

ZEISS Extended Reality

Bringing visionary RX solutions to XR.

2.2b

people worldwide with vision impairment in 2019.
Expected to be 5.0b by 2050.

Incorporating prescription solutions into XR devices
becomes essential to deliver superior user
experience to everyone and expand market reach.

ZEISS – A global leader with a purpose

ZEISS

Customer Success, Consumer Health, and Brand Heritage are deeply enrooted in our DNA.



**Semiconductor
Manufacturing
Technology**



**Industrial Quality
& Research**



**Medical
Technology**



**Consumer
Markets**

Product Segment: Consumer Markets

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Seeing Beyond - The Introduction of Carl Zeiss Extended Reality (XRX)

Consumer Markets Segment (COM)



Strategic Business Unit:
Extended Reality (XRX)

Strategic Business Unit
Vision Care (VIS)



Vision

We create an **unbeatable XR experience** for **every individual vision need**.



Mission

We bring value to consumers by delivering **high-quality XR vision correction** and **optical systems**.
With leading optical technology and **end-to-end integration capabilities**, we are the **preferred partner for winning XR players**.

ZEISS Vision Care

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Core Competencies in all Areas of Vision Care



**Mass and customized
production / operation
standards**



**Optical designs, coatings and
materials**



**Vision technology
solutions**

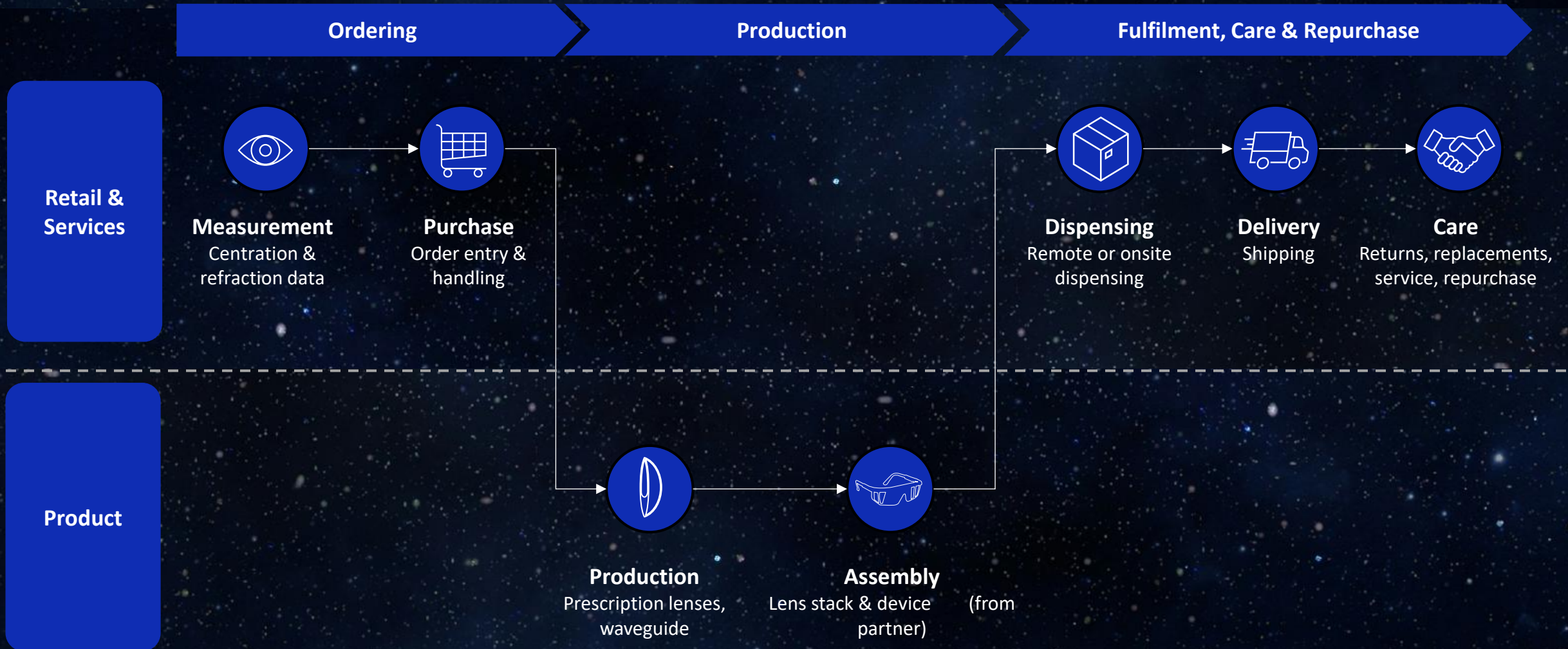


Branded retail stores

ZEISS XRX Solutions along the Value Chain of XR

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Creating Seamless Consumer Experiences from Measurement to After Care



Prescription Technology & Product Portfolio

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ZEISS Optical Solutions for all XR Devices



**ZEISS XRRX
Lenses**

For AI Non-Display Glasses



**ZEISS XRRX
Curved Waveguide**

For AR Display Glasses



**ZEISS XRRX
Push Pull Stack**

For AR Display Glasses



**ZEISS XRRX
Optical Inserts**

For VR and MR Headsets

Challenges within the XR Industry

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Mental Effort



Product Form Factor & Weight



Individual Vision Needs



Diverse Regulatory Landscape

Challenges within the XR Industry

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Diverse Regulatory Landscape

