

MIT SMR CUSTOM STUDIO PRESENTS:

Why Business Leaders Need an Augmented Reality Strategy

Webinar + Q&A | December 1, 2017

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QUESTIONS

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TECHNICAL ASSISTANCE

Use the Questions module for technical assistance



Michael E. Porter

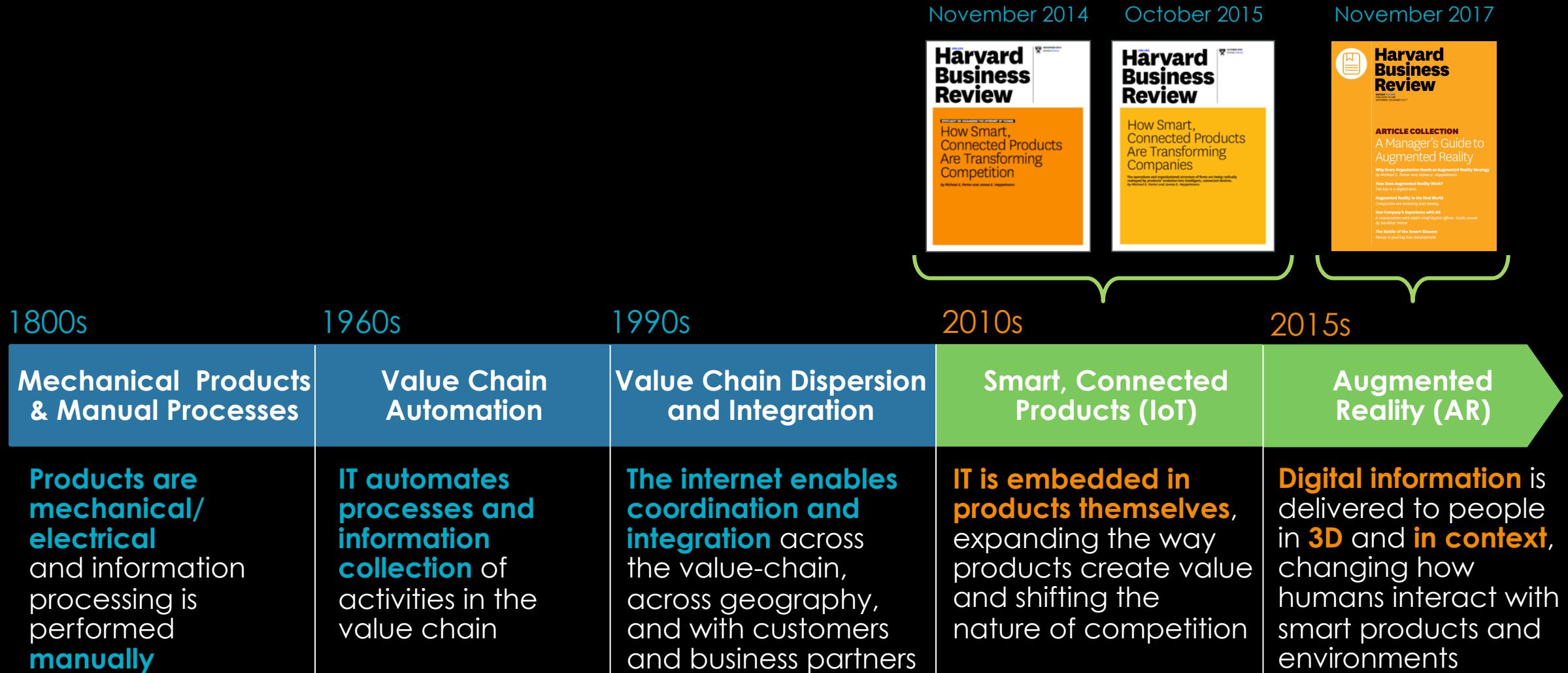
Bishop William Lawrence University
Professor at Harvard Business
School



James E. Heppelmann

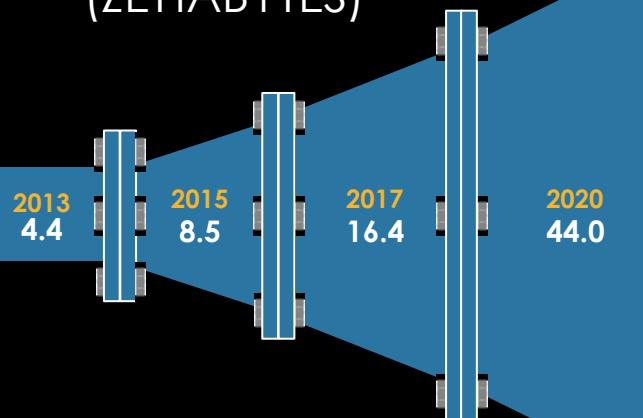
President and Chief Executive
Officer of PTC

