

Exercise

HOW AUGMENTED REALITY (AR) IS
ABLE TO SHAPE THE FUTURE

Mobile Business I (WS 2018/19)

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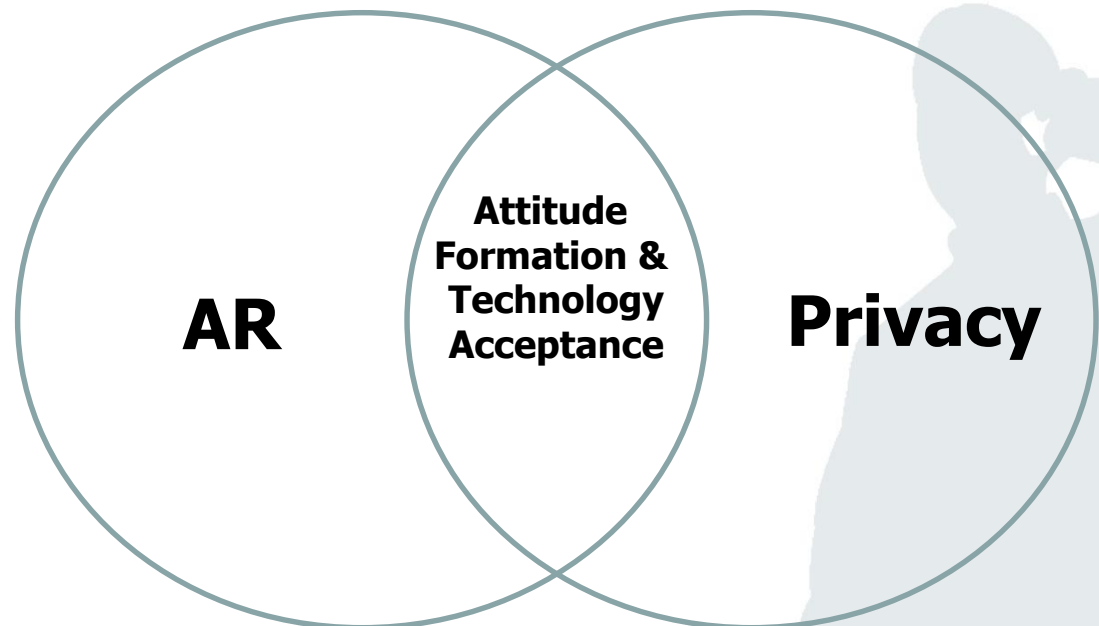
David Harborth,
born December 19, 1990
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- B.Sc. in Economics and Business Administration at Goethe University Frankfurt
- M.Sc. in Management, Finance and Information Management at GU Frankfurt
- Worked as Senior Associate at KPMG (Advisory FS) before starting to work at the Chair of Mobile Business & Multilateral Security in December 2015



Three main research interests evolved during my PhD:

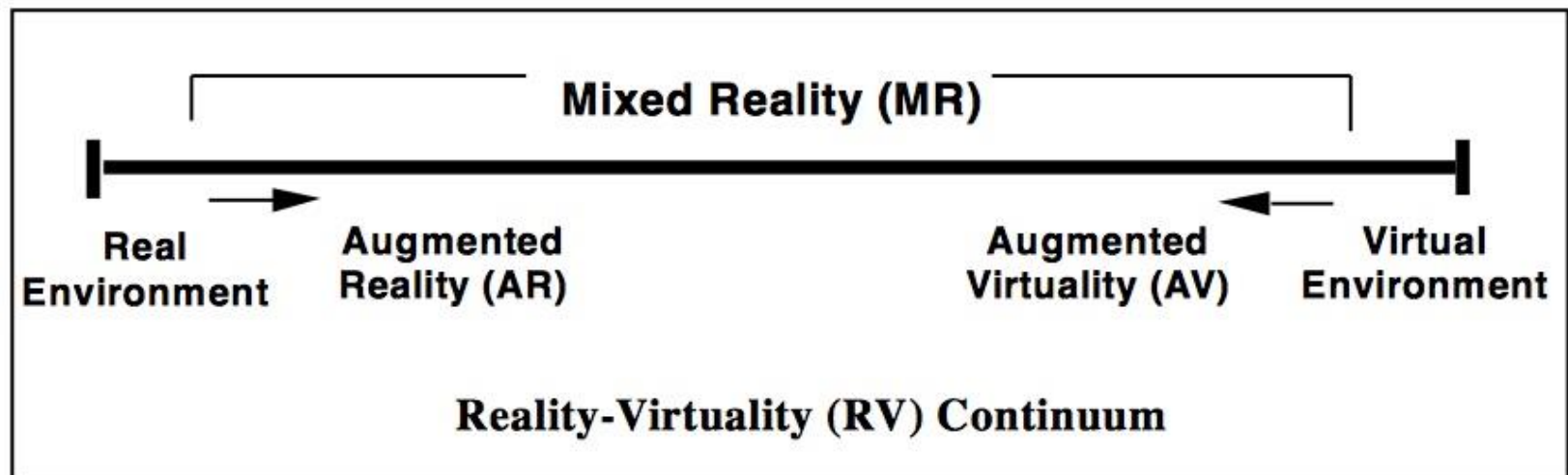
1. Immersive system, esp. augmented reality (AR)
2. Privacy
3. Attitude formation and technology acceptance by end users



