Optical Media (Disc) longevity

The year is 2025, and most people have completely stopped using CDs, DVDs and BluRays.

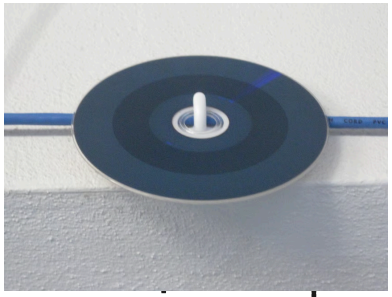
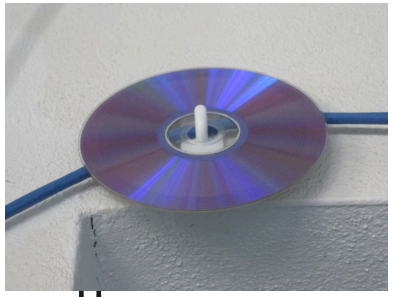
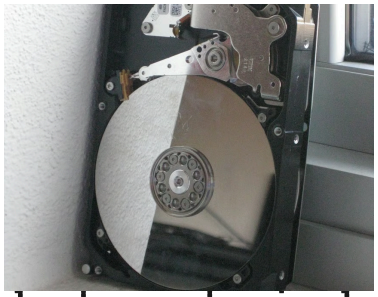
However these forms of media are actually excellent in terms of backing up, both in terms of cost and longevity.

Cost: (prices in $AUD - prices extracted on 10th Apr 2025)

The cheapest prices I could find online for a brand new 3.5" 16TB storage-grade (sometimes called NAS hdd's) is $606.

To buy 16TB of BluRay discs would cost on $487.49.

Reliability/longevity:

Hard Drives:

Typically last 3-5 years. They have moving parts meaning they are susceptible to mechanical failure.

Personally, I have had two NAS-grade 16TB hard drives fail on me in the past year. Luckily I have 2 hard drives which are cloned (using r-sync, every 24 hours they update), so I can still retain my data in case one dies. I was able to claim the hard-drives under warranty.

Discs/Optical Media:

Longevity varies based on what type of disc. If they are stored in the correct environment, a cool dry place, out of direct sunlight and heat, they can last a very long time. I have had discs that my father gave me that have lasted 25+ years with no issues.

For a bad case scenario, see table below:

Optical Disc Formats by Average Longevity

>100 years

CD-R (phthalocyanine dye, gold metal layer)

50 to 100 years

CD-R (phthalocyanine dye, silver alloy metal layer)

DVD-R (gold metal layer)

CD (read-only, such as an audio CD)

20 to 50 years

CD-RW (erasable CD)

BD-RE (erasable Blu-ray)

DVD+R (silver alloy metal layer)

CD-R (cyanine or azo dye, silver alloy metal layer)

DVD+RW (erasable DVD)

10 to 20 years

BD-R (non-dye, gold metal layer)

DVD-R (silver alloy metal layer)

DVD and BD (read-only, such as a DVD or Blu-ray movie)

5 to 10 years

BD-R (dye or non-dye, single layer or dual layer)

DVD-RW (erasable DVD)

DVD+R DL (dual layer)

Where is this data from?

This data is from the research by the Government of Canada. [Extracted from this URL 10/04/2025]

What I personally do is have two 16TB hard-drives cloned, and periodically back up important data onto BluRays.

Optical Media/Discs are best for "Write once, read alot of times" scenarios, as you cannot change the data once it has been written.

Hard Drives are best for data that needs to be accessed and changed constantly.

Thank you for reading until the end. I hope you enjoyed this article.

If you have any questions or comments, don't hesitate to contact me at makrypodisc@hotmail.com