chinese translation, assembled from seven printed panels, over five metres long, British Library Or.8210/P.2.

CONA Full Record: Diamond Sutra · Getty Research Institute
https://www.getty.edu/cona/CONAFullSubject.aspx?subid=700009008

5. Framing of the Diamond Sutra as the earliest securely dated printed book.

The Diamond Sutra: The Story of the World's Earliest Dated Printed Book (review) · Journal of Asian Studies, Duke University Press
https://read.dukeupress.edu/journal-of-asian-studies/article/70/3/828/340293/The-Diamond-Sutra-The-Story-of-the-World-s

6. Chinese priority in papermaking and printing; earliest paper specimens predate the common era.

Printing (Cambridge History of China chapter) · Cambridge University Press (DOI)
https://doi.org/10.1017/cbo9780511497445.020

Chapter 3 - Letters of Clay and Bronze

7. Bi Sheng invented movable type around 1040 (Qingli reign); the sole near-contemporary account is Shen Kuo's Dream Pool Essays.

Bi Sheng · EBSCO Research Starters
https://www.ebsco.com/research-starters/history/bi-sheng/

A historical analysis of printing and publishing in Song China · Taylor & Francis (DOI)
https://www.tandfonline.com/doi/abs/10.1080/17544750.2013.753497

8. Jikji, printed at Heungdeoksa temple, Cheongju, in July 1377, is the world's oldest extant book printed with movable metal type; UNESCO Memory of the World.

Baegun hwasang chorok buljo jikji simche yojeol (vol. II) · UNESCO Memory of the World
https://www.unesco.org/en/memory-world/baegun-hwasang-chorok-buljo-jikji-simche-yojeol-volii-second-volume-anthology-great-buddhist-priests

Jikji, a treasure of the world of printing · Bibliotheque nationale de France
https://www.bnf.fr/en/jikji-treasure-world-printing

Oldest book printed using movable metal type · Guinness World Records
https://www.guinnessworldrecords.com/world-records/689333-oldest-book-printed-using-movable-metal-type

9. Korea's state ran type foundries like mints; the first great royal bronze fount dates to 1403 (Gyemija, cast by the Juja-so foundry), with fifteenth-century successors cast in the tens of thousands of sorts.

Gyemija (1403 bronze type) · Encyclopedia of Korean Culture
https://encykorea.aks.ac.kr/Article/E0003132

Chapter 4 - The Goldsmith of Mainz

10. Gutenberg's return to Mainz is documented by a loan of 150 guilders from Arnold Gelthus on 17 October 1448; the Strasbourg record ends in 1444.

Johannes Gutenberg (c.1400-1468): The Printer · Library of Congress Research Guide
https://guides.loc.gov/gutenberg/the-printer

Gutenberg's invention (biography) · Gutenberg-Gesellschaft, Mainz
https://www.gutenberg-gesellschaft.de/en/johannes-gutenberg/gutenbergs-invention

11. Strasbourg years: the 1436/37 breach-of-promise proceedings before the ecclesiastical court; goldsmith and mirror-making context.

Gutenberg and his time in data · Gutenberg.de / Stadt Mainz
https://www.mainz.de/en/microsite/gutenberg/zeit/zeitleiste_gutenberg

12. Johann Fust financed the Bible workshop (loans of 800 guilders); in late 1455 he sued; the Helmasperger notarial instrument records the dispute; Peter Schoffer, Fust's son-in-law, continued the house.

Fust and Schoeffer in Mainz · Princeton Digital PUL
https://dpul.princeton.edu/gutenberg/feature/fust-and-schoeffer-in-mainz

Johannes Gutenberg (tertiary cross-check) · Wikipedia
https://en.wikipedia.org/wiki/Johannes_Gutenberg

Chapter 5 - Anatomy of an Invention

13. The type-making chain - steel punch, copper matrix, adjustable hand mould, lead-tin-antimony alloy - as the core of Gutenberg's system; the hand mould is the element with no existing model.