- Introduction
- AR Pitch
- Wrap-up

- Major increase in public recognition after release of Pokémon Go in 2016 (Tassi 2016)
- Major players entered and will enter into the AR market
 - *"AR is going to take a while, because there are some really hard technology challenges there. But it will happen, it will happen in a big way, and we will wonder when it does, how we ever lived without it. Like we wonder how we lived without our phone today"* (Tim Cook, CEO Apple) (Leswing 2016)
 - Increasing M&A activity (Wolde 2015, Loizos 2016)
- Market for AR and VR will increase from 5.2 billion dollars in 2016 to 162 billion dollars in 2020 (Business Insider Intelligence 2016)
- Increasing relevance in the B2B sector:
 - *"Augmented Reality isn't a technology with incremental 2-5 percent savings. [...] It's a game changing application with measurable savings ranging from 25 percent to more than 90 percent"* (Greenfield 2016)

- AR overlays digital information (e.g. virtual computer-generated objects or audio) onto the physical world in real time; user maintains her senses of the real world
- Important difference to virtual reality (VR): VR immerses users in a totally immersive environment; visual senses controlled by the system



Different Types of AR Technologies

Head-mounted displays



Handheld displays

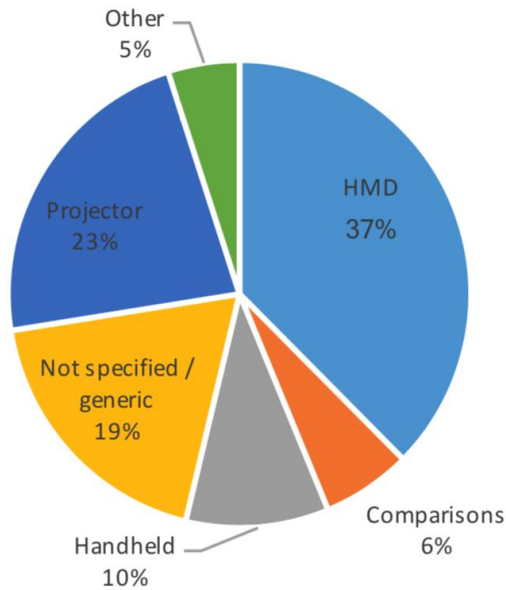
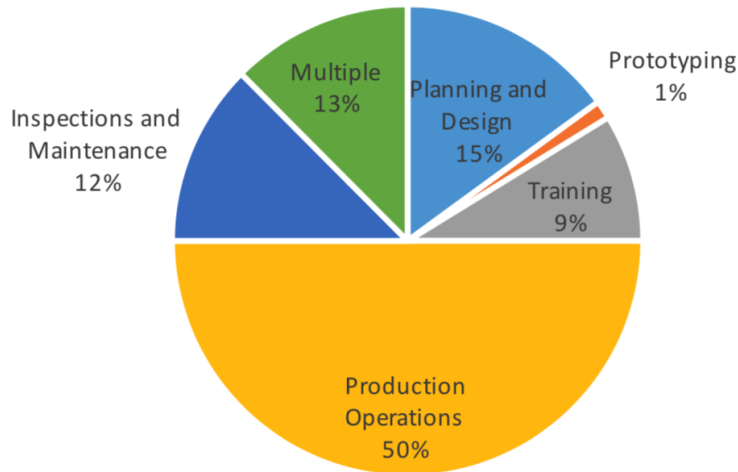


Spatial displays

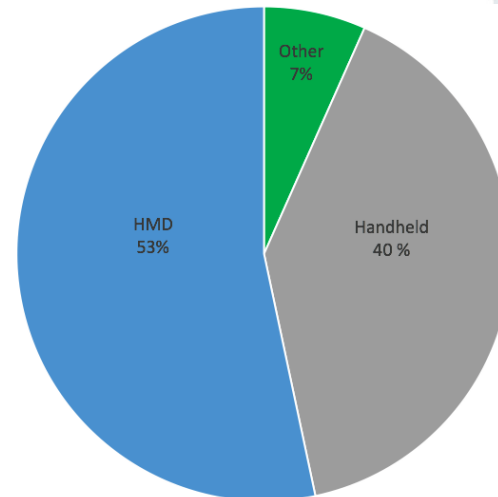
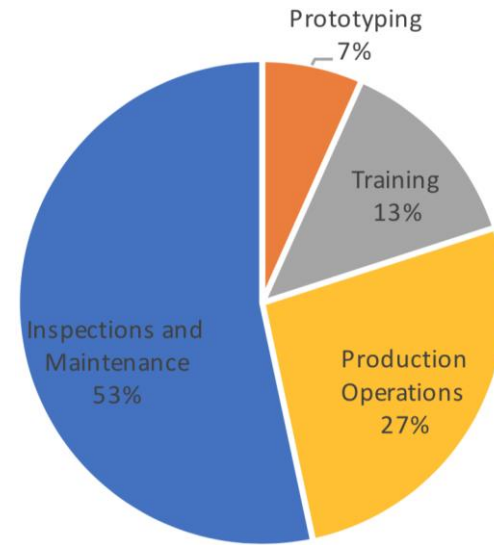


