

FROM STRATEGY TO DEPLOYMENT: GETTING STARTED WITH AUGMENTED REALITY

- **Title:** From Strategy to Deployment: Getting Started with Augmented Reality
- **Overview:** This webinar will provide insight and guidance into the key strategic choices and deployment approaches companies should consider along their AR journey. From leadership to execution, this session will provide a road map for how companies should deploy AR, as well as the critical choices companies will face integrating AR into their strategy.
- **Speakers:**
 - **Jon Lang**
 - **Lead Principal Business Analyst, PTC**
 - **Caroline McManus**
 - **Senior Strategy Analyst, PTC**
 - **Rocky Jung**
 - **Senior Business Analyst, PTC**

TODAY'S AGENDA

1. State of Augmented Reality Update
2. Strategic Choices of Augmented Reality
3. Deploying Augmented Reality

STATE OF AUGMENTED REALITY

ANALYSTS IDENTIFY AR AS KEY TECHNOLOGY TREND

FORRESTER

Forrester's Top Emerging Technologies To Watch: 2017-2021

Systems of engagement technologies
From customer-aware to customer-led

- IoT software and solutions**
Internet-of-things (IoT) platforms and packages, IoT management and security tools
- Intelligent agents**
Chatbots, digital assistants, robotic process automation
- Personal identity and data management**
Personal data lockers, authorization management tools
- Real-time interaction management**
Customer recognition, offer arbitration and delivery, measurement/optimization
- Augmented and virtual reality**
Image processing, 3D software, specialized chips, headsets, HUDs, mobile apps

Systems of insight technologies
From data-rich to insights-driven

- AI/cognitive**
Deep learning, cognitive, natural language processing (NLP), semantics
- Customer journey analytics**
Journey analytics tools, analytics built into marketing and customer management
- Insight platforms**
Enterprise, business analytics, and insight application platforms; big data fabrics
- IoT analytics**
IoT databases, streaming, CEP, real-time optimized spatial and visual analytics
- Spatial analytics**
In-store analytics, location intelligence, sensors, machine learning

Insight improves action
Action enables more insight

Supporting technologies
From siloed to connected and from perfect to fast

Security automation and orchestration
Security analytics and workflow management, incident response, link analysis, threat intelligence

Cloud native application platforms
Platform-as-a-service (PaaS), microservices tools, API management, CDCI tool chains

Containers and container management
Docker, CoreOS, Kubernetes, Mesos, cloud container management

Hybrid wireless
Chips and software that translate between wireless protocols on the same device

Edge computing
Mobile edge computing, cloudlets, fog computing, industrial internet

