

# Increasing Access to Eye Care through Community-Based Telemedicine

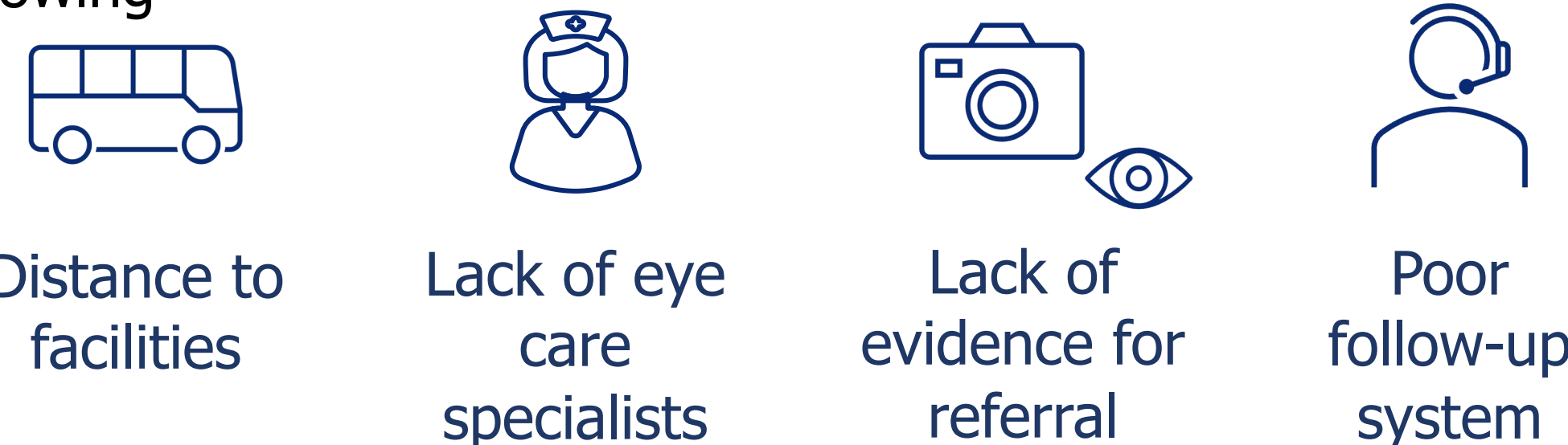
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## Problem

**Moderate to severe visual impairment (MSVI)** and blindness is highly prevalent with 338 million cases across the worldwide and **90% of these conditions are found in low- and middle-income countries**. In India alone, 161 million patients suffer from MSVI. However, **80% of MSVI and blindness is preventable**.

