

Growth Hacking

BAF675 금융 빅데이터 분석

이재훈, Week 1



이재훈

- 2020-present KAIST Business School
- 2023-present 도비 캔버스 창업
- 2022-2023 Cocone M, AI 개발실장
- 2018-2021 DeepSearch, 연구소장
- 2012-2019 UNSW Business School
- 2007-2012 UIUC, PhD in Finance
- 2003-2005 NHN Game Server Programmer
- 1999-2005 KAIST, Computer Science

Data Analysis for B2C

- **User Acquisition**

- Performance marketing: CPI, etc.

- **User Retention**

- Funnel analysis, retention charts, cohort analysis, etc.

- **Monetization**

- LTV (lifetime value)
 - ROAS (return on ad-spending)
 - ARPDAU (average revenue per daily active user)

Data Analysis for B2B

- **Market Monitoring & Forecast - Quantity, Price, and Revenue**
 - Monitoring : dashboard, quickly check the status quo at a glance
 - Forecast : time-series analysis
- **Productivity Improvement in Manufacturing / Services**
 - Service : digital transformation
 - Manufacturing : linear planning / reinforcement learning

Marketing: Industrial Era

- Old marketing tools in the industrial era
 - 4P : Price, Place, Product, Promotion

THE MARKETING MIX



Marketing: Industrial Era

- **1) Logical Persuasion**
 - Explain the product's features and how it differs from competitors
 - Focus on efficiency and usability
- **2) Emotional Appeal**
 - Brand image building
 - Endorsement of celebrities, who thereafter become the brands' frontmen

Marketing: Industrial Era

- The collapse of the marketing in the industrial era..
 - According to the survey by Forbes in 2017,
 - 80% of CEOs said they have no confidence in their marketing team
 - 73% of CEOs said their marketing team members don't have business credibility or the ability to generate growth
 - Source: <https://www.forbes.com/sites/forbescommunicationscouncil/2017/06/12/12-ways-ceos-can-support-their-marketing-teams/?sh=6eff14967859>

Marketing: Industrial Era

- The **biggest obstacle** of the traditional marketing
 - It is NOT possible to reliably measure the performance of a marketing campaign
 - Sales would increase with more marketings, of course.
 - However, how will you measure its ROI (return on investment)?
 - How would you affirm how much of sales are attributed to marketing rather than products themselves?

Marketing in the New Era

- Contemporary marketing in the digital era
 - **Growth Hacking:** solely based on data analysis
 - A/B test
 - t-test of treatment effects versus control group

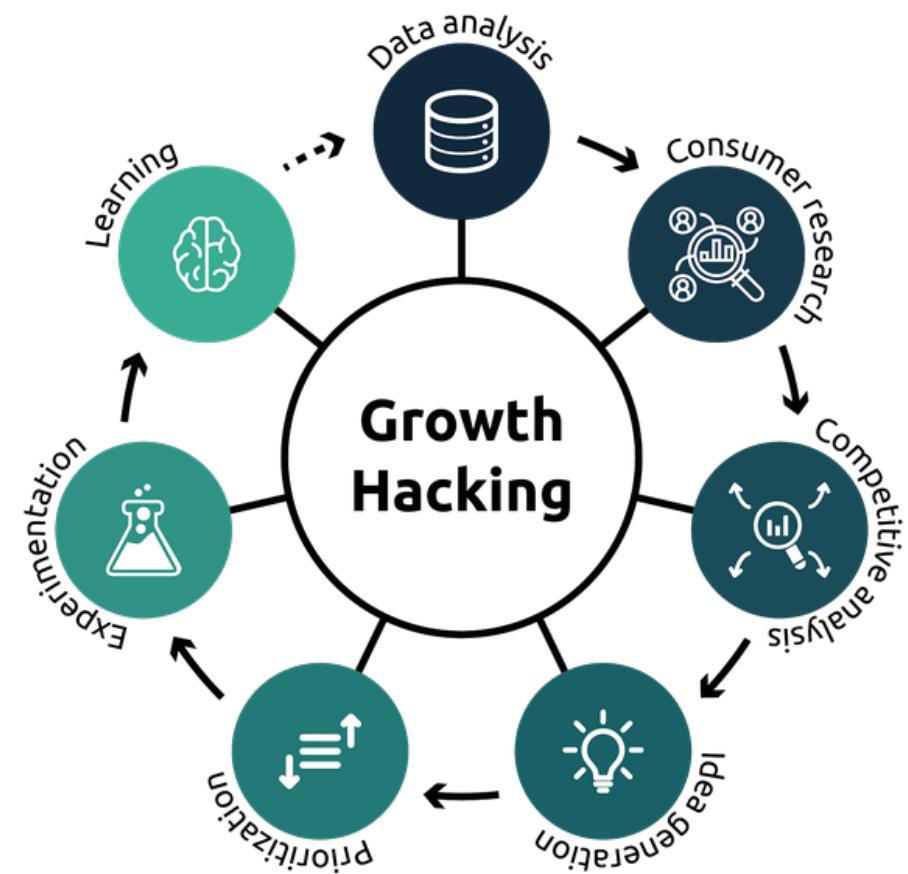
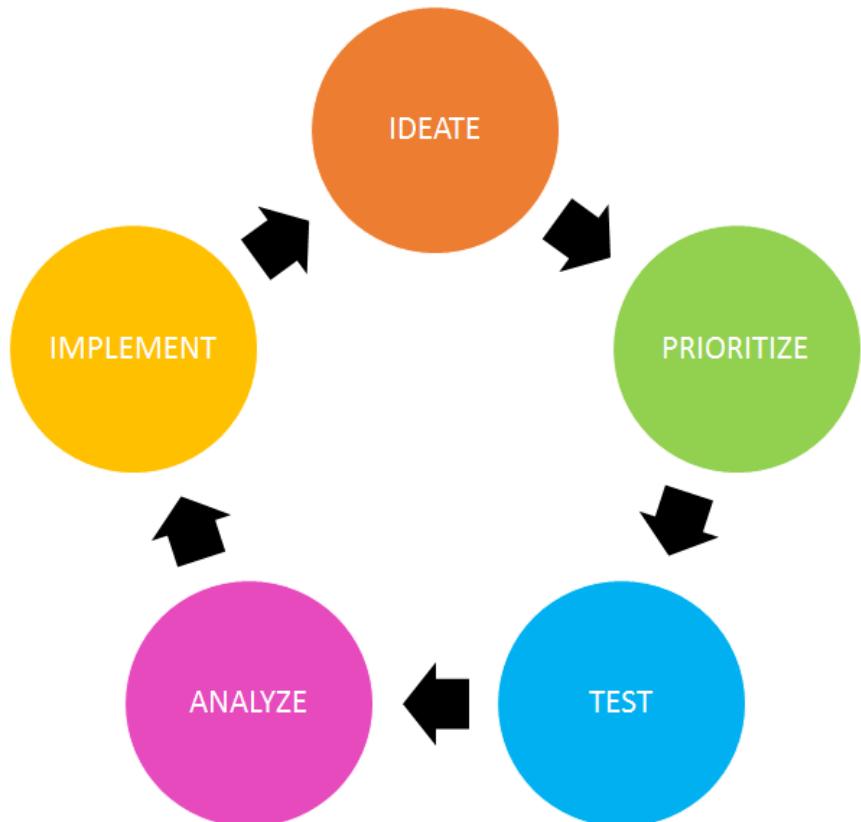
Growth Hacking



