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CHAPTER 7

What Business Are You In?

How you get and make money drives what metrics you should care about. In the long term, the riskiest part of a business is often directly tied to how it makes money.

Many startups can build a product and solve technical issues, some can attract the right (and occasionally large) audiences, but few make money. Even giants like Twitter and Facebook have struggled with extracting money from their throngs of users.

There's no more iconic symbol of a startup than the lemonade stand, and with good reason—it's a simple, entrepreneurial, low-risk way to learn how businesses operate. And like a lemonade stand, while it might be reasonable and strategic to delay monetization—giving away lemonade for a while to build a clientele—you have to be planning your business model early on.

If we asked you to describe the business model of a lemonade stand, you'd probably say that it's about selling lemonade for more than it costs to make it. Pressed for more detail, you might say that costs include:

- Variable costs of materials (lemons, sugar, cups, water)
- One-time costs of marketing (stand, signage, cooler, bribing a younger sibling to stand in the street)
- Hourly costs of staffing (which, let's face it, are pretty negligible when you're a kid)

You might also say that revenue is a function of the price you charge, and the number of cups sold.

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Now let's suppose that you're asked to identify the risky parts of the business. They include the variability of citrus futures, the weather, the foot traffic in your neighborhood, and so on.

One thing we've noticed about almost all successful founders we've met is their ability to work at both a very detailed, and a very abstracted, level within their business. They can worry about the layout of a page or the wording of an email subject one day, and consider the impact of one-time versus monthly recurring sales the next. That's partly because they're not only trying to run a business, they're also trying to discover the best business model.

To decide which metrics you should track, you need to be able to describe your business model in no more complex a manner than a lemonade stand's. You need to step back, ignore all the details, and just think about the really big components.

When you reduce things to their basic building blocks in this way, you come up with only a few fundamental business models on the Web. Interestingly, all of them share some common themes. First, their aim is to grow (in fact, Paul Graham says that a focus on growth is the one defining attribute of a startup).* And second, that growth is achieved by one of Eric Ries's fundamental Engines of Growth: an increase in stickiness, virality, or revenue.

Each business model needs to maximize the thrust from these three engines in order to flourish. Sergio Zyman, Coca-Cola's CMO, said marketing is about *selling more stuff to more people more often for more money more efficiently*.†

Business growth comes from improving one of these five "knobs":

- **More stuff** means adding products or services, preferably those you know your customers want so you don't waste time building things they won't use or buy. For intrapreneurs, this means applying Lean methods to new product development, rather than starting an entirely new company.
- **More people** means adding users, ideally through virality or word of mouth, but also through paid advertising. The best way to add users is when it's an integral part of product use—such as Dropbox, Skype, or a project management tool that invites outside users outsiders—

* *http://paulgraham.com/growth.html*

† *http://www.zibs.com/zyman.shtml*

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since this happens automatically and implies an endorsement from the inviting user.

- **More often** means stickiness (so people come back), reduced churn (so they don't leave), and repeated use (so they use it more frequently). Early on, stickiness tends to be a key knob on which to focus, because until your core early adopters find your product superb, it's unlikely you can achieve good viral marketing.
- **More money** means upselling and maximizing the price users will pay, or the revenue from ad clicks, or the amount of content they create, or the number of in-game purchases they make.
- **More efficiently** means reducing the cost of delivering and supporting your service, but also lowering the cost of customer acquisition by doing less paid advertising and more word of mouth.

About Those People

Business models are about getting people to do what you want in return for something. *But not all people are equal.* The plain truth is that not every user is good for you.

- Some are good—but only in the long term. Evernote's freemium model works partly because users eventually sign up for paying accounts, but it can take them two years to do so.
- Some provide, at best, free marketing, and while they may never become paying users, they may amplify your message or invite someone who will pay.
- Some are downright bad—they distract you, consume resources, spam your site, or muddy your analytics.

When you get a wave of visibility, few of the resulting visitors will actually engage with your product. Many are just driving by. As Vinicius Vacanti, cofounder and CEO of Yipit, recalls in a blog post inspired by his company's 2010 launch:*

> Was that our big launch? Why didn't more people sign up? Why didn't people complete the sign-up flow? Why weren't people coming back? Now that people covered our startup, how are we supposed to get more press? Why aren't our users pushing their actions to Facebook and Twitter? We got some users to invite their friends but why aren't their friends accepting the invite?

* *http://viniciusvacanti.com/2012/11/19/the-depressing-day-after-you-get-techcrunched/*

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The key here is analytics. You need to segment real, valuable users from drive-by, curious, or detrimental ones. Then you need to make changes that maximize the real users and weed out the bad ones. That may be as blunt as demanding a credit card up front—a sure way to reject curious users who don't have any intention of committing or paying. Or it may be a subtler approach, such as not trying to reactivate disengaged users once they've been gone for a while.

If you're a developer of a game that users play once, or an e-commerce site stocking rarely purchased items, that's fine—just get your money up front. If you're a SaaS provider with low incremental costs for additional users, freemium may work, as long as you clearly separate engaged from casual users. If you expect buyers to purchase from you often, you need to make them feel loved. You get the picture.

Segmenting real users from casual ones also depends on how much effort your users have to put into using the application. Some products collect information passively: Fitbit logs walking steps; Siri notices when you've arrived somewhere; Writethatname analyzes your inbox for new contacts. Users don't have to do much, so it can be hard to tell if they've "checked out." It's easier to find disengaged users if they have to actively use the product.

Consider the aforementioned Fitbit, a tiny life-logging device that measures steps, from which it calculates calories burned, miles walked, stairs climbed, and overall activity.

Fitbit users can simply record their steps with a device in their pocket, they can use it to sync data to the company's hosted application, they can visit the portal to see their statistics and share them with friends, they can manually enter sleep and food data to augment what's collected passively, and they can buy the premium Fitbit offering to help them reach their health goals.

