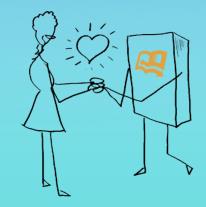# Facebook: Building a Business from the Social Graph

Introduction

- Facebook was started by Mark Zuckerberg, a Harvard drop-out

- Just two weeks after Facebook launched, the firm had four thousand users and ten months later it was up to one million

- As growth skyrocketed, Facebook built on its stranglehold of the college market, opening up next to high school students, then to everyone

- In 2006, Microsoft locked up the right to broker all banner ad sales that run on the U.S. version of Facebook, guaranteeing Zuckerberg's firm $100 million each year through 2011

The Rise of Facebook

- In 2007, Microsoft bought 1.6 percent of the firm for $240 million

- Facebook had become more valuable than General Motors

Zuckerberg Rules!

- Many entrepreneurs accept startup capital from venture capitalists

  - **Venture capitalists (VCs):** Investor groups that provide funding in exchange for a stake in the firm and a degree of managerial control usually in the form of a voting seat(s) on the firm's board of directors

  - **Board of directors**: Group assigned to govern, advise, and provide oversight for the firm

- The earlier a firm accepts VC money, the more control these investors can exert

Zuckerberg Rules!

- VCs have deep entrepreneurial experience, a wealth of contacts, and can offer important guidance and advice

- But strong VCs can oust a firm's founder and other executives if they're dissatisfied with the firm's performance

Zuckerberg Rules!

- At Facebook, Zuckerberg owns an estimated 20 percent to 30 percent of the company, and controlled three of five seats on the firm's board of directors

  - The firm only recently expanded the number of directors

- Maintaining this kind of control is unusual in a start-up, and his influence is a testament to the speed with which Facebook expanded

Facebook's Copilot

- Sheryl Sandberg – Chief operating officer

  – She's helped devise an advertising platform that has attracted the world's largest brands

  – She's developed a sales organization that can serve a customer base ranging from the Fortune 100 to mom-and-pop stores

  – She's helped the firm through several crises—while turning a profit and pushing revenue higher

Does Facebook Want to Eat Your Firm's Lunch? Enveloping Markets across the Internet

- Facebook isn't just a collection of personal home pages and a place to declare your allegiance to your friends

- Facebook is turning on features that allow it to leverage its massive user base to encroach on a wide swath of Internet businesses

- Facebook is the biggest photo-sharing site on the Web

- Video is on the rise too

So What's it Take to Run This Thing?

- The Facebook cloud is scattered across multiple facilities

  - **Cloud**: A collection of resources available for access over the Internet

- The innards that make up the bulk of the system aren't that different from what you'd find on a high-end commodity workstation

- Much of what powers the site is open source software (OSS)

  - **Open source software (OSS)**: Software that is free and where anyone can look at and potentially modify the code

So What's it Take to Run This Thing?

- A good portion of the code is in PHP

- The databases are in MySQL

- The object cache that holds Facebook's frequently accessed objects is in chip-based RAM instead of on slower hard drives

    - It is managed through the open source product called Memcache

- Other code components are written in a variety of languages, including C++, Java, Python, and Ruby, with access between these components managed by a code layer the firm calls Thrift

The Social Graph

- Social graph is the global mapping of users, organizations, and how they are connected

  - Through Facebook, you're connected to other users (your friends), photos about you are tagged, comments you've posted carry your name, you're a member of groups, you're connected to applications you've installed

The Social Graph

- Facebook was conceived as a place where you could reinforce contacts among those who, for the most part, you already knew

- Facebook's distinguishing feature – Its realness

    - This brought along with it a degree of safety and comfort that enabled Facebook to become a true social utility and build out a solid social graph consisting of verified relationships

The Social Graph

- There is a strong network effect to Facebook

  - **Network effects**: When the value of a product or service increases as its number of users expands

- The switching costs for Facebook are extremely powerful

  - **Switching costs**: The cost a consumer incurs when moving from one product to another

Facebook as a Platform

- In May 2007, at a conference called F8, Mark Zuckerberg announced that he was opening up the screen real estate on Facebook to other application developers

- Facebook published a set of application programming interfaces (APIs) that specified how programs could be written to run within and interact with Facebook

  - **Application programming interfaces (APIs)**: Programming hooks, or guidelines published by firms that tell other programs how to get a service to perform a task such as send or receive data

  - Any programmer could write an application that would run inside a user's profile

Facebook as a Platform

- Developers can charge for their wares, offer them for free, and even run ads

- Facebook let developers keep what they made

- A key distinction: MySpace initially restricted developer revenue on the few products designed to run on their site, at times even blocking some applications

  - The choice was clear, and developers flocked to Facebook

- To promote the new apps, Facebook runs an applications area on the site where users can browse offerings

Facebook as a Platform

- Each application potentially added more value and features to the site without Facebook lifting a finger

- Some applications were accused of spamming friends with invites to install them

- There were security concerns and apps that violated the intellectual property of other firms

Facebook as a Platform

- Legitimate questions remain:

  - Are Facebook apps really a big deal?