Gartner

Top 10 Strategic Technology Trends 2017

Intelligent

Applied AI & Advanced Machine Learning

Intelligent Apps

Intelligent Things

Digital

Virtual & Augmented Reality

Digital Twins

Blockchain and Distributed Ledgers

Mesh

Conversational Systems

Mesh App and Service Architecture

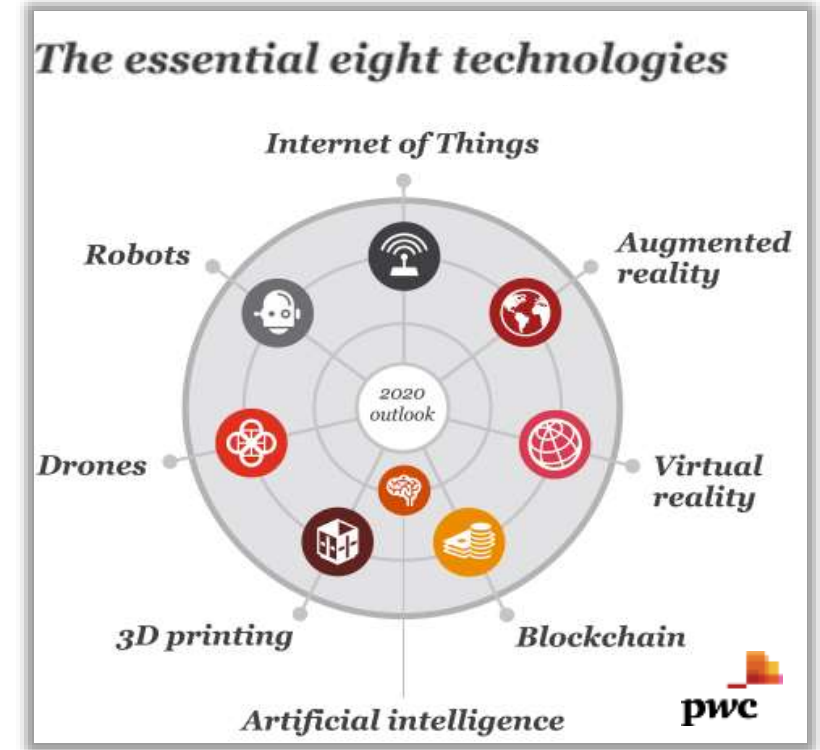
Digital Technology Platforms

Adaptive Security Architecture

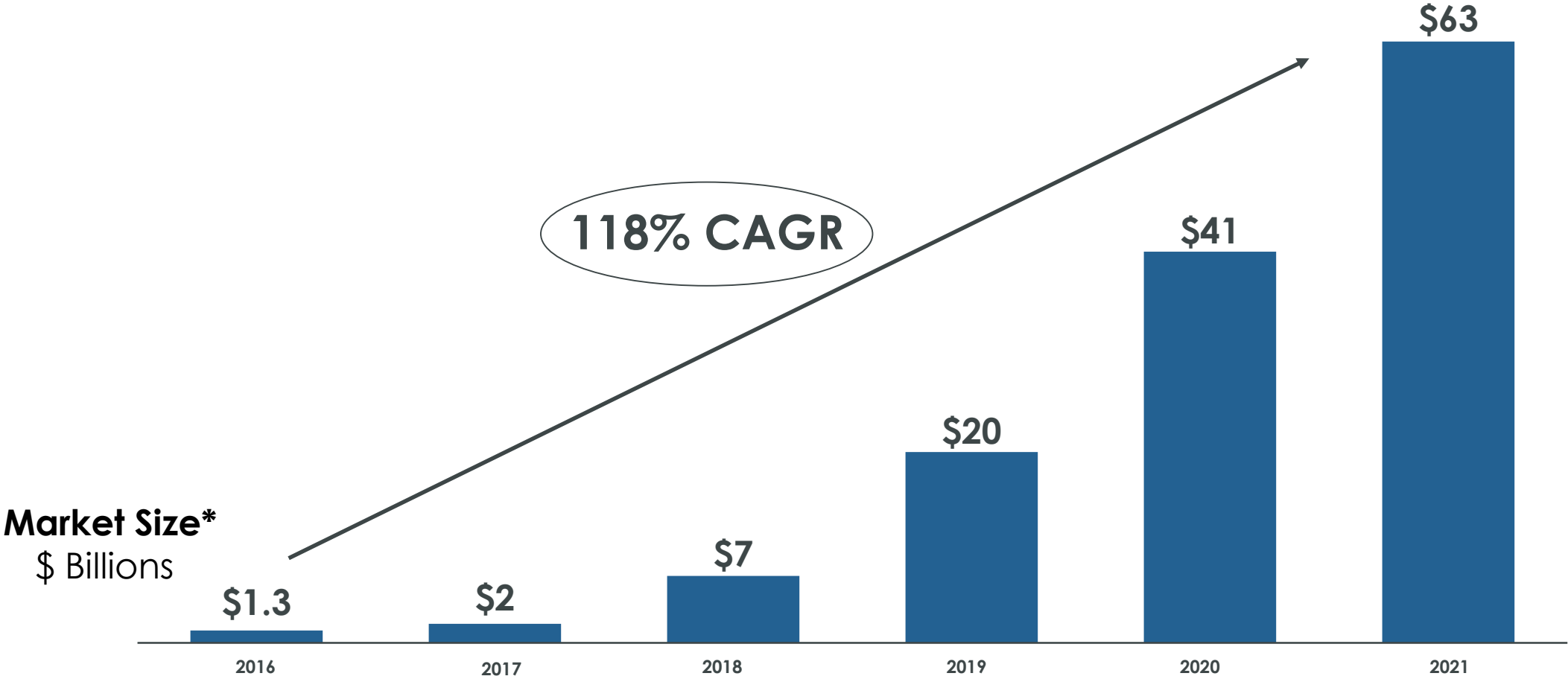
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AR IS A \$1B MARKET GROWING FAST



*Spend inclusive of: hardware, software, eCommerce, games, and advertising
Sources: PTC Market Research & Analytics, Digi-Capital, ABI Research, Markets and Markets

RECENT NEWS AROUND AR



2017



July



Google Glass Enterprise Edition

August



ARkit and ARcore Released

November

WILLIAMS-SONOMA

Acquires AR startup for \$112 million

December



Reveals first look at AR hardware



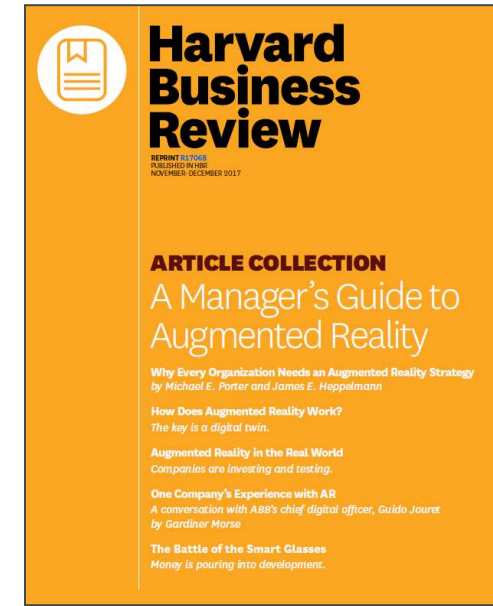
November 2014

“Smart, connected products raise a new set of strategic choices about how value is created and captured, and how companies secure competitive advantage as the new capabilities reshape industry boundaries.”



October 2015

“Smart connected products are not only redefining competition but how we run companies across the value chain. New kinds of cross functional integration and coordination are necessary, and whole new organizational units are being created.”



November 2017

“There is a fundamental disconnect between the wealth of digital data available to us and the physical world in which we apply it. AR solves this problem by putting information directly into the context in which we’ll apply it.”

WHAT IS AUGMENTED REALITY (AR)?

A set of technologies that superimposes digital data and images onto the physical world.