Each of these use models represents a different tier of engagement, and Fitbit could segment users across these five segments. And it should: it's perfectly acceptable for a Fitbit user to only use the clip-on device to record the number of steps taken per day, without ever uploading that information, but as a result the company won't be able to monetize that user beyond the initial purchase (through on-site ads, premium subscriptions, or selling aggregate user data, for example). The value of that user is significantly lower. Predicting revenues accurately relies on an understanding of how its different user segments employ the product.

As a startup, you have a wide range of payment and incentive models from which to choose: freemium, free trial, pay up-front, discount, ad-funded, and so on. Your choice needs to match the kind of segmentation you're doing, the time it takes for a user to become a paying customer, how easy it

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is to use your service, and how costly an additional drive-by user is to the business.

Not all customers are good. Don't fall victim to customer counting. Instead, optimize for *good* customers and segment your activities based on the kinds of customer those activities attract.

The Business Model Flipbook

A product is more than the thing you buy. It's the mix of service, branding, fame, street cred, support, packaging, and myriad other factors you pay for. When you purchase an iPhone, you're also getting a tiny piece of Steve Jobs's persona.

In the same way, a business model is a combination of things. It's what you sell, how you deliver it, how you acquire customers, and how you make money from them.

Many people blur these dimensions of a business model. We're guilty of it, too. Freemium isn't a business model—it's a marketing tactic. SaaS isn't a business model—it's a way of delivering software. The ads on a media site aren't a business model—they're a way of collecting revenue.

Later in the book we're going to outline six sample businesses. But before we do that, we want to talk about how we came up with them. Think of one of the flipbooks you had as a kid—the kind where you could combine different body parts on each page to make different characters.

You can build business models this way, but instead of heads, torsos, and feet, you have several aspects of a business: the acquisition channel, selling tactic, revenue source, product type, and delivery model.

- The **acquisition channel** is how people find out about you.
- The **selling tactic** is how you convince visitors to become users or users to become customers. Generally, you either ask for money or you provide some kind of scarcity or exclusivity—such as a time limit, a capacity limit, the removal of ads, additional functionality, or the desire to keep things to themselves—to convince them to act.
- The **revenue source** is simply how you make money. Money can come from your customers directly (through a payment) or indirectly (through advertising, referrals, analysis of their behavior, content creation, and so on). It can include transactions, subscriptions, consumption-based billing charges, ad revenue, resale of data, donations, and much more.
- The **product type** is what value your business offers in return for the revenue.

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- The **delivery model** is how you get your product to the customer.

Figure 7-1 shows these five aspects, with a variety of models and examples for each one. Remember that this is only a set of examples—most businesses will rely on several acquisition channels, or experiment with different revenue models, or try various sales tactics.

ACQUISITION CHANNEL	How the visitor, customer, or user finds out about the startup	• **Paid advertising** • **Search engine mgmt.** • **Social media outreach** • **Inherent virality** • **Artificial virality** • **Affiliate marketing** • **Public relations** • **App/ecosystem mkt.**	• Banner on **Informationweek.com** • High pagerank for **ELC** in kids' toys • Active on Twitter (i.e., **Kissmetrics**) • Inviting team member to **Asana** • Rewarding **Dropbox** user for others' signups • Sharing a % of sales with a referring **blogger** • Speaker submission to **SXSW** • Placement in the **Android market**
SELLING TACTIC	What the startup does to convince the visitor or user to become a paying customer	• **Simple purchase** • **Discounts & incentives** • **Free trial** • **Freemium** • **Pay-for-privacy** • **Free-to-play**	• Buying a PC on **Dell.com** • **Black Friday** discount, loss leader, free ship • Time-limited trial such as **Fitbit** Premium • Free tier, relying on upgrades, like **Evernote** • Free account content is public, like **Slideshare** • Monetize in-app purchases, like **Airmech**
REVENUE MODEL	How the startup extracts money from its visitors, users, or customers	• One-time **transaction** • Recurring **subscription** • **Consumption** charges • **Advertising** clicks • Resale of **user data** • **Donation**	• Single purchase from **Fab** • Monthly charge from **Freshbooks** • Compute cycles from **Rackspace** • PPC revenue on **CNET.com** • **Twitter's** firehose license • **Wikipedia's** annual campaign
PRODUCT TYPE	What the startup does in return. May be a product or service; may be hardware or software; may be a mixture	• **Software** • **Platform** • **Merchandising** • **User-generated** content • **Marketplace** • **Media/content** • **Service**	• **Oracle's** accounting suite • Amazon's **EC2** cloud • **Thinkgeek's** retail store • **Facebook's** status update • **Airbnb's** list of house rentals • **CNN's** news page • A **hairstylist**
DELIVERY MODEL	How the product gets to the customer	• **Hosted** service • **Digital** delivery • **Physical** delivery	• **Salesforce.com's** CRM • **Valve** purchase of desktop game • Knife shipped from **Sur La Table**

Figure 7-1. Just like the flipbooks you had as a kid, with more words

Lots to Choose From

There is an abundance of "pages" you can put into the flipbook. The team at Startup Compass, a startup dedicated to helping companies make better business decisions with data, identifies 12 revenue models: advertising, consulting, data, lead generation, licensing fee, listing fee, ownership/hardware, rental, sponsorship, subscription, transaction fee, and virtual goods. Venture capitalist Fred Wilson has a document listing a vast number

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of web and mobile revenue models, many of which are variants on six basic ones we'll list later in the book.*

Startup Compass also suggests some "fundamental" financial models that combine several pages from the flipbook: search, gaming, social network, new media, marketplace, video, commerce, rental, subscription, audio, lead generation, hardware, and payments.

You can use these "pages" to create a back-of-the-napkin business model. For example, Figure 7-2 shows a sample business model flipbook for Dropbox.

