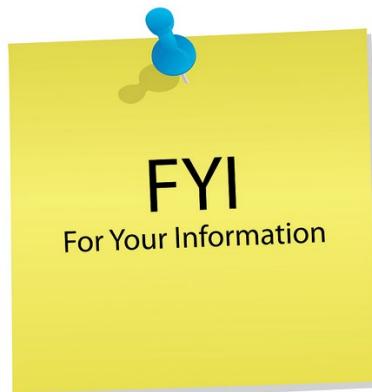


Module 5 Part A

Audiences

Prof. Alex Edsel



if a slide has this post
it note-then it is not
on the exam/quiz

What are audiences in digital marketing

- Audiences are an attempt to target real time segments (given the volumes of data digital can deliver) of potential and/or current customers so you can advertise to them in many different places and ways beyond keywords
- Audiences takes into account cross device and multichannel including offline activities
- Companies, advertisers partner with Data Management Platforms (DMP's)

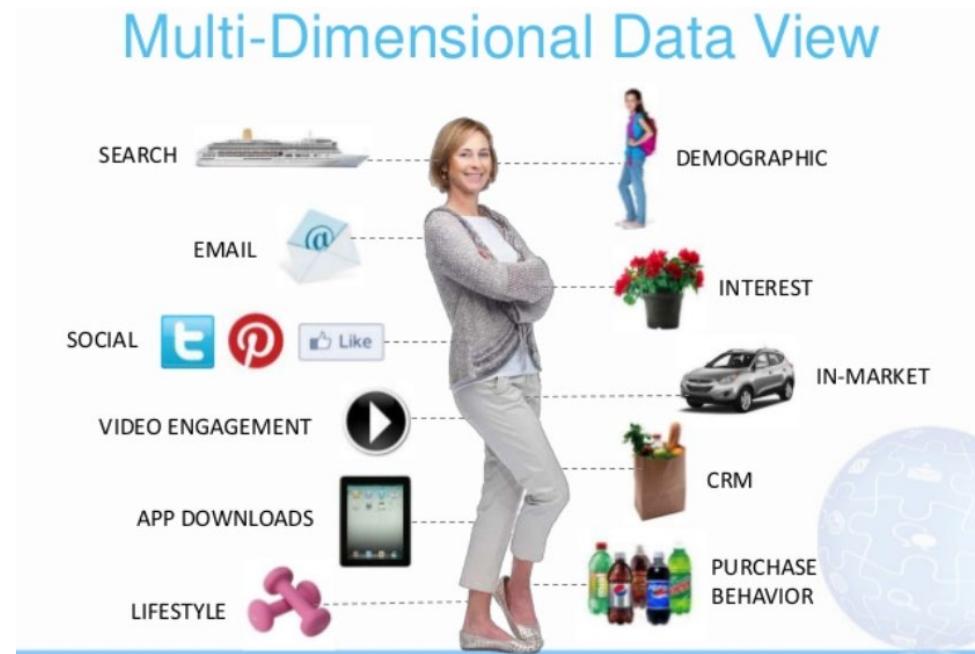


Image source: Axiom

What is a DMP?

(Data Management Platform)

- DMP is a centralized data management platform that collects, categorizes and analyzes data
- This allows to target audiences based on a behavioral and demographic data from both in-depth first-party (e.g., Walmart) and third-party audience data (Axiom, Experian)
- Allows you improve ROI by:
 1. Retargeting
 2. Prospecting
 3. Website optimization
 4. Audience Intelligence

How does a Data Management Platform work?

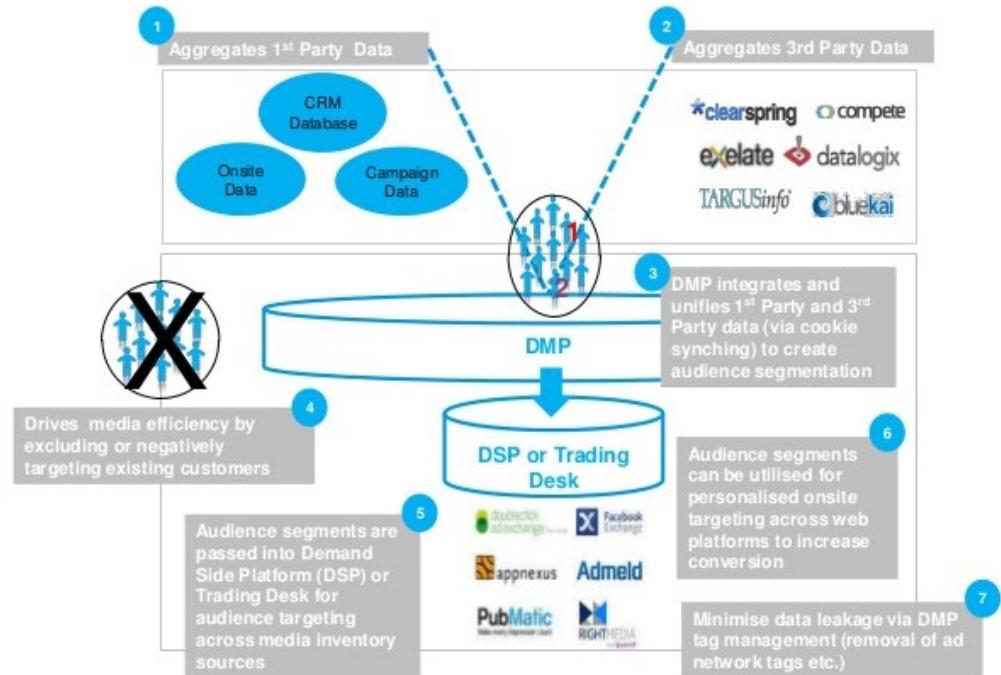


Image sourceMediacom

DISPLAY LUMAscape

MARKETER

Agencies

WPP
OmnicomGroup



IPG
dentsu
HAVAS

MERKLE

MDC Partners

AKQA

LBi

ROSETTA

crossing/tc

Innovation INTERACTIVE

camelot Mediasmith

at&t interactive

IBM

RESENCE

yodle

REACH LOCAL

Lowenstein

Agency Trading Desks

XAXIS
ACCUEIN

vivaki
RUN

CADREON

amnet

AFFIPERF

accordantmedia

IMPACT

VARICKMEDIA

Creative Optimization

teracent

TUMRI

adExtent

Impression Software

strux

MIXPO

SPONGECELL

engagelink

adacado

Dynamic?

snapsite

Ad Ready

CERTONA

certona richrelevance

DSN

adroll

target

criteo

trigger

secomantic

buyback

perfect audiences

crossmedia

radioFORGE

MYBUYS

fetchback

myThings

radioFORGE

STEELHOUSE

Google AdWords Audiences

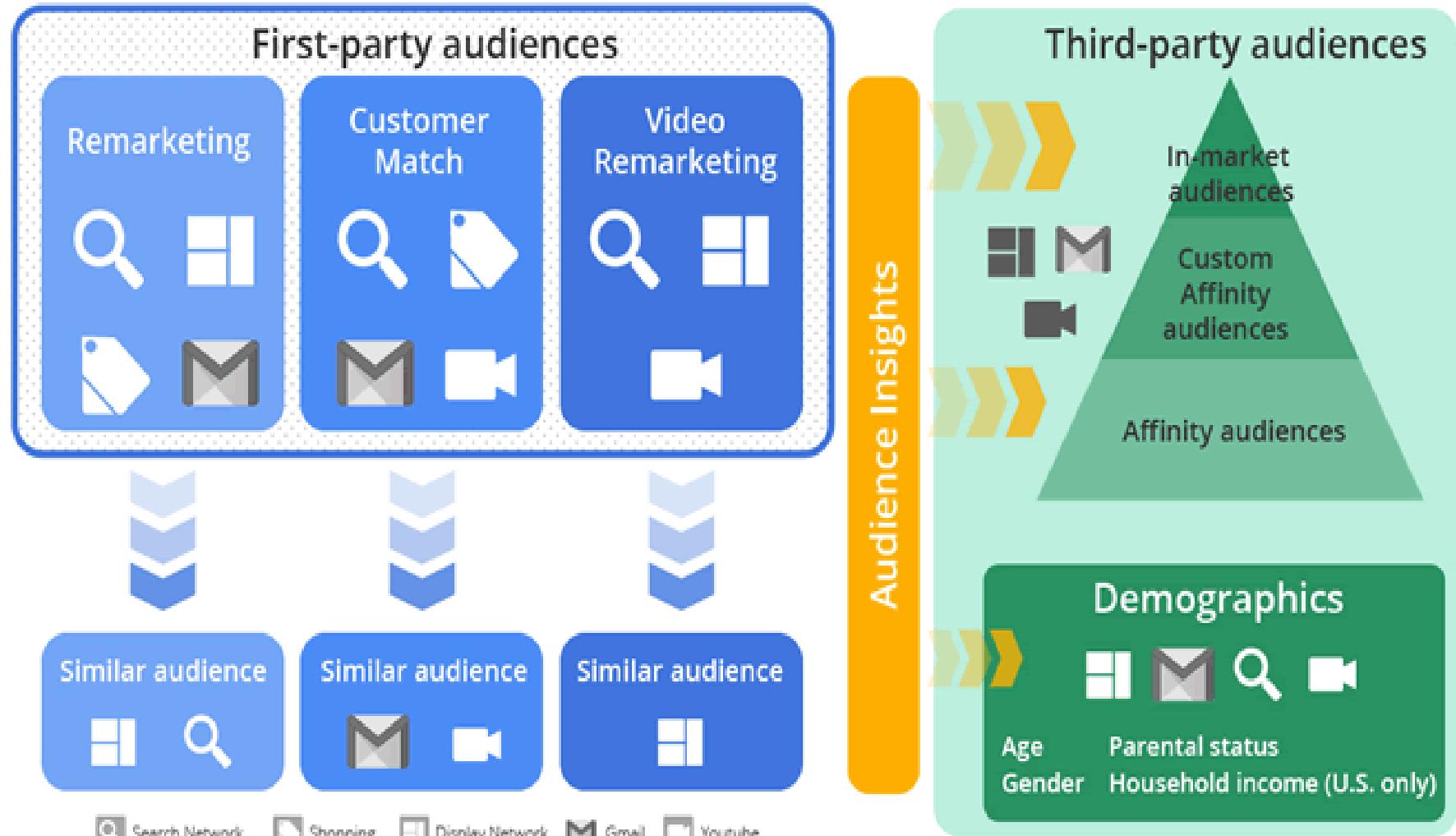


Image source: bgtheory.com/

- **Affinity audiences** those who have certain interests or lifestyle who may also be interested in your product (e.g., gardening and home décor).
- **Custom affinity** is combining several affinity groups and demographics

- **In market** consumers actively researching or comparing products and services across **Google Display Network** sites and YouTube. Takes into account clicks on related ads and subsequent conversions, along with the content of the sites and pages they visit and the recency and frequency of the visits.