Gutenberg's Inventions: The Hand Mould · drupa, Messe Dusseldorf
https://www.drupa.com/en/content-hub/drupa-blog/print-technologies/gutenberg-s-inventions-part-2-hand-mould/

Art of printing (punch, matrix, mould) · National Diet Library, Japan
https://www.ndl.go.jp/incunabula/e/chapter1/chapter1_01.html

Just My Type: Making Letters at the Type Foundry · Library of Congress, Bibliomania
https://blogs.loc.gov/bibliomania/2024/12/17/just-my-type-making-letters-at-the-type-foundry/

14. Scholarly debate over the hand mould's attribution, settled by microscopic comparison of early printed types.

Did Johannes Gutenberg invent the hand mould? · openscience Mainz (DOI)
https://doi.org/10.25358/openscience-5699

Chapter 6 - The Work of the Books

15. The 42-line Bible was printed in Mainz in 1454/55 - the first large-format typographic book in Europe.

Introduction: The Gutenberg Bible · Library of Congress Research Guide
https://guides.loc.gov/gutenberg/introduction

16. The Bible comprises 643 Royal folio leaves, bound in two volumes.

The Gutenberg Bible · Cabinet, University of Oxford
https://www.cabinet.ox.ac.uk/gutenberg-bible

17. Aeneas Silvius Piccolomini's letter of 12 March 1455 describes sheets shown by a 'miraculous man' at Frankfurt.

The Gutenberg Bible (fifteenth-century sources) · Princeton Digital PUL
https://dpul.princeton.edu/gutenberg/feature/the-gutenberg-bible

18. The edition: about 180 copies, of which roughly 35 on vellum and 145 on paper.

The Gutenberg Bible (Bible Collection exhibition) · Library of Congress
https://www.loc.gov/exhibits/bibles/interactives/gutenberg/index.html

Gutenberg's masterpiece (180 copies) · Gutenberg-Museum, Mainz
https://mainz.de/en/microsite/gutenberg-museum/Forschung_Sammlung_/Gutenberg_Bibeln

Chapter 7 - The Mainz Diaspora

19. The Incunabula Short Title Catalogue records 30,596 fifteenth-century editions as of October 2024.

ISTC (Incunabula Short Title Catalogue) · CERL
https://data.cerl.org/istc/

20. Some 450,000 copies of fifteenth-century editions survive in about 4,000 libraries.

The spread of printing in Europe, 1455-1500 · Cabinet, University of Oxford
https://www.cabinet.ox.ac.uk/spread-printing-europe-1455-1500

21. Estimates of lost editions and survival rates for incunabula.

1460-1585: The survival chance of books · Nederlandse boekgeschiedenis
https://www.nederlandseboekgeschiedenis.nl/en/handbook/1460-1585-rise-and-general-dissemination/147-1460-1585-survival-chance-books

Chapter 8 - Venice and the Portable Book

22. The Aldine Press was founded by Aldus Manutius in Venice in 1494 and ran through four generations to 1597.

The Aldine Press and its printing innovations · University College, Oxford
https://www.univ.ox.ac.uk/news/the-aldine-press-and-its-printing-innovations/

Aldine Press (tertiary cross-check) · Wikipedia
https://en.wikipedia.org/wiki/Aldine_Press

23. The Aldine Virgil of 1501: the portable octavo classics series.

From humanist manuscripts to italic pocketbooks: the Aldine press, 1501 · Cabinet, University of Oxford
https://www.cabinet.ox.ac.uk/humanist-manuscripts-italic-pocketbooks-aldine-press-1501

24. The first italic type was cut for Aldus by Francesco Griffo; first printed italic appears in the St Catherine of Siena of 1500.

Type to Print: St Catherine of Siena, 1500 · Columbia University Libraries
https://online-exhibitions.library.columbia.edu/exhibits/show/type_to_print/roman/catherine

Italics - Griffo · Archivio Griffo
https://www.griffoggl.com/en/corsivi/

Chapter 9 - The Merchant Printers

25. Anton Koberger ran the largest printing business of the fifteenth century: up to 24 presses and a hundred or more craftsmen, with a Europe-wide book trade.

