

Table #1. Innovation and Expansion of Copyright Subject Matter and Rights

TIMELINE	TECHNOLOGY	INVENTOR	RELATED PATENTS	COMMODITIES	COPYRIGHT PROTECTION
??	Cast sculptures		No	Sculpture Casts & models	Sculpture Copyright Act 1798
8 th cent? 1600s	Woodblocks	China India	No No	Books Images Chintz fabrics	
1430s	Engraving	Germany Italy	England -1617 Patent No 1 for "Engraving and Printing Maps, Plans &c"	Images	Engraver's Act 1734, 1766 (UK)
1452	Moveable type printing press	Chinese? Gutenberg (Germany) (Dutch?)	1473 Venetian Patent Ordinance	Books Music	Stationers' Company Charter 1557 Statute of Anne 1710 (UK) Dramatic Copyright Act 1833 (UK) Societe des Auteurs, Compositeurs et Editeurs de Musique (SACEM) established in France 1850 Berne Convention for the Protection of Literary & Industrial Works 1886
Mid 16 th cent	Etchings	Numerous	No	Images	Fine Art Copyright Act 1862 (UK)
1752	Colourfast copperplate printing	Francis Nixon (Ireland)	No	Printed textiles	Calico Printer's Act 1787 (UK)
1775	Electric Telegraph	George Louis Lesage (Swiss)	Yes	Telegram	Telegram Copyright Act 1871 (Vict.)
1785	Roller printing	Bell - Parkinson (UK)	Yes	Printed textiles	Design Copyright Acts 1787; 1794; 1839 (UK)
1798	Lithography	Aloys Senefelder (Germany)	Yes	Printmaking Colour prints	Fine Art Copyright Act 1862 (UK)
1801	Jacquard loom	Joseph Marie Jacquard (France)	Declared public property in 1806. Jacquard rewarded with a pension and royalties.	Textiles	

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1814	Steam driven printing	Friedrich König (Germany)	Yes	Books	
1821 1856	Difference Engine Analytic Engine	Charles Babbage (UK)	No	Computers	
1837	Daguerreotype process	Louis Daguerre (France)	Patented in UK 1839/Public domain in France	Photography	Fine Art Copyright Act 1862 (UK) Berlin Convention adds photography, film and sound recordings to Berne Convention 1908
1840	Electro-etching	Spencer & Wilson (UK)	Yes	Metal plates and objects, decorative silverware, cutlery	Ornamental Designs Act 1842 (UK)
1840	Electro-Magnetic Telegraph	Samuel Morse (USA)	Yes	Telegraphic Signalling	Ager v Peninsular & Oriental Steam Navigation Co (1884) 26 Ch D 637-
1843 1867	Daedalum	George Horner (UK) Milton Bradley (UK) William Lincoln (USA)	Yes	Zoetrope	
1850 1857	Submarine cable-UK to France Transatlantic cable	Messrs. Brett, Reid, Wollaston and Edwards (UK) The Atlantic Telegraph Co (UK)			
1852	Photogravure	William Henry Fox Talbot (UK)	Yes	Printmaking	Fine Art Copyright Act 1862 (UK)
1854	Boolean algebra	George Boole (Irish)		Binary code	
1863 1867 1904	Pianista Pianola	Fourneaux (France); Edward Votey (USA) - Aeolian Co	Yes Yes	Piano player Piano rolls	Boosey v Whight (1899) 1 Ch 836; White-Smith Music Pub. Co. v. Apollo Co., 209 U.S. 1 (1908)
1881	Data Punch Cards	Herman Hollerith (USA); IBM (1896)	Yes	Computer programming	US Copyright registrations for software in early 1960s
1888	Camera	George Eastman- Kodak (USA)	Yes	Camera Brownie Box Roll Camera (1900)	Copyright Act 1911 (UK)

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1891 1896	Kinetoscope Vitascope	Thomas Armat & C. Francis Jenkins for Thomas Edison Co (USA)	Yes	Film Projector	Copyright Act 1911 (UK)
1893 1896	Wireless Telegraph	Nicola Tesla (USA) Alexander Popov (Russia) Guglielmo Marconi (Italy) etc	Yes No Yes	Radio	Copyright Act 1956 (UK) Copyright Act 1968 (Cth)
1898	Magnetic Recordings	Vladimir Poulsen (Denmark)	Yes	Telegraphone	
1906	Radio Broadcast	Reginald Fessenden (Canada/USA)	Yes	Voice radio and later two-way radio transmission Cell/mobile phones	"An Act to regulate radio communication" 1912 (USA)
1907	Motion pictures; Cinematographe	Lumiere brothers (France)	Yes	Portable motion-picture camera, film processing unit and projector	Copyright Act 1911 (UK)- as dramatic works Barker v Huton [1912] 28 TLR 496 as photographs Copyright Act 1956 (UK) Copyright Act 1968 (Cth)
1924 1926	Radiovision	Charles Jenkins (USA) John Logie Baird (Scot)	Yes	Radiovisor (Television)	Copyright Act 1956 (UK) Copyright Act 1968 (Cth)
1928	Radiomovie broadcasting	Charles Jenkins (USA)	Yes	Television broadcast station	Rome Convention adds broadcasting to Berne Convention 1928 Brussels Convention adds television to Berne Convention 1948 Copyright Act 1956 (UK) Copyright Act 1968 (Cth)
1928	Magnetic Tape recording	Fritz Pfleumer (Germany)	Yes		