WAVES OF IT-DRIVEN COMPETITION



THE DELUGE OF DATA

DATA GROWTH* (ZETTABYTES)



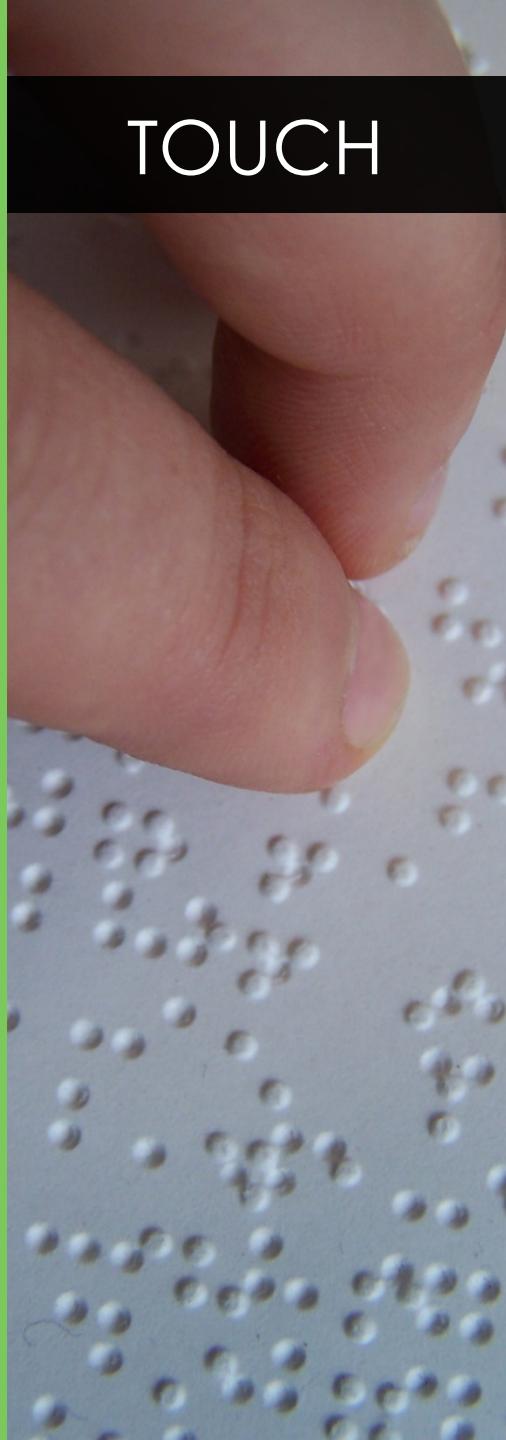
* IDC's Digital Universe study, 2014



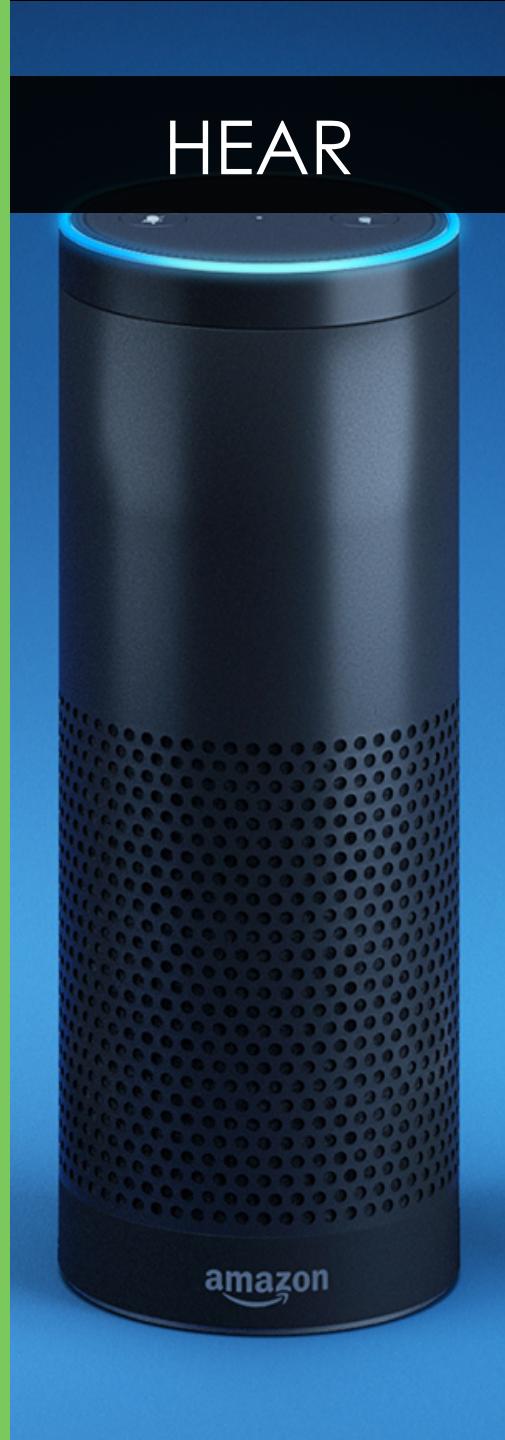