Anton Koberger · German Museum of Books and Writing, DNB
https://erster-weltkrieg.dnb.de/DBSMZBN/Content/EN/Printing/04-koberger-anton-en.html

The Printing of the Nuremberg Chronicle (read in full: peak of perhaps 18+ presses in the 1490s; the DNB museum text gives 24; the book says 'more than twenty') · Vassar College Libraries
https://www.vassar.edu/specialcollections/exhibit-highlights/2011-2015/nuremberg-chronicle/essayprinting.html

The Printing of the Nuremberg Chronicle · Vassar College Libraries
https://www.vassar.edu/specialcollections/exhibit-highlights/2011-2015/nuremberg-chronicle/essayprinting.html

26. The Nuremberg Chronicle (Liber chronicarum, Hartmann Schedel), printed by Koberger in 1493, is the most extensively illustrated book of the fifteenth century; woodcuts from the Wolgemut workshop.

Incunabula: Nuremberg Chronicle · Cambridge Digital Library
https://cudl.lib.cam.ac.uk/view/PR-INC-00000-A-00007-00002-00888/1

The Printing of the Nuremberg Chronicle (read in full: 1,804 illustrations from 652 woodblocks; 326 Latin leaves; 400,000 sheets of paper; printing March 1492-June 1493; approx. 1,300 Latin and 600 German copies) · Vassar College Libraries
https://www.vassar.edu/specialcollections/exhibit-highlights/2011-2015/nuremberg-chronicle/essayprinting.html

The Nuremberg Chronicle (Liber chronicarum) · Library of Congress
https://loc.gov/item/2021666735

27. Caxton printed the Recuyell of the Historyes of Troye (1473/74), the first book in English, in Bruges, and set up at Westminster in 1476.

The First English Books · JSTOR Daily
https://daily.jstor.org/first-english-books/

England and the Printing Press: A Subject Guide · Library of Congress
https://guides.loc.gov/english-print

William Caxton · Westminster Abbey
https://www.westminster-abbey.org/abbey-commemorations/commemorations/william-caxton

28. Plantin's Antwerp house and its contents survive as the Plantin-Moretus Museum, a UNESCO World Heritage site - the only early printing office preserved entire. (An earlier draft's specific press- and staff-counts could not be verified against a read source and were removed from the manuscript.)

Plantin-Moretus House-Workshops-Museum Complex · UNESCO World Heritage Centre
https://whc.unesco.org/en/list/1185/

Museum Plantin-Moretus · City of Antwerp
https://museumplantinmoretus.be/en/museum-plantin-moretus

29. The Statute of Anne (1710) is the first law vesting copyright in authors.

The Statute of Anne, April 10, 1710 (text) · Avalon Project, Yale Law School
https://avalon.law.yale.edu/18th_century/anne_1710.asp

History of Copyright: Statute of Anne, 1710 · copyrighthistory.com
https://www.copyrighthistory.com/anne.html

Chapter 10 - Luther's Weather

30. The Reformation was the first mass movement carried by print; the natural affinity between print and Protestantism is more often assumed than demonstrated - a debate this chapter reports.

Print and the Reformation: A Drama in Three Acts · Church History, Cambridge Core
https://www.cambridge.org/core/journals/church-history/article/print-and-the-reformation-a-drama-in-three-acts/123C0401F52B07F6E2B91221E4D89E38

31. Luther's extraordinary printed output 1518-1521 (102 works) and the flood of vernacular Flugschriften; comparative statistics of evangelical vs Catholic publicists.

Printing, Propaganda, and Martin Luther · Mark U. Edwards Jr., UC Press eBooks
https://pub-ucpec2-prd.cdlib.org/ucpressebooks/view?anchor.id=bkd0e3587&brand=ucpress&chunk.id=d0e3576&doc.view=content&docId=ft3q2nb278&toc.depth=100

The Printing Press and Theological Literature · Cambridge University Press (DOI)
https://doi.org/10.1017/9781107358386.003

32. Econometric evidence: cities with printing firms produced significantly more Protestant content after 1517.

Media, markets and institutional change: evidence from the Protestant Reformation · Dittmar & Seabold, LSE/CEP dp1367
https://cep.lse.ac.uk/pubs/download/dp1367.pdf

Chapter 11 - The Republic of Letters

33. Vesalius's De humani corporis fabrica was published in Basel by Johannes Oporinus in 1543 (bibliographic record); Copernicus's De revolutionibus appeared the same year in Nuremberg.