AR AND COMPLEMENTARY VR CAPABILITIES

VISUALIZE

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

INSTRUCT

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

INTERACT

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

SIMULATE

VR adds a fourth capability that will allow users to **transcend distance, time, and scale**

thingworx® studio thingworx® view



Author & Publish
AR Experiences

Access & View
AR Experiences

ThingWorx Studio

FREE Trial

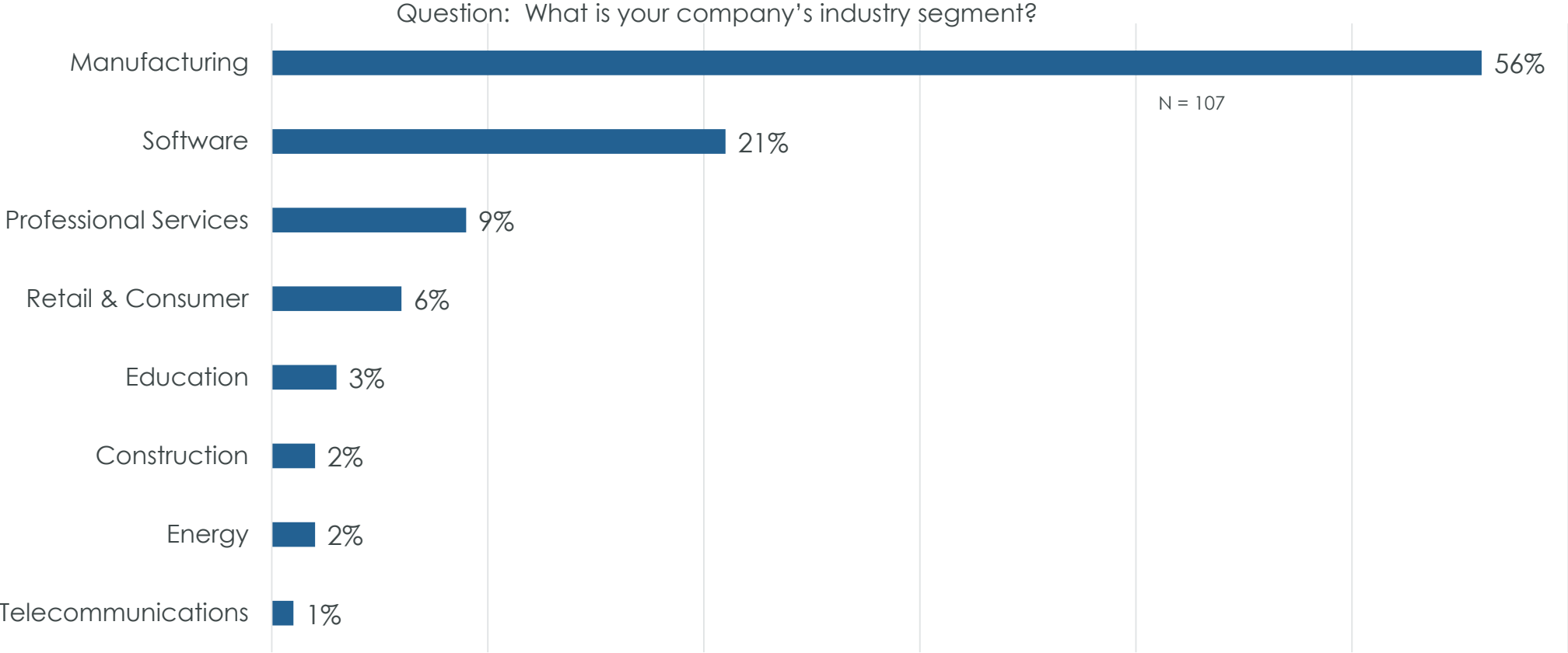
Over **7,000** Participants

Create your own AR experiences in minutes:

- 30-day access via Trial Portal
- Quick-start guides and tutorials
- Community support

