

MIT SMR CUSTOM STUDIO PRESENTS:

# Why Business Leaders Need an Augmented Reality Strategy

Webinar + Q&A | December 1, 2017

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A recording of this presentation will be available within 3 to 4 business days.

## **QUESTIONS**

Please use the Questions module to submit your questions throughout the presentation.

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Use the Questions module for technical assistance



## **Michael E. Porter**

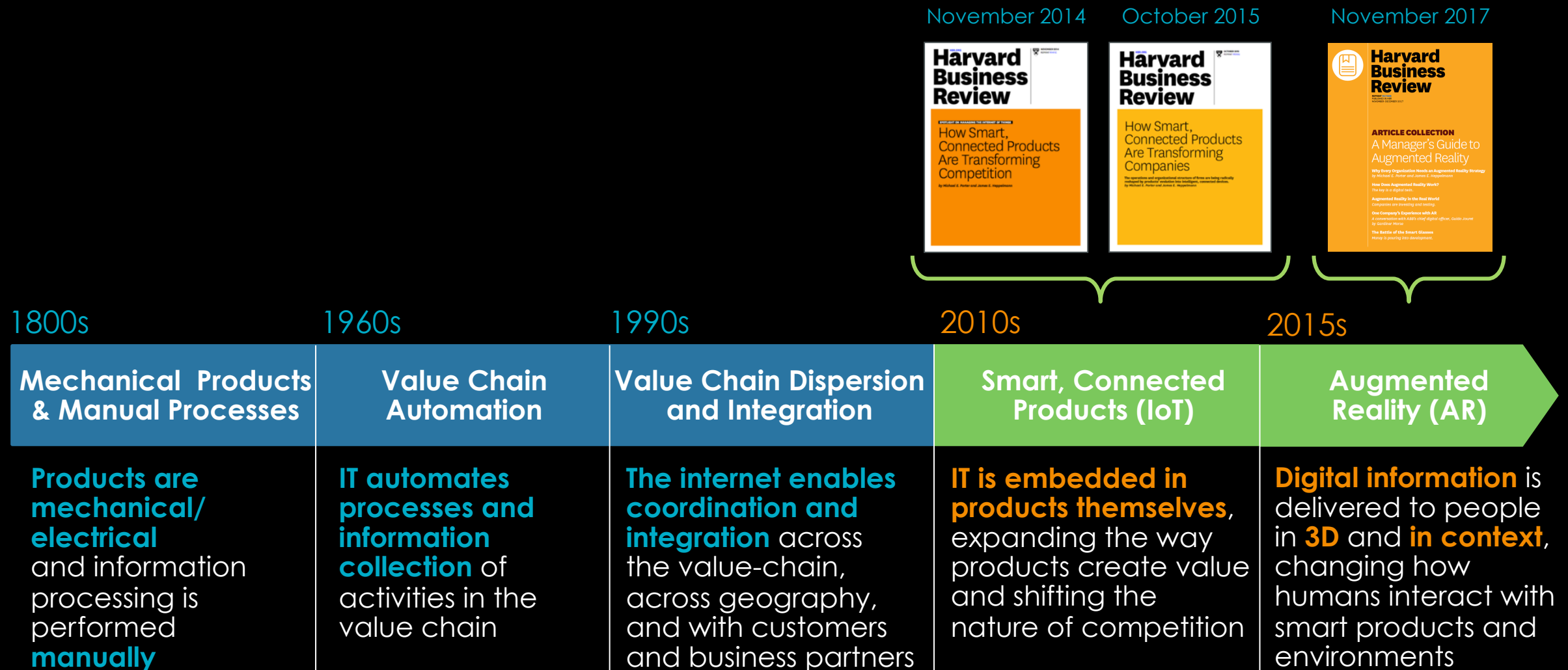
Bishop William Lawrence University  
Professor at Harvard Business  
School