USTC Edition No. 606035 (Vesalius / Oporinus) · Universal Short Title Catalogue
https://www.ustc.ac.uk/editions/606035

USTC Edition No. 678038 (Kopernikus, De revolutionibus) · Universal Short Title Catalogue
https://www.ustc.ac.uk/editions/678038

34. The Journal des savants and the Philosophical Transactions both began in 1665; the Transactions is the world's first and longest-running scientific journal.

History of Philosophical Transactions · The Royal Society
https://royalsociety.org/journals/publishing-activities/publishing350/history-philosophical-transactions/

Fit for print: scientific periodical publishing in England, 1665-c.1714 · PMC / NIH
https://pmc.ncbi.nlm.nih.gov/articles/PMC4528405/

35. Typographic fixity as print culture's transforming property (framework attributed in the text).

Elizabeth L. Eisenstein, The Printing Press as an Agent of Change (1979) · Cambridge University Press

Chapter 12 - News and Noise

36. Johann Carolus's Relation (Strasbourg, 1605) is recognised as the world's first printed newspaper.

Strassburg, 1605: The Origins of the Newspaper in Europe · German History, Oxford Academic
https://academic.oup.com/gh/article-abstract/24/3/387/597682

Relation: serial record · University of Pennsylvania Online Books
https://onlinebooks.library.upenn.edu/webbin/serial?id=relation1605

Newspapers in the USTC, 1605-1650 · Universal Short Title Catalogue
https://www.ustc.ac.uk/news/newspapers-in-the-ustc-1605-1650

37. The 1735 trial and acquittal of John Peter Zenger for seditious libel; truth advanced as a defence.

Crown v. John Peter Zenger, 1735 · Historical Society of the New York Courts
https://history.nycourts.gov/case/crown-v-zenger/

The Trial of John Peter Zenger · U.S. National Park Service
https://www.nps.gov/feha/learn/historyculture/the-trial-of-john-peter-zenger.htm

John Peter Zenger · First Amendment Encyclopedia, MTSU
https://firstamendment.mtsu.edu/article/john-peter-zenger/

Chapter 13 - The Iron Hand

38. Around 1800 Lord Stanhope built the first iron printing press, capable of printing a whole sheet at a single pull.

Printing press (tertiary cross-check) · Wikipedia
https://en.wikipedia.org/wiki/Gutenberg_printing_press

Printing Machines (19th-century mechanisation survey) · Smithsonian Institution
https://www.si.edu/spotlight/printing-presses/printing-machines

Chapter 14 - Steam Reads The Times

39. In the night of 28-29 November 1814, The Times was printed on Koenig and Bauer's steam-driven cylinder press at about 1,100 sheets per hour - the first newspaper printed by steam.

Scale Model of Koenig and Bauer Cylinder Printing Press · Science Museum Group Collection
https://collection.sciencemuseumgroup.org.uk/objects/co37982/scale-model-of-koenig-and-bauer-cylinder-printing-press-1975-1978

1814: The London Times on a steam-driven press · OUPblog, Oxford University Press
https://blog.oup.com/2014/12/steam-press-newspaper-london-times-1814/

On the 250th Birthday of Friedrich Koenig · Koenig & Bauer
https://www.koenig-bauer.com/en/newsroom/online-magazine-world/article/on-the-250th-birthday-of-friedrich-koenig-inventor-businessman-visionary

Koenig and Bauer's steam powered printing press · Age of Revolution
https://ageofrevolution.org/200-object/koenigs-steam-powered-printing-press/

Chapter 15 - The Rotary Age

40. Richard March Hoe patented the type-revolving rotary press in 1846; it was first installed at the Philadelphia Public Ledger in 1847.

Richard March Hoe (object record) · Smithsonian Institution
https://www.si.edu/object/richard-march-hoe:yt_J8LFNFAhbmo

NIHF Inductee Richard Hoe · National Inventors Hall of Fame
https://www.invent.org/inductees/richard-hoe

Printing Newspapers 1400-1900 · Library of Congress, Headlines & Heroes
https://blogs.loc.gov/headlinesandheroes/2022/04/printing-newspapers-1400-1900/

Chapter 16 - The Line-Casting Machines

41. The Linotype was first used commercially on 3 July 1886 to cast slugs for that day's New York Tribune; Ottmar Mergenthaler had developed the machine in Baltimore.

