

ARE CONSUMERS READY FOR **SMART GLASSES MASS ADOPTION?**

03 February 2022 | SPIE AR VR MR 2020 | San Francisco | Dr. Kai Ströder

EXPECTATIONS HAVE BEEN
RAISED



Source: Facebook

EXPECTATIONS HAVE BEEN
RAISED

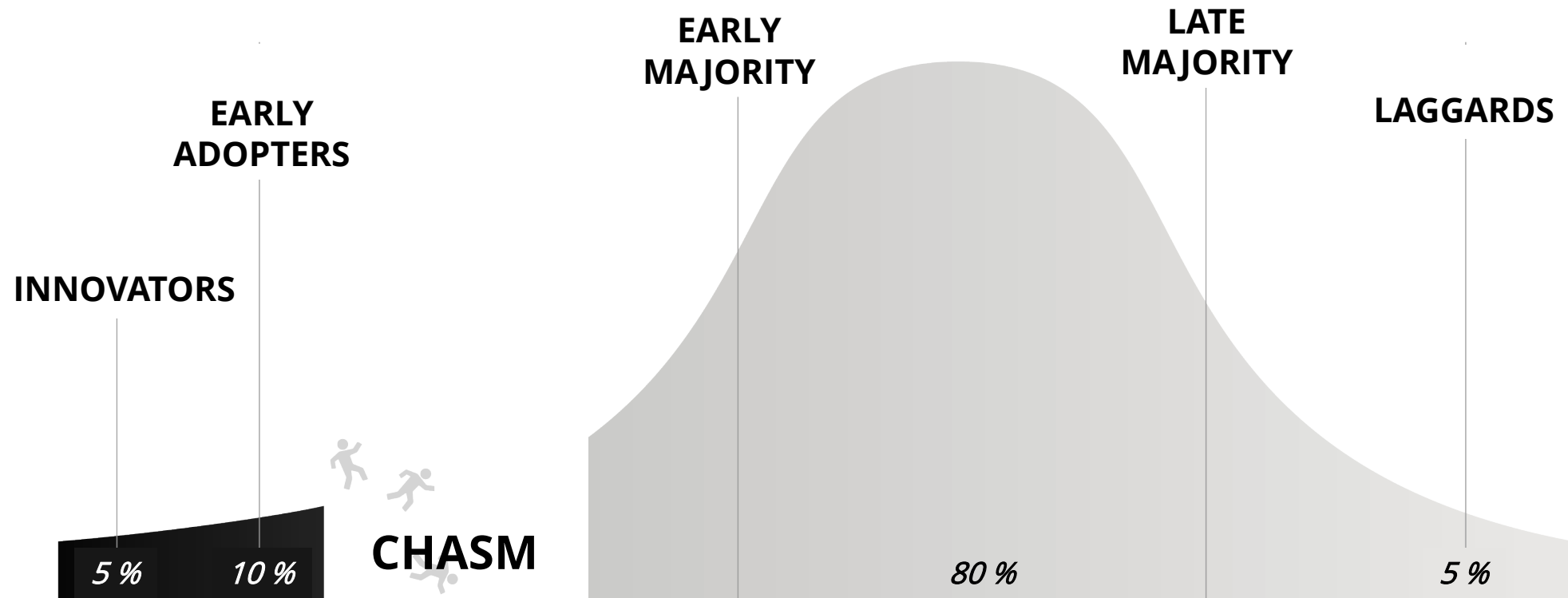


FOCUS OF MY TALK TODAY
HARDWARE

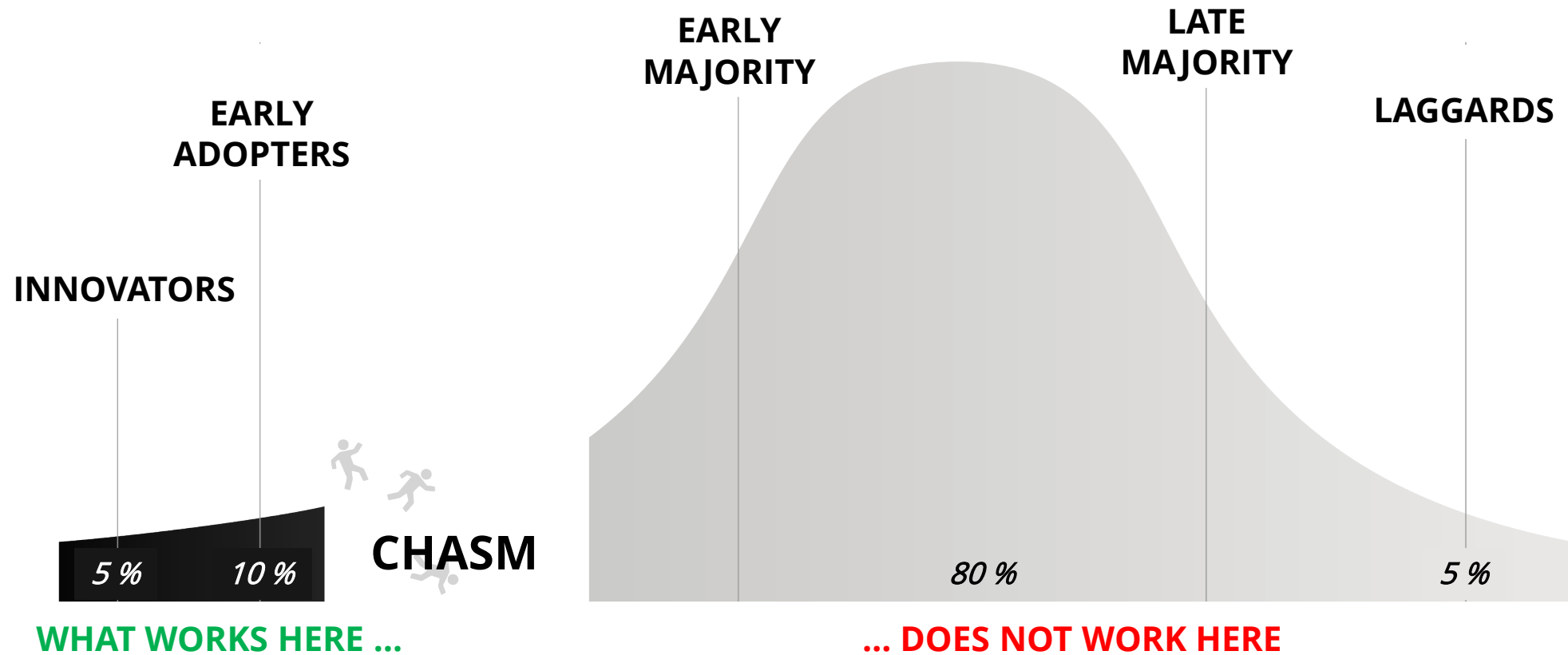
NOT ON

UI / UX
USE CASE
SOFTWARE ETC.

CHALLENGE TODAY: **CROSSING THE CHASM**



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CONSUMER EXPECTATIONS
ARE COMPREHENSIVE AND UNCOMPROMISING

DESIRE TO USE

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DESIRE TO USE
tooz assumptions