TASTE



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

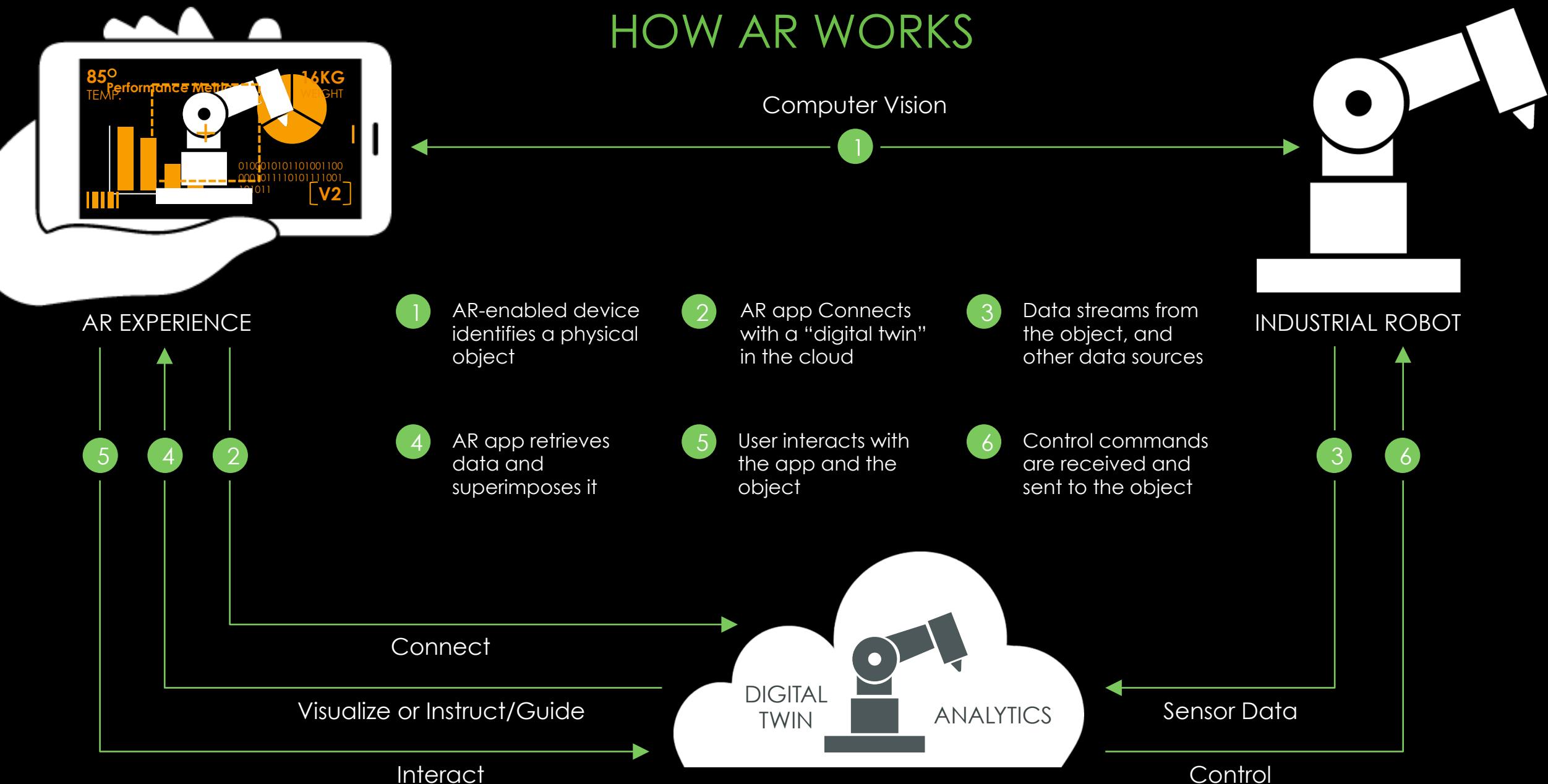
The information the driver's eyes see is directly connected to the real world in which action is taken.