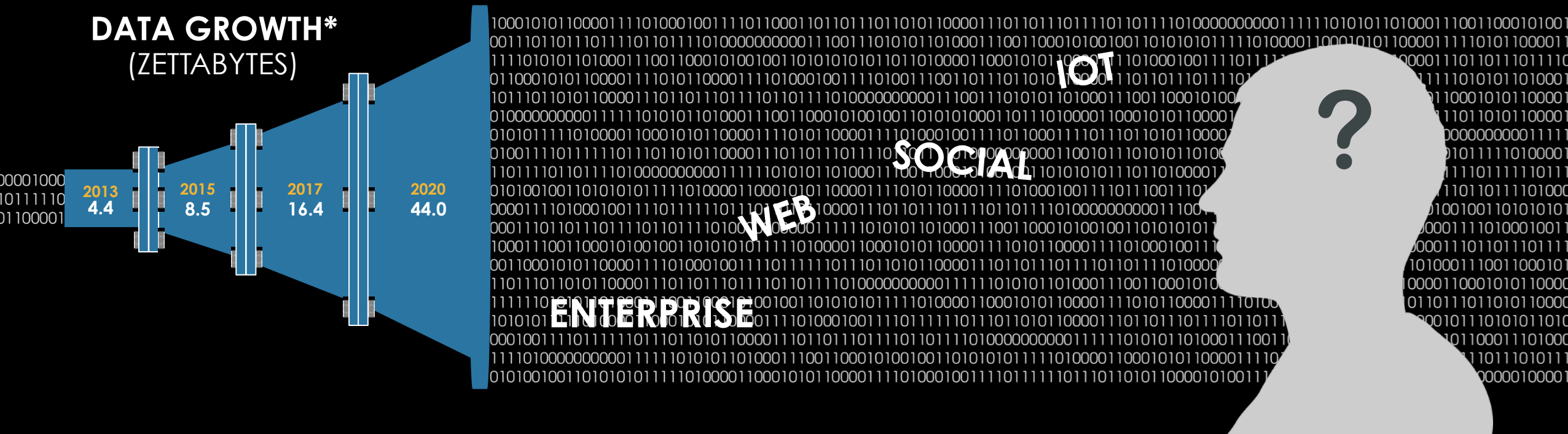
## **James E. Heppelmann**

President and Chief Executive  
Officer of PTC

# WAVES OF IT-DRIVEN COMPETITION



# THE DELUGE OF DATA



\* IDC's Digital Universe study, 2014

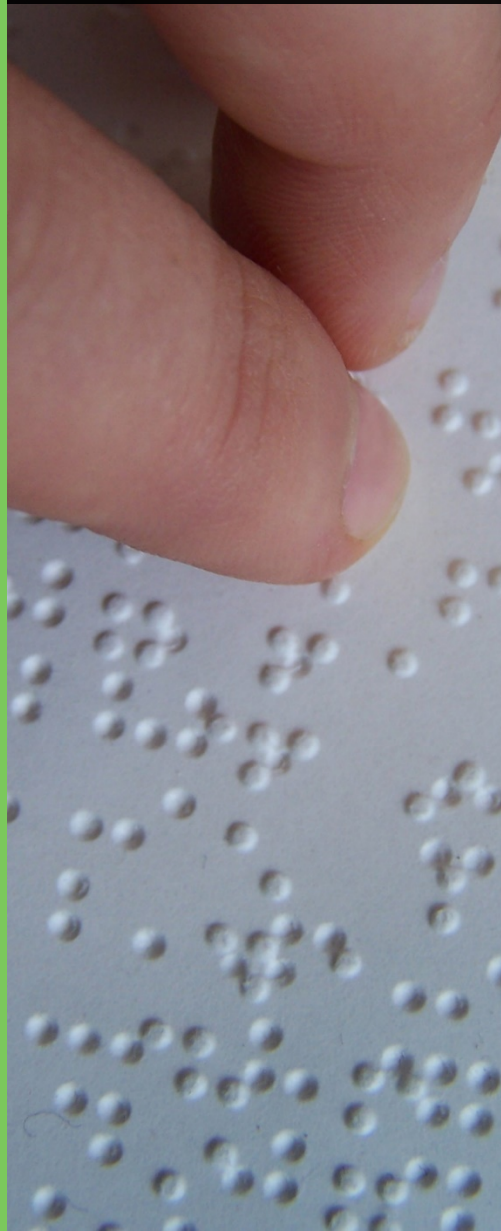
TASTE



SMELL



TOUCH



HEAR



SEE



# HOW HUMANS PROCESS INFORMATION

## Separated Physical & Digital Worlds

The effort required to transpose DIGITAL INFORMATION to the PHYSICAL SPACE creates cognitive load, reducing the cognitive resources available for other tasks.

Mentally understanding GPS images and then transposing them onto the road ahead is demanding and prone to errors.