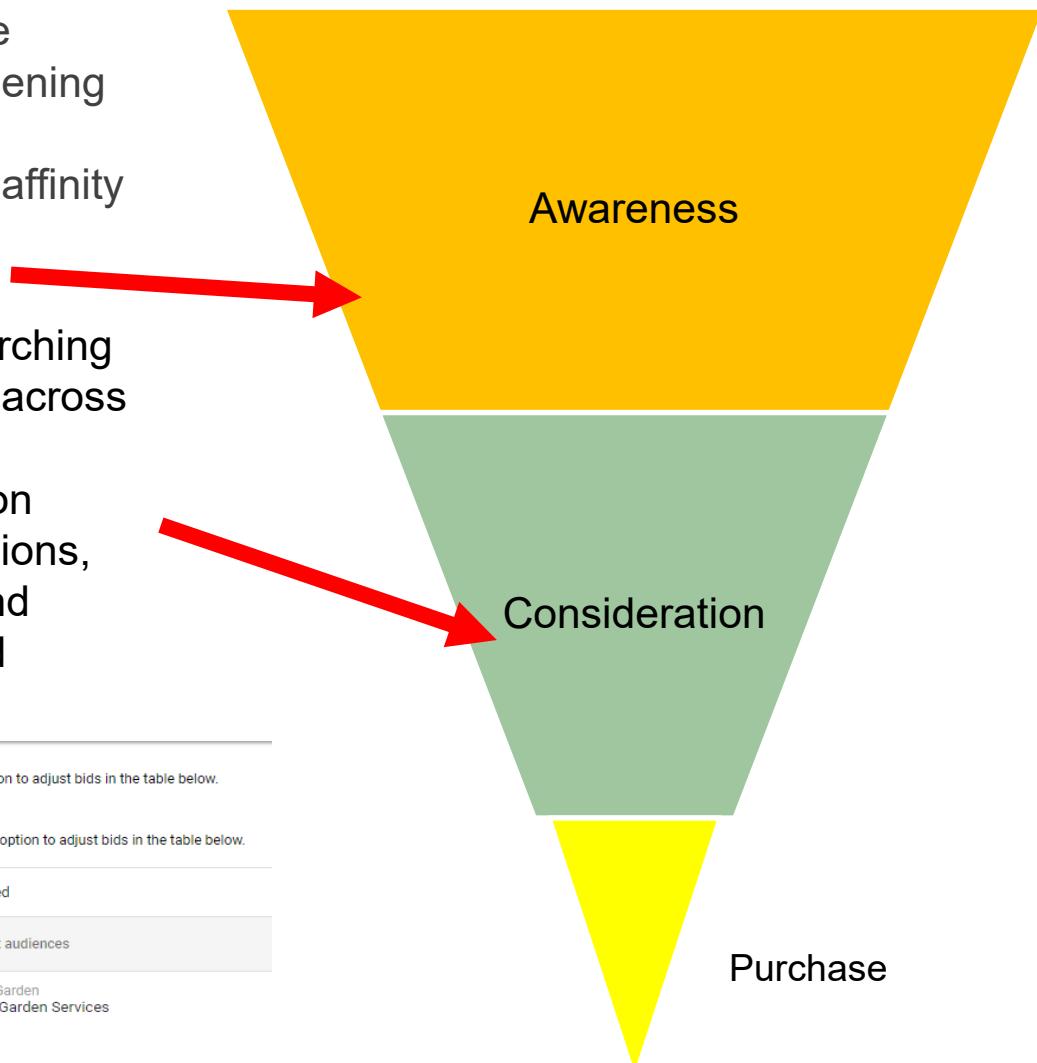
Ads & extensions
Landing pages
Keywords
Audiences
Demographics
Topics
Placements
Settings
Devices
Advanced bid adj.
Change history

Targeting (recommended)
Narrow the reach of your ad group to specific audiences, and get reports. You'll have the option to adjust bids in the table below.

Observation ⓘ
Get reports on additional items without narrowing the reach of your ad group. You'll have the option to adjust bids in the table below.

What they are actively researching or planning	1 selected
Search and filter by term, phrase, or URL	<input type="text" value="In-market audiences"/>
<input type="checkbox"/> Gifts & Occasions	▼
<input type="checkbox"/> Home & Garden	<input type="button" value="▲"/>
<input checked="" type="checkbox"/> Home & Garden Services	▼
<input type="checkbox"/> Home Appliances	▼
<input type="checkbox"/> Home Decor	▼
<input type="checkbox"/> Home Furnishings	▼
<input type="checkbox"/> Home Improvement	▼

NEW CUSTOM INTENT AUDIENCE
Use keywords and URLs to create a custom audience



How does “customer match” work?

1

You upload a data file
e.g., text or csv with
customer contact
information (e.g.,
emails, phone #'s)

2

You create or update a
campaign to target your
Customer Match
audience — customers
from your uploaded
data file who are
Google users and also
can look for “similar”
audiences

3

When those users are
signed into their
Google account, they
see your ads as they
use the Search
Network, YouTube,
and Gmail.

**You can automatically
bring in data all the
time via an API**



FYI

For Your Information



Detailed view

Audience Insights

Get insights about the audience in this remarketing list

TOP INSIGHTS

IN-MARKET AUDIENCES

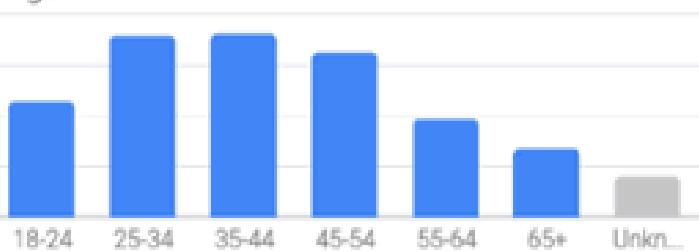
AFFINITY AUDIENCES

DEMOGRAPHICS

LOCATIONS

DEVICES

Age



25-34

 Benchmark United States [Edit](#)

30.0%

of people on "All Converters" are
Age: 25-34

compared to

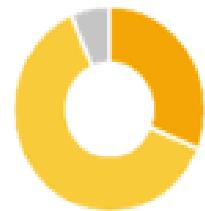
19.9%

in United States

Gender



Parental status



AVAILABLE ON THE DISPLAY NETWORK IN UNITED STATES

10B

Impressions
per week

200M-250M

Cookies
per week

AD GROUPS

0

Ad groups currently targeting
25-34

Facebook Audiences more robust

Your people are here

Two billion people use Facebook every month. With our powerful audience selection tools, you can target the people who are right for your business. Using what you know about your customers—like demographics, interests and behaviors—you can connect with people similar to them. There are three options for choosing your audience on Facebook.

1



Core Audiences

Select your audience manually based on characteristics like age and location.

2



Custom Audiences

Upload your contact list to connect with your customers on Facebook.

3



Lookalike Audiences

Use your customer information to find people similar to them on Facebook.

Core Audiences

Custom Audiences

Lookalike Audiences

Audience Insights

Facebook's "Core audiences" are very detailed unlike Google's. The reason is that they have a lot of data captured from behavior on Facebook and also when logged in but not on Facebook and from partner companies but policy changing due to privacy issues

Alex Edsel

Ad Set Name: 18+

Campaign

Objective

Ad Set

- Traffic
- Offer
- Audience**
- Placements
- Budget & Schedule

Ad

- Identity
- Format
- Links

Search

Advanced Options

Drop Pin

Add Locations in Bulk

Age: 18 - 65+

Gender: All Men Women

Languages: English (US)

Detailed Targeting

INCLUDE people who match at least ONE of the following

Add demographics, interests or behaviors | Suggestions | Browse

Automotive

- Motorcycle
- New vehicle buyers (Near market)
- New vehicle shoppers (In market)
- New vehicle shoppers (Max in market)
- Owners
- Purchase type
- Used vehicle buyers (In market)

ALL OF FACEBOOK'S AD TARGETING OPTIONS

 IN 1 EPIC INFOGRAPHIC 

With more than 1 billion daily active users, Facebook offers up mind-blowing ad targeting options you simply won't find anywhere else. With what seems like endless combinations of demographics, interests, behaviors and more, you can get as creative as you need to in order to reach your target market on Facebook.

Here's your cheat sheet to all of Facebook's targeting options in one epic infographic ...

DEMOGRAPHICS

LOCATION

Enter one or more countries, counties/regions, cities, ZIP/postal codes, addresses or designated market areas to show or exclude your ad to people in those locations. Location targeting is not available in all countries.



Everyone in this location



People recently in this location



People traveling in this location

 Note: You can even drop a pin in a location anywhere on the map provided.

LANGUAGES

Leave this blank unless the audience you are targeting uses a language that is not common to the location you have chosen.



Type in any language to get started

EDUCATION



Education Level

- In high school
- High school grad
- In college
- College grad
- Associate degree
- Professional degree
- Unspecified
- Master's degree
- Doctorate degree
- Unspecified



Interested in:

- Men
- Women
- Men & Women
- Unspecified



Relationship Status:

- Single
- In a Relationship
- Married
- Engaged
- Civil Union
- Complicated
- Open Relationship
- Domestic Partnership
- Separated
- Divorced
- Widowed
- Unspecified

AGE

Select the minimum and maximum age of the people who will find your ad relevant.

13  65+

GENDER



All



Men



Women

 Note: Choose "All" unless you only want your ads to be shown to either men or women.

RELATIONSHIP



Field of Study

Type in a field to get started



Schools

Type in a school to get started



Undergrad years

Type in a date range to get started

FINANCIAL



Income:

\$30K  \$500K+



Net Worth:

Liquid Assets Total Value

HOME



Home Ownership:

- First-Time Home Buyer
- Homeowners
- Renters



Household Composition:

- Family-based Households
- Grandparents
- Housemate-based Households
- New Parents
- New Teen Drivers
- Veterans in Home
- Working Women
- Young & Hip
- Young Adults in Home

ETHNIC AFFINITY



RELATIONSHIP



African-American

Asian-American

Hispanic

PARENTS



All Parents:

- New Parents
- Parents with Toddlers



Moms:

- Big-City Moms
- Corporate Moms



Employers:

Type in an employer to get started



Job Title:

Type in a job title to get started



Industries:

- Administrative
- Architecture & Engineering
- Arts, Entertainment, Sports & Media
- Business & Financial Operations
- Cleaning & Maintenance
- Community & Social Services
- Computer & Mathematics
- Construction & Extraction
- Education & Library
- Farming, Fishing, & Forestry
- Food Preparation & Services
- Government Employees
- Healthcare & Medical
- IT & Technical
- Installation & Repair
- Legal
- Life, Physical, & Social Science
- Management
- Military
- Nurses
- Personal Care
- Production
- Protective Service
- Retail
- Sales
- Temporary & Seasonal
- Transportation & Moving
- Veterans



Office Type:

- Home Office
- Small Business
- Small Office

GENERATION



Baby Boomers



Generation X



Millennials

LIFE EVENTS



Anniversary within 30 Days

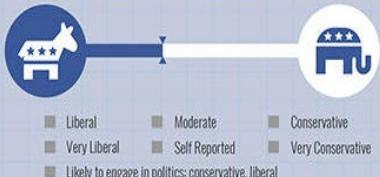


Away from Family



Away from Hometown

POLITICS [U.S.]



INTERESTS

Reach specific audiences by looking at their interests, activities, the pages they liked and closely related topics.

Combine interests to expand your ad's reach.

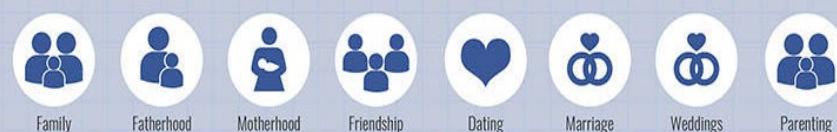
BUSINESS & INDUSTRY



ENTERTAINMENT



FAMILY & RELATIONSHIPS



FITNESS & WELLNESS



FOOD & DRINK



HOBBIES & ACTIVITIES



SHOPPING & FASHION



SPORTS & OUTDOORS



TECHNOLOGY



BEHAVIORS

Reach people based on purchase behaviors or intent, device usage and more. Some behavior data is available for U.S. audiences only.

AUTOMOTIVE

- Motorcycle
- Owners
- New Vehicle Buyers [near market]
- Purchase Type
- New Vehicle Shoppers [in market, max in market]
- Used Vehicle Buyers [in market]

CHARITABLE DONATIONS

- All Charitable Donations
- Animal Welfare
- Arts & Culture
- Cancer Causes
- Children's Causes
- Environmental & Wildlife
- Health
- Political
- Religious
- Veterans
- World Relief

EXPATS

- Multiple Countries

JOB ROLE

- Corporate Executives
- Farmers
- Financial Professionals

MOBILE DEVICE USER

- All Mobile Devices by Brand
- All Mobile Devices by OS
- All Mobile Devices
- Feature Phones
- Network Connection
- New Smartphone & Tablet Owners
- Smartphone & Tablet Owners
- Smartphone Owners
- Smartphones & Tablets
- Tablet Owners

TRAVEL

- All Frequent Travelers
- Business Travelers
- Casino Vacations
- Frequent International Travelers
- Frequent Flyers
- Leisure Travelers

BUSINESS-TO-BUSINESS

- Seniority Industry
- Company Size

DIGITAL ACTIVITIES

- Operation System Used
- Canvas Gaming
- Console Gamers
- Event Creators
- Facebook Payments
- Facebook Page Admins
- Internet Browsers Used
- Operating System Used
- Photo Uploaders
- Primary Email Domain
- Small Business Owners
- Technology Adopters [early, late]
- Unity Plugin

FINANCIAL

- Banking
- Investments
- Spending Methods [line of credit]

MEDIA

- Radio
- Television

PURCHASE BEHAVIOR

- Business Purchases
- Buyer Profiles
- Clothing
- Food & Drink
- Health & Beauty
- Home & Garden
- Household Products
- Kids Products
- Pet Products
- Purchase Habits
- Purchase Types
- Sports & Outdoors
- Store Types
- Subscription Services
- Technology

FOOD & DRINK



Alcoholic Beverages



Beverages



Cooking



Cuisine



Food



Restaurants

HOBBIES & ACTIVITIES



Arts & Music



Current Events



Home & Garden



Pets



Politics & Social Issues



Travel



Vehicles

SHOPPING & FASHION



Beauty



Clothing



Fashion Accessories



Shopping



Toys

SPORTS & OUTDOORS



Outdoor Recreation



Sports

TECHNOLOGY



Computers



Consumer Electronics

BEHAVIORS

Reach people based on purchase behaviors or intent, device usage and more. Some behavior data is available for U.S. audiences only.