July 3, 1886: The Linotype · Amalgamated Printers' Association
https://apa-letterpress.com/?page_id=26329

Linotype Invented and Built in Baltimore · American Printing History Association
https://printinghistory.org/linotype-baltimore/

Ottmar Mergenthaler: The Man and his Machine (Kahan) · PBSC (DOI)
https://doi.org/10.33137/pbsc.v39i1.18212

42. Tolbert Lanston's Monotype system - keyboard and caster - was patented in 1887; the Lanston Monotype companies followed in the US and UK (1897).

A Monotype timeline · Eye Magazine
https://www.eyemagazine.com/feature/article/a-monotype-timeline

Tolbert Lanston · Science Museum Group Collection
https://collection.sciencemuseumgroup.org.uk/people/cp173009/tolbert-lanston

Chapter 17 - The Stone of Solnhofen

43. Alois Senefelder discovered chemical printing in Munich in 1796, writing with greasy ink on polished Solnhofen limestone.

Alois Senefelder · German Patent and Trade Mark Office (DPMA)
https://www.dpma.de/english/our_office/publications/milestones/greatinventors/senefelder/index.html

Lithography in the Nineteenth Century · The Metropolitan Museum of Art
https://www.metmuseum.org/essays/lithography-in-the-nineteenth-century

The Invention of Lithography (Senefelder's own account, 1818) · Project Gutenberg
https://www.gutenberg.org/files/40924/40924-h/40924-h.htm

44. Robert Barclay combined transfer printing with Hoe's rotary press in 1875 for the first rotary offset lithographic press (metal printing).

Pioneers of Printing: The Origins of Offset Printing · drupa, Messe Dusseldorf
https://www.drupa.com/en/Media_News/drupa_blog/Print_Technologies/Pioneers_and_History_of_Printing/Pioneers_of_Printing_The_Origins_of_Offset_Printing

45. Ira Rubel built the first offset press for paper in 1903-1904 at Nutley, New Jersey.

Ira Rubel and the Offset Press, 1904 · RIT Distinctive Collections
https://archivesspace.rit.edu/repositories/3/archival_objects/100

Lithographic offset press, Rubel, 1903 · National Museum of American History, Smithsonian
https://americanhistory.si.edu/collections/object/nmah_882246

Offset printing (tertiary cross-check) · Encyclopaedia Britannica
https://kids.britannica.com/scholars/article/offset-printing/56815

Chapter 18 - Light Sets the Type

46. No single inventor of the halftone: Talbot patented textile screens in 1852; Meisenbach, Ives, the Levy brothers and others brought the practical process in the 1880s-90s; first newspaper halftone, New York Daily Graphic, 2 March 1880.

Halftone (Atlas of Analytical Signatures) · Getty Conservation Institute
https://www.getty.edu/conservation/publications_resources/pdf_publications/pdf/atlas_halftone.pdf

The Levy brothers, photoengravers · Hagley Museum and Library
https://www.hagley.org/research/news/hagley-vault/1875-inventors-photographers-photochemists-and-brothers

The Development of Photomechanical Printing Processes (Mustalish) · Topics in Photographic Preservation
https://resources.culturalheritage.org/pmgtopics/1997-volume-seven/07_10_Mustalish.pdf

47. Desktop publishing fused in 1985: the Macintosh, the LaserWriter with Adobe PostScript, and Aldus PageMaker.

Desktop Publishing (Aldus PageMaker, 1985) · Computer History Museum
https://www.computerhistory.org/revolution/personal-computers/17/306

Desktop Publishing 1985-1991: The Apple Computer Story · Museums Victoria
https://collections.museumsvictoria.com.au/articles/1527

Chapter 19 - Gravure, Flexo, Screen

48. Karelic Klic brought photogravure to commercial viability in 1879, building on Talbot's patents of 1852 and 1858; intaglio cells of varying depth render tone.