# WHAT IS AR?

## Continental's Augmented Reality Heads-Up Display

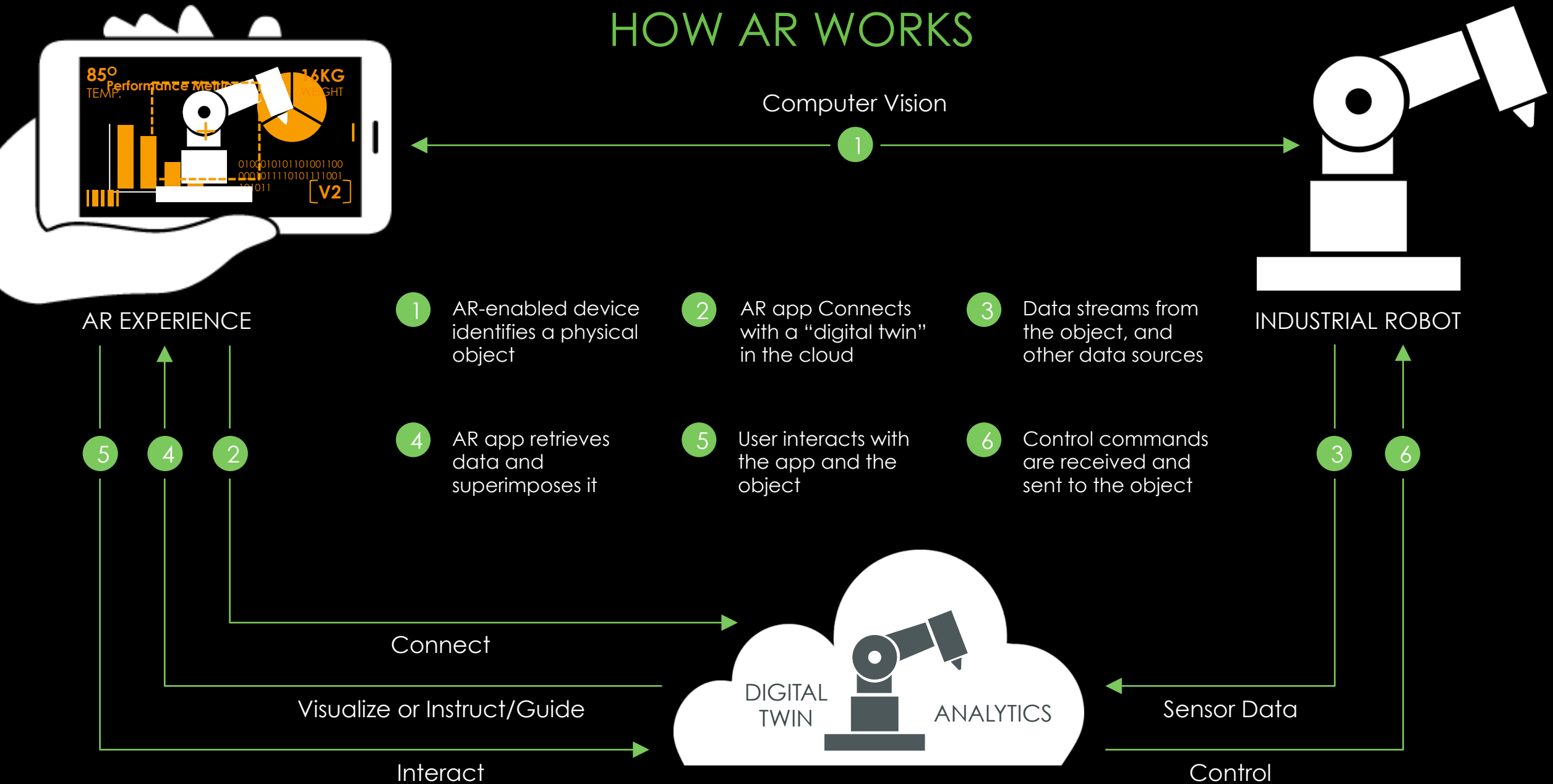
The information the driver's eyes see is directly connected to the real world in which action is taken.

### Increasing Driver Safety

- Reading a conventional instrument cluster requires half a second
- Drivers averting their gaze at 120 km/h will be driving blind for 33 meters.



# HOW AR WORKS



# THE BATTLE OF THE SMART GLASSES

The race to develop a new digital interface is on and attracting substantial investments from tech titans and upstart investors

The winner of the smart glasses race will ultimately control a technology that transforms how people interface with the physical and digital world

**ODG R-7**



**Microsoft  
HoloLens**



**Vuzix AR3000**

# CAPABILITIES OF AR

## VISUALIZE

**Enhance** the user's **view** of the physical world with the overlay of **real-world** or **hypothetical digital information**

## INSTRUCT/GUIDE

**Train or guide** users on how to perform a task through the overlay of **digital instructions** or **real-time expert guidance**



## INTERACT

**Manipulate digital graphics** or **control** a product through an **AR interface**

## SIMULATE

When needed, incorporating **VR** into AR adds a fourth capability: **Transcending distance, time, and scale**