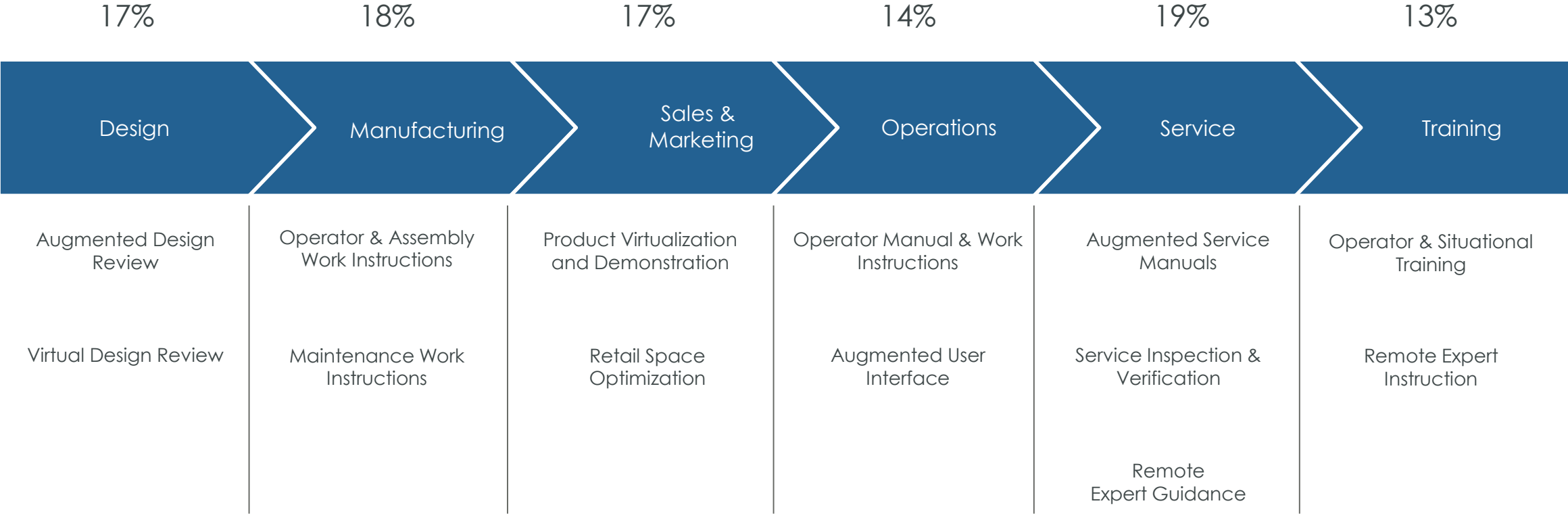
www.studio.thingworx.com

RESPONDENT PROFILE – INDUSTRY VERTICAL



Note: Manufacturing includes Industrial Products, Automotive, Aerospace & Defense, Electronics & High Tech, Medical Devices

AR OPPORTUNITIES EXIST ACROSS THE VALUE CHAIN

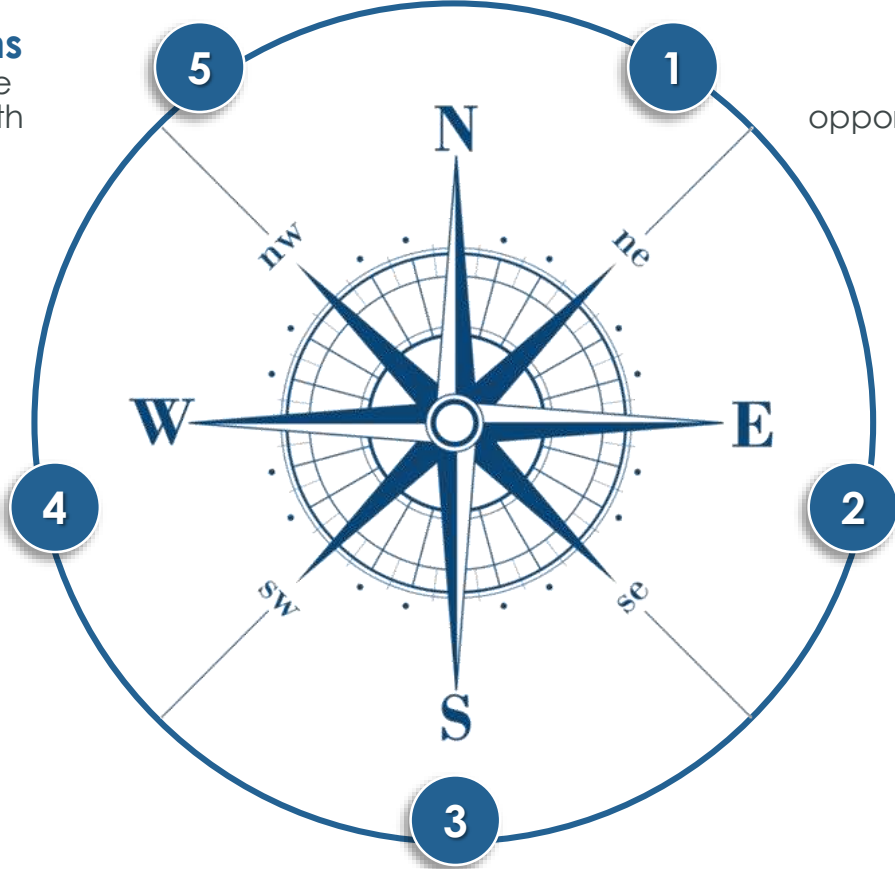


N = 107. Average of 2.3 functional areas chosen per respondent.

POLL: WHERE IN YOUR ORGANIZATION ARE YOU PLANNING TO USE AR? (SELECT ALL THAT APPLY)

STRATEGIC CHOICES

AR REQUIRES FIVE NEW STRATEGIC CHOICES



Communications

How will AR change communications with stakeholders?