Exemplary Status Quo for the Manufacturing Sector

Results Literature Review



Results Practical Search



- Introduction
- AR Pitch
- Wrap-up

- Form teams
- Imagine you are a start-up and want to pitch your AR business idea to potential investors
- You have 30 minutes to discuss in the groups
- You have 5 minutes for your pitch
- Let's then discuss your results and decide whether you would get an investment □

- Think about
 - the problem you want to solve
 - a sector (e.g. healthcare) / target group (B2B, B2C...)
 - the used type of AR technology (wearables, mobile, projectors...)
 - a business model
 - value proposition: why YOUR product? USP? Express the value of the product in one sentence
 - value creation architecture: how do you create the product?
 - revenue model: how do you make money? Pricing model?
 - possible problems that hinder the technology adoption (e.g. privacy concerns) and propose solutions
 - already existing solutions

Each group should come up with one “critical” question to the presenting group (concerning the problem in focus, the business model, etc.)

- A business model is the abstract description of a business.
- A business model consists of three main parts:
 1. Value Proposition
 2. Value Creation Architecture
 3. Revenue Model

1. A business model contains a **description** of what the **benefit** can be for customers or other partners by association with the respective business. This part of the business model is called **value proposition**.

It deals with the question:

What is the benefit of the business for the partner/customer?

2. At the same time a business model is a **value creation architecture**, viz how the benefit can be generated for the customers. This architecture contains a description of the different stages of value creation.

It deals with the question:
How is the output generated in which configuration?

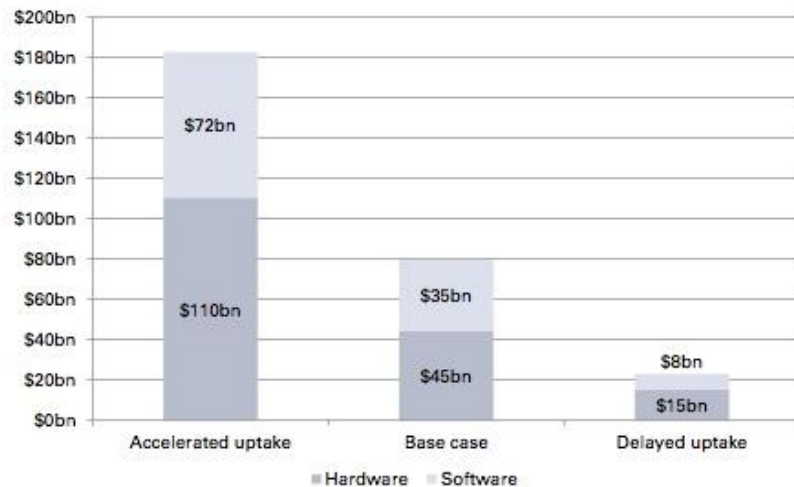
3. Besides asking for “*what*” (see 1.) and “*how*” (see 2.) a business model describes as well, which revenue the business generates from which sources. The future revenue decides on the value of the business model and the sustainability.

It deals with the question:
Whereby will the money be made?

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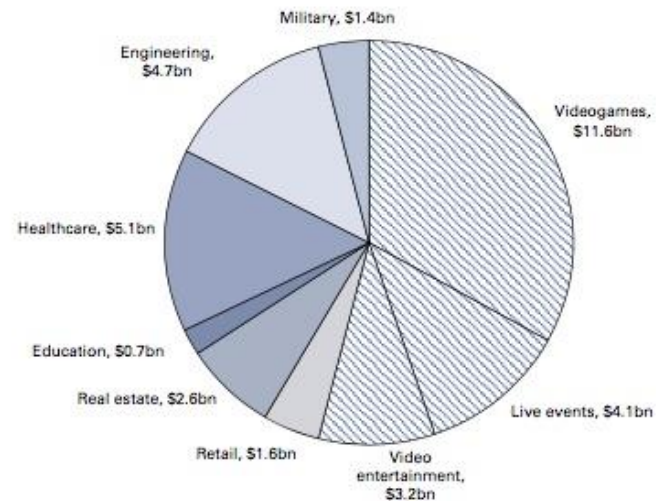
- Although predictions of technology adoption are oftentimes exaggerated they can provide a hint about how “hot” a topic is

Exhibit 3: Our combined 2025 VR/AR hardware and software scenarios



Source: Goldman Sachs Global Investment Research.

Exhibit 4: Our 2025 base case VR/AR software assumptions by use case



Source: Goldman Sachs Global Investment Research.

Source: <http://www.goldmansachs.com/our-thinking/pages/technology-driving-innovation-folder/virtual-and-augmented-reality/report.pdf>