# IMPACT OF AR ON COMPETITION

**THE PRODUCT**

**THE VALUE CHAIN**

# AR PRODUCT DIFFERENTIATION

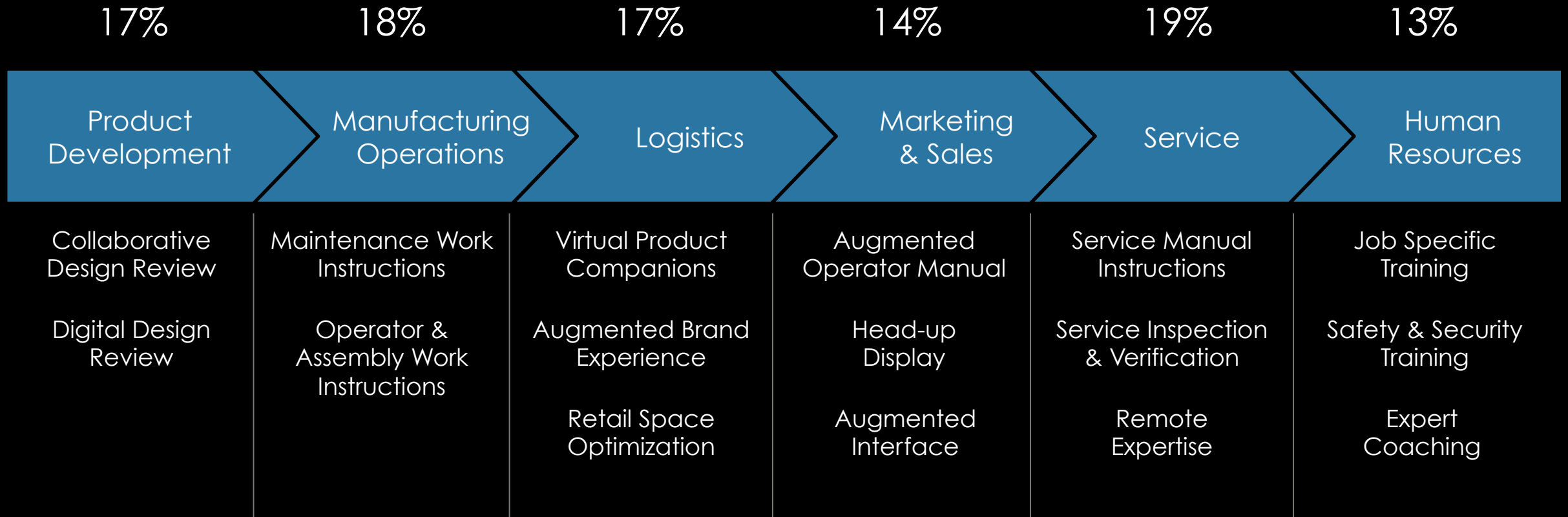
**Accuvein** developed a new product that uses AR to visualize the location of veins by sensing heat signatures and converting them into projections on the patient's skin.

## Key Benefits

- 3x greater accuracy of first stick rate
- Reduced escalations by 45%
- Increased patient satisfaction