Technology must be good enough
to wear them, **all day**, in public



Stylish & Unobtrusive

Intended value of normal glasses
must be provided by Smart Glasses



**Intended Use & Enhanced
Value**

DESIRE TO USE
STYLISH & UNOBTRUSIVE
TECHNOLOGY



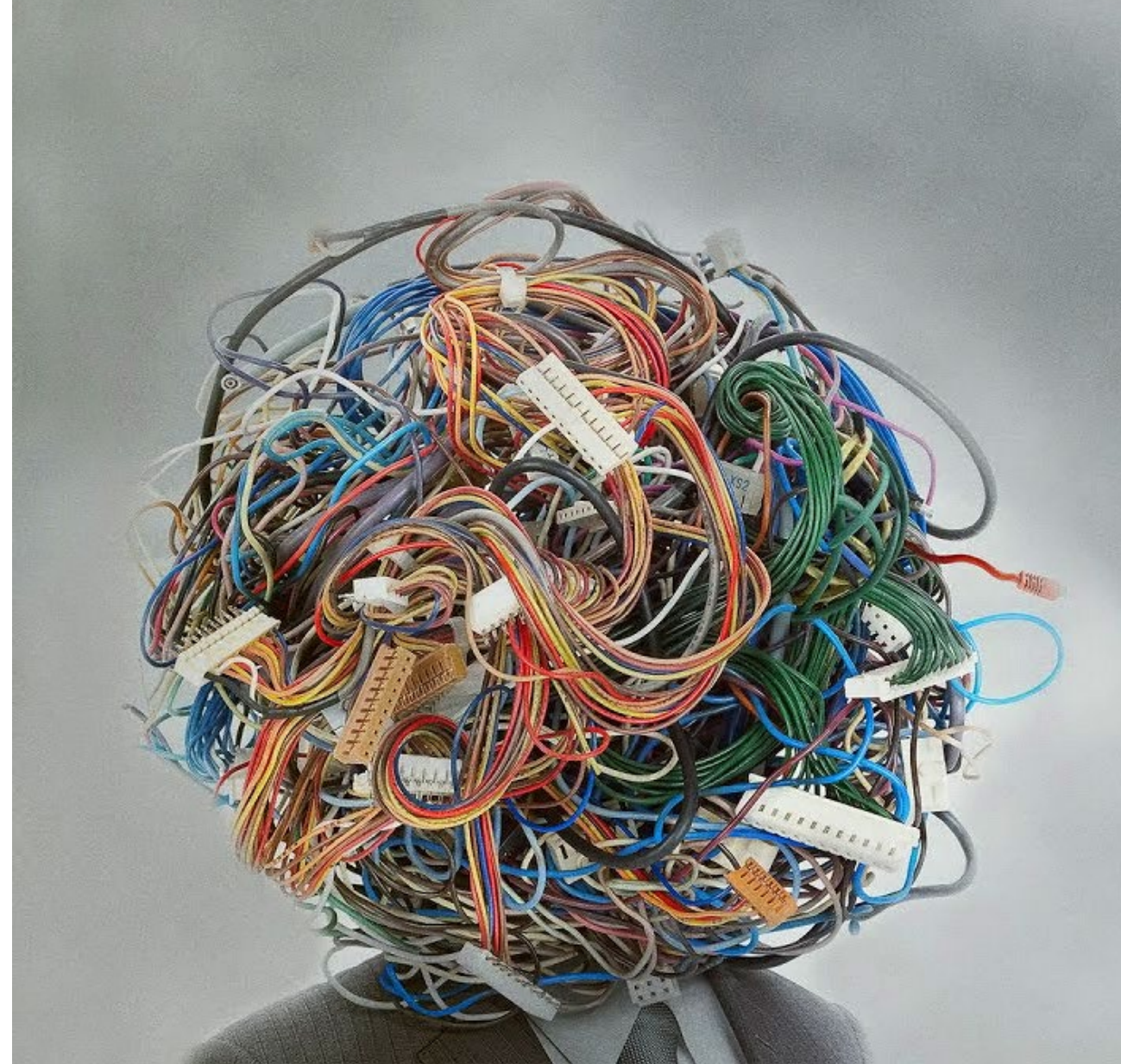
DESIRE TO USE STYLISH & UNOBTRUSIVE TECHNOLOGY