AUTOMOTIVE

- Motorcycle
- Owners
- Purchase Type
- New Vehicle Buyers [near market]
- New Vehicle Shoppers [in market, max in market]
- Used Vehicle Buyers [in market]

BUSINESS-TO-BUSINESS

- Seniority
- Industry
- Company Size

DIGITAL ACTIVITIES

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PURCHASE BEHAVIOR

- Business Purchases
- Buyer Profiles
- Clothing
- Food & Drink
- Health & Beauty
- Home & Garden
- Household Products
- Pet Products
- Purchase Habits
- Purchase Types
- Sports & Outdoors
- Store Types
- Subscription Services
- Technology
- Kids' Products



MOBILE DEVICE USER

- All Mobile Devices by Brand
- All Mobile Devices by OS
- All Mobile Devices
- Feature Phones
- Network Connection
- New Smartphone & Tablet Owners
- Smartphone & Tablet Owners
- Smartphone Owners
- Smartphones & Tablets
- Tablet Owners



Image source: WordStream

CONNECTIONS

Reach people who have a specific kind of connection to your page, app or event. This narrows the audience to include only people with that specific connection who also meet the other targeting categories you select.



- People who like your page
- Friends of people who like your page
- Exclude people who like your page



- People who used your app
- Friends of people who used your app
- Exclude people who used your app



- People who are going to your event
- Friends of people who are going to your event
- Exclude people who are going to your event

REMARKETING



People who visited your website



Custom lists of emails



Custom lists of phone numbers



Custom lists of Facebook user IDs

If you're not already advertising on Facebook, I have one question for you: Why not?

As you can see, with all these killer targeting options, you can reach a local or global audience like never before.

Image source: WordStream

Facebook's Custom Audiences

1

YOUR CUSTOMER DATA

PAGES VIEWED, EMAIL ADDRESSES,
APP ACTIVITY, PHONE NUMBERS

2

FACEBOOK DATA

AGE, INTERESTS, SITE ACTIVITY,
CONNECTIONS, LIKES, LOCATION

3



**CUSTOM
AUDIENCES**
TARGETED WITH
COMBINATION OF OWNED
AND PAID FOR DATA

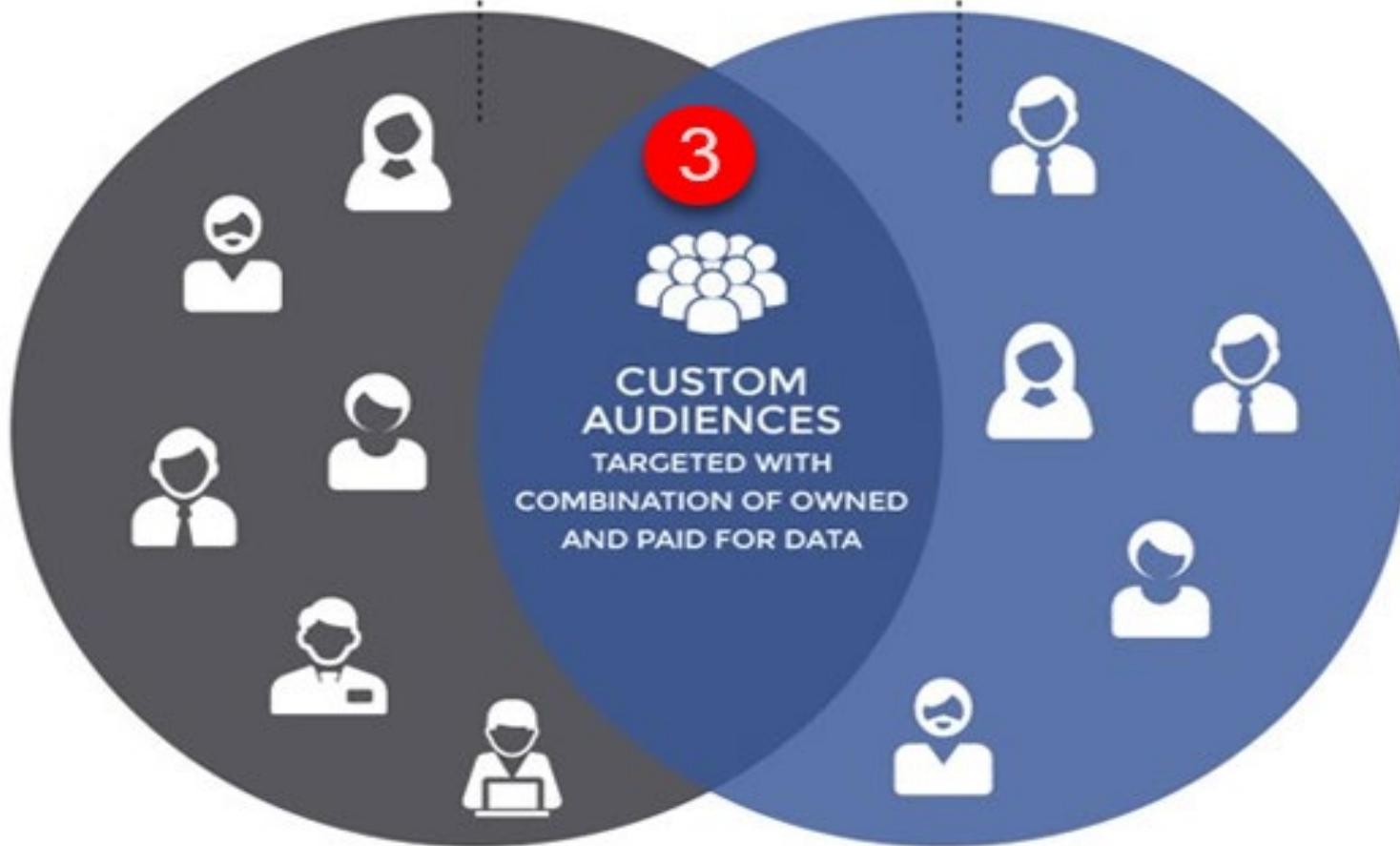


Image source: Facebook

HOW LOOKALIKE AUDIENCES WORK ?

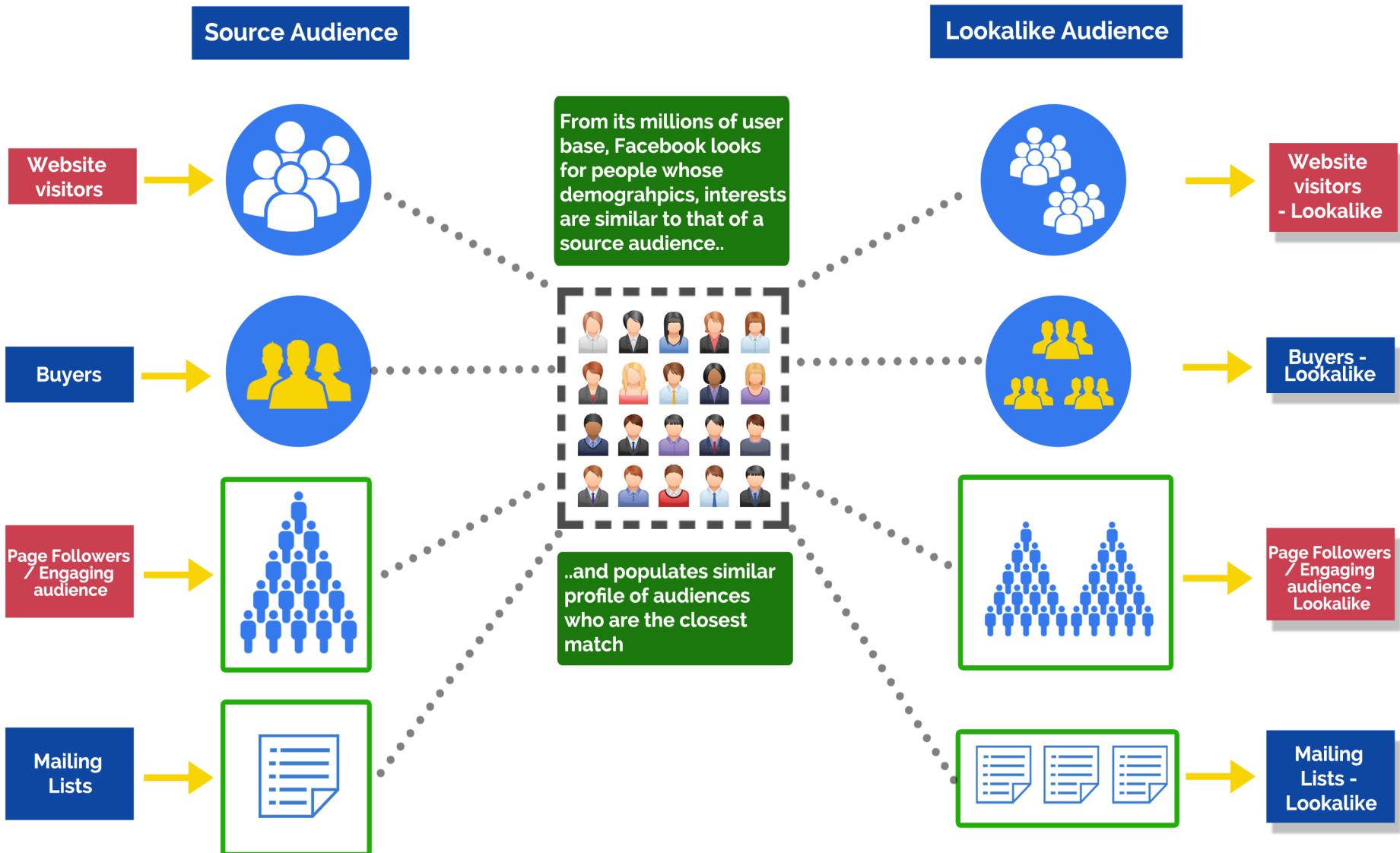


Image source:university.mydreamstore.in/

Create a Custom Audience

FYI
For Your Information

Customer file



Add customers from your own file or copy and paste data

Use your customers' information to match them with people on Facebook.



Import from MailChimp

Import email addresses directly from this third-party connection by providing your login credentials.

Customer file with lifetime value (LTV)



Include LTV for better performing lookalikes

Use a file with LTV to create a lookalike more similar to your most valuable customers.

Create Custom Audience With LTV

1

Add customer file

2

Choose customer value

3

Edit Data Mapping

4

Upload & creation

5

Create a lookalike

Add a file with your customer data

① Use one or more customer identifiers ②

Email Phone Number Mobile Advertiser ID First Name Last Name ZIP/Postal Code City
State/Province Country Date of Birth Year of Birth Gender Age Facebook App User ID
Facebook Page User ID

② Include a column with a range of customer values ③

Use positive numbers without thousands separators

12345.67 1234.56 123

12,345.67 1.234.56 -123

Learn more about how to prepare a customer file with LTV ↗

Drag and drop your file here or

Download file template

You have already accepted Facebook Value-based Lookalikes Terms

Audience name

Name your audience

50

Show description

Cancel

Back

Next

Re-marketing (or re-targeting)



Source: www.totalmarketexposure.com

- Great way to increase conversions-intent shown--they visited your website!