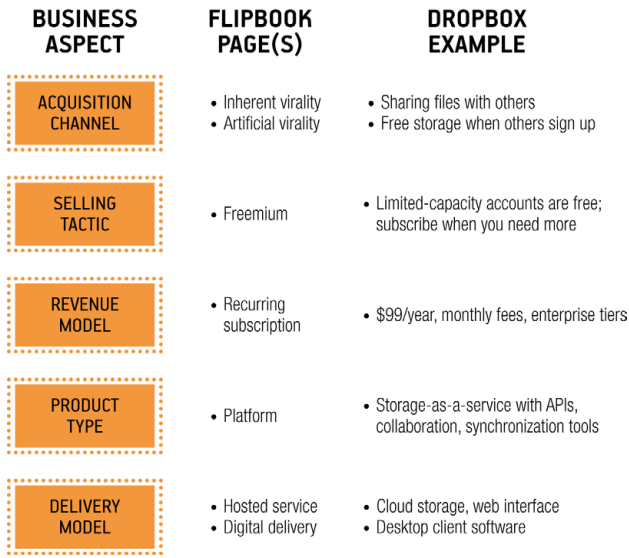

Figure 7-2. Turning the flipbook pages to Dropbox

There's another advantage of stating business models in a flipbook structure like this: it encourages lateral thinking. Each turn of a "page" is a pivot: what would it mean to offer Dropbox as a physical delivery? Or to charge up front for it? Or to rely on paid advertising?

Six Business Models

In the coming chapters, we're going to look at six business models. Each model is a blend of these aspects, and we've tried to mix them up enough to give you a taste of some common examples. But just like a kid's flipbook, there's a huge variety: from the aforementioned list, there are over 6,000 permutations, and our list of aspects isn't by any means exhaustive.

* *https://hackpad.com/Ch2paBpUyIU#Web-and-Mobile-Revenue-Models*

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As if that weren't confusing enough, you can employ several at once: Amazon is a transactional, physical-delivery, SEM (search engine marketing), simple-purchase retailer, but it's also running sub-businesses such as user-generated content in the form of product reviews. So unlike those relatively simple children's books, your business can quite easily be a many-headed monster.

In the face of this complexity, we've decided to keep our six business models simple. We'll talk about several aspects of those businesses, and the metrics that matter most to companies of each sort. Think of it as opening the business model flipbook to a particular "page"—one in which you see elements of your own business.

- If you're running an e-commerce business where you sell things to customers, turn to Chapter 8.
- If you're delivering SaaS to users, turn to Chapter 9.
- If you're building a mobile application and using in-app purchases to generate revenue, head to Chapter 10.
- If you're creating content and making money from advertising, you'll find details on media sites in Chapter 11.
- If your primary focus is getting your users to generate content on your platform the way Twitter, Facebook, or reddit do, turn to Chapter 12.
- If you're building a two-sided marketplace where buyers and sellers can come together, check out Chapter 13.

Most businesses fall into one of these categories. Some won't, but they have close parallels in the real world. A restaurant is transactional, like e-commerce; an accounting business offers a recurring service, like a SaaS company, and so on. Hopefully, you'll find a model that's close enough for you to learn important lessons about analytics and apply them to your business, as we review the stages of growth in Chapter 14 and beyond.

EXERCISE | Pick Your Business Model

In the following chapters we go through six sample business models. Find yours and write it down, then list all the metrics we define in that business model and see how well that aligns with what you're tracking. For the metrics that you're tracking, put down the values as they stand today, if you haven't already. If your business overlaps on a couple of models (which isn't uncommon), then grab metrics from each of those models and include them in this exercise.

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CHAPTER 8

Model One: E-commerce

In an e-commerce company, a visitor buys something from a web-based retailer. This is perhaps the most common kind of online business, and it's certainly the one that the majority of traditional analytics tools are aimed at. Big retailers like Amazon, Walmart.com, and Expedia are all e-commerce companies.

If the e-commerce model most closely matches your business, this chapter will show you some of the most important metrics you need to watch, as well as some "wrinkles" that make the analytics more complex.

Early e-commerce models consisted of a relatively simple "funnel": a visitor arrived at the site, navigated through a series of pages to get to a particular item, clicked "buy," provided some payment information, and completed a purchase. This is the traditional "conversion funnel" from which mainstream analytics packages like Omniture and Google Analytics emerged.

But modern e-commerce is seldom this simple:

- The majority of buyers find what they're looking for through search rather than by navigating across a series of pages. Shoppers start with an external search and then bounce back and forth from sites they visit to their search results, seeking the scent of what they're after. Once they find it, on-site navigation becomes more important. This means on-site funnels are somewhat outdated; keywords are more important.

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Wrinkles: Traditional E-commerce Versus Subscription E-commerce

So far, we've looked at a relatively simple e-commerce model involving a one-time purchase. Plenty of services, however, are subscription-based. This complicates things.

Subscription services bill the customer on a regular basis. Churn is easier to measure—the customer doesn't renew his account or cancels outright—but happens more dramatically. Rather than a gradual reduction in purchases over time, the customer's revenue simply stops. If this is you, check out the following business model—Software as a Service—because it applies to you as well.

Phone companies devote considerable effort to tackling this kind of churn. They build sophisticated models that predict when a subscriber is about to cancel her service, and then offer her a new phone or a discount on a renewed contract just before the cancellation happens.

Expired payment information is also a concern for subscriptions. If you try to charge a customer's credit card for his monthly renewal and the transaction fails, you have to convince him to re-enter payment details.

From an analytics perspective, this means tracking additional metrics for the rate of payment expiration, the effectiveness of renewal campaigns, and the factors that help (or hinder) renewal rates. These metrics matter later on as you're working to reduce churn, but as the total number of loyal users grows, renewal revenue represents a significant portion of total revenue.

