

Augmented Reality for the Industrial Enterprise

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- Global Software Company, \$1B+ Revenue
- Design, Manufacture, Operate, and Service “Things”
- Leading Industrial Innovation Platform and Solutions
- Global Network of 400K+ Developers and 1K+ Partners
- Proven Partner of the globally leading manufacturing companies since 1985

The Boston Globe
**TOP
PLACES
TO WORK**
2017



WHAT IS **AUGMENTED REALITY?**

Superimposing computer
graphics onto a live
view of the world.

Also known as “AR”



CONVERGING PHYSICAL AND DIGITAL

Augmented reality reduces the mental effort needed to connect digital information about the physical world with the context it applies to.

Continental AR-head up display



ENABLING NURSES TO VISUALIZE VEINS

Accuvein is using AR to visualize the location of veins by sensing heat signatures and converting them into projections on the patient's skin.

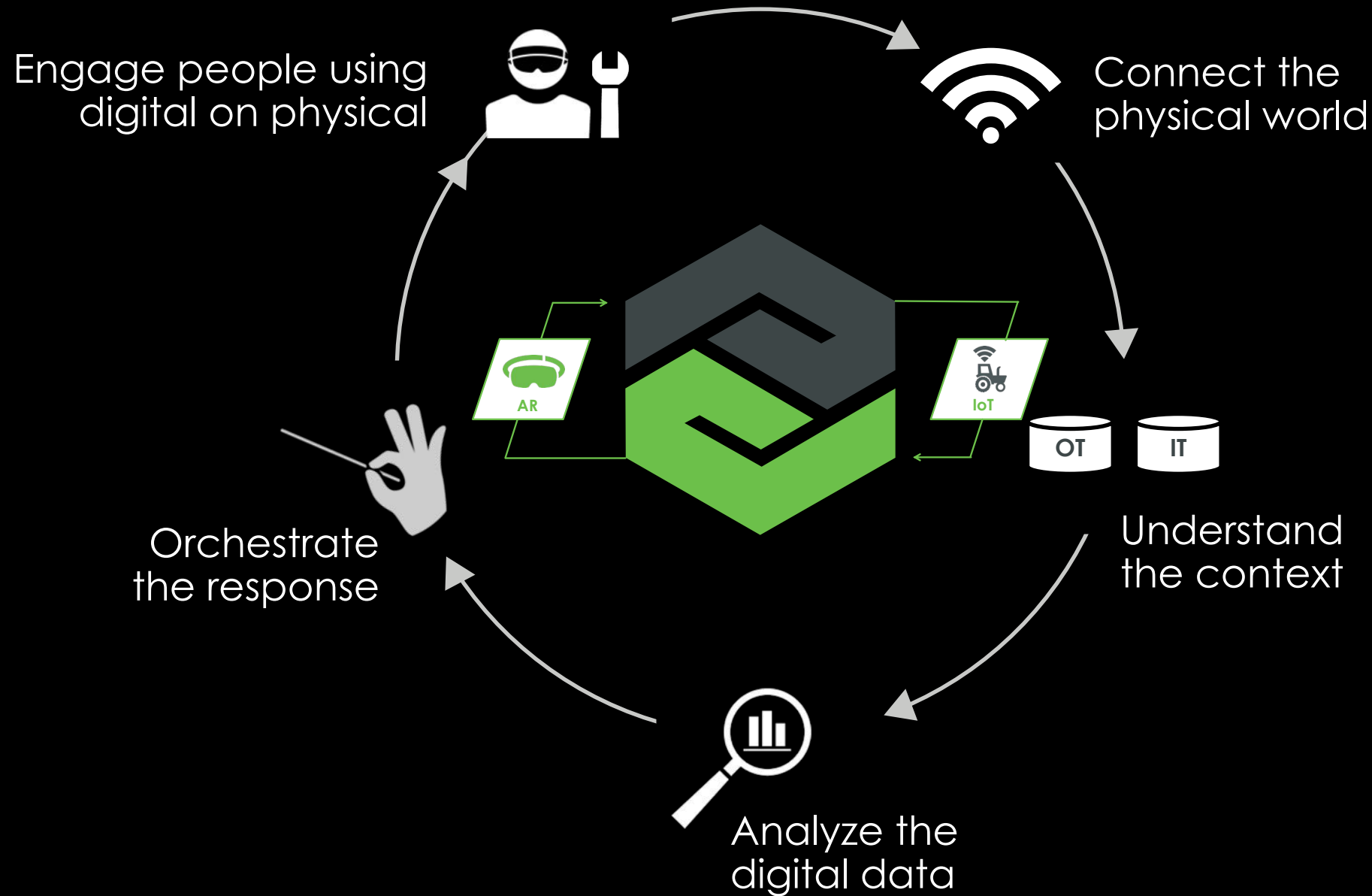
Key Benefits

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

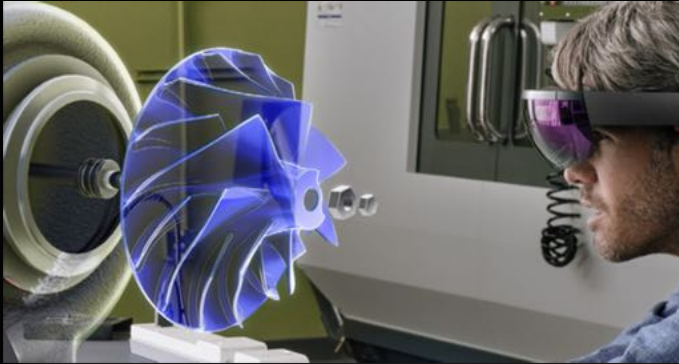


<https://www.youtube.com/watch?v=Hk3ourZT1XY>

UNLOCKING THE VALUE OF PHYSICAL AND DIGITAL



AR OFFERS NEW CAPABILITIES



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 information or extend a product interface through an **Augmented digital interface**

DESIGN REVIEW WITH AR



<https://www.youtube.com/watch?v=znCZzvPEO-g>

OPERATIONS

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%



PROVIDING INSTRUCTION TO SERVICE TECHNICIANS

Caterpillar is now moving into the next layer of technology in the service domain which includes the Industrial Internet of Things (IIoT) along with augmented and virtual reality.

IoT and AR Strategy

“We have entire mine sites connected and interacting to make split-second decisions. Now we want to connect people and products.”

Terri Lewis,

Digital and Technology Director
Caterpillar



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Kevin Collins, Microsoft



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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 Journe
by Gardiner Morse

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



HBR AR



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Google play



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LOCATE: Target Image

ABOUT

Harvard
Business
Review

WHAT IS A TARGET IMAGE?

This app uses your device's camera to recognize a target image and launch an augmented reality experience.

Two images in the November–December 2017 HBR article “Why Every Organization Needs an Augmented Reality Strategy” launch AR experiences. Find these images in the magazine or the digital article available at HBR.org, or download a copy of the article here.



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