# AR OPPORTUNITIES ACROSS THE VALUE CHAIN



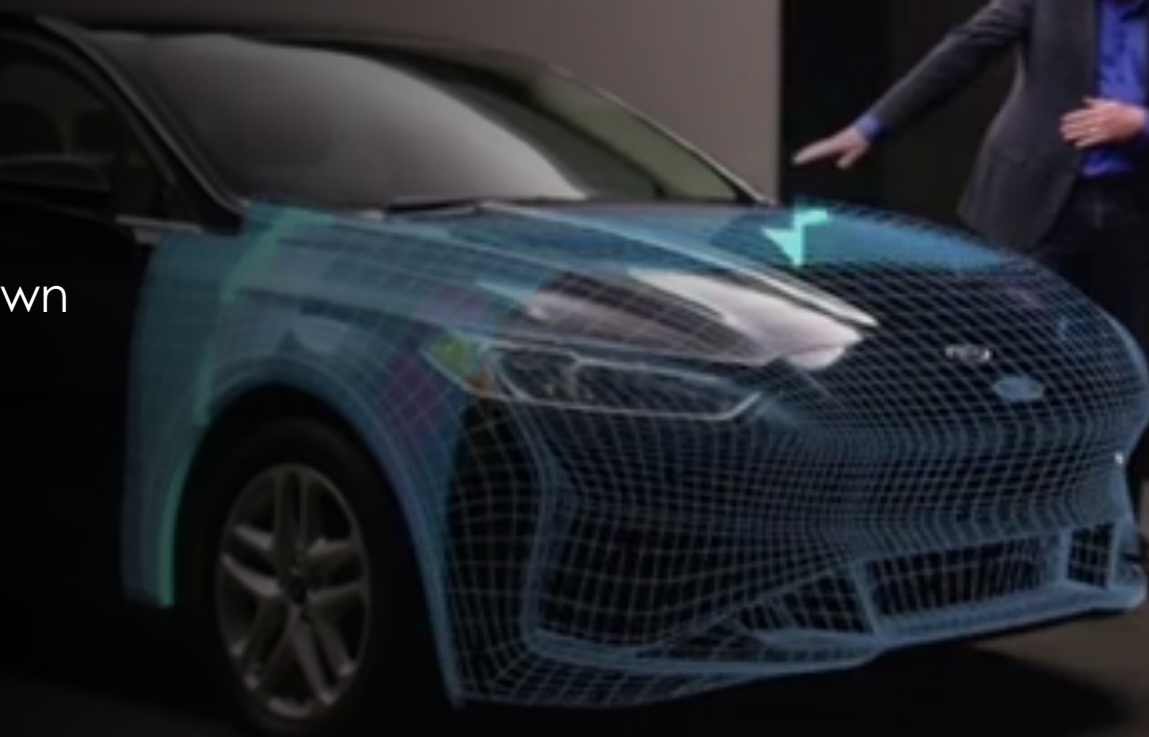
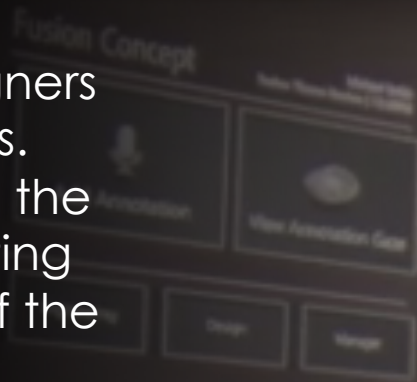
Sample of 107 companies.  
Average of 2.3 functional areas chosen per respondent.

# PRODUCT DEVELOPMENT

**Ford** is using AR to let designers quickly model out changes. This allows designers to see the changes on top of an existing physical vehicle, instead of the traditional clay model approach to car design.

## Value Metrics

- Reduces the process of making and reviewing changes from weeks down to days.



# LOGISTICS

**DHL** is using AR to track pick lists and guide workers through the warehouse to the location of each product to be packed.