Key Takeaways

- It's vital to know if you're focused on loyalty or acquisition. This drives your whole marketing strategy and many of the features you build.
- Searches, both off- and on-site, are an increasingly common way of finding something for purchase.
- While conversion rates, repeat purchases, and transaction sizes are important, the ultimate metric is the product of the three of them: revenue per customer.
- Don't overlook real-world considerations like shipping, warehouse logistics, and inventory.

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There's another business model that's close to e-commerce: two-sided marketplaces. Both models are concerned with transactions between a buyer and a seller, and the loyalty of customers. If you want to learn more about marketplaces, head to Chapter 13. Otherwise, you can move on to Chapter 14 to understand how your current stage affects the metrics you watch.

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CHAPTER 9

Model Two: Software as a Service (SaaS)

A SaaS company offers software on an on-demand basis, usually delivered through a website it operates. Salesforce, Gmail, Basecamp, and Asana are all examples of popular SaaS products. If you're running a SaaS business, here's what you need to know about metrics.

Most SaaS providers generate revenue from a monthly (or yearly) subscription that users pay. Some charge on a consumption basis—for storage, for bandwidth, or for compute cycles—although this is largely confined to Infrastructure as a Service (IaaS) and Platform as a Service (PaaS) cloud computing companies today.

Many SaaS providers offer a tiered model of their service, where the monthly fee varies depending on some dimension of the application. This might be the number of projects in a project management tool, or the number of customers in a customer relationship management application. Finding the best mix of these tiers and prices is a constant challenge, and SaaS companies invest considerable effort in finding ways to upsell a user to higher, more lucrative tiers.

Because the incremental cost of adding another customer to a SaaS service is negligible—think of how little it costs Skype to add a new user—many SaaS providers use a freemium model of customer acquisition.* Customers can start using a free version of the service that's constrained, in the hopes

* There are many ways to approach freemium, from free trials to crippled products to discount coupons, which we'll look at in more detail when we tackle revenue optimization.

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that they'll consume all the free capacity and pay for more. Dropbox, for example, gives subscribers a few gigabytes of storage for free, then does everything it can—including encouraging sharing and photo uploads—to make sure users consume that capacity.

Consider a project management startup that lets users try its product, but charges for more than three concurrent projects. It offers four tiers: free, 10 projects, 100 projects, and unlimited. It runs ads on several platforms to attract users to its site, and each time a user invites someone else to join a project, that person becomes a user.

The company cares about the following key metrics:

Attention

How effectively the business attracts visitors.

Enrollment

How many visitors become free or trial users, if you're relying on one of these models to market the service.

Stickiness

How much the customers use the product.

Conversion

How many of the users become paying customers, and how many of those switch to a higher-paying tier.

Revenue per customer

How much money a customer brings in within a given time period.

Customer acquisition cost

How much it costs to get a paying user.

Virality

How likely customers are to invite others and spread the word, and how long it takes them to do so.

Upselling

What makes customers increase their spending, and how often that happens.

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Uptime and reliability

How many complaints, problem escalations, or outages the company has.

Churn

How many users and customers leave in a given time period.

Lifetime value

How much customers are worth from cradle to grave.

These metrics follow a natural, logical order. Consider the customer's lifecycle: the company acquires a user through viral or paid marketing. Hopefully, that user continues to use the service, and eventually pays for a subscription. The user invites others, and perhaps upgrades to a higher tier. As a customer, she may have issues. In the end, she stops using the service—at which point, we know how much revenue she contributed to the business.

Describing a customer lifecycle in this way is a good method for understanding the key metrics that drive your business. This is where Lean Startup helps. You need to know *which aspects of your business are too risky* and then work to improve the metric that represents that risk.

Unfortunately, that's not always possible. There's no way to measure conversion rates if there are no users to convert. You can't quantify virality if no paid customers are inviting new users. And you probably can't measure stickiness for just a few people if the service requires a critical mass of users to be useful. This means you have to *know where the risk is*, but focus, in the right order, on *just enough optimization to get the business to a place where that risk can be quantified and understood.*

Let's say that the company in our example is concerned about whether the product is good enough to make people use it consistently. This is usually the right place to focus for SaaS companies, because they seldom get a second chance to make a first impression, and need users to keep coming back. In other words, they care about stickiness.

The company will, of course, need some amount of conversion (and therefore some amount of attention), but *only enough to test stickiness.* Those initial users could be acquired by word of mouth, or by direct selling, or by engaging with users on social networks. There's probably no need for a full-blown, automated marketing campaign at this stage.

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CASE STUDY

Backupify's Customer Lifecycle Learning

Backupify is a leading backup provider for cloud-based data. The company was founded in 2008 by Robert May and Vik Chadha, and has gone on to raise $19.5M in several rounds of financing.

Backupify was good at focusing on a specific metric at a specific stage, in order to grow the company. "Initially, we focused on site visitors, because we just wanted to get people to our site," said CEO and co-founder Robert May. "Then we focused on trials, because we needed people testing out our product."

Once Backupify had people trialing the product in sufficient numbers, Robert focused on signups (conversions from free trial to paying customer). Now, the primary focus is *monthly recurring revenue* (MRR).

The cloud storage industry has matured a lot in a handful of years, but back in 2008 it was a nascent market. At the time, the company was focused on consumers and realized that, while revenue was going up, the customer acquisition cost (CAC) was too high. "In early 2010 we were paying $243 to acquire a customer, who only paid us $39 per year," explained Robert. "Those are horrible economics. Most consumer apps get around the high acquisition costs with some sort of virality, but backup isn't viral. So we had to pivot [from consumer sales] to go after businesses."

The pivot for Backupify was a success. The company is growing successfully. For now, it remains focused on MRR, but it also tracks how much a customer is worth in the entirety of his relationship with the company—the customer lifetime value (CLV). CLV and CAC are the two essential metrics for a subscription business.