  - Just how important will apps be to adding sustained value within Facebook?

  - And how will firms leverage the Facebook framework to extract their own value?

- There are suggestions that a lot of applications are faddish time wasters

Advertising and Social Networks: A Work in Progress

- Facebook makes its money from advertising

  - For years, online advertising has been the only major media category that has seen an increase in spending

  - Firms spend more advertising online than they do on radio and magazine ads

- But not all Internet advertising is created equal

- There are signs that social networking sites are struggling to find the right ad model

Advertising and Social Networks: A Work in Progress

- Problems advertising on social networks include content adjacency, and user attention

  - **Content adjacency**: Concern that an advertisement will run near offensive material, embarrassing an advertiser and/or degrading their products or brands

Attention Challenges:
The Hunt Versus The Hike

- In terms of revenue model, Facebook is radically different from Google and the hot-growth category of search advertising

- Users of Google and other search sites are on a hunt—a task-oriented expedition to collect information that will drive a specific action

- Search users want to learn something, buy something, research a problem, or get a question answered

Attention Challenges: The Hunt Versus The Hike

- Google only charges text advertisers when a user clicks through
  - If there are no clicks, the ad runs at no cost to the firm
  - Users click on Google ads enough for this to be the single most valuable activity among any Internet firm
- While users go to Google to hunt, they go to Facebook as if they were going on a hike—they have a rough idea of what they'll encounter, but they're there to explore and look around, and enjoy the sights (or site)

Attention Challenges: The Hunt Versus The Hike

- Most banner ads don't charge per click, but rather via something called CPM

    - **CPM**: Cost per thousand impressions—billing mechanism often used in online display advertising (as well as by other media)

- Facebook banner ads performed so poorly that the firm pulled them in early 2010

- Facebook ads sell for much less

Getting Creative with Promotions: Does It Work?

- Facebook has begun to experiment with relatively new forms of advertising like engagement ads
  - **Engagement ads**: Promotion technique popular with social media that attempts to get consumers to interact with an ad, then shares that action with friends
- Facebook competes with its own widget makers
- Jupiter Research surveyed marketers trying to create a viral impact online and found that only about 15 percent of these efforts actually caught on with consumers
- Brands seeking to deploy their own applications in Facebook have struggled

Predators and Privacy

- In October 2007, Facebook became an investigation target

  – Officials from the New York State Attorney General's office had posed as teenagers on Facebook and received sexual advances

  – Complaints to the service from investigators posing as parents were also not immediately addressed

  – These were troubling developments for a firm that prided itself on trust and authenticity

- In agreement with forty-nine states, Facebook offered aggressive programs, many of which put it in line with MySpace

Predators and Privacy

- Facebook agreed to take several actions including:

  - Responding to complaints about inappropriate content within twenty-four hours and allowing an independent examiner to monitor how it handles complaints

  - Imposing age-locking restrictions on profiles and reviewing any attempt by someone under age eighteen to change their date of birth

  - Making profiles of minors no longer searchable

  - Automatically sending a warning message when a child is at risk of revealing personal information to an unknown adult

  - Banning links to explicit material, the most offensive Facebook groups, and any material related to cyber bullying

One Graph to Rule Them All: Facebook Reaches across the Web with Open Graph

- In Spring 2010, during the firm's annual f8 Developers Conference, Facebook launched a series of initiatives that placed the company directly at the center of identity, sharing, and personalization—not just on Facebook, but across the web

- With just a few lines of HTML code, any developer could add a Facebook "Like" button to their site and take advantage of the power of viral distribution

- It also offered a system where website operators can choose to accept a user's Facebook credentials for logging in

One Graph to Rule Them All: Facebook Reaches across the Web with Open Graph

- Facebook lets websites embed some Facebook functionality right on their pages

- Other efforts allow firms to leverage Facebook data to make their sites more personalized

- These features enlist web sites to serve as vassal states in the Facebook empire

Social Networking Goes Global

- Facebook will see stellar growth start to slow as the law of large numbers sets in

- The shift from growth business to mature one can be painful, and for online firms it can occur relatively quickly

- Facebook's crowdsourcing localization effort helped the firm rapidly deploy versions in dozens of markets, blasting the firm past MySpace in global reach

  - **Crowdsourcing**: The act of taking a job traditionally performed by a designated agent (usually an employee) and outsourcing it to an undefined generally large group of people in the form of an open call