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

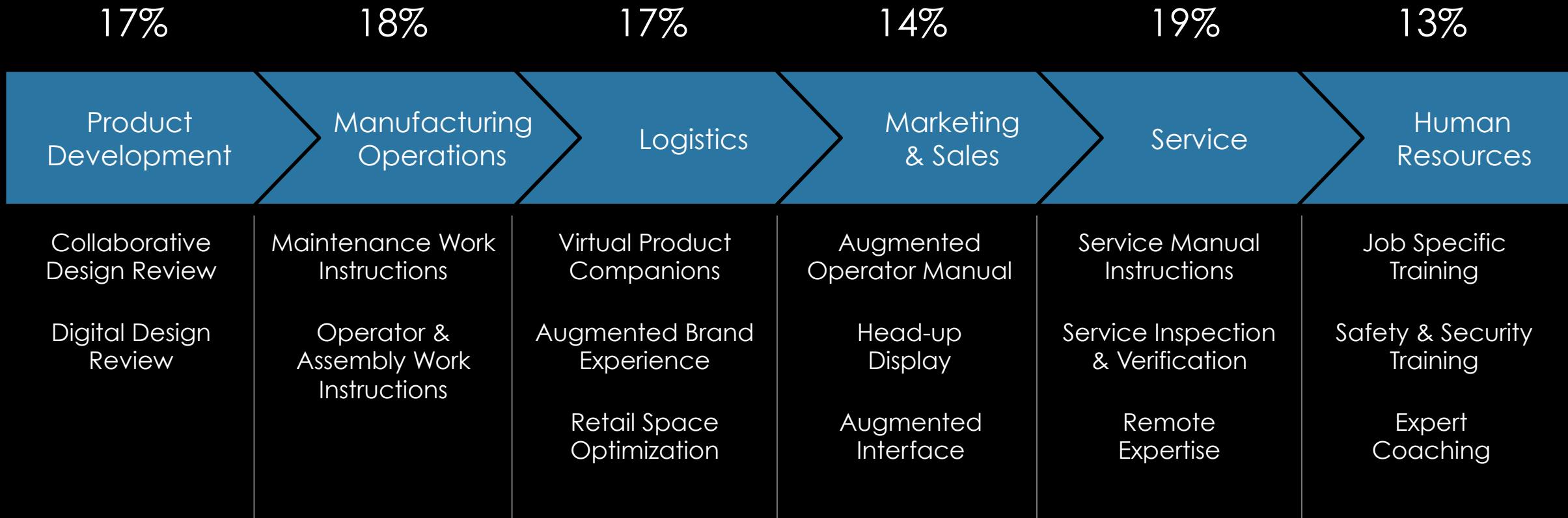
Accuvein developed a new product that uses AR to visualize the location of veins by sensing heat signatures and converting them into projections on the patient's skin.

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.