- **Various designs for any taste**



DESIRE TO USE STYLISH & UNOBTRUSIVE TECHNOLOGY

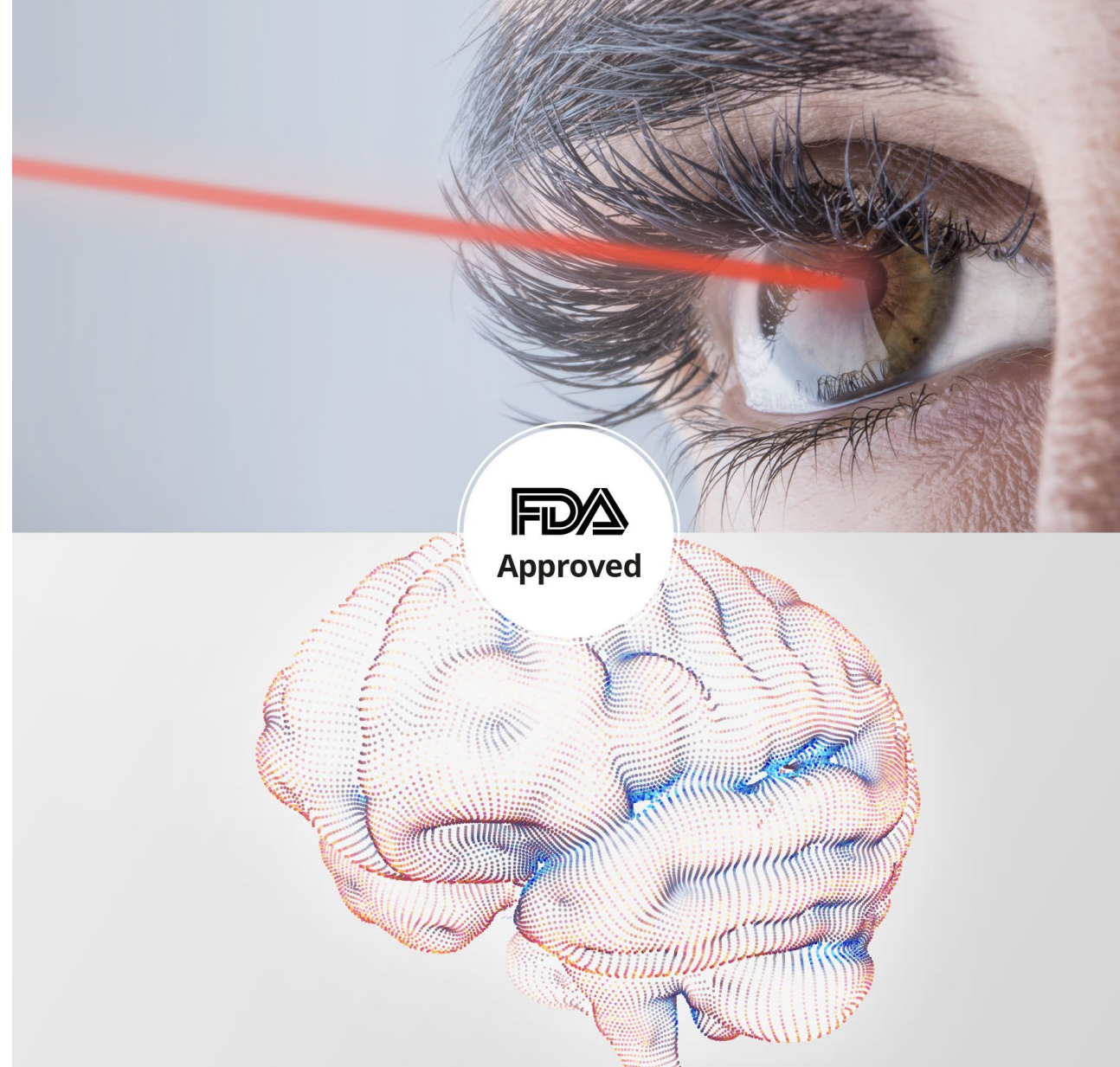
- Various designs for any taste
- **No cable tethering**



Lo and Behold: Reveries of the Connected World | Netflix

DESIRE TO USE STYLISH & UNOBSTRUSIVE TECHNOLOGY

- Various designs for any taste
- No cable tethering
- **Secure and harmless technologies**
 - **Acceptance of Laser Light?**
 - **Radiation?**



DESIRE TO USE STYLISH & UNOBSTRUSIVE TECHNOLOGY

- Various designs for any taste
- No cable tethering
- Secure and harmless technologies
- **Suitable for all day use**