What is Growth Hacking?

Growth hacking refers to a process of blending marketing, product and data strategies, alongside experimentation, to pinpoint the most effective ways to drive business growth.

Growth Hacking



A/B Test Example: The Economist

- Subscription fee of The Economist

SUBSCRIPTIONS

Welcome to
The Economist Subscription Centre

Pick the type of subscription you want to buy or renew.

Economist.com subscription – US \$59.00
One-year subscription to Economist.com.
Includes online access to all articles from *The Economist* since 1997

Print subscription – US \$125.00
One-year subscription to the print edition of *The Economist*.

Print & web subscription – US \$125.00
One-year subscription to the print edition of *The Economist* and online access to all articles from *The Economist* since 1997.

The Economist *subscription from Predictably Irrational*

A/B Test Example: The Economist

- This experiment is managed by Dan Ariely, who is a professor at Duke University and also the author of "Predictably Irrational".
- Case 1
 - Online-only \$59, Both online & print \$125
- Case 2
 - Online-only \$59, Print-only \$125, Both online & print \$125
- What would have happened??

A/B Test Example: The Economist

- Case 1
 - Online-only \$59, Both online & print \$125
 - => 68% of respondents chose “online-only”
- Case 2
 - Online-only \$59, Print-only \$125, Both online & print \$125
 - => 84% of respondents chose “online & print”

A/B Test Example: Barack Obama



- <https://www.optimizely.com/insights/blog/how-obama-raised-60-million-by-running-a-simple-experiment/>

A/B Test Example: Donald Trump

- We just learned that Barack Obama chose the image and catchphrase that elicit best responses from people.
- Donald Trump raised the standard of **Growth Hacking** to the highest during his presidential election in 2016.



A/B Test Example: Donald Trump

- Donald Trump literally created millions of combinations of <image x message x background color x button text x button color x ...> and launched personalized ad campaigns!
 - Display strong and military-themed images to male Caucasians in 40+.
 - Display family- and safety-oriented images to female Caucasians.
- We're all familiar with personal recommendations from Netflix and YouTube. Trump ad campaigns were managed by the same algorithm.

A/B Test Example: Donald Trump

- Brad Parscale : Genius in SNS marketing who made Donald Trump a president
- https://www.cbs.com/shows/60_minutes/video/eIHhrLFmOS2ZYFqRG68KQPAu0_aUKPKC/who-is-brad-parscale-/



How Does Brainwashing Work?

- Psychoanalysis
 - Id, ego, and super-ego
- 인간의 자기 방어 기제 Self-defense mechanisms
 - 동일화 (identification)
 - 자기 합리화 (rationalization)
 - 분리 (splitting)
 - ...