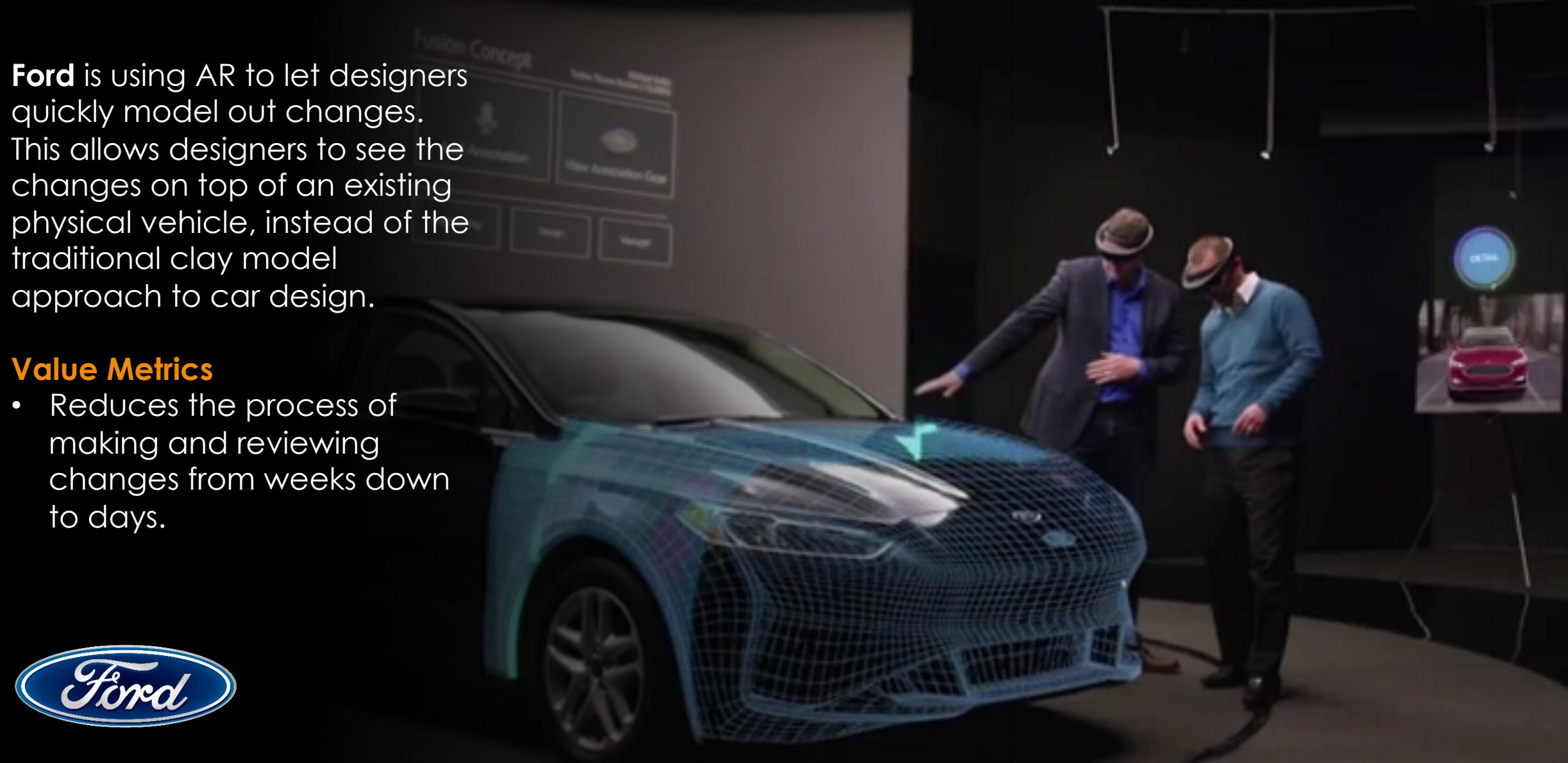
Average of 2.3 functional areas chosen per respondent.

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.