In Backupify's case, the ratio of CLV to CAC is 5–6x, meaning that for every dollar the company invests in finding a customer, it makes back $5 to $6. This is excellent, and it's partly due to its low churn. As it turns out, lock-in is high for cloud storage, which gives the company plenty of time to make back its acquisition costs in the form of revenues. We'll look at the CAC/CLV ratio in more detail later in the book.

"MRR growth will probably be our top metric until we hit $10M in annual recurring revenue," said Robert. "I watch churn, but I'm more focused on customer acquisition payback in months, which is how quickly I make my money back on each customer." Robert's target for that metric is 12 months or less for any given channel. Customer acquisition payback is a great example of a single number

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that encompasses many things, since it rolls up marketing efficiency, customer revenue, cash flow, and churn rate.

Summary

- Before focusing on sophisticated financial metrics, start with revenue. But don't ignore costs, because profitability is the real key to growth.
- You know it's time to scale when your paid engine is humming along nicely, which happens when the CAC is a small fraction of the CLV—a sure sign you're getting a good return on your investment.
- Most SaaS businesses thrive on monthly recurring revenue—customers continue to pay month after month—which is a great foundation on which to build a business.

Analytics Lessons Learned

There's a natural progression of metrics that matter for a business that change over time as the business evolves. The metrics start by tracking questions like "Does anyone care about this at all?" and then get more sophisticated, asking questions like "Can this business actually scale?" As you start to look at more sophisticated metrics, you may realize your business model is fundamentally flawed and unsustainable. Don't just start from scratch: sometimes what you need is a new market, not a new product, and that market may be closer than you think.

Measuring Engagement

The ultimate metric for engagement is daily use. How many of your customers use your product on a daily basis? If your product isn't a daily use app, establishing a minimum baseline of engagement takes longer, and the time it takes to iterate through a cycle of learning is longer. It's also hard to demonstrate enough value, quickly enough, to keep people from churning. Habits are hard to form—and with any new product, you're creating new habits, which you want to do as quickly and intensely as possible.

Evernote is an example of a daily use application (at least, its creators would like you to use it on a daily basis!). The people who pay for Evernote are most likely those who use it daily. Evernote has reported that only 1% of users convert into paid customers,* but for CEO Phil Libin that's OK—after all, the company has over 40 million users, and this year it's focused

* *http://econsultancy.com/ca/blog/10599-10-tips-for-b2b-freemiums*

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further on engagement, which is why it's acquiring companies like Skitch and adding image upload features.

After years of operation, the company has also learned that users take months or even years to become paying customers. Investors likely agree with the company's focus on engagement, since they're giving the company deep cash reserves to keep growing. In other words, conversion isn't Evernote's main concern right now, although once it improves engagement that's absolutely what it will concentrate on.*

Consider two other applications we use heavily but don't consider daily use applications: Expensify for expense reporting, and Balsamiq for wireframing. Just because *we* don't use them every day doesn't mean that a travelling sales rep, or a UI designer, isn't a daily user.

That's an important lesson around business models and Lean Startup—you bring an early version of your product to the market, test its usage, and look for where it's got the highest engagement among your customers. If there's a subsection of users who are hooked on your product—your early adopters—figure out what's common to them, refocus on their needs, and grow from there. Claim your beachhead. It will allow you to iterate much more quickly on a highly engaged segment of the market.

Some applications—such as a wedding gift registry, a reservation tool for a visit to the dentist, or a tax preparation site—simply aren't meant to be used on a daily basis. But you still need to set a high bar for engagement and measure against it. It's critical that you understand customers' behavior, and draw lines in the sand appropriate to that. Perhaps the goal is weekly or monthly use.

If you're building something genuinely disruptive, you need to consider the technology adoption lifecycle, from early to mainstream. Hybrid cars, Linux servers, home stereos, and microwaves were first adopted by a small segment of their markets, but took years of evangelism and millions of marketing dollars to be considered conventional.

In the first stages of your company, you typically have a small, devoted, unreasonably passionate following. This happens because new products initially appeal only to early adopters comfortable with change, or to that segment of the market so desperate for your solution that it's willing to tolerate something that's still rough around the edges. Those early adopters will be vocal, but beware. Their needs might not reflect those of the bigger, more lucrative mainstream. Google Wave attracted a flurry of early attention, but failed to achieve mainstream interest despite its powerful, flexible feature set.

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* *http://gigaom.com/2012/08/27/evernote-ceo-phil-libin/*

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You hope your first users are reflective of the mainstream, so you can reach a bigger market—something Geoffrey Moore famously referred to as "crossing the chasm." This isn't always the case. You also won't have the same volume of metrics on which to base your decisions.

When measuring engagement, don't just look at a coarse metric like visit frequency. Look for usage patterns throughout your application. For example, it's interesting to know that people log in three times per week, but what are they actually doing inside your application? What if they're only spending a few minutes each time? Is that good or bad? Are there specific features they're using versus others? Is there one feature that they always use, and are there others they never touch? Did they return of their own accord, or in response to an email?

Finding these engagement patterns means analyzing data in two ways:

- To find ways you might improve things, segment users who do what you want from those who don't, and identify ways in which they're different. Do the engaged users all live in the same city? Do all users who eventually become loyal contributors learn about you from one social network? Are the users who successfully invite friends all under 30 years old? If you find a concentration of desirable behavior in one segment, you can then target it.
- To decide whether a change worked, test the change on a subset of your users and compare that subset's results to others. If you put in a new reporting feature, reveal it to half of your users, and see if more of them stick around for several months. If you can't test features in this way without fallout—the customers who *didn't* get the new feature might get angry—then at the very least, compare the cohort of users who joined after the feature was added to those who came before.