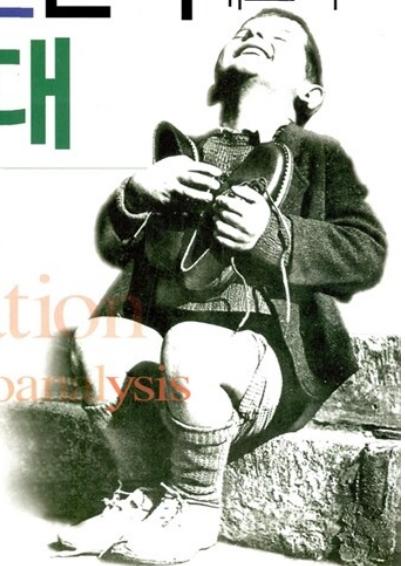
마음 속에 숨겨진 나를 찾아 떠나는 여행

정신분석 에로의 초대

지은이 이무석

[nvitation
to
Psychoanalysis

도서출판
이우



CBS 60 Minutes: Facebook Whistleblower

<https://www.cbsnews.com/news/facebook-whistleblower-frances-haugen-misinformation-public-60-minutes-2021-10-03/>



January 6 United States Capitol Attack



Growth Hacking: Survey

- Must-have score survey
 - Q: "How would you feel if you could no longer use <product/service>?"
 - A: very disappointed / somewhat disappointed / not disappointed / no longer using the product

Performance Marketing

- Important metrics
 - Conversion : target event
 - CPI : cost per install
 - LTV : life-time value
 - ROAS (ROI) : return on ad-spend
 - $\text{ROAS} = \text{LTV} / \text{CPI}$

Ad Networks

- Google Ads
- Meta (Facebook + Instagram)
- Apple Search Ads
- Others

Ad Network : Google Ads

- Google Ads
 - YouTube + 200만 개 이상 네트워크 노출
 - Android 효율 우수
 - 낮은 CPI => 사용자 모수 확보에 유리
 - 국가 & 언어만 설정 가능. 나머지는 자동화
 - Targeting event 를 통해 전략 설정 가능

Ad Network : Meta

- Meta
 - Facebook + Instagram
 - 지역, 성별, 나이대 등으로 세그먼트 세분화 가능
 - Targeting event 설정을 통한 전략 수립
 - Google 보다 CPI 는 3~5배 가량 높음
 - 하지만, 구매력은 Google Ads 로 유입된 사용자보다 압도적으로 높음!
 - ROAS 를 위해서는 Meta 광고 적극 추천

Ad Network : Apple Search Ads

- Apple Search Ads
 - iOS 를 대상으로 한 유일한 직접 마케팅 채널
 - iOS 14.5 업데이트 이후 SKAdNetwork 때문에 구글 & 페북 먹통됨
 - Google Ads & Meta 광고로는 아이폰 유저 타겟팅 불가
 - “헬로 키티” 등 관련 키워드를 등록
 - 또는, 경쟁사 게임 이름을 광고 키워드로 등록해서 활용
 - CPI 는 상당히 높은 편. 모객 단가 아주 비싸요... 😭

Ad Network : Others

- Vungle, MoPub 등등이 있는데 모두 쓰레기
- 타겟팅이 되지 않기 때문에 광고 효율 최악
- 그냥 무시하셔도 괜찮습니다.

플랫폼별 마케팅 전략



iOS

android The Android logo, a green, rounded, dome-shaped icon with two white dots representing eyes and a vertical line for a mouth.

iOS 전략 : 직접 마케팅

- 직접 마케팅은 상당히 제한적
 - SKAdNetwork 때문에 사용자 정보 tracking 이 막혀 있어서 타겟팅 불가
 - Google Ads, Meta 모두 제대로 동작 안함
 - Apple Search Ads 는 광고 키워드만 사용
 - 이벤트 타겟팅은 지원하지 않음
 - 상당수 기업들이 마케팅 비용의 90% 를 Android 에 집중
 - iOS 마케팅은 포기

iOS 전략 : 간접 마케팅 #1

- 간접 마케팅 전략 대안들
 - 애플 스토어 별점 조작
 - 마케팅 대행업체 의뢰하면 건당 3,000~5,000원에 리뷰 등록해줌
 - 국내 업체는 국내 스토어 리뷰만 등록 가능. 해외 스토어 별점을 위해서는 해외 업체를 따로 찾아보아야 함

iOS 전략 : 간접 마케팅 #2

- 간접 마케팅 전략 대안들
 - 네이버 웹툰 무료 쿠키 등의 이벤트
 - 일시적으로 다운로드 숫자가 폭증하며 검색 랭킹 상위에 노출됨
 - 서비스당 한번 정도만 사용 가능한 전략. 상시 운영 불가
 - 친구 초대 등의 viral 마케팅 캠페인 진행

Android 마케팅 전략

- Google Ads & Meta 를 적극적으로 활용
- 매주 캠페인별 성과 측정
 - Retention, cohort-analysis, ROAS 등
 - 담당자가 한주의 상황을 정리해서 매주 월요일 보고
 - 성과 나쁜 캠페인 제거
 - 성과 좋은 캠페인 => variation 추가 제작해서 확장

Online Ads Auction Market

- People type search keywords, and AI will present related ads.
- Even for the people with same search keywords, AI will display different ads depending on their demographic info (gender, age, region, etc.)