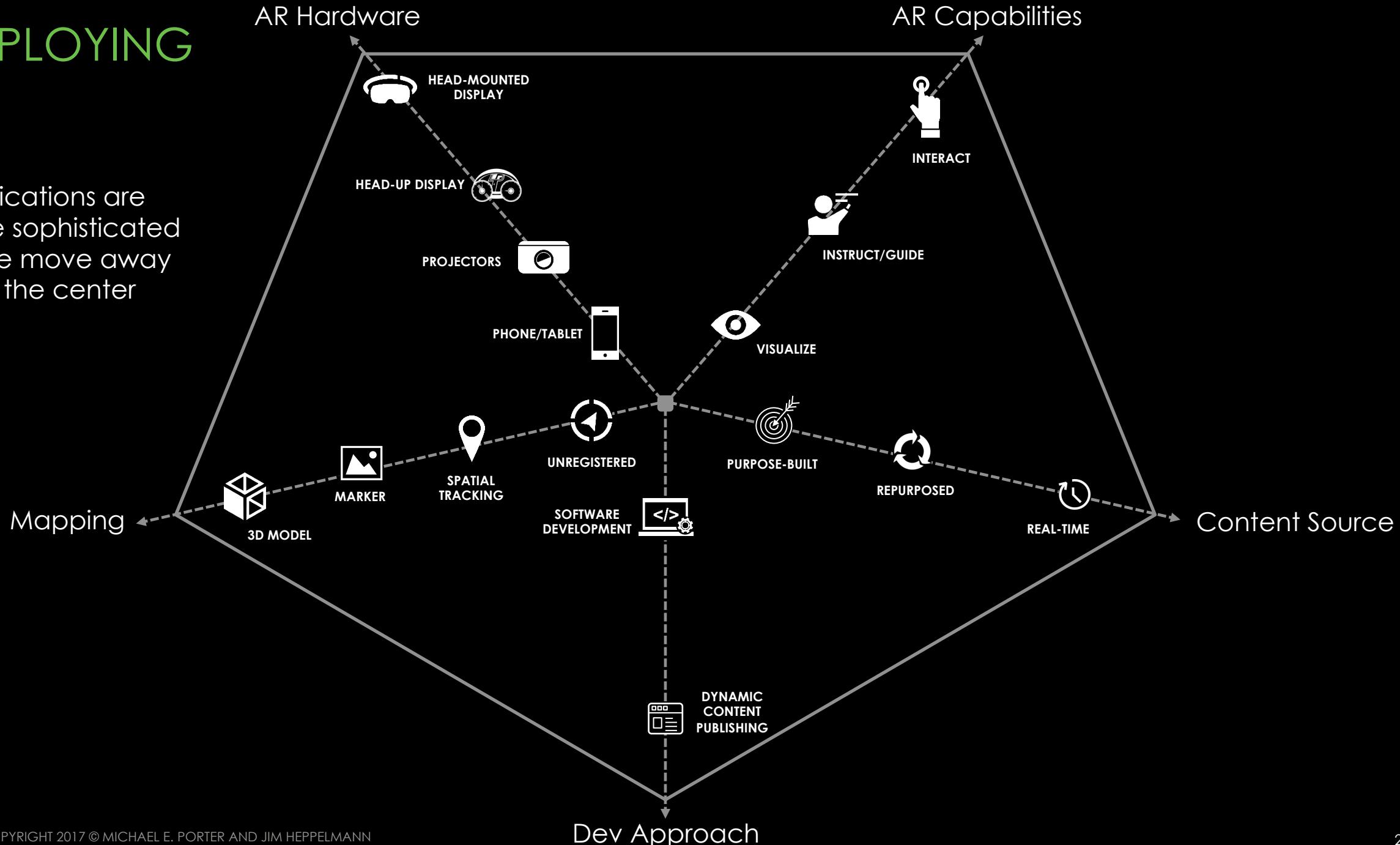
Value Metrics

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

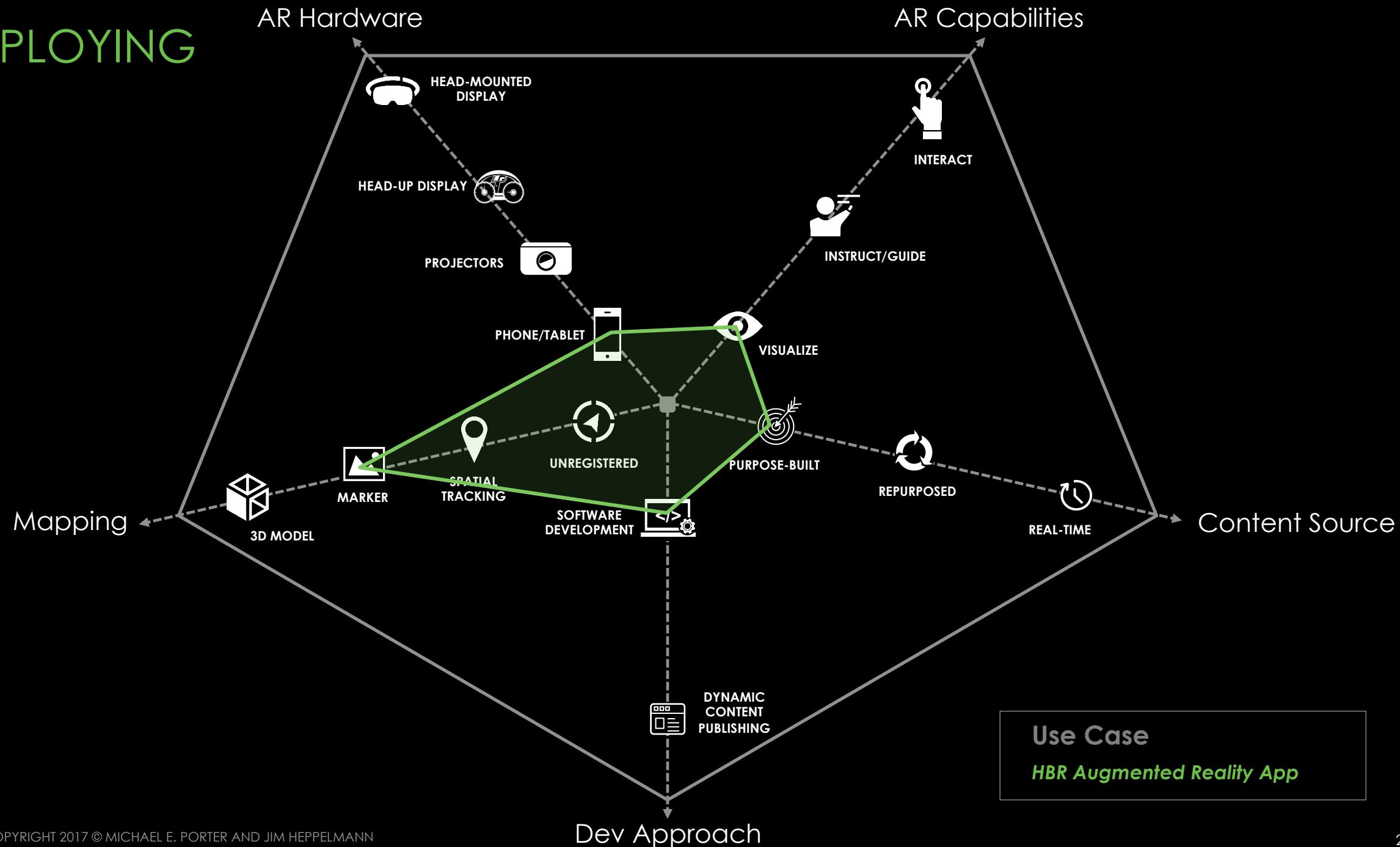


DEPLOYING AR

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?

Talent and Resources