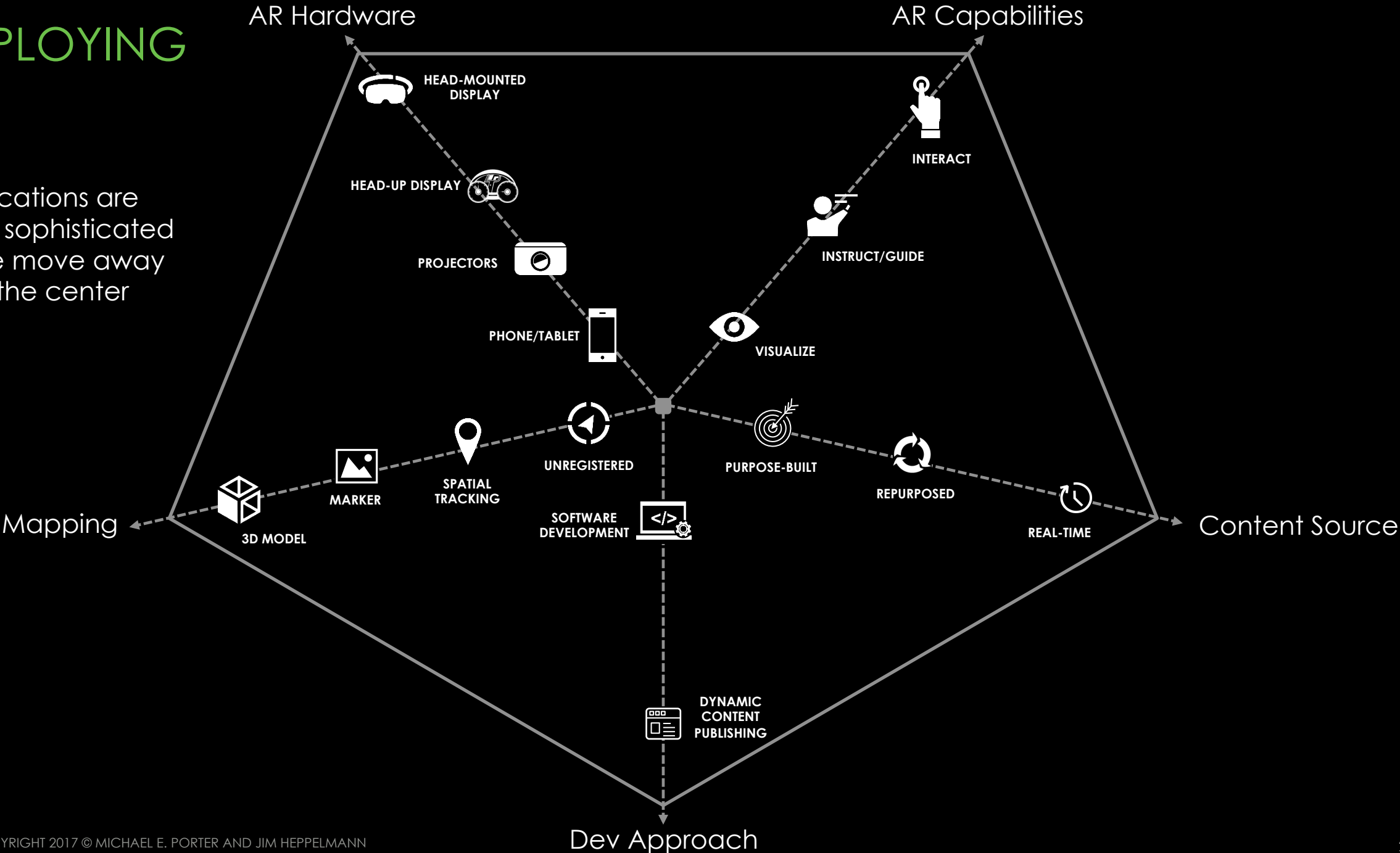
## Value Metrics

- Reduced errors
- More engaged workers
- Productivity improved by 25%

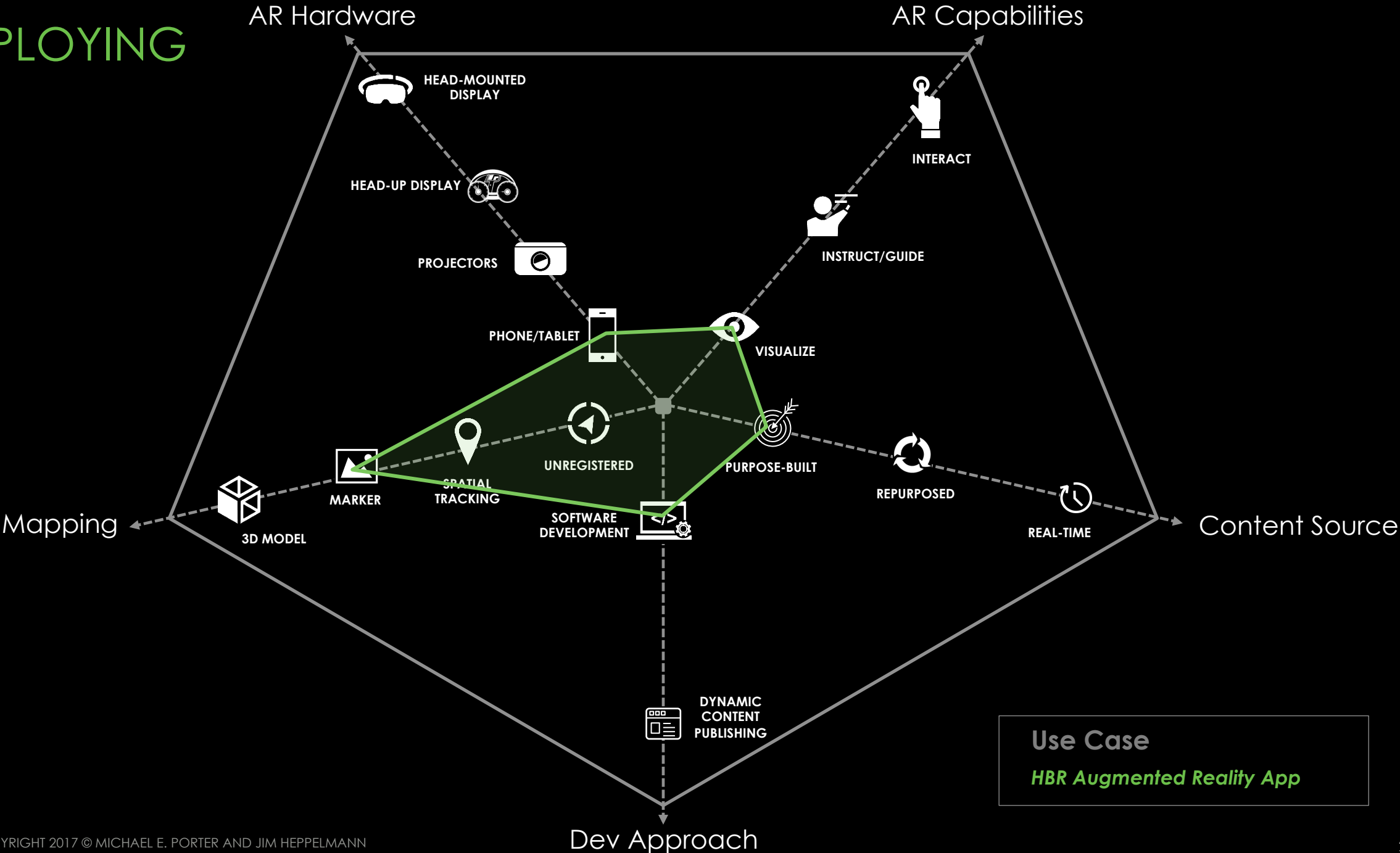


# DEPLOYING AR

Applications are more sophisticated as we move away from the center



# DEPLOYING AR



# AR REQUIRES FIVE NEW STRATEGIC CHOICES

## Role in Communications