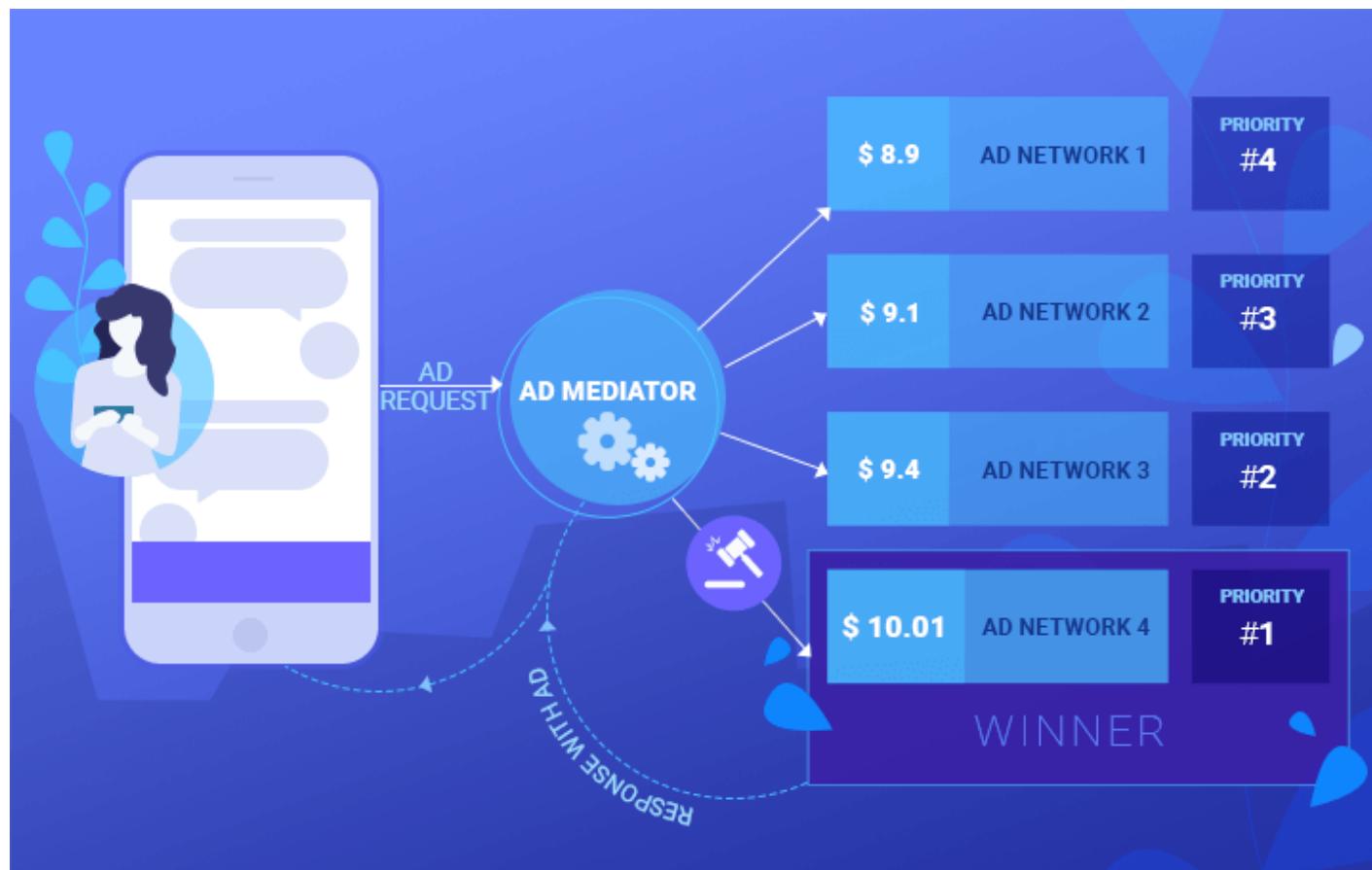
Auction and bidding

- The problem is how to set the price for each keyword and each demographic group??
 - Price is determined by real-time bidding.
 - Price would continuously change even for the same keyword.
- Auction is the specialty of Finance!
- The boundary between finance and marketing is getting blurred.

Cost Structure of Online Marketing

- Algorithmic Trading
 - "In 2020, **69% of all digital media will trade programmatically**, up from 65% this year ... The total amount spent programmatically will exceed US\$100bn for the first time in 2019, reaching US\$106bn by the end of the year, and will rise to US\$127bn in 2020 and US\$147bn in 2021, when 72% of digital media will be programmatic."
- Zenith Media, November 2019
- Majorities of not only stock market but also ad market are being made by Algorithmic Trading (AT / HFT)

Ad Mediation & Ad Network



Popular Ad Networks

- Google Ads
- Facebook
- Apple Search Ads
- Unity Ads
- IronSource
- AppLovin
- Vungle