A data-driven approach to measuring engagement should show you not only *how sticky* your product or service is, but also *who stuck and whether your efforts are paying off.*

Churn

Churn is the percentage of people who abandon your service over time. This can be measured weekly, monthly, quarterly, etc., but you should pick a timespan for all your metrics and stick to it in order to make comparing them easier. In a freemium or free-trial business model, you have both users (not paid) and customers (paid), and you should track churn for both groups separately. While churn might seem like a simple metric, there are a number of complications that can make it misleading, particularly for companies that have a highly variable growth rate.

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Unpaid users "churn" by cancelling their accounts or simply not coming back; paid users churn by cancelling their accounts, stopping their payments, or reverting to an unpaid version. We recommend defining an inactive user as someone who hasn't logged in within 90 days (or less). At that point, they've churned out; in an always-connected world, 90 days is an eternity.

Remember, however, that you may still be able to invite them back to the service later if you have significant feature upgrades—as Path did when it redesigned its application—or if you've found a way to reach them with daily content, as Memolane did when it sent users memories from past years.

As Shopify data scientist Steven H. Noble* explains in a detailed blog post,† the simple formula for churn is:

$$\frac{\text{(Number of churns during period)}}{\text{(\# customers at beginning of period)}}$$

Table 9-1 shows a simple example of a freemium SaaS company's churn calculations.

	Jan	Feb	Mar	Apr	May	Jun
Users						
Starting with	50,000	53,000	56,300	59,930	63,923	68,315
Newly acquired	3,000	3,600	4,320	5,184	6,221	7,465
Total	53,000	56,600	60,920	66,104	72,325	79,790
Active users						
Starting with	14,151	15,000	15,900	16,980	18,276	19,831
Newly active	849	900	1080	1,296	1,555	1,866
Total	15,000	15,900	16,980	18,276	19,831	21,697
Paying users						
Starting with	1,000	1,035	1,035	1049	1,079	1,128
Newly acquired	60	72	86	104	124	149
Lost	(25)	(26)	(27)	(29)	(30)	(33)
Total	1,035	1,081	1,140	1,216	1,310	1,426

Table 9-1. Example of churn calculations

* *http://blog.noblemail.ca/*

† *http://www.shopify.com/technology/4018382-defining-churn-rate-no-really-this-actually-requires-an-entire-blog-post*

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Table 9-1 shows users, active users, and paying users. Active users are those who have logged in at least once in the month after signing up. New users are growing at 20% a month, 30% use the service at least once (in the month after signing up), and 2% convert into paid customers.

Here's the churn calculation for February:

$$\frac{\text{26 users lost during the period}}{\text{1035 paying users at the start of the period}} \times 100$$

If 2.5% of customers churn every month, it means that the average customer stays around for 40 months (100/2.5). This is how you can start to calculate the lifetime value of a customer (40 months × average monthly revenue per user).

Churn Complications

Noble explains that because the number of churns in a particular period is affected by the entire period, but the number of customers at the beginning of a period is a moment-in-time snapshot, calculating churn in this simple manner can give misleading results in startups where growth is varied or unusually fast. In other words, churn isn't normalized for behavior and size—you can get different churn rates for the same kind of user behavior if you're not careful.

To fix this, you need to calculate churn in a less simple, but more accurate, way: average out the number of customers in the period you're analyzing, so you're not just looking at how many you had at the beginning:

$$\frac{\text{(Number of churns during period)}}{\text{[(\# customers at beginning of period)+(\# customers at end of period)]/ 2}}$$

This spreads out the total number of customers across the period, which is better, but it still presents a problem if things are growing quickly. If you have 100 customers at the start of the month, and 10,000 at the end, this formula assumes you have 5,050 customers in the middle of the month—which you don't, if you're on a hockey stick. Most of your new customers come in the later part of the month, so an average won't work. What's more, most of your churns will, too.

Worse: if you're counting churns as "someone who hasn't come back in 30 days," then you're comparing last month's losses to this month's gains, which is even more dangerous, because you're looking at a lagging indicator (last month's bad news). So by the time you find out something is wrong, it'll be next month.

Ultimately, the math gets really complex. There are two ways to simplify it. The first is to measure churn *by cohort*, so you're comparing new to

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churned users based on when they first became users. The second way is really, really simple, which is why we like it: measure churn each day. The shorter the time period you measure, the less that changes during that specific period will distort things.

Visualizing the SaaS Business

Figure 9-1 represents a user's flow through a SaaS business, along with the key metrics at each stage.