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

What Opportunities?

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

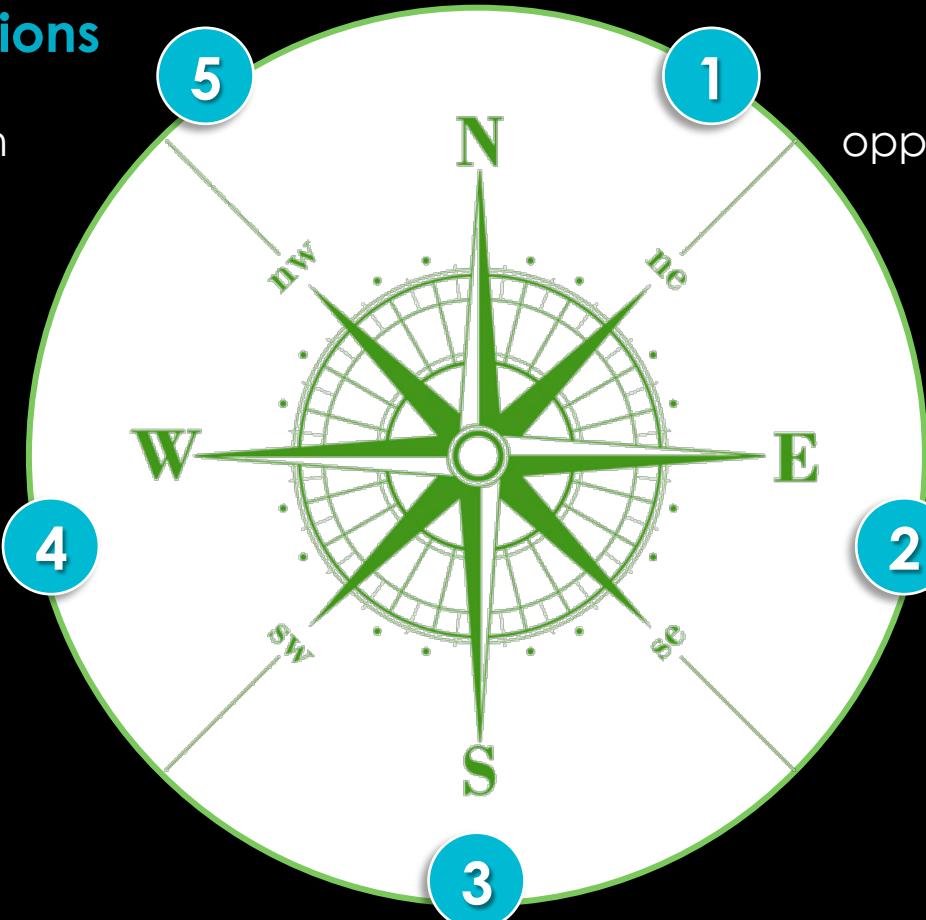
Product Differentiation

How will AR reinforce a company's product differentiation?