Battery run time



Weight



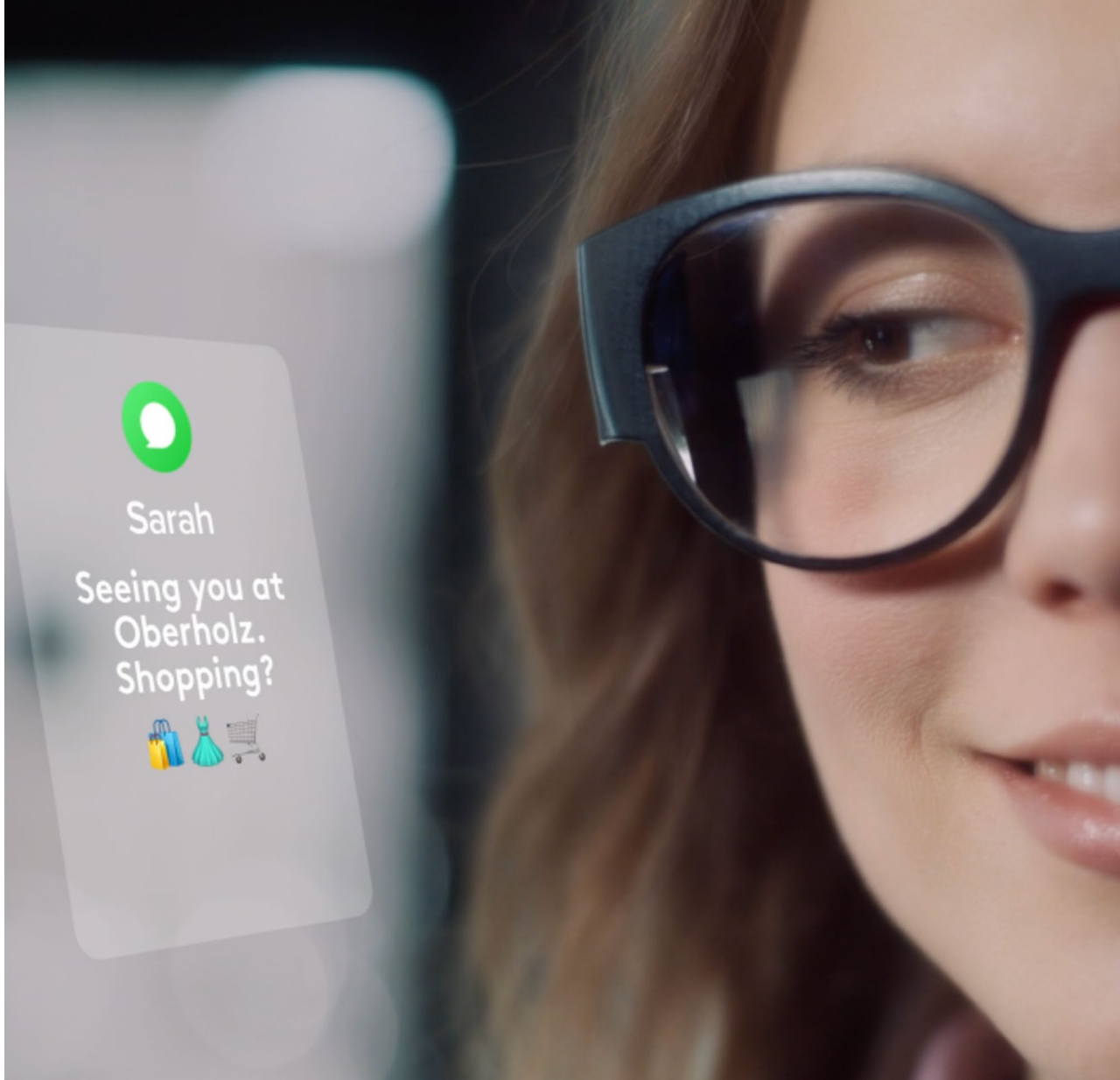
Robustness /
Cleaning



(Truly) Foldable

etc...

DESIRE TO USE
INTENDED USE &
ENHANCED VALUE



DESIRE TO USE INTENDED USE

- Offer the key value adding features of normal Glasses:
 - Correction
 - Protection (UV & Safety)



DESIRE TO USE INTENDED USE & ENHANCED VALUE

- Offer the key value adding features of normal glasses
- **Accept the tradeoff
FoV vs. Form Factor**



DESIRE TO USE INTENDED USE & ENHANCED VALUE

- Offer the key value adding features of normal glasses
- Accept the tradeoff AR vs. Smart Glasses
- Understand the Use Cases & Limitations
 - Cognitive Capture
 - Attention Capture
 - Cognitive Tunneling



DESIRE TO USE INTENDED USE & ENHANCED VALUE

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Using the tip of
the knife, cut
carrots lengthways
into even slices or,
at a slight angle,
into even wedges.