Different types:

- a) Those who visited your website-shows them ads afterwards-- when they are on email or other websites
- b) Custom and look alike audiences of customers
- c) Email-usually means sending email if they did not do or did a certain action on your website - e.g., abandoned cart

Retargeting Best Practices

- Segment your visitors (e.g., people who looked at women's vs. men's shoes)
- Customize the retargeting ads- don't show the same ad many times to the person-give it some variation
- Risk of too much/too soon- e.g. abandoned shopping cart coupons
- Determine the “look back period” and frequency cap for ads – is it impulse buy (Daily deal), travel (short time) or long purchase cycle (6 months for B-B products)-trial and error-look at conversion data

Advanced settings

Schedule: Start date, end date, ad scheduling

Ad delivery: Ad rotation, frequency capping

Ad rotation [?](#) Optimize for clicks: Show ads expected to provide more clicks [Edit](#)

Frequency capping [?](#)
Display Network only

No cap on impressions
 2 impressions per day per ad group

[Save](#) [Cancel](#)

for this campaign
per ad group
per ad

How to set up remarketing

FYI

For Your Information



Home Campaigns Opportunities Tools

Manager ID:

Search
All online campaigns
Shared library
Ads
Audiences
Bid strategies
Budgets
Campaign negative keywords
Campaign placement exclusions
Bulk operations
Reports and uploads
Labels
All video campaigns

Shared library >
Audiences

Use remarketing to show ads to people who visited your site before, or reach specific audiences using custom combinations. [Learn about remarketing](#)

Rule-based lists are most effective when your entire site is tagged. You can use a tag from an existing list, [X](#) or create a new list to get a new tag. [Learn more about tagging your](#)

REMARKETING TAG

[View tag details](#)

✓ Your Google Analytics tag is active

Remarketing code

Add the remarketing code to all your pages visited by users whom you'd like to add to this list. [Insertion tips](#)

Page security level [?](#) HTTP

```
<!-- Google Code for Foo -->
<script type="text/javascript">
/* <![CDATA[ */
var google_conversion_id =
var google_conversion_language = "en";
var google_conversion_format = "3";
var google_conversion_color = "666666";
var google_conversion_label = "";
var google_conversion_value = 0;
/* ]]> */
```

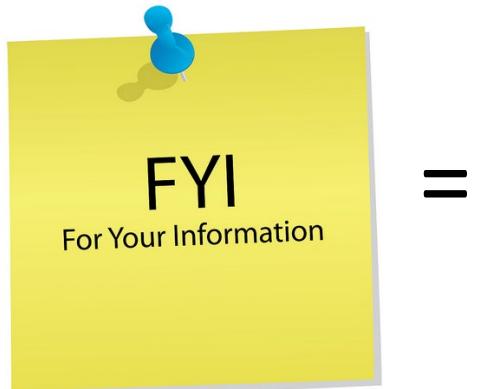
	Open	30 days	Unavailable - Display only	-	-
All visitors	Open	30 days	Unavailable - Display only	-	-
All Visitors - 3 Days	Open	30 days	Unavailable - Display only	-	-
Similar to All Visitors - 3 Days	Open	180 days	Unavailable - Display only	-	-
All Visitors - 30 Days	Open	30 days	Unavailable - Display only	-	-
Similar to All Visitors - 30 Days	Open	30 days	Unavailable - Display only	-	-
Converted - Beta Sign Up - 180	Open	180 days	Unavailable - Display only	-	-

End of Part A

Module 5 B

New Technologies : VR and AR

Prof. Alex Edsel



if a slide has this post it note-
then it is not on the exam/quiz

=

Digital Marketing & Emerging Technologies



FYI

For Your Information

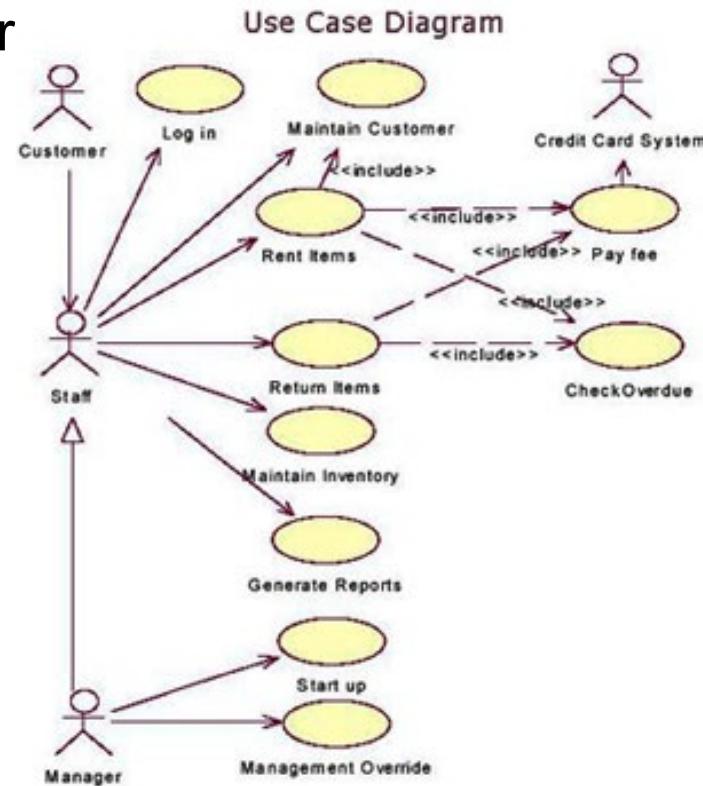


Marketing Technology Landscape

The image is a dense grid of logos from various tech companies, organized into several main sections: Marketing Experiences, Marketing Operations, Middle-Ware, and Backbone Platforms. The Marketing Experiences section includes Email Marketing, Mobile Marketing, Social Media Marketing, Search & Social Ads, Display Advertising, Video Ads & Marketing, Events & Webinars, Creative & Design, Calls & Call Centers, Customer Experience/VoC, Loyalty & Gamification, Personalization, Testing & Optimization, Content Marketing, Sales Enablement, Agile & Project Mgmt, and Marketing Automation / Integrated Marketing. The Marketing Operations section covers Marketing Data, Channel/Local Mktg, Marketing Resource Mgmt, Digital Asset Mgmt, Business Intelligence, and User Mgmt. The Middle-Ware section features Data Management Platforms/Customer Data Platforms, Tag Management, and Cloud Connectors. The Backbone Platforms section includes CRM, Web Site / WCM / WEM, and E-commerce. Each section is represented by a cluster of company logos, such as MailChimp, Adobe, LinkedIn, and Google in the Marketing Experiences section, or Oracle, SAP, and Microsoft in the Backbone Platforms section.

What is a Business Use Case?

- Used to validate a business idea or proposal of a new technology, business or process
- Based on data analysis, market research and describes how the product or service is used by consumers
- Usually consists of diagram of personas and process (sort of a customer experience journey)
- Some have financial & market projections: market share, breakeven, etc.
- Proposed vs proven business use cases



Example of a use case template

FYI
For Your Information

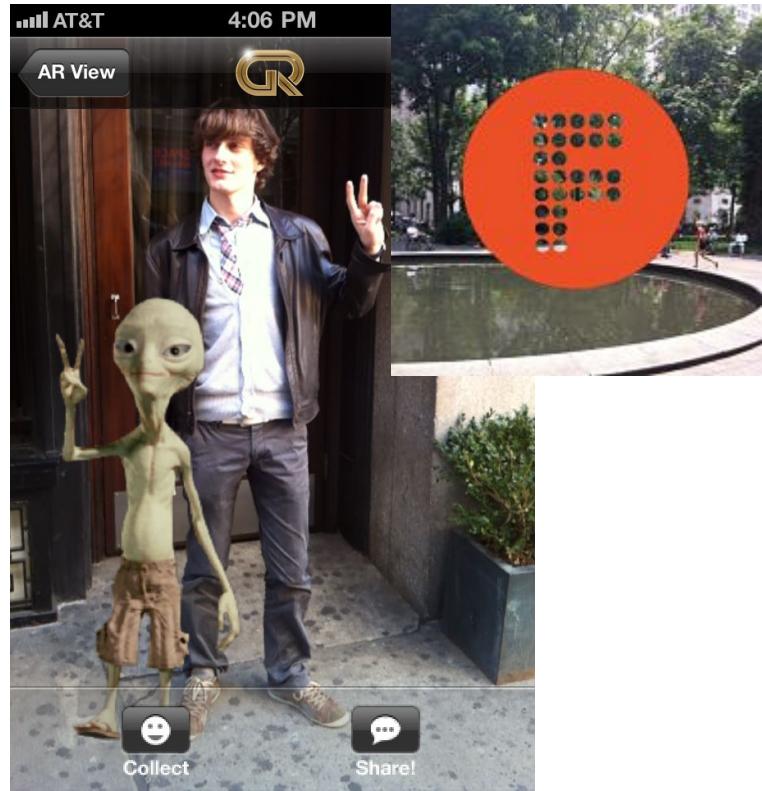
Use Case Name

Description – a brief summary of what the use case is about

Scenario	A quick summary of what is going to happen in the use case – exclude actor	
Triggering event	What the actor does in relation to the system – should be first in flow of events	
Actors	List the primary actors – the ones with their hands on the keyboard	
Related use cases	Comma separated list of related use cases	
Stakeholders	Who is interested in the result of this use case and their role in it	
Pre-condition	What needs to be in place before this use case can execute	
Post-condition	How will the system have changed as a result of this use case	
Flow of events	Actor	System
	1. The first event should be the triggering event	
Exception	<ul style="list-style-type: none">A list of things that could go wrong and how the system responds	

Image source: Eucotech.com

- **Augmented Reality (AR)** is a live, direct or indirect, view of a physical, real-world environment whose elements are augmented by computer-generated sensory input such as sound, video, graphics or GPS data overlaid
- They can be 3D images or simply information tags about a location overlaid on the image displayed.
- If used on mobile phone, you need to download an app and it will use your camera. Some AR more sophisticated applications (e.g., medical) require eye wearables