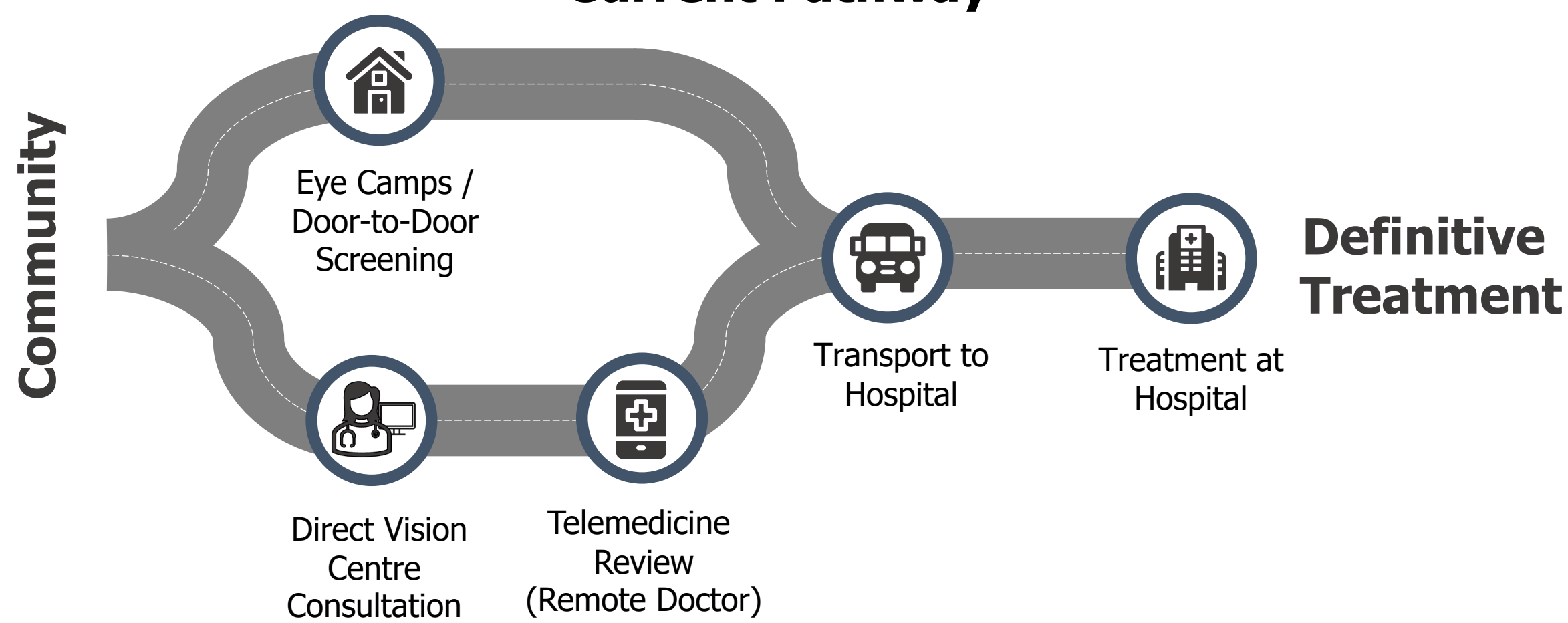


MSVI and blindness persists due to lack of access to care due to the following

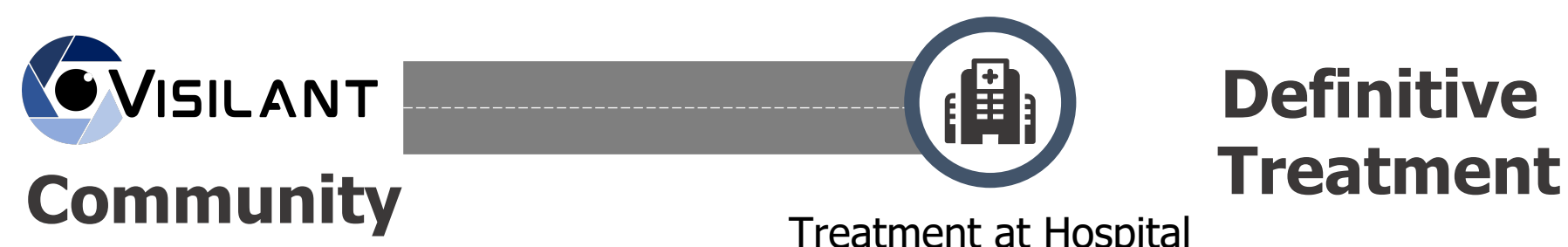


## Patient Care Pathway

### Current Pathway



Outreach methods to integrate patients into the current care pathway are resource-intensive. **Visilant deskills and decentralizes screening** by providing diagnostic access at the community level.



## Need Statement

High-volume eye care systems need a method **to increase access to timely care** in order to reduce preventable visual impairment and blindness.

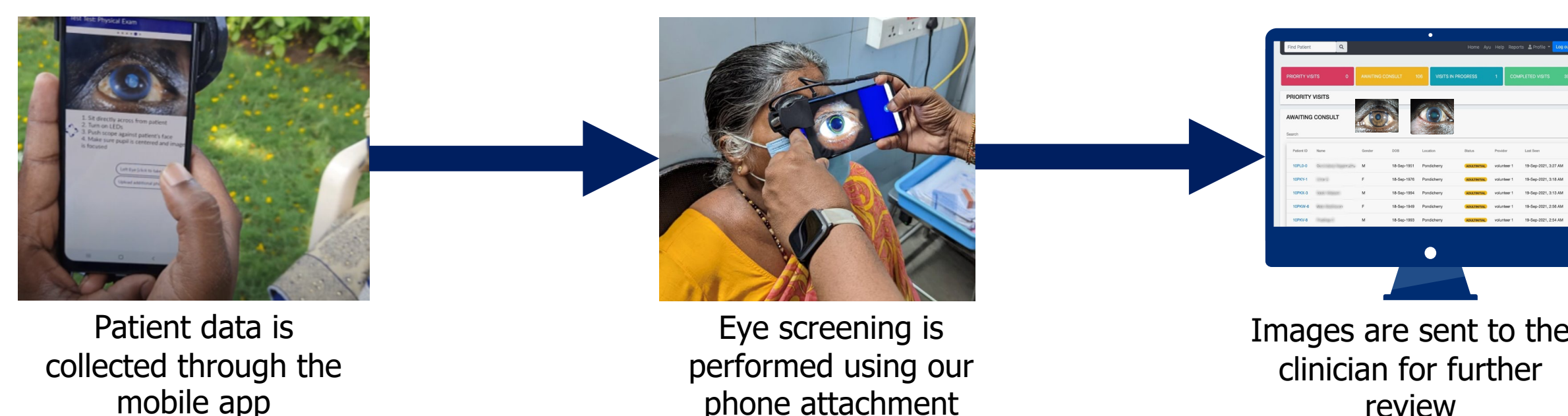
## Solution

Visilant enables a new model of care through telemedicine.