Opportunity

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

Talent and Resources

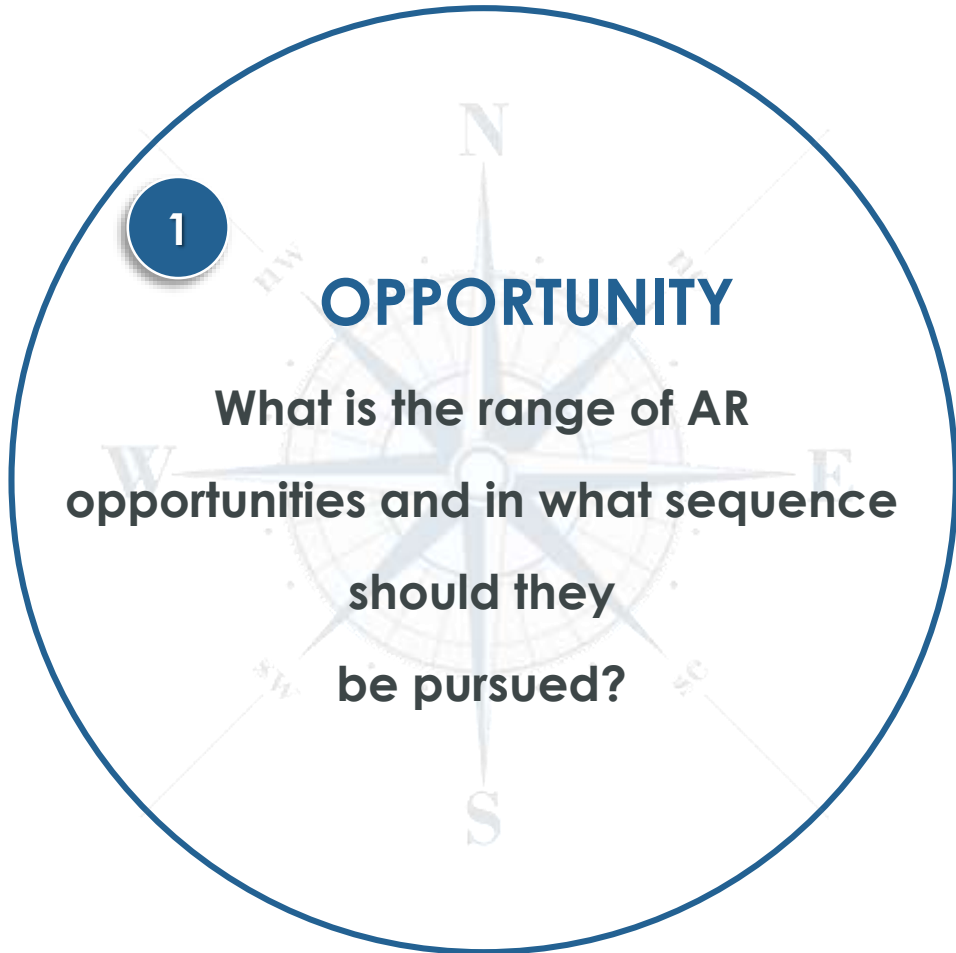
Should the company make AR design and deployment a core strength or will outsourcing or partnering be sufficient?

Product Differentiation

How will AR reinforce a company's product differentiation?

Operational Effectiveness

Where will AR have the greatest impact on cost reduction?



Bottom-Up

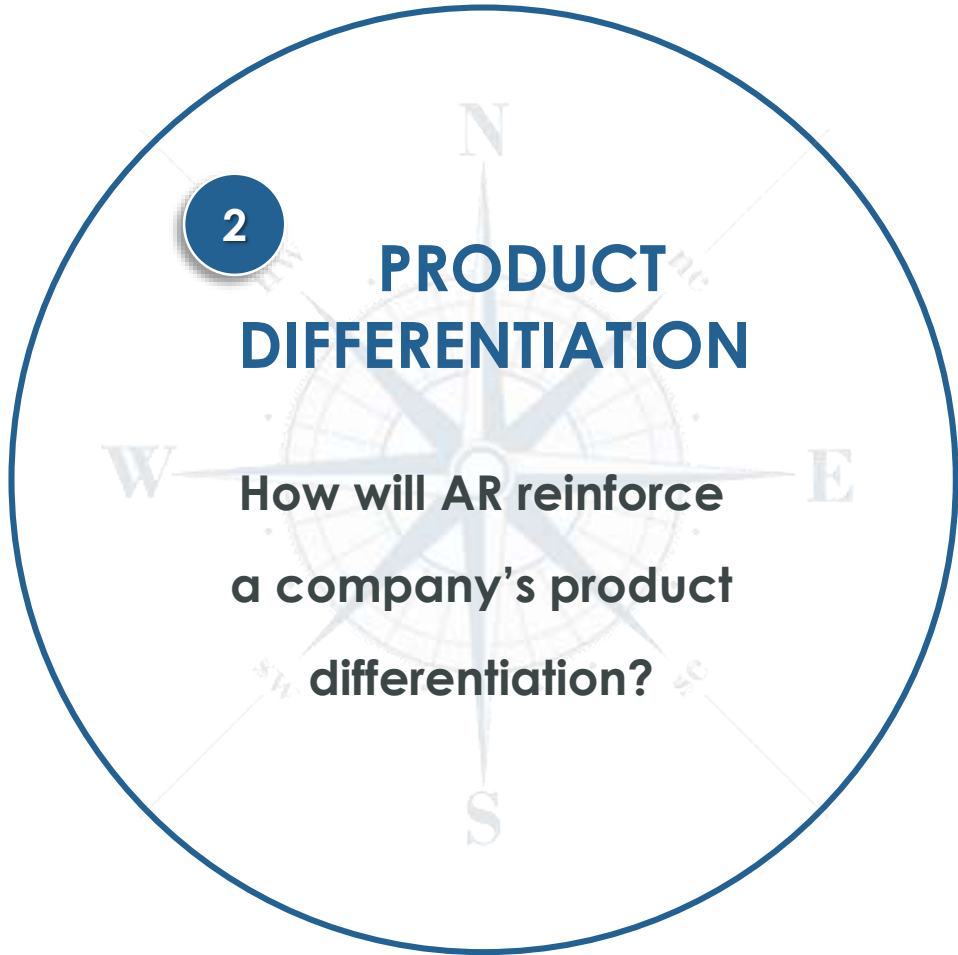
AGCO started with one case in quality inspection and then expanded.



Top-Down

ABB executive has championed AR become core to their technology strategy.





Product Enhancement

Wemo is developing AR interfaces with their sheet metal machinery.



New Product Line

Lego created a new product line enabled by AR.





3 **OPERATIONAL EFFECTIVENESS**

Where will AR have the greatest impact on cost reduction?