AR Use Cases

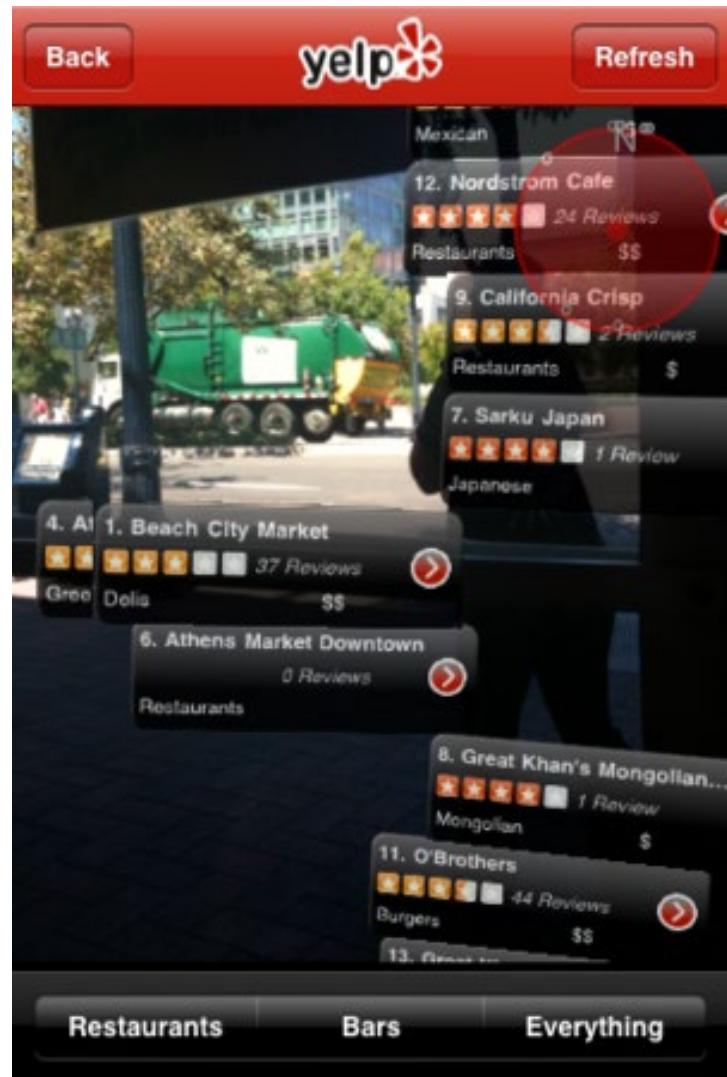
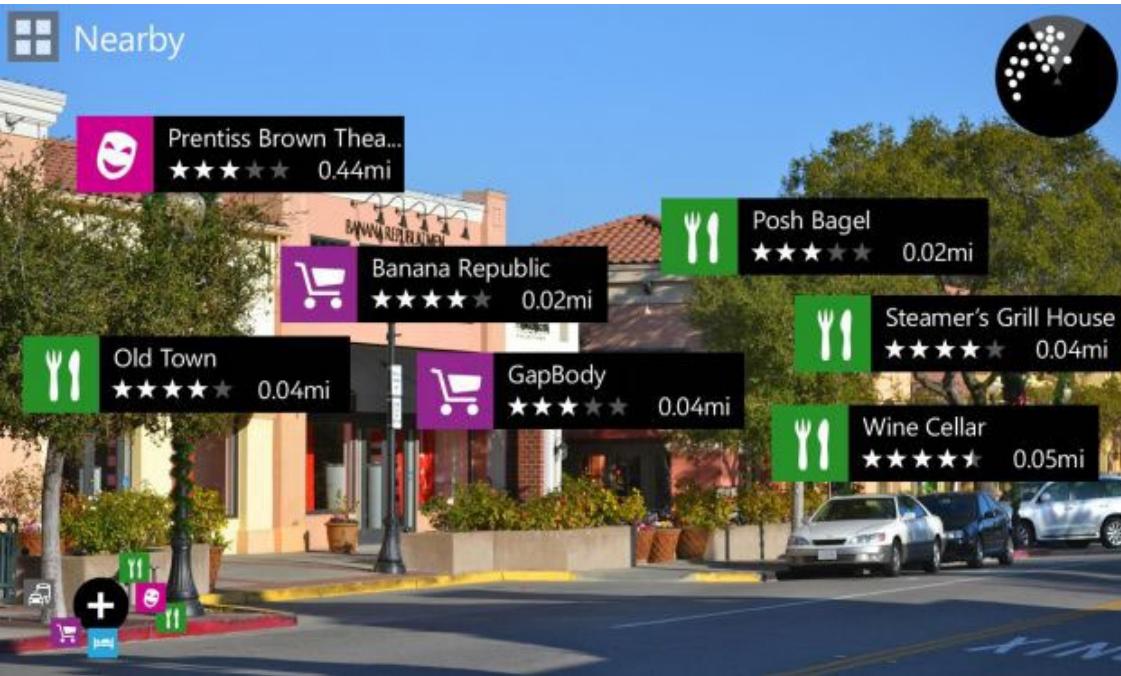
- AR will probably have more business & marketing use applications than Virtual Reality
- AR Business use cases in:
 - Main industries: Healthcare, Mfg., Military
 - Repair assistance: home, car, machines, appliances
 - DIY market
 - Retail shopping
 - Gaming
 - Smart Cities



AR and Retail Shopping



AR drive retail traffic=sales



AR in Healthcare

FYI

For Your Information

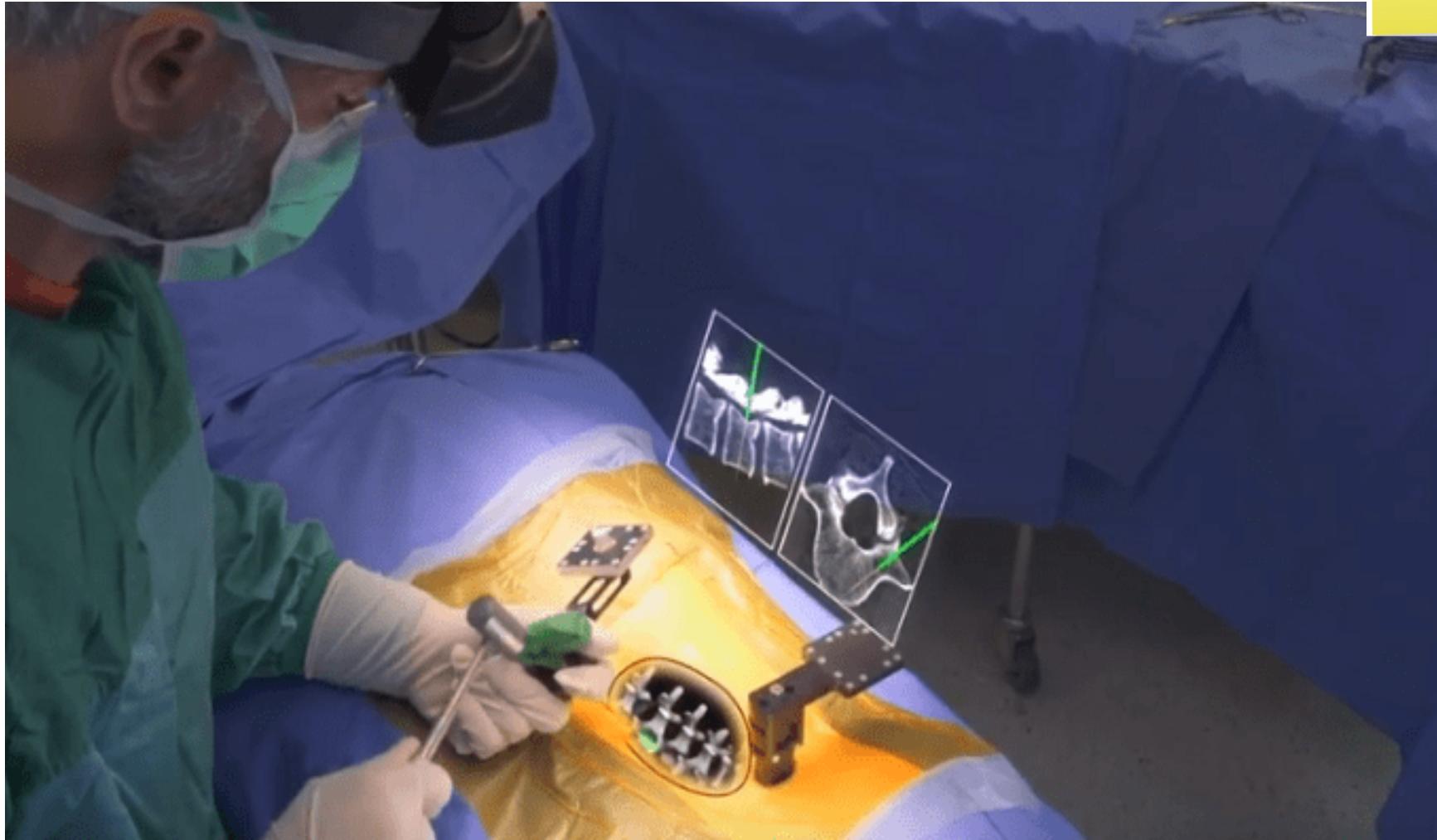


Image source: orthostreams.com

Movie AR HoloLens



Trending videos

- **Virtual Reality (VR)** is an artificial, computer-generated simulation or recreation of a real life environment or situation. Can use pictures as the basis and then add movement
- Stimulates user's vision and hearing
- Usually requires a headset for viewing—Oculus, Vive, PlayStation—there is a cardboard version by Google that can use a smartphone
- Use cases in Gaming, Healthcare-Therapeutic, Training, Selling—showcasing a product (Car, Realtors)