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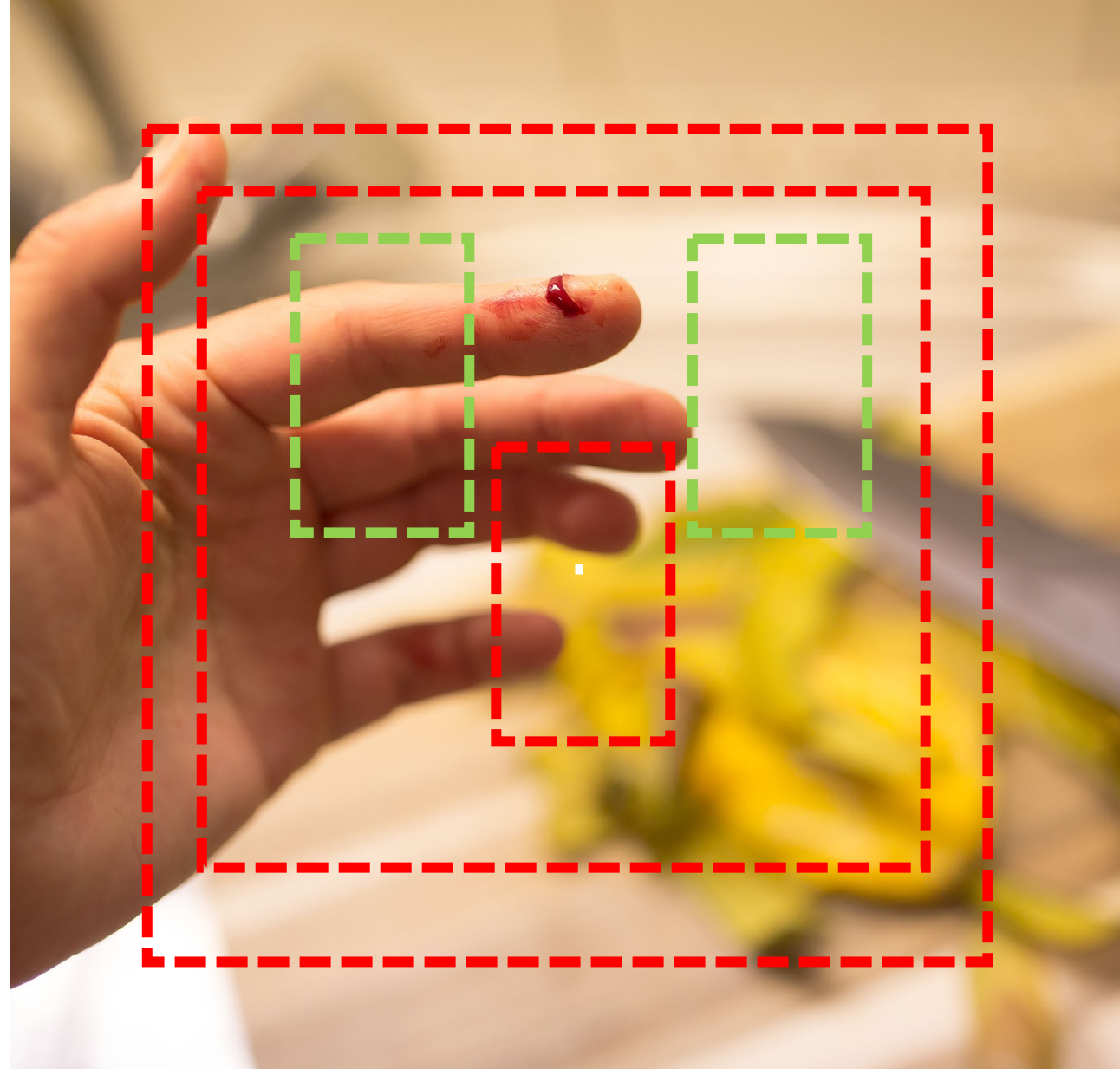
TO GET THE JOB DONE ...

1st BRING THE **FoV** IN THE **RIGHT POSITION**

2nd KEEP THE **FoV AS SMALL AS POSSIBLE**

DESIRE TO USE INTENDED USE & ENHANCED VALUE

- Offer the key value adding features of normal glasses
- Accept the tradeoff AR vs. Smart Glasses
- Understand the Use Cases & Limitations
- FoV



CONSUMER EXPECTATIONS
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DESIRE TO BUY

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DESIRE TO BUY
tooz assumptions

Meet the ambitious
price expectation of consumers



Hardware Cost

Provide consumers a convenient
buying experience with fast fitting
process and delivery