Compliment Existing Processes

Lee & Company uses AR to centralize their experts and deliver guidance remotely.



Replace Existing Processes

Sysmex provides customers with AR step-by-step instruction, replacing the need for onsite technicians.



4

TALENT AND RESOURCES

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

In-House

Lowes Innovation Lab hires game developers to build an organization with the necessary AR capabilities.



Outsource

Paccar outsources their AR development activities to partners to fundamentally change their R&D process.





Replace Existing Channel

Hyundai plans to replace print owners manuals with an AR experience.



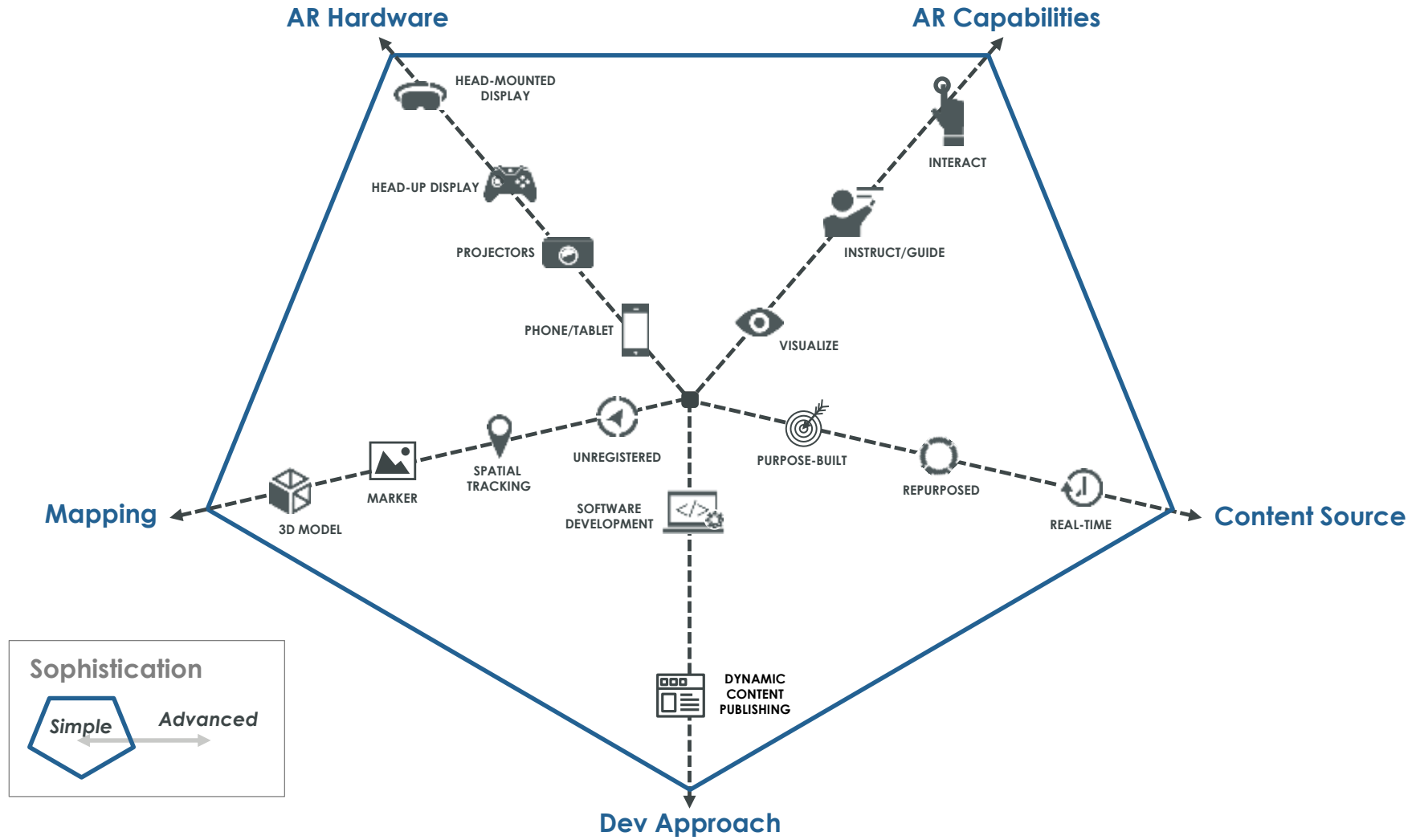
Compliment Existing Channel

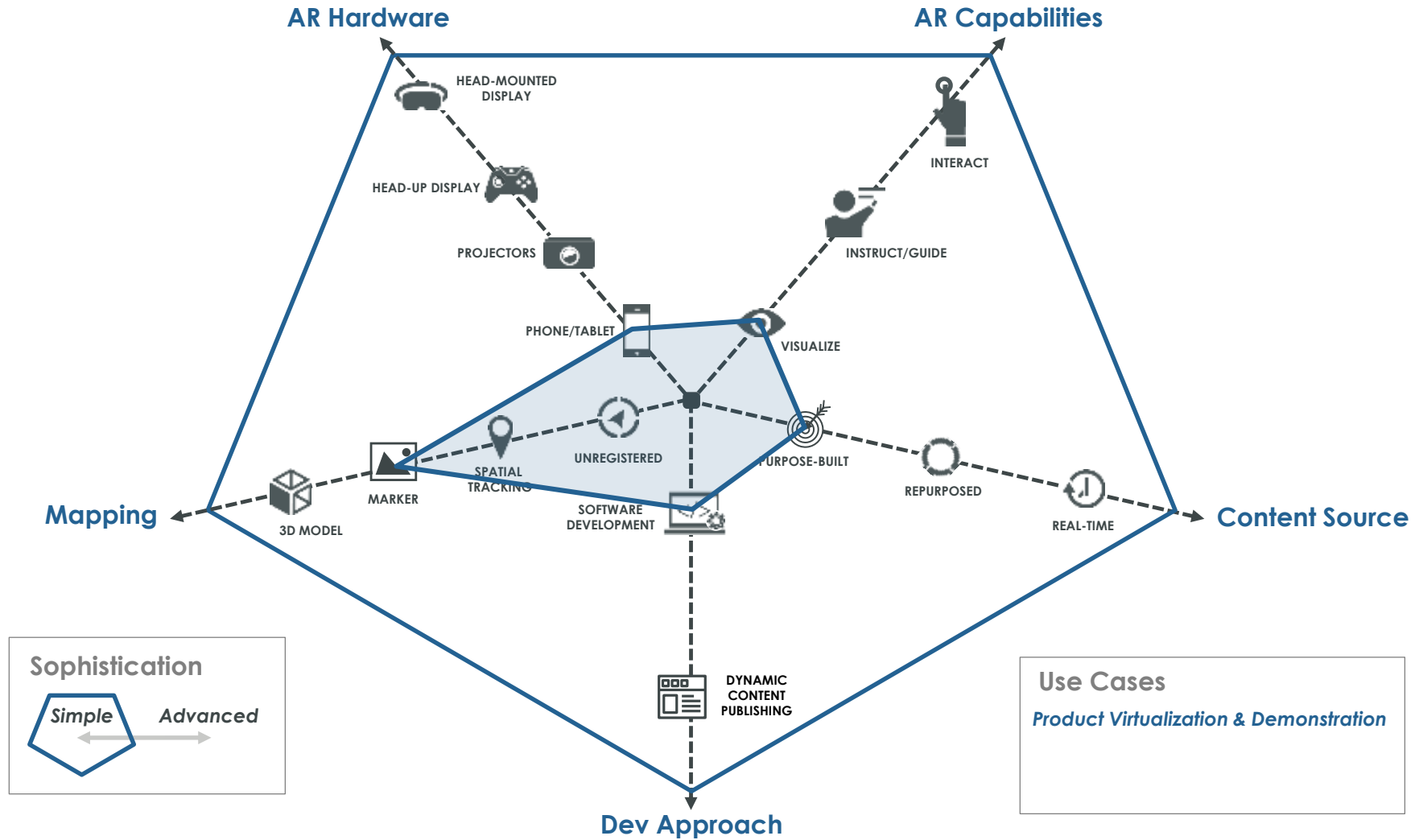
Wayfair created an AR experience to complement their print catalogs.