Image Source: oculus.com



Image Source: vr.google.com

VR Gaming



techradar

Virtual Reality Tours

Presented by Acme Realty

More ▾

Presented by Acme Realty

Southern California Luxury Home

More ▾

Learn more: <http://www.acemerealty.com>

Floor 2

Floor 1

Floor 1

◀ ▶ ⌂ 🔍 +

ewalk View

Living Room

Kitchen

Entryway

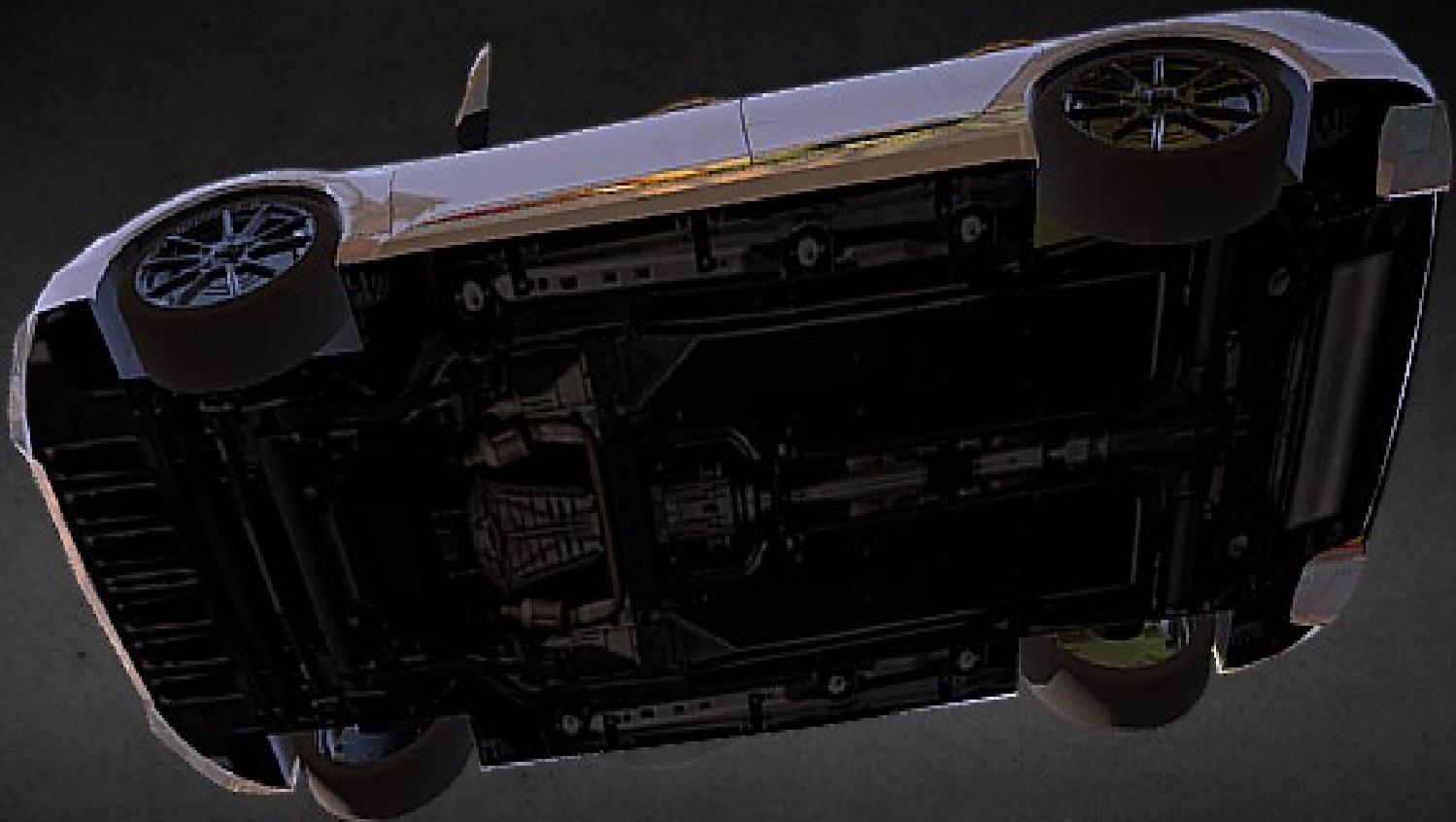
Master Bedroom

Master Bathroom

Formal Di

matterport®

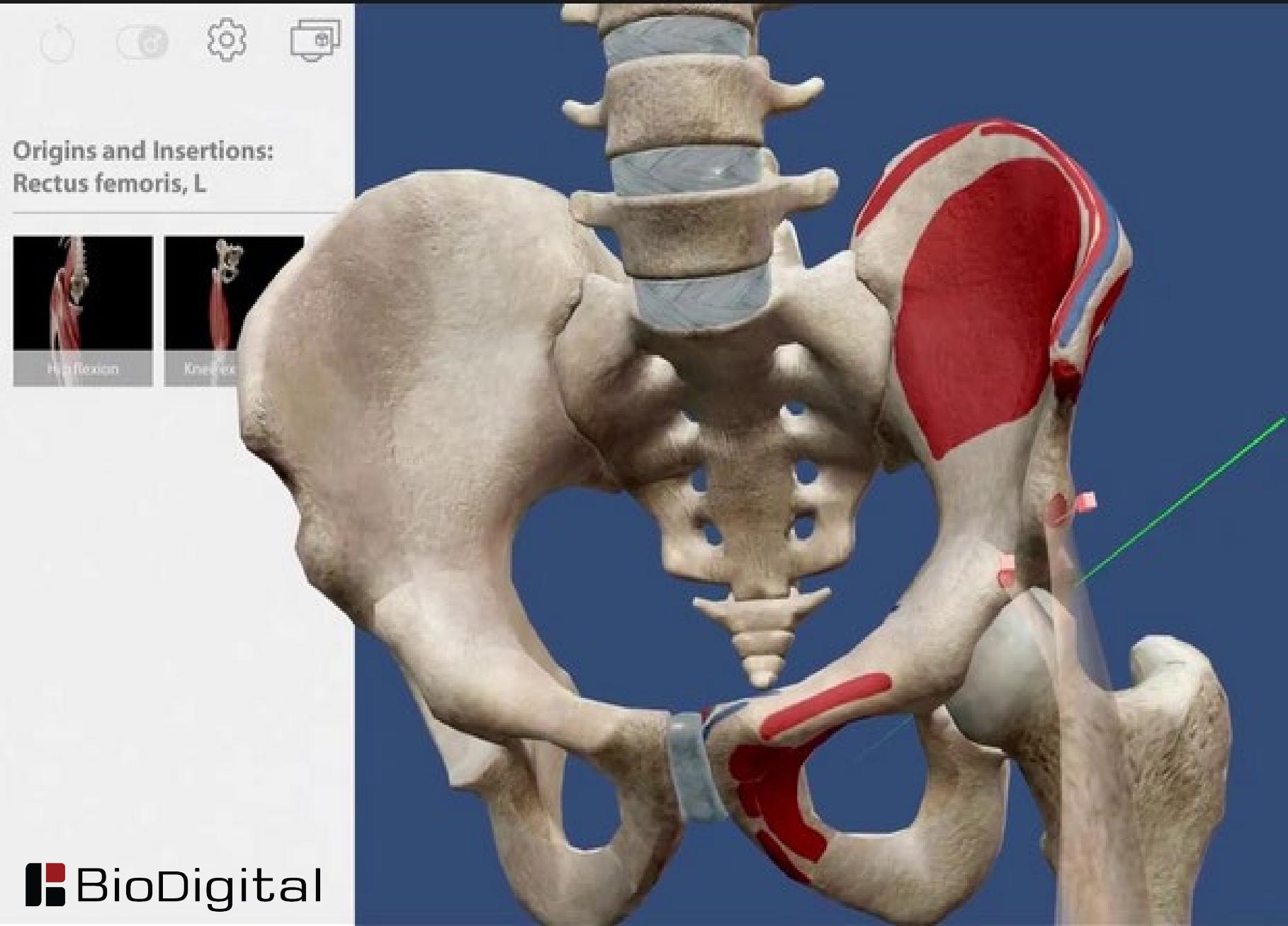
3D Models that can viewed 360 degrees



Sketchfab



Educational or design uses



Therapeutic role playing



Fear of Flying



Fear of Needles



Acrophobia



Claustrophobia



Agoraphobia



Fear of public speaking



Relax



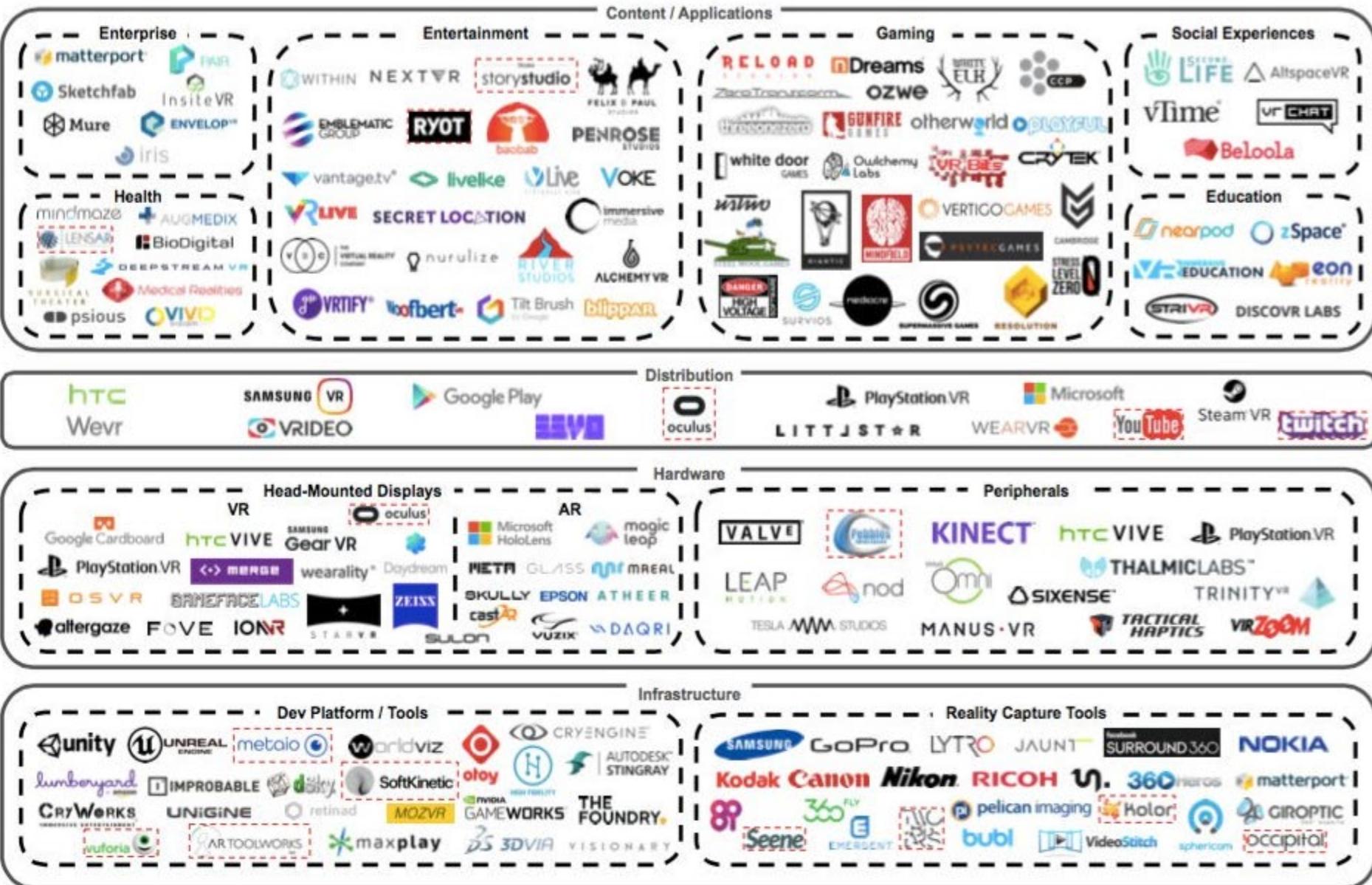
Fear of Driving



Fear of Bugs



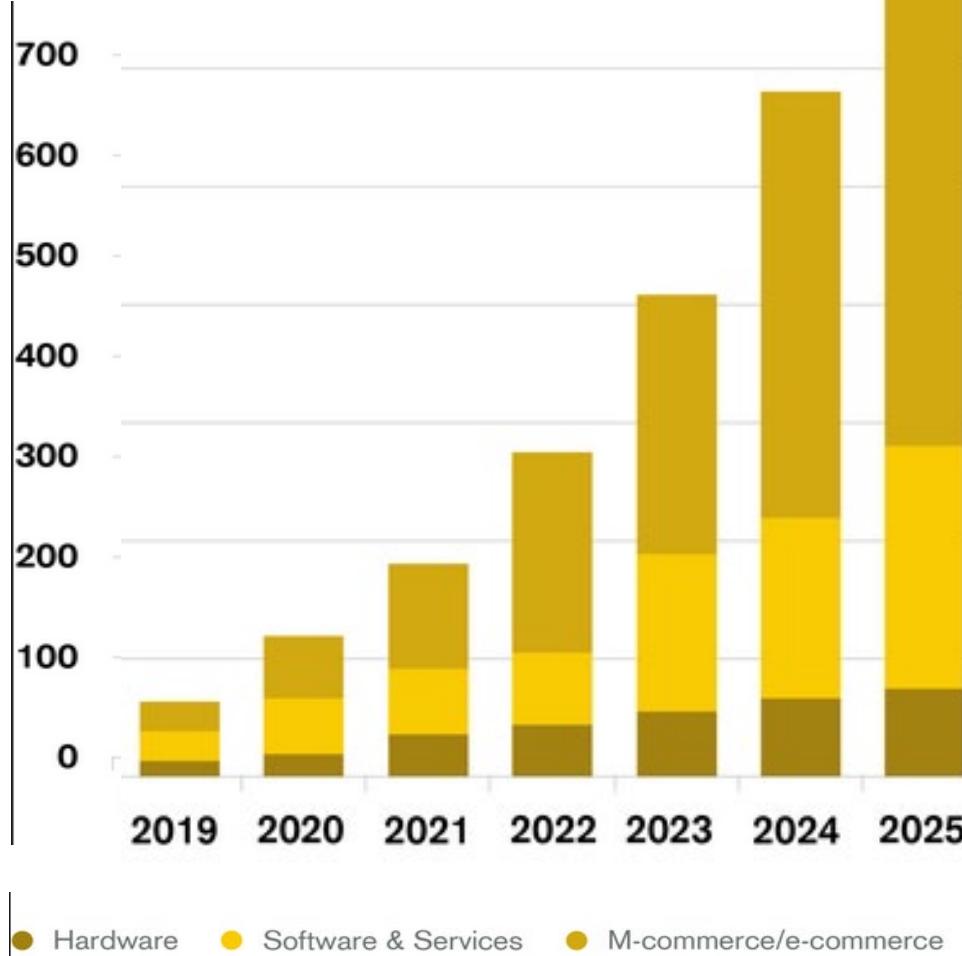
VIRTUAL REALITY LUMAscape



Augmented Reality & VR : Fad or Trend?

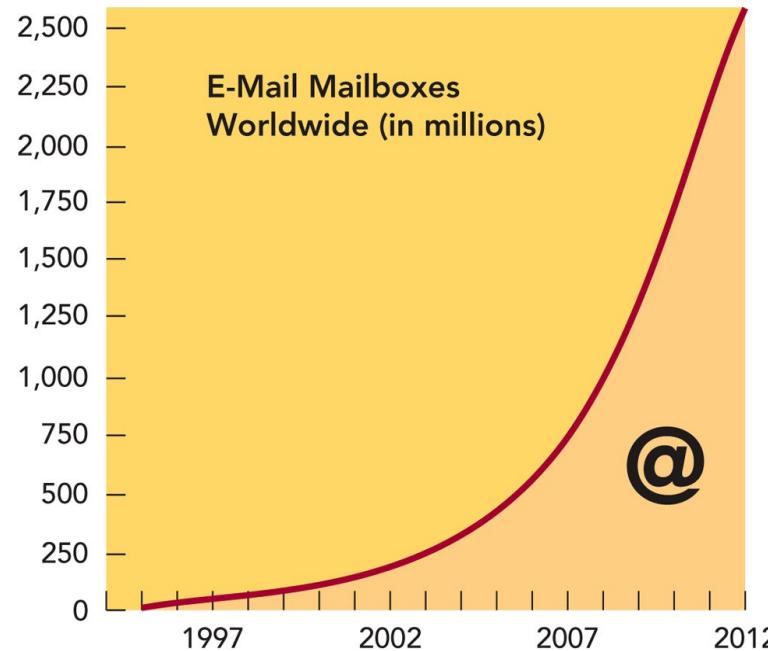
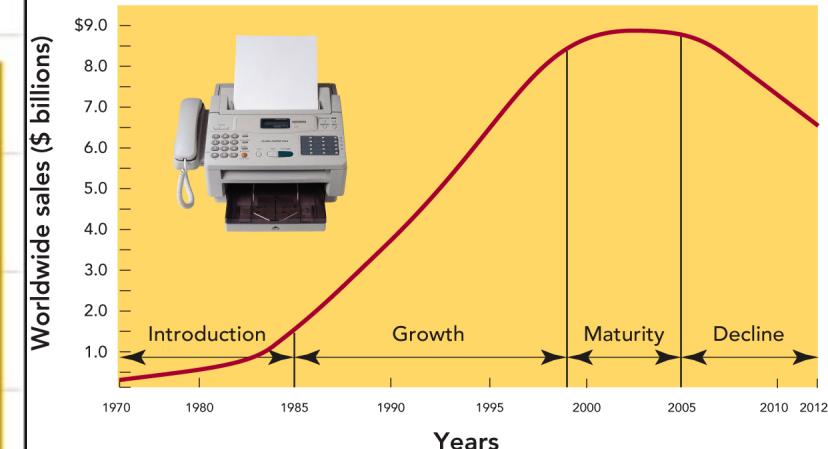
Growth Forecasts for Virtual and Augmented Reality