Sales Transaction Cost

DESIRE TO BUY PRICE

HARDWARE COST MUST ENABLE ASPs ~500 \$

to enable an attractive price point
at the POS in Consumer Market



DESIRE TO BUY PRICE

Optics is a critical cost driver

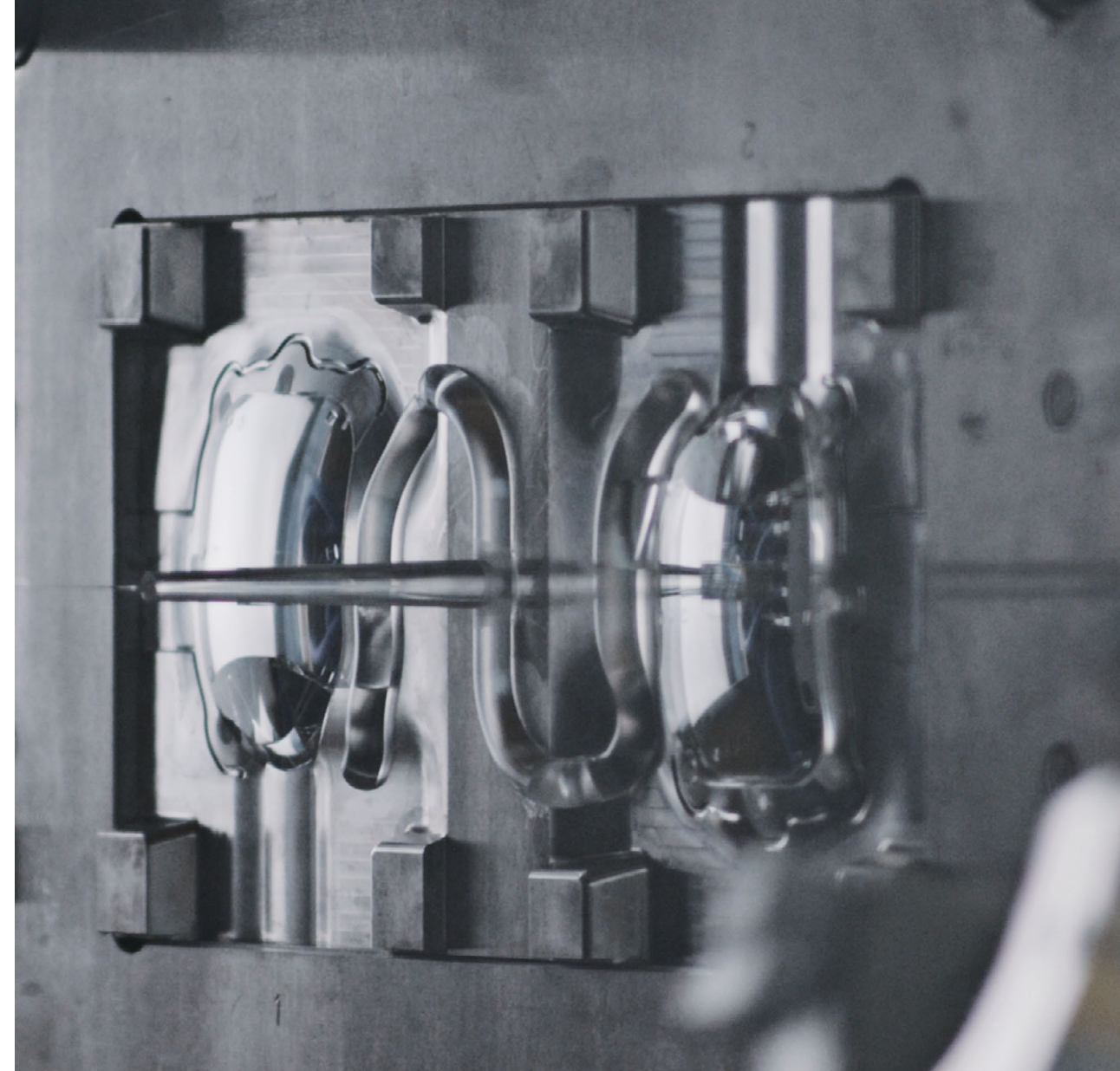
- **Low-cost raw material:
FDA-approved polymer**



DESIRE TO BUY PRICE

Optics is a critical cost driver

- Low-cost raw material
- **Efficient mass production:**
 - **One-piece Injection Molding**
 - **Zero-alignment of optics**
 - **Full automation of all steps**
 - **High yield**



