



DESIGNING BEYOND FIRST USE

A Circular Strategy for Ski Boots

FROM LINEAR PRODUCT TO CIRCULAR SYSTEM

Although ski boots are engineered for durability, they typically pass through only a single ownership cycle, destroying substantial embodied value. This is reinforced by combining components with different lifespans into a single product, where the faster-degrading parts determine when the boot is replaced. ***This thesis explores how a circular business model can enable economically viable value retention for ski boots, and which product adaptations are required to support such a system.***

The model retains the durable shell and redistributes it across multiple use cycles with different performance requirements, from performance-oriented skiers to beginners. As the shell degrades, it is reassigned to users whose needs it still meets, aligning its performance with the appropriate user over time. This is enabled through an access-based model.

84% of the impact happens before use

The majority of a ski boot's environmental impact is generated during production, before it is ever used.

Value is lost while function remains

The most carbon-intensive component stays structurally intact, yet is removed from circulation prematurely.

Replacement is driven by perception, not failure

Comfort loss, aesthetic wear, and perceived performance decline trigger replacement, rather than structural breakdown.

ONE SHELL – MULTIPLE USERS

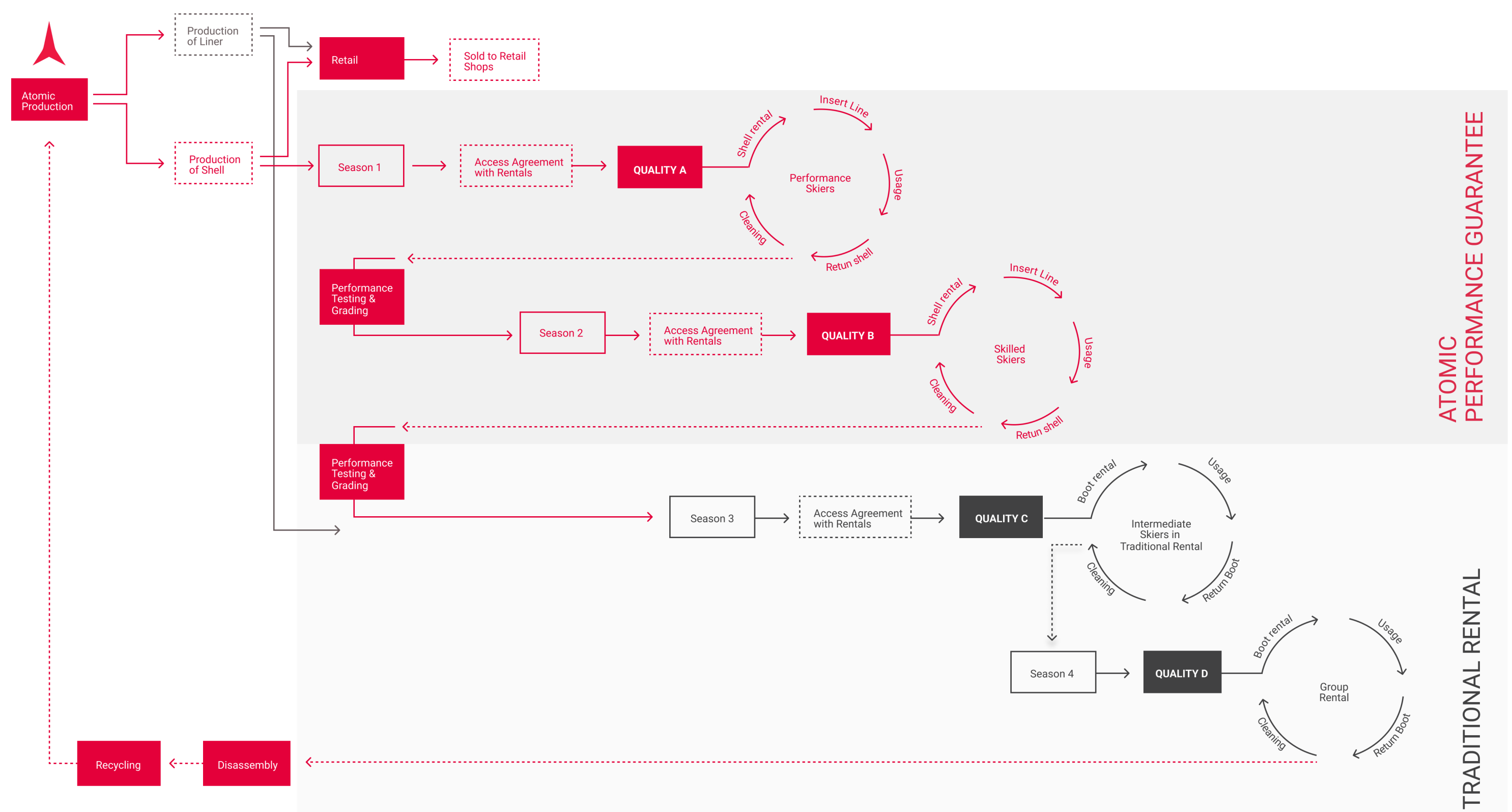
Atomic retains the shell. The skier owns the liner.

The shell is accessed at the resort, matched to terrain and conditions, then returned after use. The shell moves across users and performance levels. As performance declines, it is reassigned, not discarded. Not a downgrade, but a realignment of performance with the skier's ability. Each cycle includes inspection, refurbishment, repair, and reassignment.

Value is not lost – it changes users.

Value for the Skier

- _ Fit stays personal
- _ Performance adapts to the moment
- _ Access replaces ownership



DESIGN ENABLES MULTIPLE LIFECYCLES

To support repeated use, the product is adapted to address both functional wear and aesthetic degradation in high wear areas.

High-wear components are designed for replacement through non-destructive connections. A replaceable bumper protects high-wear areas and restores the boot's appearance between refurbishment cycles, maintaining perceived value.



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Integrated Product Design

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