Popular Ad Mediation Platform

- Google AdMob
- IronSource
- Mopub

Mobile Ad Glossary

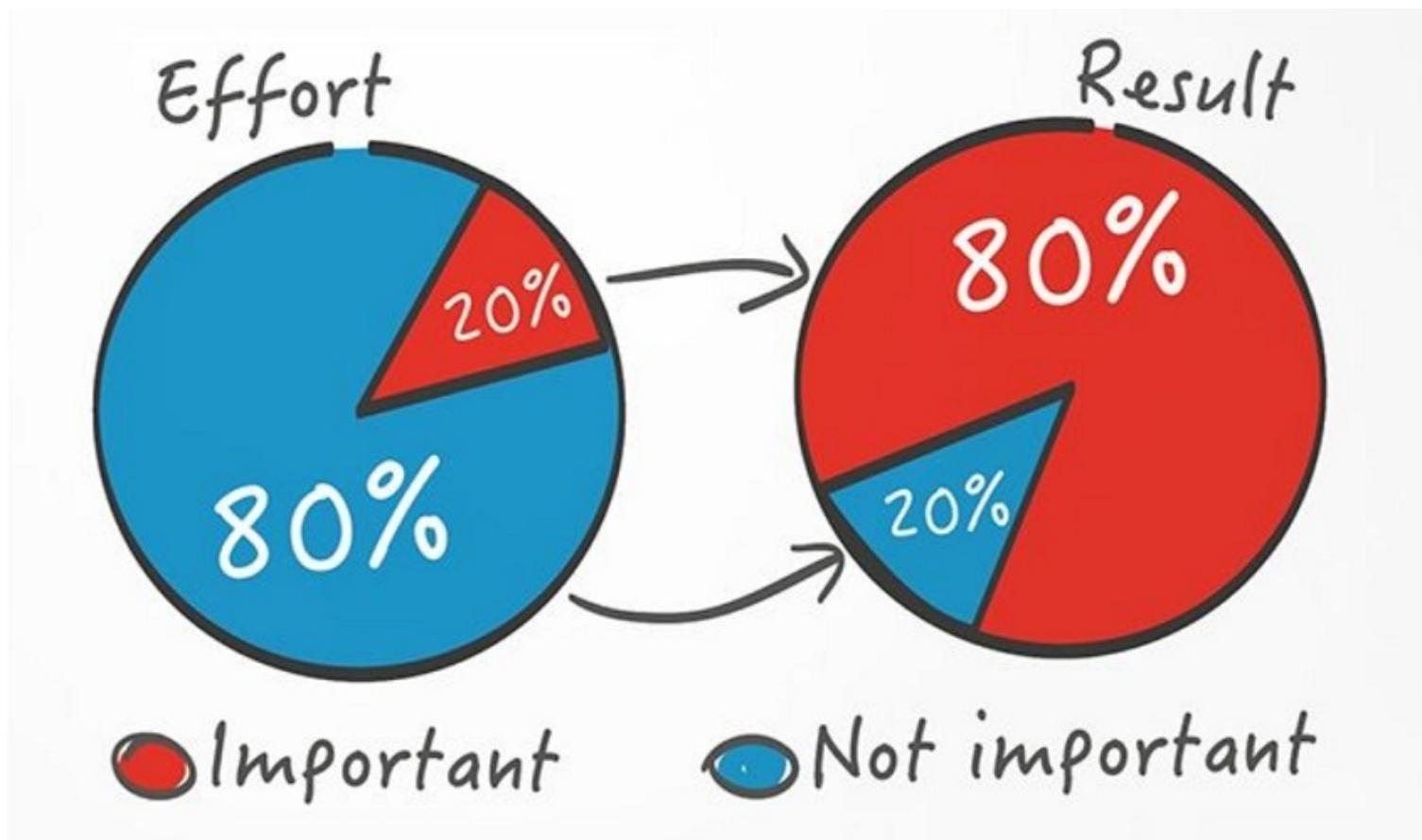
- Ad Inventory : available amount of ad space
- eCPM : effective cost per mile
- Fill Rate
- Waterfall System

ROI from Online Marketing

$$\text{ROI} = \frac{\text{LTV}}{\text{CPI}} = \frac{\sum \text{User Retention} \times \text{ARPDAU}}{\text{CPI}}$$

- ROI : Return on investment
- CPI : Cost per installation
- LTV : Life-time value
- ARPDAU : Average revenue per daily active user