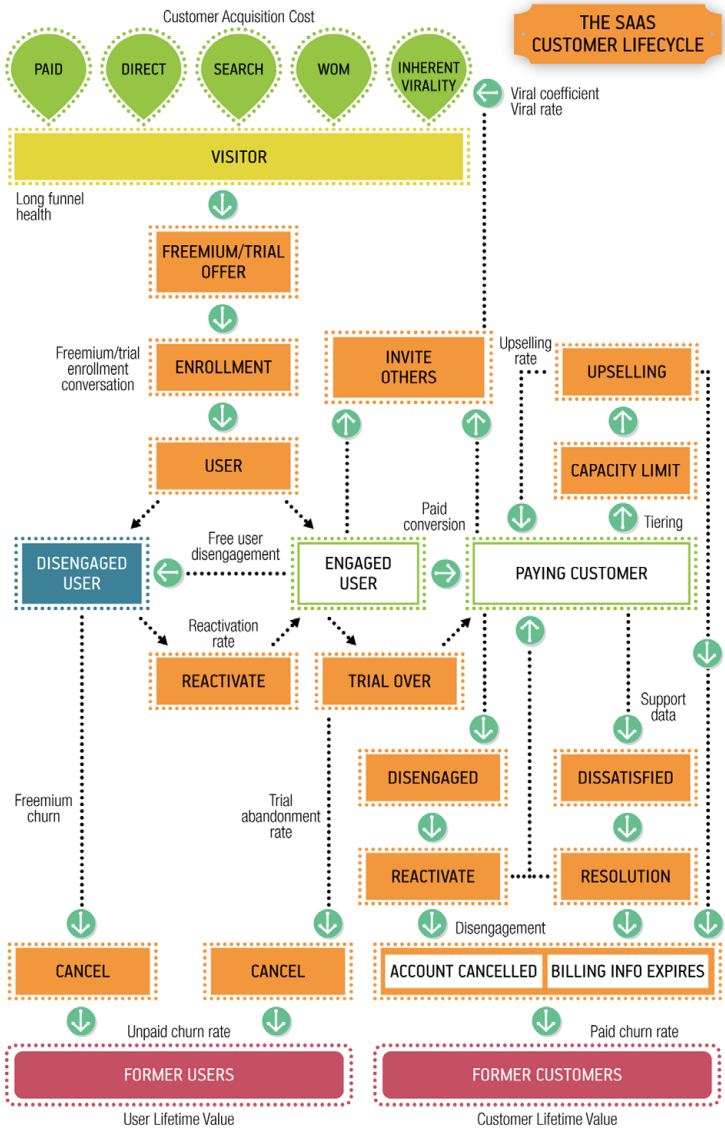

Figure 9-1. Visitors, users, customers: the life of a SaaS company

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CASE STUDY

ClearFit Abandons Monthly Subscriptions for 10x Growth

ClearFit is a SaaS provider of recruitment software aimed at helping small businesses find job candidates and predict their success. When they started, founders Ben Baldwin and Jamie Schneiderman offered a $99/month (per job posting) package. "We kept hearing over and over that monthly subscriptions were the key to growing a successful SaaS business," says Ben. "So that's the direction we took, but it didn't work as planned."

Two things confused ClearFit's customers: the price point and the monthly subscription. Ben and Jamie wanted to price ClearFit below what customers paid for job boards (typically more than $300 per job posting), but customers were so used to that price point that they were skeptical of ClearFit's value at $99/month. Ben says, "We don't compete with job boards, we partner with them, but at the time it seemed reasonable to have a lower price point to garner attention." Customers didn't understand why they would pay a subscription fee for something that they would most likely use sporadically. "When a company needs to hire, they want to do it fast and they're willing to invest at that moment in time," says Ben. "Our customers are too small to have dedicated HR staff or recruiters that are constantly looking for talent, and their hiring needs go up and down frequently."

Ben and Jamie decided to abandon their low monthly subscription and switch to a model that their customers understood: a per-job fee. ClearFit launched its new price point at $350 for a single job (for 30 days) and almost immediately saw three times the sales. The increase in volume and the higher price point improved revenue tenfold. "When we increased the price," Ben says, "it was an important signal to our customers. They understood the model and could more easily compare the value against other solutions they use. Even though what we do is different than a job board, we wanted our customers to feel comfortable with purchasing from us, and we wanted to fit into how they budget for recruiting."

In ClearFit's case, innovating on the business model didn't make sense. Ben says, "People don't do subscriptions for haircuts, hamburgers, and hiring. You have to understand your customer, who they are, how and why they buy, and how they value your product or service."

ClearFit's switch to a per-job-posting model may go against the popular grain of subscription-based SaaS businesses, but the company continues to see great success with 30% month-over-month revenue growth.

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Summary

- ClearFit initially focused on a subscription model for revenue, but customers misinterpreted its low pricing as a sign of a weak offering.
- The company switched to a paid listing model, and tripled sales while improving revenue tenfold.
- The problem wasn't the business model—it was the pricing and the messages it sent to prospects.

Analytics Lessons Learned

Just because SaaS is a recurring service doesn't mean it needs to be priced that way. If your product is ephemeral—like a transient job posting—it might be better to offer more transactional pricing. Pricing is a tricky beast. You need to test different price points qualitatively (by getting feedback from customers) and quantitatively. Don't assume a low price is the answer; customers might not attribute enough value to your offering. And remember that everything, including price, makes up the "product" you're offering.

Wrinkles: Freemium, Tiers, and Other Pricing Models

In a SaaS model, most of the complexity comes from two things: the promotional approach you choose, and pricing tiers.

As we've seen, some SaaS companies use a freemium model to convince people to use the service, and then make money when those users exceed some kind of cap. A second approach is a free trial, which converts to a paid subscription if the customer doesn't explicitly cancel after a certain time. A third approach is paid-only. There are others. Each has its benefits and drawbacks—paid-only controls cost, is more predictable, and gives you an immediate idea of whether your offering is valuable; freemium allows you to learn how people are using your service and builds goodwill. The difference between these user groups can complicate analysis.

The second wrinkle comes from how you tier pricing. Since different customers have different levels of consumption, the price they pay may change over time. This means you're constantly trying to upsell users to bigger tiers, and predicting growth adds to the dimensions of a model, making it harder to predict and explain your business.

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For the most part, we've talked about SaaS as a service provided to customers on a monthly subscription. But there are other revenue models that can work as well. While a subscription model lends itself to more predictive financial planning and less volatile revenue numbers, it doesn't always fit the value proposition, or how customers expect to pay.

Key Takeaways

- While freemium gets a lot of visibility, it's actually a sales tactic, and one you need to use carefully.
- In SaaS, churn is everything. If you can build a group of loyal users faster than they erode, you'll thrive.
- You need to measure user engagement long before the users become customers, and measure customer activity long before they vanish, to stay ahead of the game.
- Many people equate SaaS models with subscription, but you can monetize on-demand software in many other ways, sometimes to great effect.

SaaS businesses share much with mobile applications. Both business models care about customer churn, recurring revenue, and creating enough user engagement to convince users to pay for the product. You can read Chapter 10 to learn more, or you can skip to Chapter 14 to understand how your current stage affects the metrics you should watch.