3

Cost Effectiveness

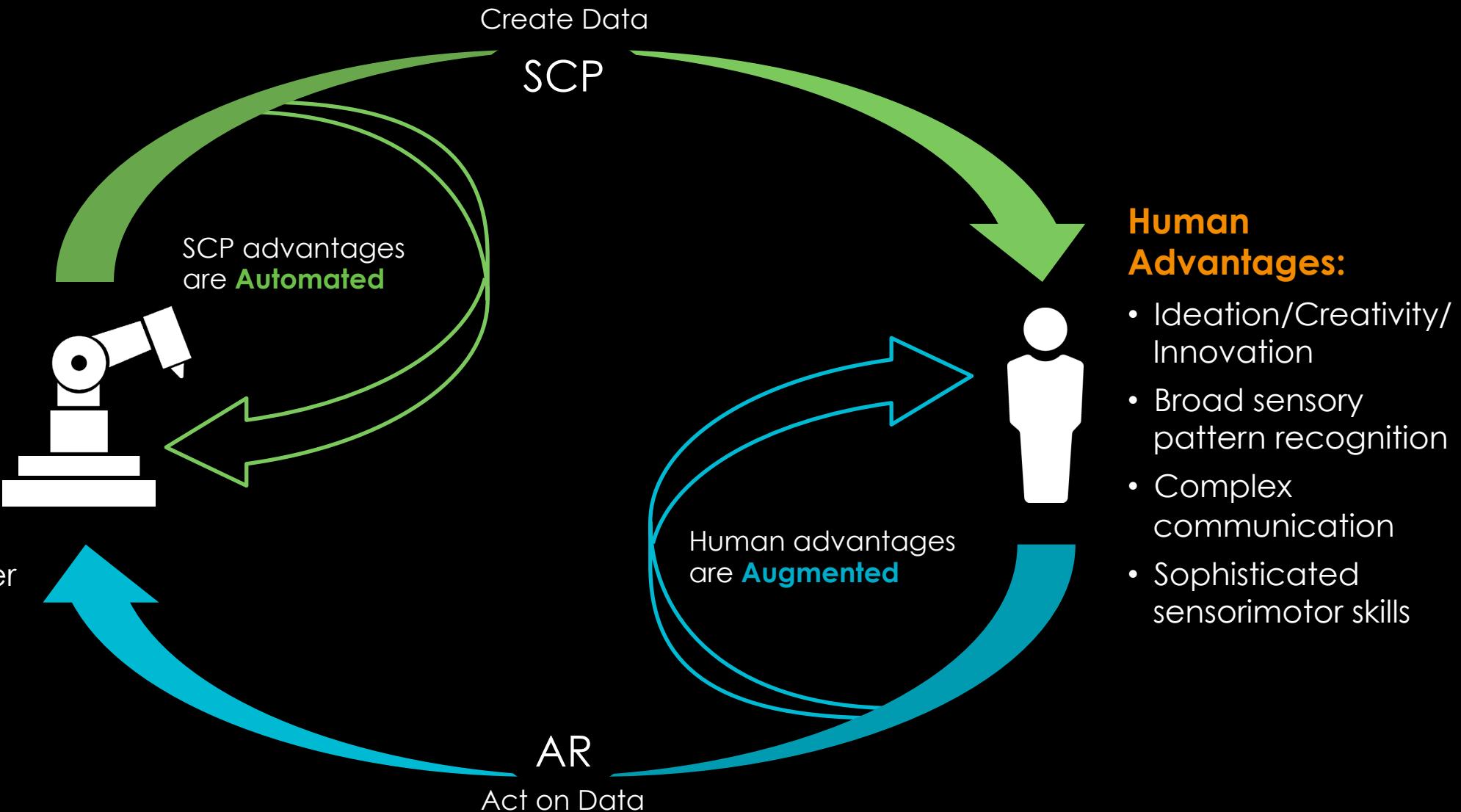
Where will AR have the greatest impact on cost reduction?



THE BROADER IMPACT

Machine Advantages:

- Physical Power
- Consistency
- Resistance to harsh environments
- Calculating Power





Harvard Business Review

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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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