Pareto Principle

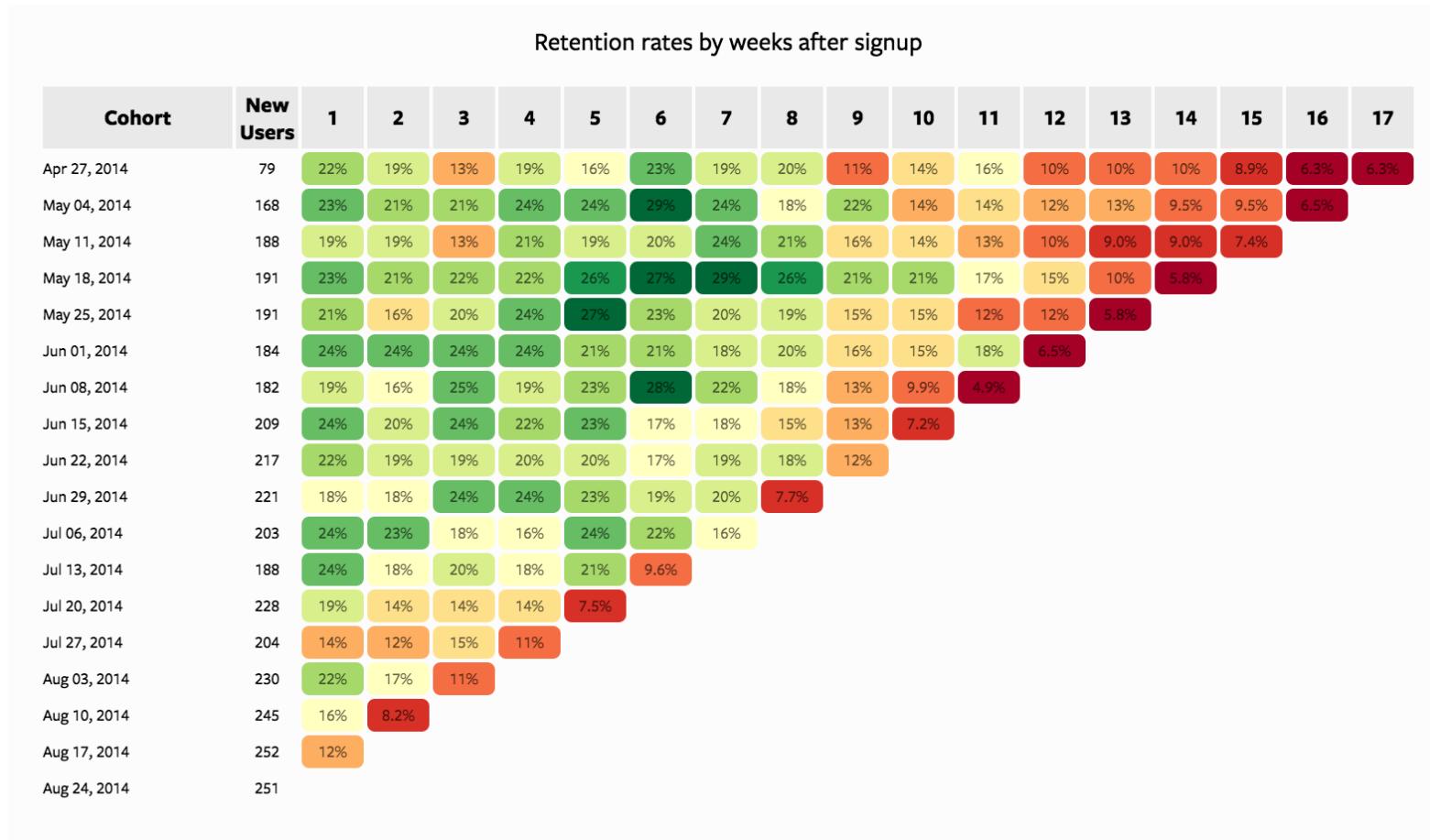


Business Model of Mobile Apps

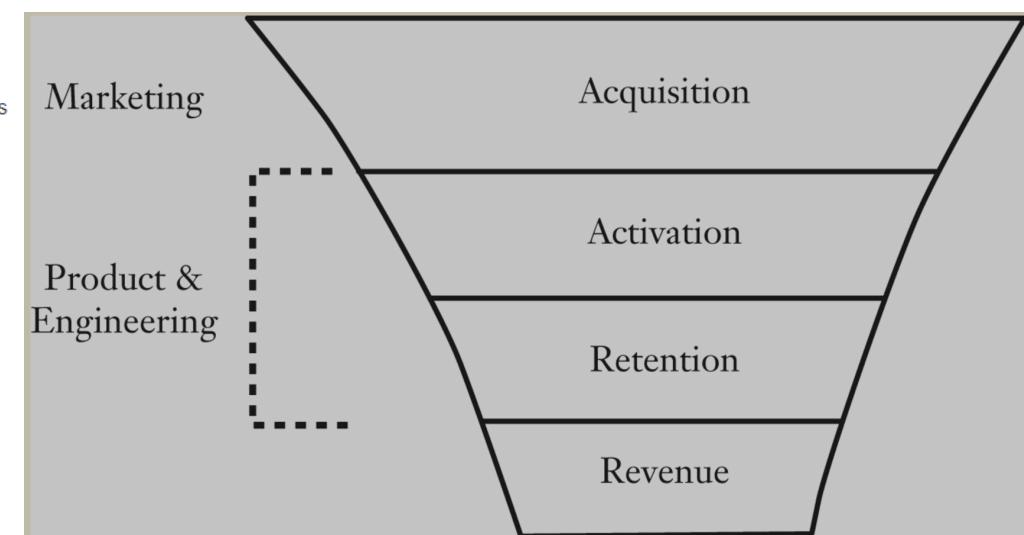
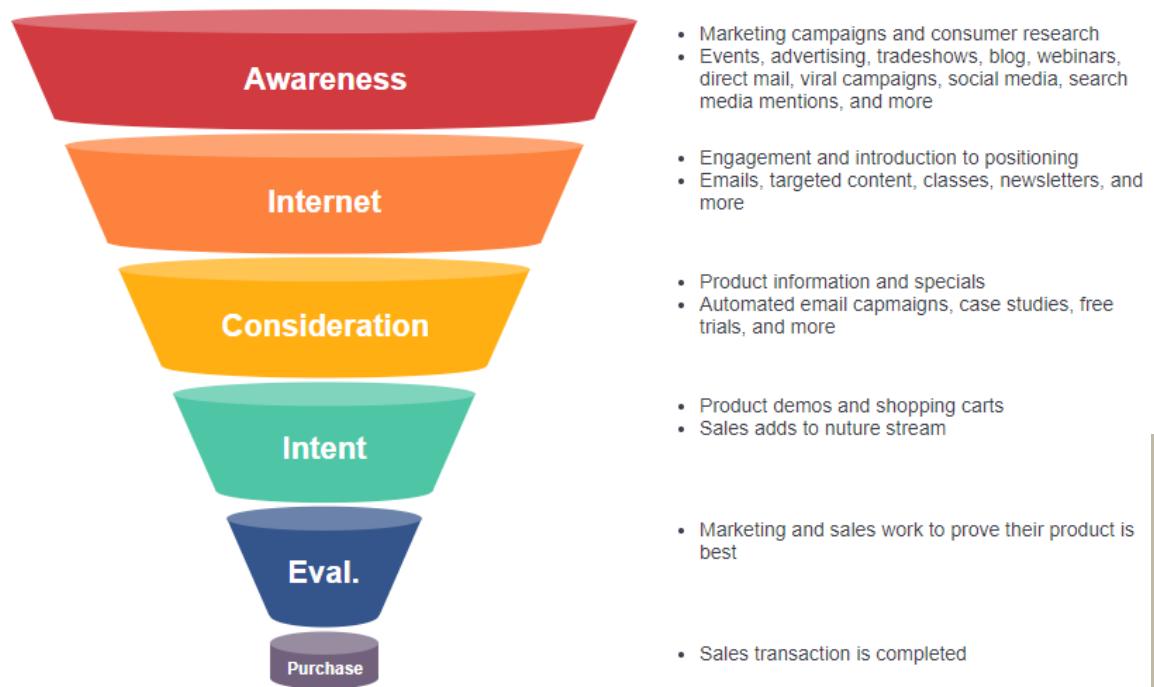
- In-App Purchase (IAP)
- Subscription
- Rewarded Ads