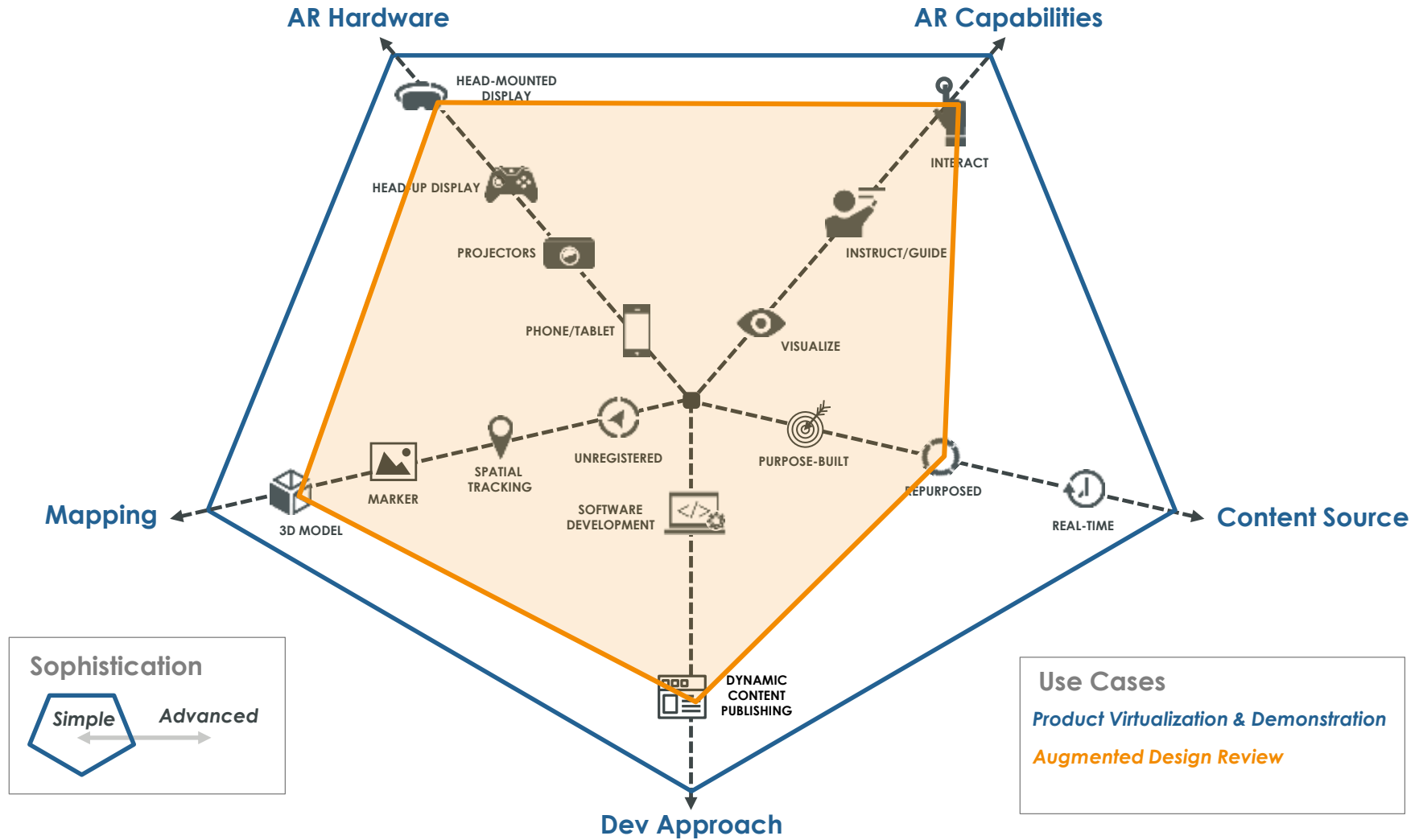


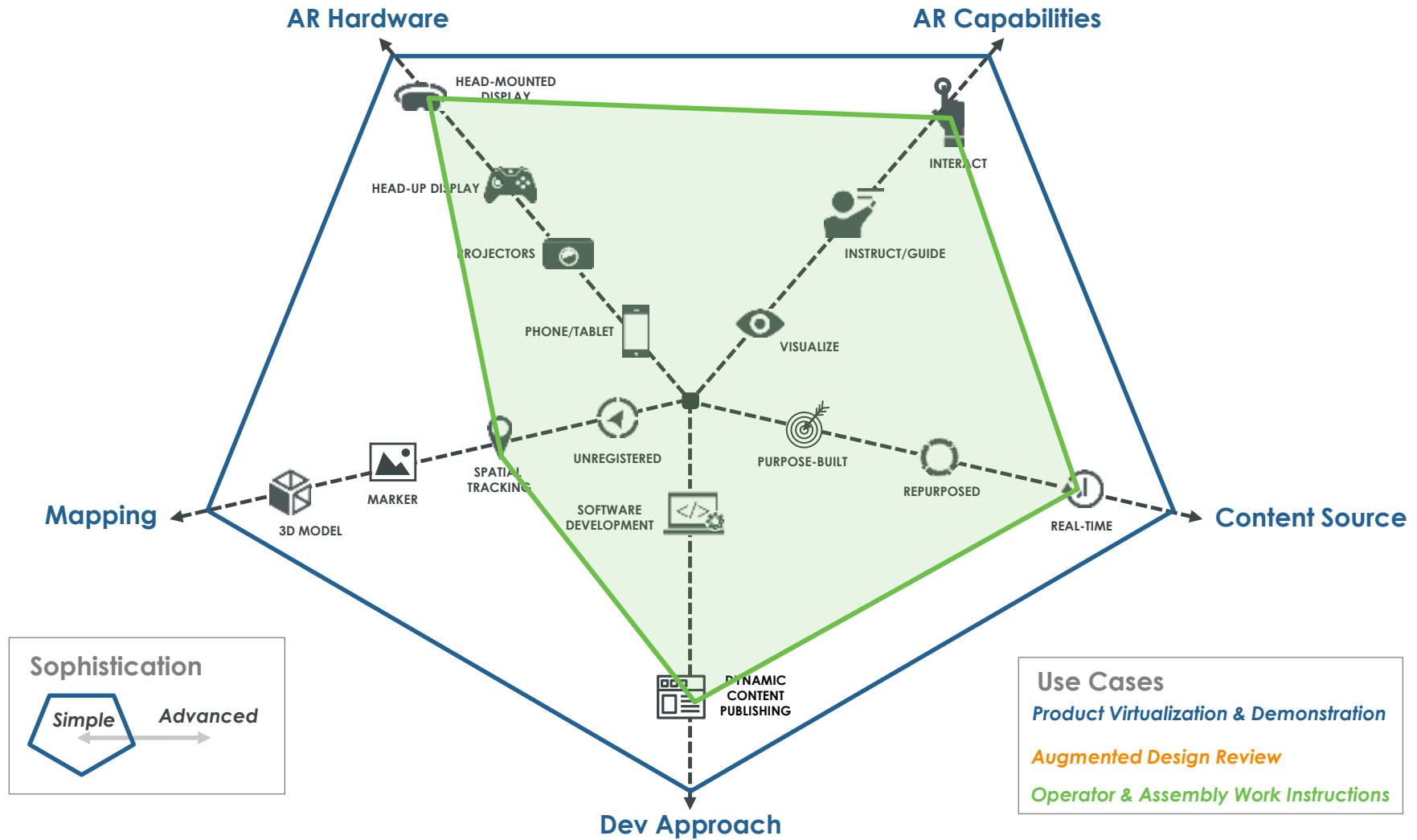
POLL: WHAT IS THE STATE OF YOUR AR STRATEGY?

DEPLOYMENT CONSIDERATIONS









- AR opportunities exist today across the value chain
- Adopting AR will impact your existing business strategy and requires new strategic choices
- AR deployment is non-linear and requires you to develop and adapt your capabilities



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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