Market in USD billions-could match Smartphones



Source: Gartner, Credit Suisse

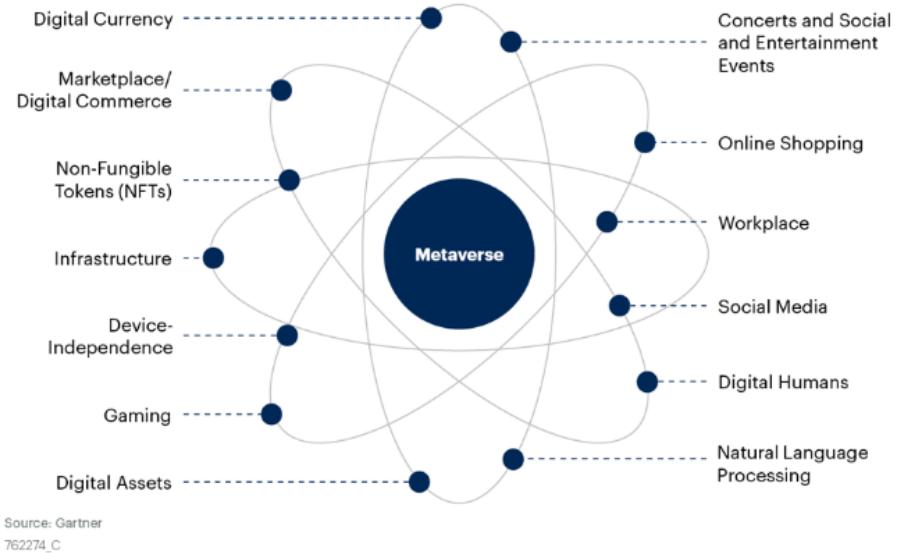
Stages of the Product Life Cycle



What is the Metaverse

- Metaverse is a work in progress– definition varies by vendor. Most see it as the convergence of the digital and physical worlds. Forecasts of \$450B by 2028.
- Blockchain forms the backbone and allows Non-Fungible Tokens (NFTs) – digital asset –e.g. digital art
- XR is a term for AR, VR, Mixed Reality and other technologies (e.g., 5G)
- Competing platforms-proprietary (centralized) vs. open-source software governed by community members (decentralized)
- Downside: Privacy and social concerns about mental well-being

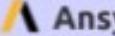
Elements of a Metaverse



Source: Gartner

Gartner

Metaverse Competitive Landscape

Online Game Makers	Design Software Vendors	Social Networking	Gaming, AR & VR Hardware	Live Entertainment
 Roblox	 Unity	 Facebook	 Facebook	Live Nation
 Epic Games	 Epic Games	 Tencent	 Lenovo	Theme Parks
 Microsoft	 Adobe		 HP	Sports Teams
 Activision Blizzard	 Autodesk		 Logitech	
 Take-Two	 Ansys		 Acer	
 Tencent			 Valve	
 NetEase			 Razer	
 Nexon				
 Valve				



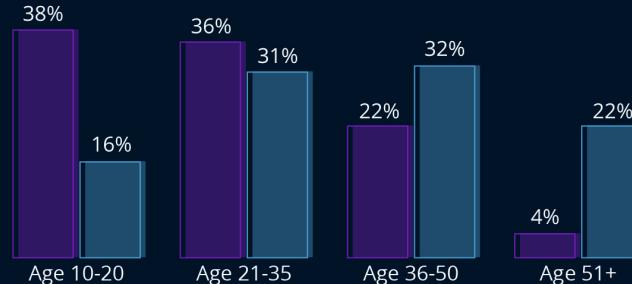
Metaverse & Marketing

- Young consumers view digital goods as being comparable to physical goods-more so if frequent online shoppers
- Fortnite is the more successful metaverse business model vs. Facebook (e.g., Fortnite held a virtual concert with over 3M people watching; compare that to FB struggling with 200,000 users)
- Key is an immersive experience that contains XR components and the perception of being a part of a different environment than our normal day-to-day.

The Metaverse Is a Young People's Game

Share of respondents who played a proto-metaverse game/a video game in general in the past six months*

Metaverse players Other players



* Proto-metaverse games = Fortnite, Minecraft, Roblox

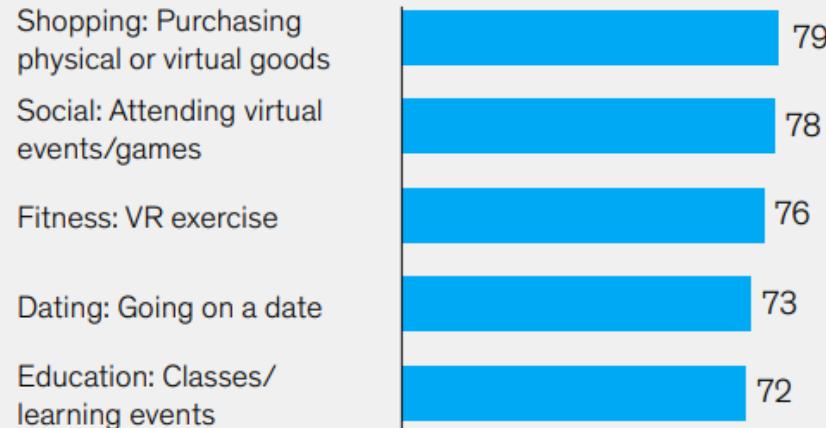
Based on surveys of 2,358 metaverse and 3,163 players excl. metaverse players (aged 10-65) in the U.S., UK, Germany and France; 2021

Source: Newzoo

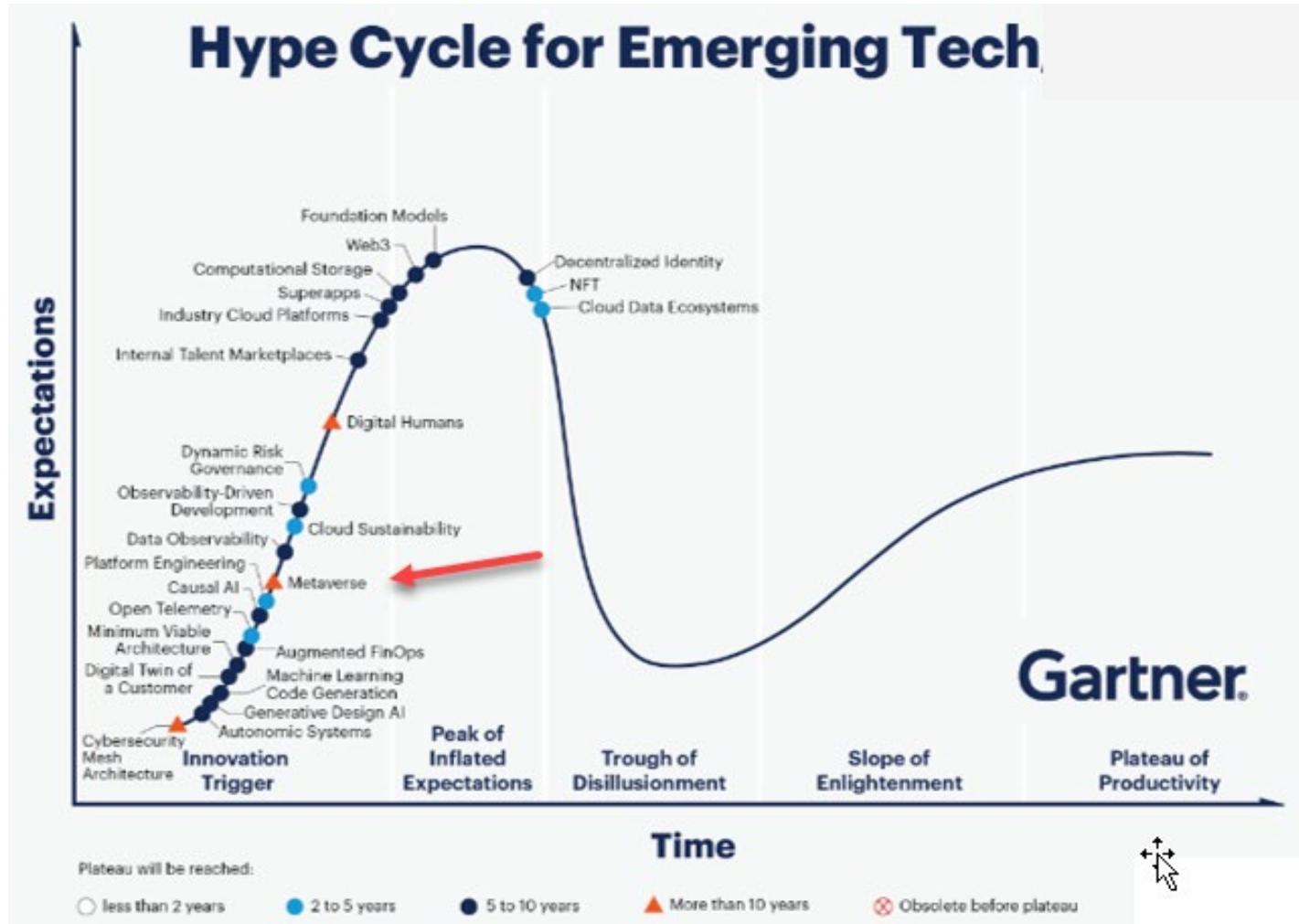


statista

Top 5 activities most preferred in an immersive world compared to traditional alternatives,² % of respondents



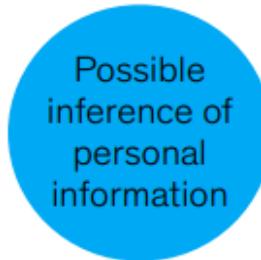
Metaverse Reality & Promise



There are multiple possible uses of eye-tracking data collected by XR technologies.