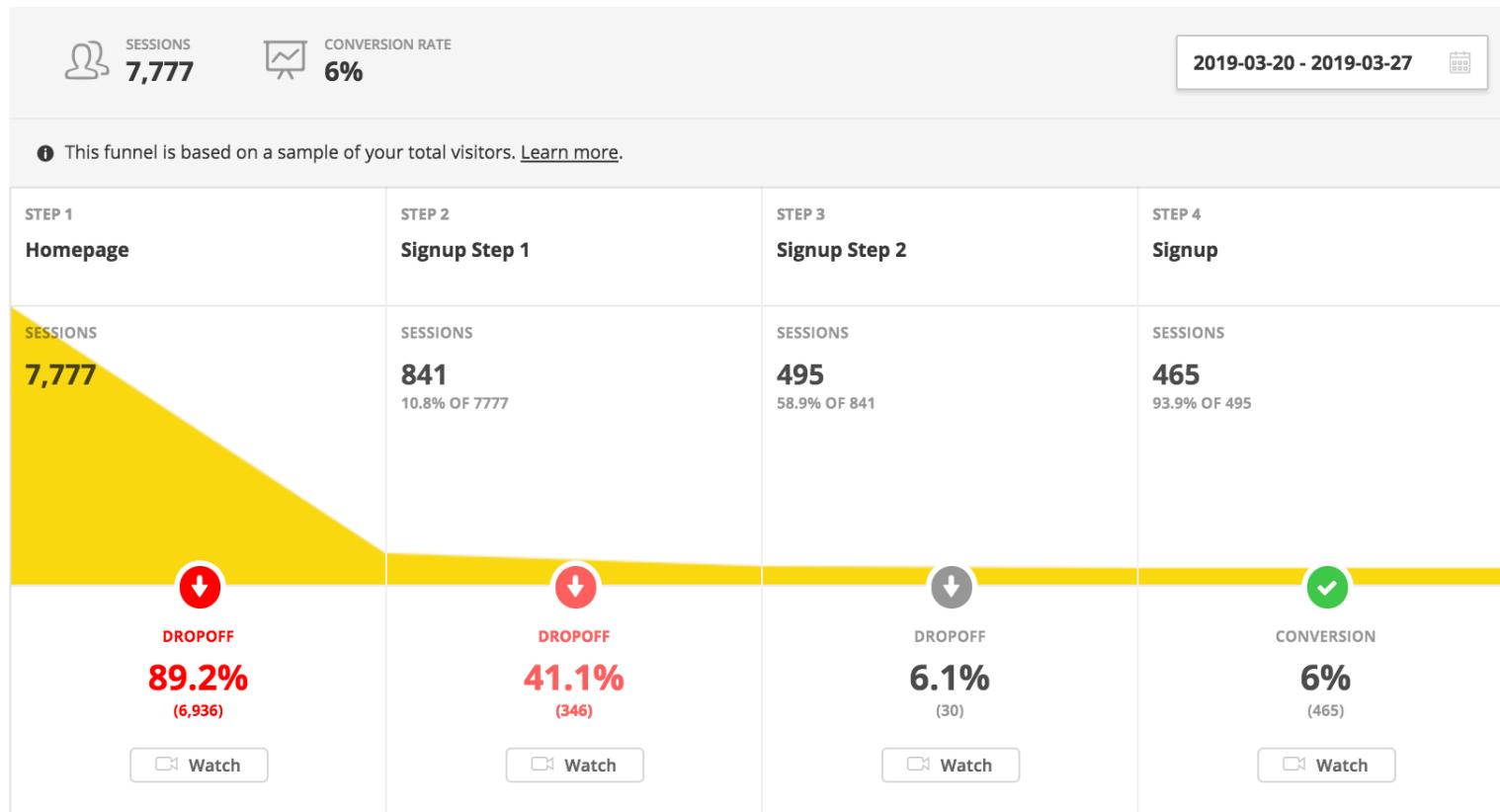
Cohort Analysis



Funnel Analysis



Funnel Analysis



게임 회사 데이터 분석 조직

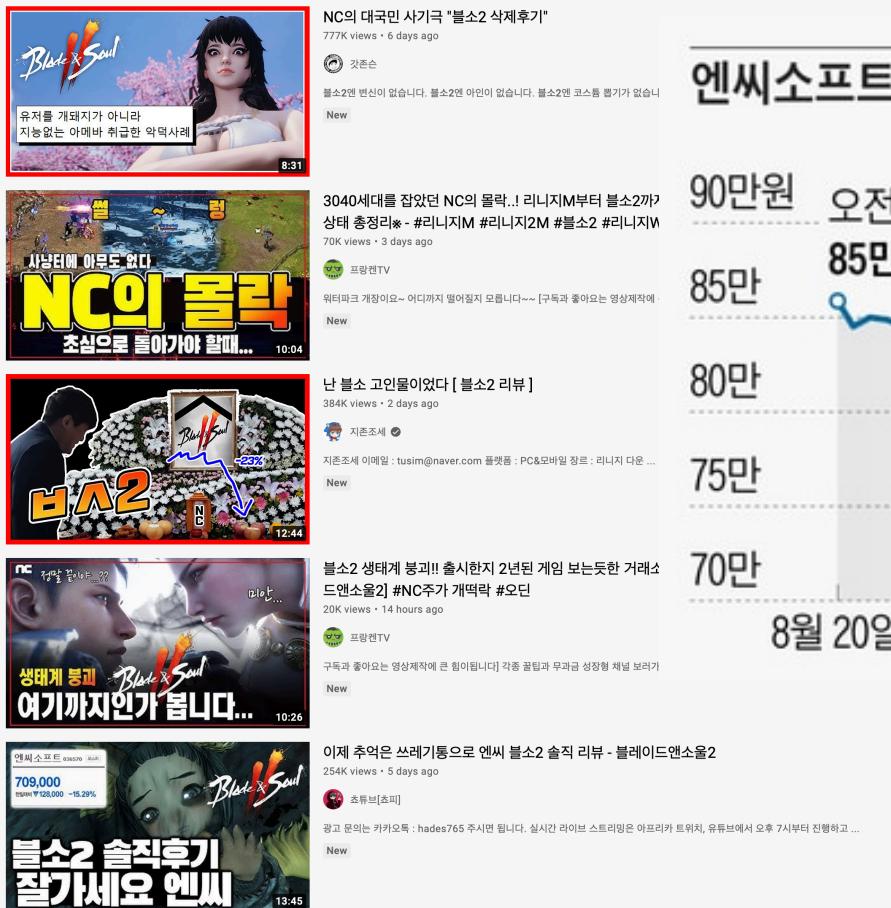
- 넥슨: 인텔리전스랩스
 - 2020년 기준 450명, 현재 빠른 속도로 증가 중
- 엔씨소프트: AI 연구조직
 - 2011년 처음 조직 설립, 2021년 기준 200명
 - 게임 뿐만 아니라 금융업에도 파트너십을 통해 참여
- 넷마블: 콜럼버스 프로젝트, 마젤란 프로젝트
 - 콜럼버스 프로젝트: 게임 퍼블리싱, 마케팅, 운영 등을 AI로 운영
 - 마젤란 프로젝트: AI로 게임 개발 도움
 - 2020년 기준 100명대 인력 추산, 향후 두 배 이상 확장 계획

게임 회사 데이터 분석 조직

3N(엔씨소프트·넷마블·넥슨) AI 조직 현황

	조직	주요 연구 과제 및 성과
엔씨소프트	게임 AI랩, 스피치랩, 비전 AI랩, 언어 AI랩, 지식 AI랩	야구 정보 서비스 '페이지', 머신러닝 기반 'AI 기자' 개발
넷마블	마젤란실, 콜럼버스실	게임 버그·오류 등을 탐지 감지 시스템 구축, 빅데이터 활용 이용자 패턴 정보 분석
넥슨	인텔리전스랩스	게임 유저 지표 분석, 작업장·불법 프로그램 어뷰징 탐지, 텍스트와 이미지 탐지

잠깐 딴 이야기...



엔씨소프트 주가 단위: 원



엔씨 요즘 게임은 안 만들고 이런거 하더니...

엔씨소프트도 움직였다…AI로 디지털 금융업 진출



게임회사 엔씨소프트가 인공지능(AI)을 활용한 디지털 금융사업에 진출한다. /사진=연합뉴스

[엔씨소프트\(639,000 -3.18%\)](#)가 인공지능(AI) 기술을 활용해 디지털 금융업에 나선다. 증권사, 로보어드바이저 업체와 합작법인을 설립해 새로운 형태의 디지털 증권사를 출범시킬 계획이다.

[엔씨소프트](#)는 7일 KB증권, 디셈버앤컴퍼니자산운용과 'AI 간편투자 증권사' 출범을 위한 합작법인(JV)을 설립한다고 발표했다.