Photogravure (Atlas of Analytical Signatures) · Getty Conservation Institute
https://www.getty.edu/conservation/publications_resources/pdf_publications/pdf/atlas_photogravure.pdf

The Development of Photomechanical Printing Processes (Mustalish) · Topics in Photographic Preservation
https://resources.culturalheritage.org/pmgtopics/1997-volume-seven/07_10_Mustalish.pdf

Photogravure (glossary) · National Portrait Gallery, London
https://www.npg.org.uk/collections/explore/glossary-of-art-terms/photogravure

49. Rotogravure - gravure from an etched cylinder - powered the high-circulation illustrated magazine and Sunday supplement.

The Rotogravure Process · Library of Congress, Newspaper Pictorials: World War I
https://www.loc.gov/collections/world-war-i-rotogravures/articles-and-essays/the-rotogravure-process/

50. Flexography descends from the 1890 Bibby, Baron and Sons rotary press with rubber plates and aniline dye inks ('Bibby's Folly'); renamed in 1952; the anilox roller made it a precision process; it dominates packaging.

Flexography (tertiary cross-check) · Wikipedia
https://en.wikipedia.org/wiki/Flexography

A Historical Essay on the Development of Flexography · RIT thesis repository
https://repository.rit.edu/cgi/viewcontent.cgi?article=4829&context=theses

51. Screen printing: Asian stencil origins; Samuel Simon's Manchester patent of 1907; industrial and cultural roles from posters to printed electronics.

The Innovation of an Art Form: A History of Screen Printing · Printing Industries of America journal
https://www.printing.org/docs/default-source/default-document-library/journal/gfx-13-5-innovation-art-form-history-of-screen-printing.pdf?sfvrsn=560d7b5_0

A History of Screen Printing (Lengwiler) · Guido Lengwiler
https://guido-lengwiler.ch/download/book_promo_en.pdf

Chapter 18 - Light Sets the Type

52. Higonnet and Moyroud developed the first practical phototypesetting machine; commercialised as the Lumitype-Photon in the 1950s. (An earlier draft dated the first showing to 1949; corrected after checking the sources.)

NIHF Inductee Louis Moyroud · National Inventors Hall of Fame
https://www.invent.org/inductees/louis-marius-moyroud

The Lumitype saga · Production Type
https://productiontype.com/article/the-lumitype-saga-france-s-early-attempts-at-phototypesetting

Chapter 20 - 10-22-38, Astoria

53. Chester Carlson and Otto Kornei made the first xerographic copy on 22 October 1938 in Astoria, Queens; the notation '10-22-38 ASTORIA' was its text; the Xerox 914 plain-paper copier followed in 1959.

October 22, 1938: Invention of Xerography (read in full: also establishes the Xerox 914 of 1959 as the first plain-paper office copier) · American Physical Society, APS News
https://www.aps.org/apsnews/2003/10/october-1938-invention-xerography

The Story of Xerography · Xerox Corporation
https://www.xerox.com/downloads/dl/usa/en/innovation/innovation_storyofxerography.pdf

Chester F. Carlson papers · New York Public Library Archives
https://archives.nypl.org/mss/472

Chapter 21 - Presses Without Plates

54. Benny Landa's Indigo E-Print 1000, shown at IPEX 1993, was the world's first digital colour offset press; HP later acquired Indigo (2002).

HP Indigo Digital Press: A Complete Overview · HP
https://www.hp.com/us-en/tech-takes/printing/explainer/hp-indigo-press-overview.html

1993: prepress and publishing events · Prepressure
https://www.prepressure.com/prepress/history/events-1993

20 years of digital: the innovation that sparked a revolution · Printweek
https://www.printweek.com/content/features/20-years-of-digital-the-innovation-that-sparked-a-revolution

Chapter 22 - The Press in the Age of Its Own Child

55. US newsroom employment fell 26% between 2008 and 2020, with newspapers bearing the steepest losses; daily circulation fell to levels not seen since 1940.