How will AR change communications with stakeholders?

## What Opportunities?

What is the range of AR opportunities and in what sequence should they be pursued?

## Talent and Resources

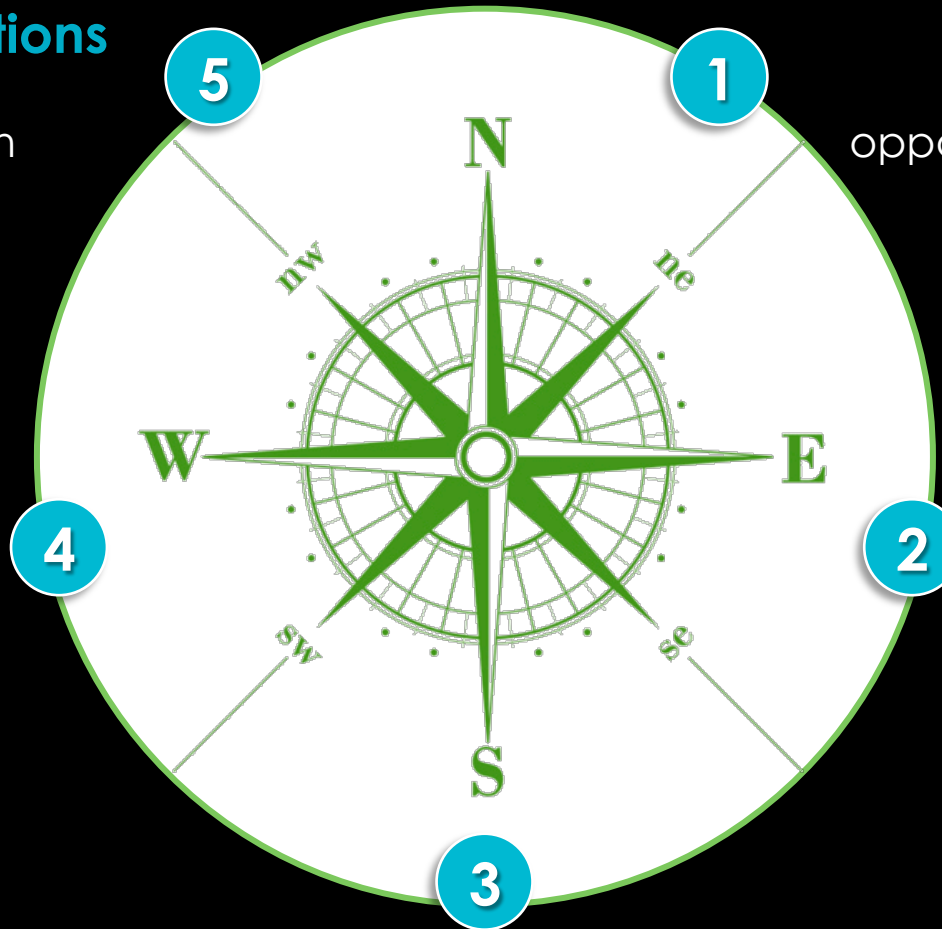
Should the company make AR design and deployment a core strength or will outsourcing or partnering be sufficient?