엔씨(NC), AI 영역 확장…금융 AI 기술 개발 나선다



- KB증권-디셈버앤컴퍼니와 'AI 간편투자 증권사' 출범을 위한 합작법인(JV) 조인식 진행
- 엔씨-AI 기술, KB증권-금융 노하우, 디셈버앤컴퍼니-로보어드바이저 기술의 시너지 창출
- 엔씨, AI 기술력과 금융 데이터 기반으로 새로운 금융 AI 개발 추진

엔씨가 KB증권, 디셈버앤컴퍼니자산운용(이하 디셈버앤컴퍼니)과 'AI 간편투자 증권사' 출범을 위한 합작법인(JV)에 참여했다고 7일 밝혔다.

여기서 잠깐 스티브 잡스 형님의 일타 강의

- 제록스/IBM/블리자드/엔씨는 왜 망했는가?
 - <https://www.youtube.com/watch?v=082aRekJrP8>



MMP: Mobile Measurement Platform

- **Google Analytics** (Free)
 - <https://analytics.google.com>
- **Adjust** (Paid)
 - <https://www.adjust.com>
 - Price: 40~60 cents per paid install
- **Singular** (Paid)
 - <https://www.singular.net>
 - Price: 40~60 cents per paid install

Let me show you a real-world example..



Dobby Canvas 17+

Create with Generative AI

[Dobby Canvas, Inc.](#)

Designed for iPad

Free · Offers In-App Purchases

[View in Mac App Store ↗](#)

Firebase & Google Analytics

- Firebase
 - <https://console.firebaseio.google.com>
- Google Analytics
 - <https://analytics.google.com>