U.S. newsroom employment has fallen 26% since 2008 · Pew Research Center
https://www.pewresearch.org/short-reads/2021/07/13/u-s-newsroom-employment-has-fallen-26-since-2008/

The State of Local News 2023 (read in full: 2,886 papers lost since 2005, more than two a week; a third gone on the 2024 trajectory) · Medill Local News Initiative, Northwestern
https://localnewsinitiative.northwestern.edu/projects/state-of-local-news/2023/report/

In 2023, bright spots in local news stand out against a grim landscape · Nieman Journalism Lab
https://www.niemanlab.org/2023/11/in-2023-bright-spots-in-local-news-stand-out-against-a-grim-landscape/

Newspaper industry financial struggles · Pew Research Center
https://www.pewresearch.org/short-reads/2020/02/14/fast-facts-about-the-newspaper-industrys-financial-struggles-as-mcclatchy-files-for-bankruptcy/

56. Print book unit sales in the US rose slightly in 2024 (782.7 million units, first rise in three years) and again in 2025 - the ebook plateau in the English-language trade.

Print Book Sales Saw a Small Sales Increase in 2024 · Publishers Weekly / Circana BookScan
https://www.publishersweekly.com/pw/by-topic/industry-news/publisher-news/article/96842-print-book-sales-saw-a-small-sales-increase-in-2024.html

Print Book Sales Rose Slightly in 2025 · Publishers Weekly / Circana BookScan
https://www.publishersweekly.com/pw/by-topic/industry-news/financial-reporting/article/99417-print-book-sales-rose-slightly-in-2025.html

Publishing Industry Sales Saw Modest Gains in 2024 · Publishers Weekly / AAP
https://www.publishersweekly.com/pw/by-topic/industry-news/financial-reporting/article/98482-publishing-industry-sales-saw-modest-gains-in-2024.html

57. The European book market reached a record EUR 24.9 billion turnover in 2024.

At Frankfurt: The European Book Market Hits Record Turnover · Publishing Perspectives / FEP
https://publishingperspectives.com/2025/10/at-frankfurt-feps-report-the-european-book-market-hits-record-turnover/

Chapter 23 - The Press Builders

58. Koenig & Bauer, founded 1817 in Wurzburg by Friedrich Koenig and Andreas Friedrich Bauer, is the world's oldest printing press manufacturer; 2024 revenue about EUR 1.3 billion.

Corporate Profile · Koenig & Bauer Investor Relations
https://investors.koenig-bauer.com/en/corporate-profile/

Koenig & Bauer Annual Report 2024 · Koenig & Bauer
https://annualreport.koenig-bauer.com/wp-content/uploads/2025/04/GB_2024_Black-and-White-EN-web.pdf

Koenig & Bauer ends 2024 with EUR 1.3bn revenue · ME Printer
https://meprinter.com/tariff-pause-gives-relief-to-german-printing-industry/

59. Heidelberg, 175 years old, reported net sales of about EUR 2.4 billion in FY 2023/24.

Heidelberg Annual Report 2024/25 and 2023/24 figures · Heidelberger Druckmaschinen AG
https://www.heidelberg.com/global/media/en/global_media/investor_relations/ir_reports_and_presentations/2024_25/250605_cfs_2425_report-.pdf

60. Koenig & Bauer holds a dominant share (over 80% by its own account) of the banknote printing press market.

Koenig & Bauer: Wie ein Traditionsunternehmen den Umbruch meistert · Forbes Austria
https://www.forbes.at/artikel/wo-das-geld-gedruckt-wird

Chapter 24 - The Hidden Industries

61. Nicolas-Louis Robert invented the continuous paper machine (French patent 1799); the Fourdrinier brothers and John Gamble took out English patent 3068 in 1807; Bryan Donkin commercialised it.

The Advent of the Paper Machine · Robert C. Williams Museum of Papermaking, Georgia Tech
https://paper.gatech.edu/advent-paper-machine

Fourdrinier Patent 3068 (text) · Today in Science History
https://todayinsci.com/F/Fourdrinier_Henry/FourdrinierPatent3068.htm

The Fourdrinier Paper Machine · Frogmore Paper Mill
https://frogmorepapermill.org.uk/archive/the-fourdrinier-paper-machine/

62. The global ink industry's leaders: DIC/Sun Chemical (about USD 3.5 billion graphic-arts sales) and Flint Group (about USD 2.9 billion).