## Product Differentiation

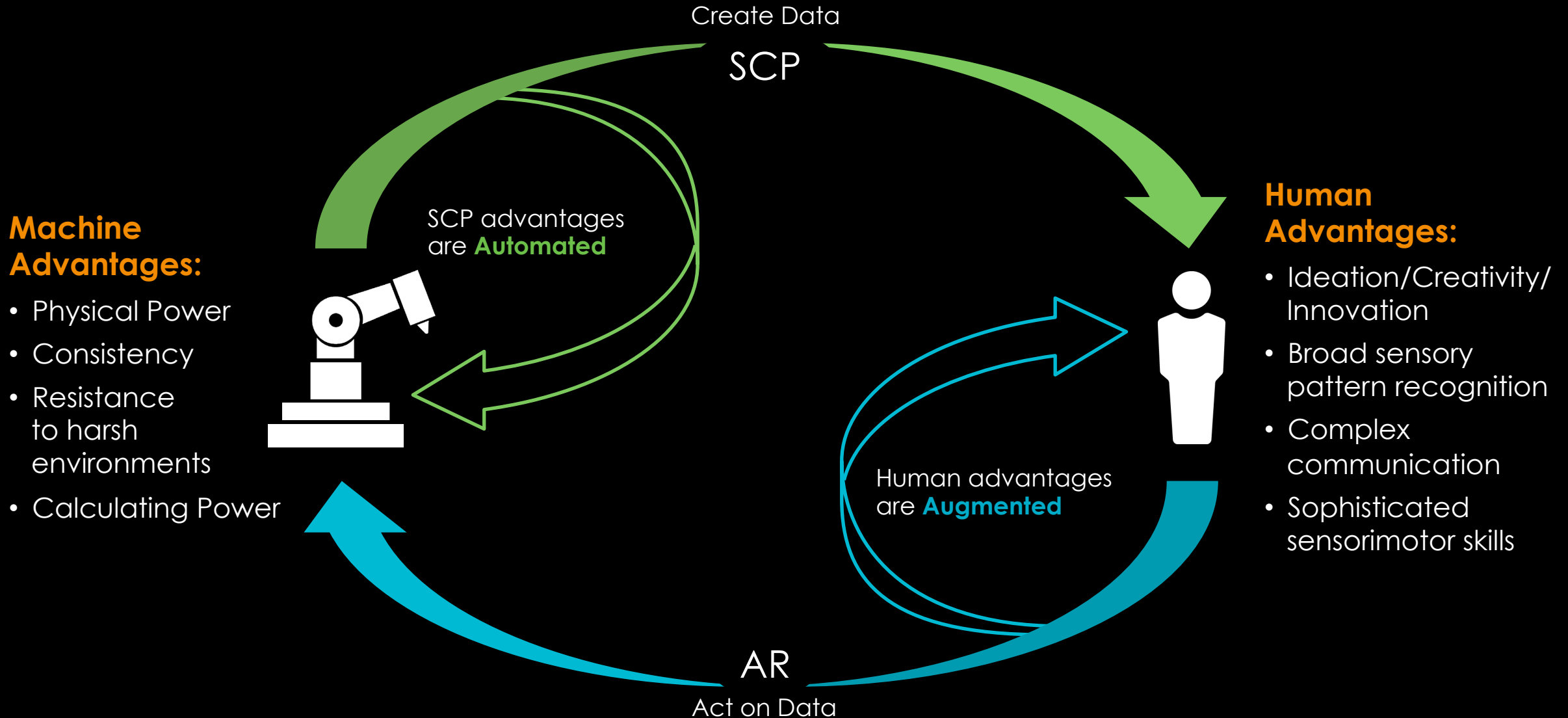
How will AR reinforce a company's product differentiation?

## Cost Effectiveness

Where will AR have the greatest impact on cost reduction?



# THE BROADER IMPACT





# Harvard Business Review

REPRINT B17068  
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NOVEMBER–DECEMBER 2017

## ARTICLE COLLECTION

### A Manager's Guide to Augmented Reality

**Why Every Organization Needs an Augmented Reality Strategy**  
*by Michael E. Porter and James E. Heppelmann*

**How Does Augmented Reality Work?**  
*The key is a digital twin.*

**Augmented Reality in the Real World**  
*Companies are investing and testing.*

**One Company's Experience with AR**  
*A conversation with ABB's chief digital officer, Guido Jouret  
by Gardiner Morse*

**The Battle of the Smart Glasses**  
*Money is pouring into development.*



HBR AR



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