Study*: Visual Comfort During Context Switching

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Controlled Comparison of Focal Distances in AR Glasses during Naturalistic Tasks



RayNeo X3 Pro



4 AR Glasses

- 1 Standard Device (∞)
- 3 with Push/Pull Lenses

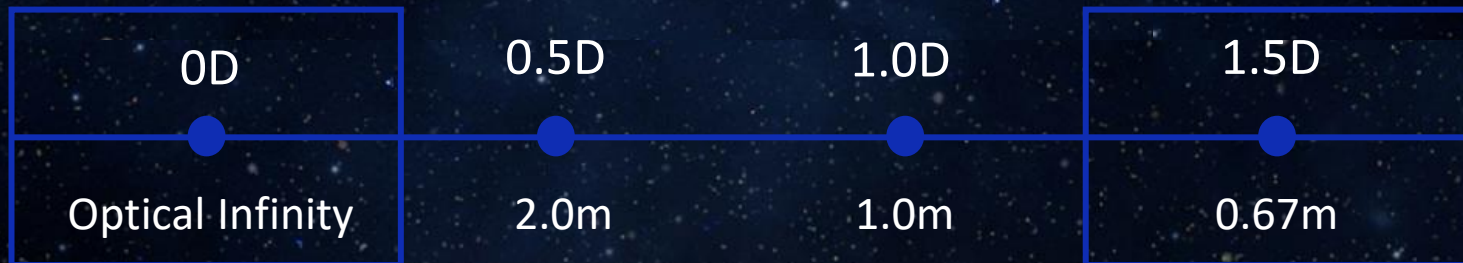


10 Participants



Set up

- 4 Counterbalanced Rounds per Focal Distance
- 5 Trials per Round
- 45s Timed Trials



Closest geometric match
to the physical task!



Task Vergence
0.60m



Naturalistic Desk Task



Objective: AR-Guided Brick Assembly & Assessment of Visual Fatigue and Task Performance



No Mismatch

- Near Virtual
- Near Focal Distance
- No Blurry Vision



Mismatch

- Near Virtual
- Far Focal Distance
- Blurry Vision

Metrics

Subjective Visual Fatigue

Based on a 5-Point Scale
(1 = Not Noticeable, 5 = Distracting)

- Tired Eyes
- Concentration
- Focus Switching
- Blurry Vision
- Double Vision

Objective Performance

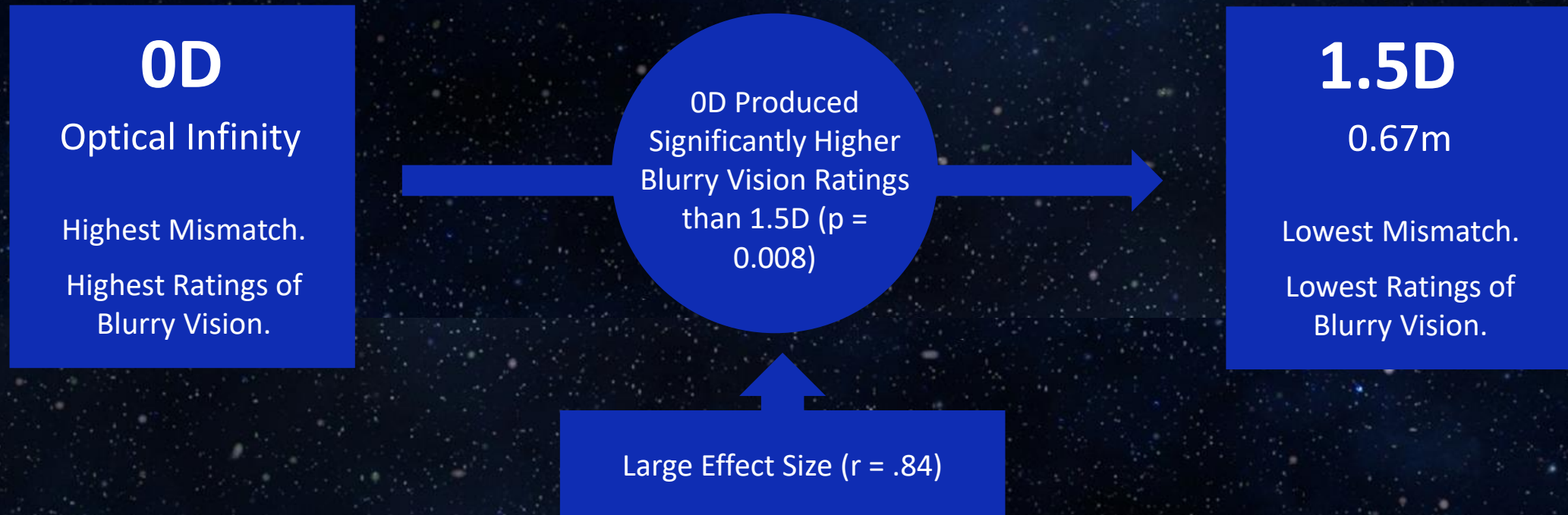
Measured by
Physical Completion

- Bricks Leftover
(Have not been placed within the 45s window)

Focal Distance Matters – The Sensitivity of Blurry Vision

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AR Headsets with Fixed Focal Planes Must Carefully Match Target Use Cases





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