DIC Corporation (Including Sun Chemical) · Ink World Magazine
https://www.inkworldmagazine.com/top-company-profile/dic-corporation-including-sun-chemical-corporation/

Global Ink Industry Leaders (Top Companies report) · Ink World Magazine
https://www.inkworldmagazine.com/top-company-report/global-ink-industry-leaders-face-new-challenges/

63. The global printing ink market was about USD 19 billion in 2022, projected to USD 28.6 billion by 2028 (market forecast - labelled as such).

Printing Ink Market worth USD 28.6 billion by 2028 · MarketsandMarkets
https://www.marketsandmarkets.com/core/PressReleases/printing-inks

Chapter 25 - What the World Prints

64. The global printing market is worth USD 868.3 billion in 2025 with a volume of 40.7 trillion A4 equivalents; forecast (labelled) to reach USD 969.8 billion by 2030.

Infographic: Key Trends in Global Printing · Smithers
https://www.smithers.com/resources/2025/december/infographic-key-trends-in-global-printing

65. The global commercial printing market was valued at USD 510.3 billion in 2025 (commercial printing definition; figures vary by research house and scope).

Commercial Printing Market Report · Grand View Research
https://www.grandviewresearch.com/industry-analysis/commercial-printing-market

66. Offset litho (sheetfed, heatset, coldset) revenues are projected at USD 310.9 billion globally in 2025, still the most used analogue process.

Smithers research charts transition for offset to digital print · Smithers
https://www.smithers.com/resources/2025/february/smithers-data-for-offset-to-digital-print

Chapter 26 - Dependence

67. Security printing's structure - state print works plus a handful of private houses; SICPA (currency ink) ranks among the top ink groups; Koenig & Bauer's banknote-press dominance.

Global Ink Industry Leaders (SICPA entry) · Ink World Magazine
https://www.inkworldmagazine.com/top-company-report/global-ink-industry-leaders-face-new-challenges/

Koenig & Bauer banknote market share · Forbes Austria
https://www.forbes.at/artikel/wo-das-geld-gedruckt-wird

Chapter 27 - The Functional Future

68. Market estimates for printed electronics run in the tens of billions: about USD 19.5 billion in 2025, with forecasts (labelled) to roughly double by 2030; RFID and displays the largest device segments.

Printed Electronics Market · MarketsandMarkets
https://www.marketsandmarkets.com/Market-Reports/printed-electronics-market-197.html

Printed Electronics Market Report · Grand View Research
https://www.grandviewresearch.com/industry-analysis/printed-electronics-market

Printed Electronics Market · Fortune Business Insights
https://www.fortunebusinessinsights.com/printed-electronics-market-109706

69. The term 'three-dimensional printing' names the MIT powder-and-inkjet process itself: Sachs, Haggerty, Cima and Williams, US patent 5,204,055, filed 1989, granted 1993.

US5204055A - Three-dimensional printing techniques · Google Patents
https://patents.google.com/patent/US5204055A/en

A New Era in 3D Printing (Emanuel Sachs, binder jetting) · MIT Department of Mechanical Engineering
https://meche.mit.edu/news-media/new-era-3d-printing

Chapter 28 - The Persistence of the Book

70. Demand for printed books has stabilised and slightly grown; industry forecasts note a paperback resurgence (forecast labelled).

Commercial Printing Market Analysis (paperback demand) · Technavio
https://www.technavio.com/report/commercial-printing-market-industry-analysis

Print Book Sales Saw a Small Sales Increase in 2024 · Publishers Weekly / Circana BookScan
https://www.publishersweekly.com/pw/by-topic/industry-news/publisher-news/article/96842-print-book-sales-saw-a-small-sales-increase-in-2024.html

Appendices

71. Chronology cross-check for the appendix timeline.

APHA History of Printing Timeline · American Printing History Association
https://printinghistory.org/timeline/

72. Glossary craft terms (punch, matrix, sort, mould, point system) cross-checked against typefounding references.

Just My Type: Making Letters at the Type Foundry · Library of Congress, Bibliomania
https://blogs.loc.gov/bibliomania/2024/12/17/just-my-type-making-letters-at-the-type-foundry/

Art of printing · National Diet Library, Japan
https://www.ndl.go.jp/incunabula/e/chapter1/chapter1_01.html