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1938	Xerography	Chester Calson (USA)	Yes	Photocopier	Copyright Act 1968 (Cth)- published edition copyright; 1970s redrafting of educational copyright etc. Copyright Agency Ltd (CAL) formed Australia 1974 Copyright Licensing Agency formed UK 1982
1939	Digital Computer	John V. Atanasoff (USA)	Yes- but WW2 unfiled	Computers	
1945	Memex idea (storage retrieval device using microfilm)	Vannevar Bush (USA)	No	Electronic document retrieval, Hypertext	
1947	Transistor	John Bardeen and Walter H. Brattain; William Shockley (Bell Laboratories) (USA)	Yes	Computers Satellite	
1948	Cable Television	John Walson and Margaret Walson (USA)		Cable television	Copyright Act 1956 (UK) Cable & Broadcasting Act 1988 (UK) Copyright Act 1968 (Cth)- diffusion rights
1956 1963 1970 1975 1976	Video Cassette Recorder VCR Betamax VHS	Ampex Sony Philips Sony JVC/Sony	Yes (Japan, USA, Korea)	Videotape & Recorders	Sony Corp. of America v. Universal City Studios, 464 U.S. 417 (1984) (Betamax decision) CBS v Amstrad (1988) Blank tape levies
1958	Integrated circuit	Jack Kilby (Texas Instruments); Robert Noyce (Fairchild Semiconductor Corporation) (USA)	Yes	Microprocessors	Semi-Conductor Chip Protection Act 1984 (US) Washington Treaty on the protection of IP in Respect of Integrated Circuits 1989 Circuit Layouts Act 1989 (Cth) 1989 UK amendment to Copyright, Designs and Patents Act

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1958	Laserdisc	David Paul Gregg (USA) Philips/MCA	Yes	Players and discs	
1962	Telstar 1 Colour television broadcasting satellite	Bell Laboratories/AT&T; NASA	Yes	Satellite broadcasts	Satellite Home Viewer Act (SHVA) 1988 (US)
1963	Compact Audio Cassette	Philips	Yes	Audio tape & Recorders	
1969	ARPAnet	US Dept of Defence	No	Civilian internet	
1971	Memory disc	IBM	Yes	Floppy disc	
1973 1980s 1988	Optical Storage media CD Recordable	Jim Russell (USA) Sony/Philips	Yes Yes	CD ROM	Audio Home Recording Act 1992 (US) EU & Canadian recordable media taxes WIPO Copyright Treaty 1996; DMCA 1998 (US) Copyright Amendment (Digital Agenda) Act 2000 (Cth)
1973	Ethernet	Robert Metcalfe (Xerox)	Yes	Local Area Networks (LANs)	
1974/5 1976/7	Personal Computers	Altair; IBM 5100 Apple 1, 11; Commodore	Yes	Hardware; Software	Copyright Act 1980 (US) Copyright Amendment Act 1984 (Cth) Copyright (Computer Software) Amendment Act 1985 (UK)
1979	Distributed computing	Tom Truscott & Jim Ellis- USENET (USA)	No	Bulletin Board systems, P2P networks and apps	WIPO Copyright Treaty 1996 DMCA 1998 (US) Copyright Amendment (Digital Agenda) Act 2000 (Cth)
1979	Walkman	Sony (Japan)	Yes- 1977 Andreas Pavel's "Stereobelt"	Personal music players	
1988	MPEG Standards	Moving Picture Coding Experts Group	International Standards Organisation; Numerous	MPEG	
1993	MPEG Audio Layer	Fraunhofer-Gesellschaft (Germany)	Thomson	MP3	

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1989 1998		Free Software Foundation Open Source Initiative	No	Software	GNU Public License Version 1 Open Source
1991	World Wide Web	Tim Berners Lee (USA)	No	Text and image browsers Internet and Carriage Service providers	WIPO Copyright Treaty 1996 DMCA 1998 (US) Copyright Amendment (Digital Agenda) Act 2000 (Cth)
1993	Audio Compression	Fraunhofer-Gesellschaft (Germany)	Yes	MP3	
1995	DVD format	DVD Forum	Yes: (Philips, Sony, Matsushita, Toshiba)	Players and discs	
1996	Content Scrambling System (CSS)	DVD Copy Control Association	Yes	CSS; DECSS (1998) Authentication keys	WIPO Copyright Treaty 1996 DMCA 1998 (U); Copyright Amendment (Digital Agenda) Act 2000 (Cth)
2001	iPod	Apple	Yes	MP 3	New fair dealing provisions in Australia?
2001		Centre for Public Domain/Copyright academics		Digital content	Creative Commons License
2003	Blu-Ray	Hitachi, LG Electronics Inc., Matsushita Electric Industrial Co., Pioneer Corporation, Royal Philips Electronics, Samsung Electronics Co., Sharp Corporation, Sony Corporation, and Thomson	Copyright	HD Content HD Television recording HD Camcorder recording Mass data storage Game console	Supports DRM; encryption, region encoding