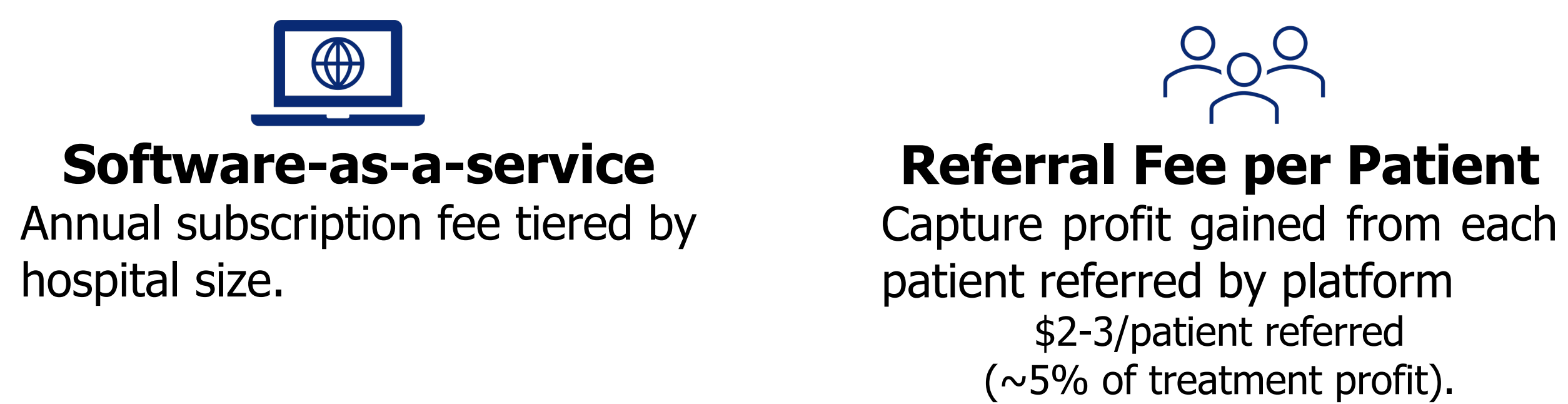


**Visilant is an integrated, end-to-end eye screening, referral, and patient management system.**

The system for community screening consists of a low bandwidth mobile app for data collection/transfer, clinician web portal, standardized image capture, and algorithm for real time triage.



## Business Model



## Visilant Generation 2

Gen. 2 consists of new features to enhance diagnosability of screening images.

- Improved Focus**  
Optimized lens and phone imaging settings improve image focus to expand optical clarity to include all of the sclera, cornea, and lens of the eye.
- Pupil Centration**  
Added hardware feature provides external viewing target to center the pupil for imaging.
- Consistent Lighting**  
Optimized cuff seals against the inner orbital cavity to block out external lighting and provide a consistent imaging environment.

## Methods

### Comparative study

Compared the image focus, pupil centration and reduction in external light penetration of the Visilant Gen. 1 to Gen. 2

## Results

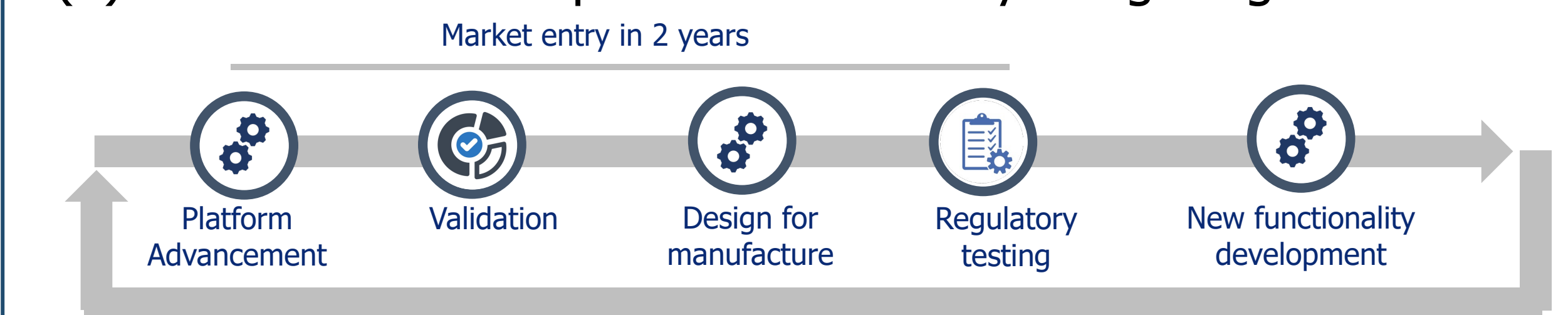
	Gen. 1	Vs	Gen. 2
<b>Image Focus</b>	 Lower resolution (1.12lp/mm) and depth of field (2mm) in the sclera	Improved focus	 Details (veins) in the sclera are visible due to the increased resolution (1.26lp/mm) and depth of field (3.5mm)
<b>Pupil Centration</b>	 No feature to center pupil during imaging		 Consistent pupillary centration during imaging
<b>External Light Penetration</b>	 External lighting creates optical artifact while imaging		 Reduced light penetration creates consistent imaging environment

## Conclusion & Next steps

Visilant's end-to-end diagnostic system, facilitates the collection of accurate, high quality, diagnostic level patient information and anterior segment images.

The comparative study showed that

- (1) Optimization of lens focal length and depth of field improved image diagnosability
- (2) Addition of the external target yielded consistently centered images
- (3) Inner orbit cuff improved consistency of lighting



## Acknowledgements

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