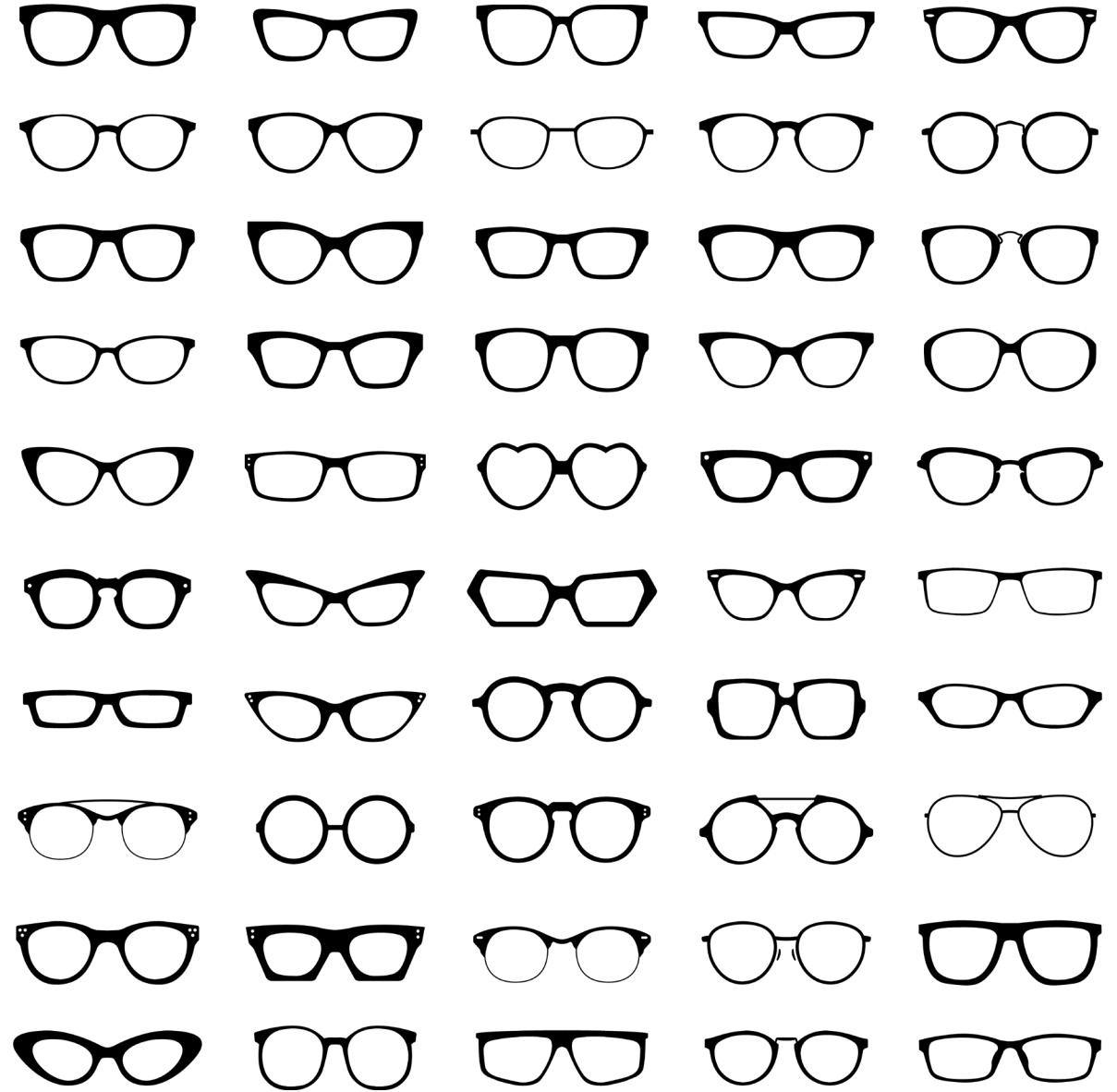
tooz Pilot Line, December 2019 Germany

DESIRE TO BUY BUYING EXPERIENCE

STYLE & FITTING IS KEY!

- Many affordable frames available

Served by the identical optics design



DESIRE TO BUY BUYING EXPERIENCE

STYLE & FITTING IS KEY!

- Many affordable frames available
- **Centering Process**



DESIRE TO BUY BUYING EXPERIENCE

STYLE & FITTING IS KEY!

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- **Centering Process**

**Only 3 smart lens SKUs in
stock to cover customer PD
range**



DESIRE TO BUY BUYING EXPERIENCE

STYLE & FITTING IS KEY!

- Many affordable frames available
- Only 3 SKUs

All about eyebox!



DESIRE TO BUY BUYING EXPERIENCE

STYLE & FITTING IS KEY!

- Many affordable frames available
- Only 3 SKUs
- Adequate EyeBox
- **Fast delivery - including RX**



DESIRE TO USE

DESIRE TO BUY

EXPECTATION MET
TOOZ CAN DELIVER

TOOZ AVAILABLE LENS PLATFORM



< 100\$



Harmless Light



Coatings



Huge EyeBox



Unobtrusive



Cut & Edge



RX & UV



<10 grms.



Injection



Robust



Integration



minimal SKUs



up to 25°



Portable



Approved



THANK YOU!
QUESTIONS WELCOME