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Three Centuries in Circulation: Lessons from antique violins for the circular economy

Dr. Haidong Feng

Faculty of Economics and Social Sciences, University of Latvia

The 9R strategies to measure circularity and product chain innovation defined by Potting et al. (2017) are:

R0 Refuse: Abandoning unnecessary product functions or making a product redundant.

R1 Rethink: Increasing intensity of product use (e.g., product-as-a-service, sharing economy).

R2 Reduce: Optimizing manufacturing processes to use fewer natural resources and materials.

R3 Reuse: Reusing a functional product by another user for its original purpose.

R4 Repair: Repairing and maintaining a defective product to restore its original function.

R5 Refurbish: Restoring an old product and bringing it up to current performance standards.

R6 Remanufacture: Using parts of a discarded product to build a new product with the same function.

R7 Repurpose: Using a discarded product or its components in a new product with a different function.

R8 Recycle: Processing materials to produce materials of equivalent or lower quality.

R9 Recover: Incinerating materials to generate energy.

Where violins fit in the R-strategies

R3
Reuse

A product in good condition passes to a new user.

R4
Repair

A faulty product is restored so it works again.

R5
Refurbish

An old product is brought back to a like-new standard.

Source: Potting et al. (2017)

Great makers, instruments still played

Andrea Amati
c. 1505–c. 1577
Cremona, early violin form

Nicolò Amati
1596–1684
Cremona, Amati workshop

Jacob Stainer
c. 1617–1683
Absam, Tyrol

Antonio Stradivari
1644–1737
Cremona

Giuseppe Guarneri “del Gesù”
1698–1744
Cremona

G. B. Guadagnini
1711–1786
Piacenza, Milan, Turin

R3 Reuse: one violin, many owners over centuries

Three ways instruments stay in use

01

Professional repair

Luthiers reglue seams, fit new bridges and soundposts, and reset necks.

02

Instrument banks

Players borrow or lease instruments they could not buy.

03

Institutional custody

Museums, foundations and collections hold instruments and lend them out.

Repair = R4 Repair / R5 Refurbish · Banks and custody = R3 Reuse

At the luthier’s bench





R4 Repair and R5 Refurbish

- Reglue open seams
- Fit a new soundpost and bridge
- Repair cracks in the top
- Reset the neck

Reuse and repair raise the value of an old instrument

Played

Kept in good voice

Regular playing keeps it sounding and proves it works.

Repaired

Care is on record

Documented restoration by respected makers supports its condition.

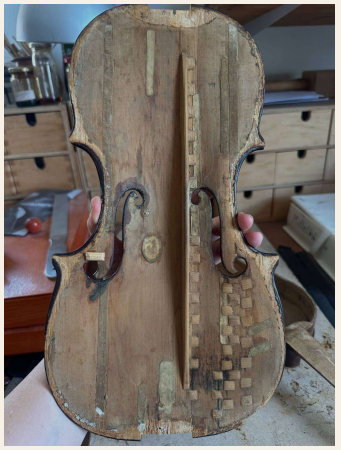
Passed on

History adds up

Each famous owner or player adds to the story, and to the price.









R4 Repair protects value; R3 Reuse adds provenance

The 1715 “Baron Knoop” Stradivari: worth more after 300 years of use

Earlier sale:
When renowned American violin collector David L. Fulton acquired the instrument in 1992, the purchase price was $2.75 million.

Latest sale:
When renowned American violin collector David L. Fulton acquired the instrument in 1992, the purchase price was $2.75 million.

Change:
The value increased by approximately 8.36 times the 1992 purchase price (an absolute growth of 7.36 times or 736.36%).



Three centuries of R3 Reuse and R4 Repair, with value intact

Limits

- Rising value holds for top-tier instruments; most violins do not gain.
- Top prices rest on scarcity and provenance, which ordinary goods lack.
- Access is uneven, and repair depends on trained craftspeople.

Limits of R3 / R4 / R5 beyond the high-end market

What everyday products can learn from antique violins

Make repair routine

Repair shops people trust mean fewer replacements.

Share idle goods

Lending schemes put unused items back in use.

Look after what you own

Owners who think of themselves as custodians keep things longer.

Thank you for your attention!