- Eye opening and closure**
Blink duration and frequency; average distance between eyelids
- Eye movement**
Gaze fixations, saccades, smooth pursuit, ocular tremor
- Eye status**
Reddened, watery, dry
- Pupil properties**
Pupil size and reactivity
- Iris characteristics**
Eye color, iris texture
- Facial attributes**
Wrinkles, eye shape, skin color, facial expressions



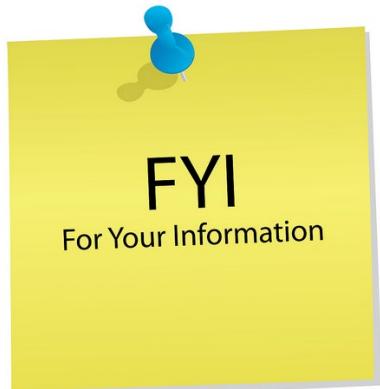
- Possible inference of personal information
 - Personality traits
 - Mental health
 - Skills and abilities
 - Level of sleepiness
 - Cognitive processes
 - Drug consumption
 - Age
- Biometric identity
- Cultural background
- Physical health
- Geographical origin
- Gender
- Mental workload

End of Part B

Module 5 C

New Technologies : 3D printing, Robotics, BlockChain,

Prof. Alex Edsel



if a slide has this post it note-
then it is not on the exam/quiz

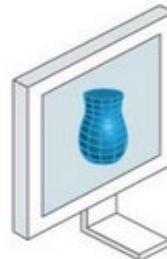
=

3-D printing

- Can convert a virtual 3-D blueprint model into physical objects
- It usually uses plastic resins but can be other materials such as metal. Plastic one's are relatively inexpensive.
- In 3-D printing typically an object is created by laying down successive layers of material after previous one hardens.
- **Flexibility**, clean, with low waste, can do complex shapes. Easy to use, inexpensive

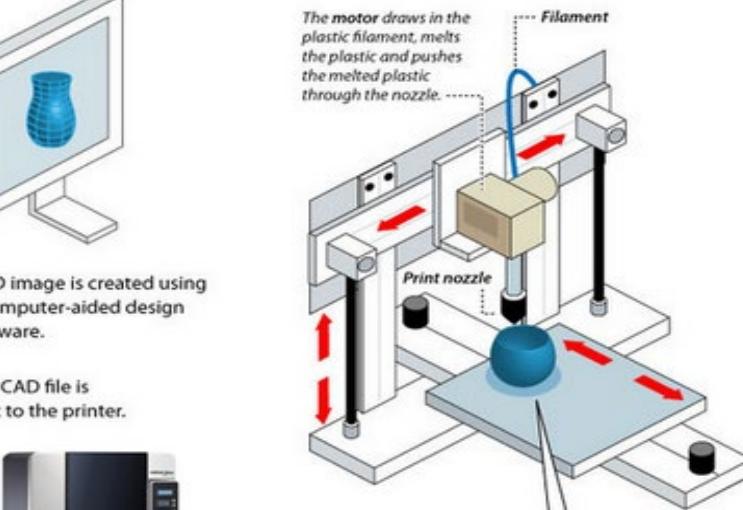
This is how 3d printing works

3D printing, the process of making a three-dimensional solid object from a digital model, is set to revolutionize the way industries manufacture parts. Here's how 3D printing works:



1 A 3D image is created using a computer-aided design software.

2 The CAD file is sent to the printer.



3 The printer lays down successive layers of liquid, powder, paper or metal material and builds the model from a series of cross sections.

Image source: thevillageworkshop.com/



MP Mini Delta 3D Printer
\$159.99
Monoprice.com

Use Cases for Business

- **Rapid Prototyping:** Can quickly turn concepts into working 3-D Models
- Spare parts, food in intricate shapes, houses, human cell reproduction...
- People in **remote locations** can fabricate objects that would otherwise be expensive and with long time delays to get

Engineering Resins
Functional prototyping materials.

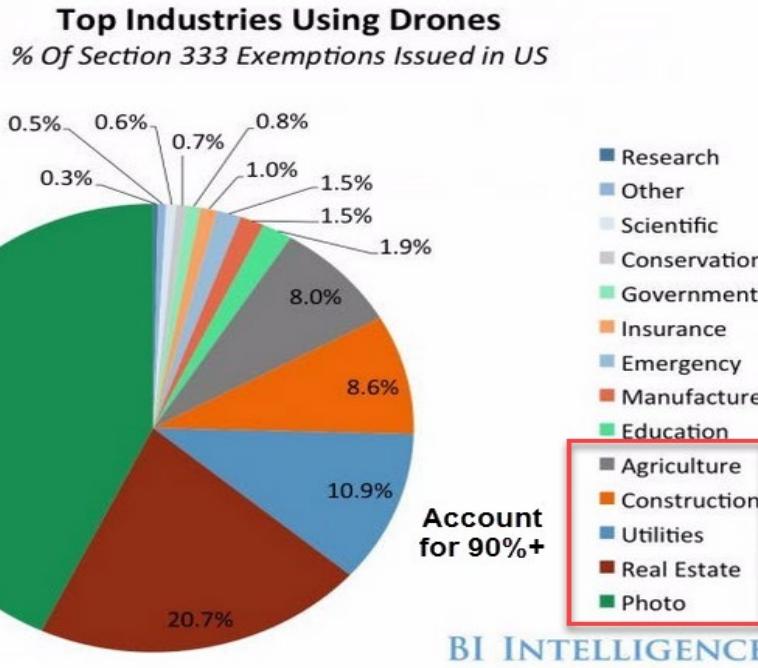


Image Source: 3D Platforms

Video how 3D printing works



Drones & business use cases



The Drone Project,



- Issues with FAA, TSA--need an application--wider adoption depends on final government regulation. Typical caveats: not able to fly over densely populated areas, near airports, out of line of sight, no higher than 400 ft., etc.
- Some can carry >250 lbs., battery life, reception transmission issues
- Example of potential use case: expanded home deliveries in rural areas, which is currently very expensive & inefficient

Proven use cases for drones in military (also gas powered), agriculture, ranching, real estate, photography, construction, and monitoring of all types



Image source: DronesGlobe.com



Image source: AgriculturalWonderDrone



Image source: DronesGlobe.com

Image source: comunicae.es



Image source: Creed LA

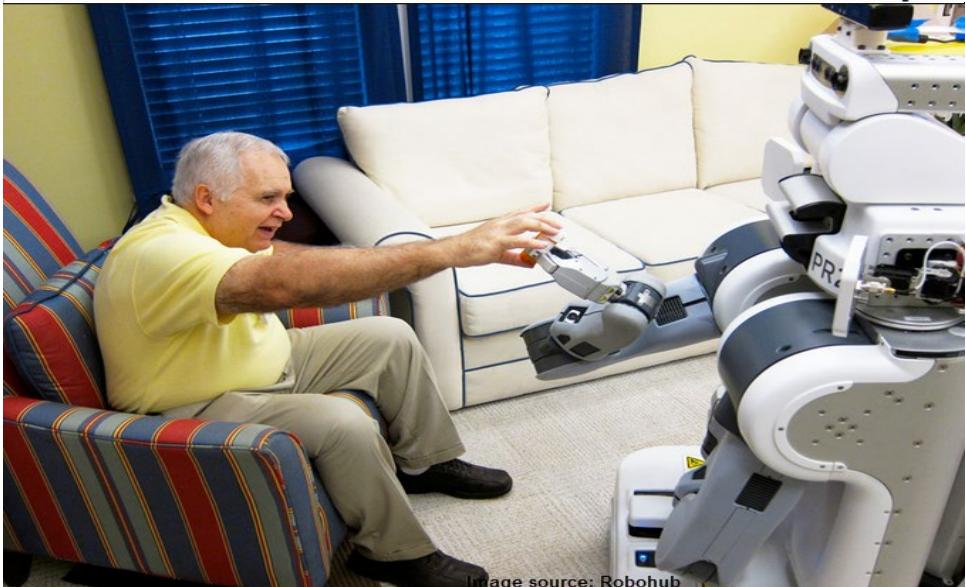
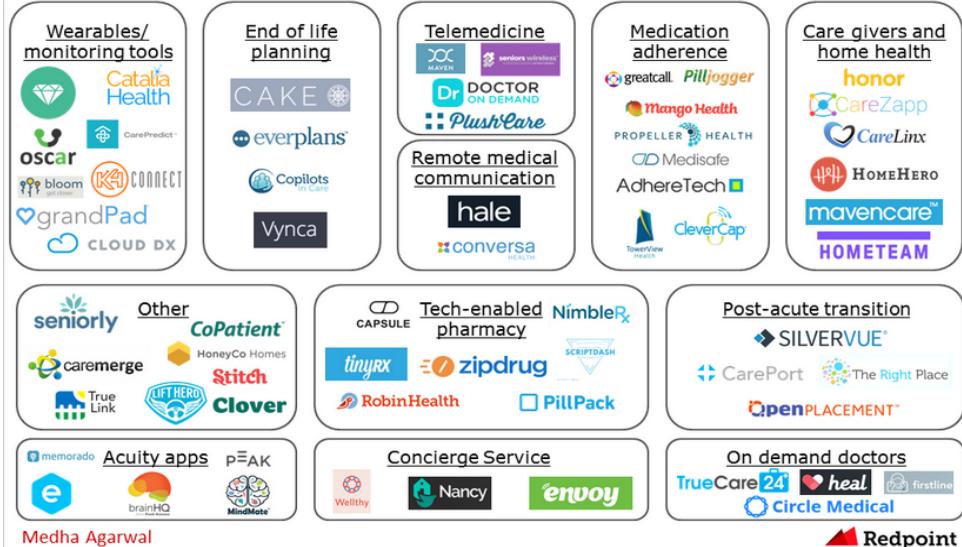
- Robotics-human form or industrial type--increasingly driven by AI. Until recently industrial repetitive robots preprogrammed, no AI
- Use cases:
 - Manual labor repetitive tasks
 - Hazardous: making dangerous goods, military, security, agriculture, electrical grid repair, mining, etc.
 - Customer service
 - Healthcare-Senior care, Alzheimer's patients



Use case: Robotics & other technologies can disrupt existing markets



Senior Care Market Map



- \$740 billion senior care market
- Baby boomer population aging, per US census, 18% of the US population will be over 65 by 2025, more skewed in Japan
- “Non-compliance” need: elderly do not take their medications or do the prescribed therapies (role for wearables --IoT’s)
- Currently human labor intensive: hard to pay good wages which in turn means hard to find qualified, reliable and “safe” employees—allowed into vulnerable people’s homes

Construction robots & 3D video

FYI

For Your Information



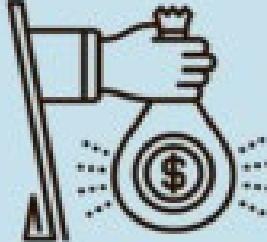
Baxter video~ \$22K AI + robotics



HOW A BLOCKCHAIN WORKS

Source: <http://www.informatisol.com/block-chain-development/>

1



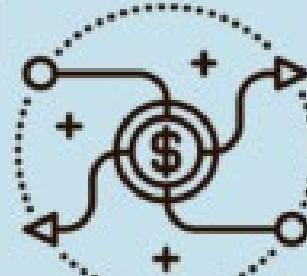
Person A wants to send money to person B.

2



The transaction takes the form of a "block" of code. Each transaction is encrypted.

3



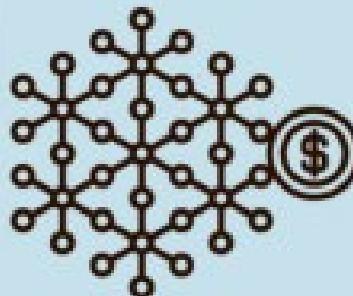
The block is broadcast across the entire network.

4



Those in the network check for certain parameters. If met, the network approves the transaction as valid.

5



The approved block is then added to the chain, becoming a transparent and indelible record of transactions.

6



The money transfers from A's control to B's.

Use cases BlockChain with Marketing implications



The sharing economy

By enabling peer-to-peer payments, the blockchain opens the door to direct interaction between parties — a truly decentralized sharing economy results.



Crowd funding

Blockchains take this interest to the next level, potentially creating crowd-sourced venture capital funds.



Internet of Things (IoT)

Smart contracts make the automation of remote systems management possible. A combination of software, sensors, and the network facilitates an exchange of data between objects and mechanisms.



NeighbourhoodMicrogrids

Blockchain technology enables the buying and selling of the renewable energy generated by neighbourhoodmicrogrids.



Data management

In the future, users will have the ability to manage and sell the data their online activity generates. Because it can be easily distributed in small fractional amounts, Bitcoin — or something like it.

Selling your time to advertisers



- Advertisers create (using e.g., Ethereum)-a free to users BlockChain market so that consumers can get maintain privacy while receiving payment from advertisers for their time
- Consumers would have to watch a video, answer survey, see an ad to get paid More targeted or high net worth you are more \$\$\$ can get paid e.g., consumer in the market for new car approx. \$25K
- Concept exists already, Time-share's give you gifts like a free dinner to listen to their sales pitch

How To Create An Ethereum Account **Account Creation Steps**

- 1) Generate random 256-bit private key
- 2) Generate public key from private key
- 3) Generate address from right-most 160 bits of Keccak256 hash of public key

MORE VIDEOS

of selecting the private key.

▶ 🔍 3:01 / 5:33

CC 🛡 YouTube

Would you listen to a
Timeshare Presentation
to get a



FYI

For Your Information



Explore new markets, combine with other technologies

- A company can operate and service a **remote location** fabricating spare parts (e.g., for a tractor part) using 3D printers that would otherwise take time to get or have to carry in inventory.
- With drones, you could also deliver parts to remote locations
- Business savvy: identify parts not frequently replaced but which are expensive and can be urgent
- Have agreements with owners of technology-patents or focus on non-patented parts

The Latest in Metal 3D Printing Technology



Image source: all3dp.com



Image source: Mashable.com

End of Part C