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CHAPTER 10

Model Three: Free Mobile App

A third business model that's increasingly common is the mobile app. If you're selling a mobile application for money, you have a fairly straightforward sales funnel—you promote the application, and people pay you for it. But when you derive your revenue from other sources, such as in-game content, paying for features, or advertising, the model gets more complex. If, after looking at the business model flipbook in Chapter 7, you've decided you're running a mobile app business, then this is what analytics look like for you.

The mobile application has emerged as a startup business model with the rise of iPhone and Android smartphone ecosystems. Apple's application model is tightly regimented, with the company controlling what's allowed and reviewing submissions. Applications for the Android platform may be downloaded from the Android store or "side-loaded" from sources that aren't tightly controlled.

For Lean startups, an app store model* presents a challenge. Unlike web applications, where it's easy to do A/B testing and continuous deployment, mobile apps go through the app store gatekeeper—which limits the number of iterations a company can undergo, and hampers experimentation. Modern mobile apps are getting around the gatekeepers to some degree

* To be clear: Apple has an App Store, and may have claim to the name. But there are plenty of stores from which users can purchase an application for a platform like Android or Kindle. Even the Wii and Salesforce's App Exchange share the dynamics we're talking about here. So when we refer to "an app store," we mean any marketplace for new products created by the maker of a platform. When we're referring to Apple's, we'll capitalize it.

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by feeding in online content without requiring an actual app upgrade, but this takes extra work to set up. Some developers advocate trying out the Android platform first because it's easier to push frequent updates to users. Once those developers have validated their MVP on Android, they move to Apple's more constrained deployment environment. Others choose a smaller, secondary market (like the Canadian App Store) and work the bugs out there first.

Mobile app developers make money within their applications in several ways:

Downloadable content (such as new maps or vehicles)

> *Tower Madness*, a popular Tower Defense game for the iPhone, sells additional map sets at a small cost.

Flair and customization of in-character appearance and gaming content (a pet, clothing for a player's avatar)

> Blizzard sells non-combat enhancements like pets or vanity mounts.

Advantages (better weapons, upgrades, etc.)

> *Draw Something* charges for colors that make drawing easier.

Saving time

> A respawn rather than having to run a long distance, a strategy employed by many casual web-based MMOs.

Elimination of countdown timers

> Topping up energy levels that would normally take a day to refresh, which *Please Stay Calm* uses.

Upselling to a paid version

> Some applications constrain features. As of this writing, Evernote's mobile application doesn't allow offline synchronization of files unless a user has upgraded to the paid client, for example.

In-game ads

> Some games include in-game advertising, where the player watches promotional content in return for credits in the in-game currency.

Consider a mobile game that makes money from in-game purchases and advertising. Users find the application in an app store, either by searching or because it's showcased due to popularity or as part of a list. They consider the application—consulting ratings, number of downloads, other titles, and written reviews—and ultimately download the application. Then they launch it and start playing.

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The game has an in-game economy (gold coins) that can be used to buy weapons or health more quickly than by simply playing the game. There's also a way to watch ads that pays gold coins. The company spends considerable time striking a balance between making it enjoyable for casual players (who don't want to pay) while still making a purchase attractive (so players pay a small amount). This is where the science of economics meets the psychology of game design.

The company cares about the following key metrics:

Downloads

How many people have downloaded the application, as well as related metrics such as app store placement, and ratings.

Customer acquisition cost (CAC)

How much it costs to get a user and to get a paying customer.

Launch rate

The percentage of people who download the app, actually launch it, and create an account.

Percent of active users/players

The percentage of users who've launched the application and use it on a daily and monthly basis: these are your daily active users (DAU) and monthly active users (MAU).

Percentage of users who pay

How many of your users ever pay for anything.

Time to first purchase

How long it takes after activation for a user to make a purchase.

Monthly average revenue per user (ARPU)

This is taken from both purchases and watched ads. Typically, this also includes application-specific information—such as which screens or items encourage the most purchases. Also look at your ARPPU, which is the average revenue per *paying* user.

Ratings click-through

The percentage of users who put a rating or a review in an app store.

Virality

On average, how many other users a user invites.

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Churn

How many customers have uninstalled the application, or haven't launched it in a certain time period.

Customer lifetime value

How much a user is worth from cradle to grave.

We've seen several of these metrics in the previous section on the SaaS business model, but there are some that differ significantly in a mobile app world.

Installation Volume

According to mobile analytics consultancy and developer Distimo, getting featured in an app store has a huge impact on app sales.* An app that's already in the top 100 and then gets featured will jump up an average of 42 places on the Android market, 27 places on the iPad App Store, and 15 places on the iPhone App Store.

For mobile developers, the dynamics of an app store matter more than almost anything else when it comes to achieving significant traction. Being showcased on the home page of Apple's App Store routinely yields a hundredfold increase in traffic.† Analytics firm Flurry estimates that in 2012, the top 25 applications in the iPhone App Store accounted for roughly 15% of all revenue, and the rest of the top 100 accounted for roughly 17%. Lenny Rachitsky, founder of Localmind, a social mobile location app that was part of Year One Labs, said, "Getting featured is the single biggest thing that ever happened to us. It even matters what slot you're featured in on the App Store, which affects whether you appear above the fold or not."

Alexandre Pelletier-Normand, co-founder of Execution Labs, a game development accelerator, says that getting featured on Google Play is even more beneficial for revenue than being featured in Apple's App Store. "Getting featured on Google Play boosts your ranking, and the rankings in Google Play are quite static compared to the App Store. That means you'll rank higher for longer, which in turn means more revenue."

While this unfair advantage is gradually changing—revenues for less popular applications are growing overall—the facts are simple: if you want to make money, you need to be ranked highly in app stores, and getting featured helps a great deal.

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* *http://www.distimo.com/wp-content/uploads/2012/01/Distimo-Publication-January-2012.pdf*

† *http://blog.flurry.com/bid/88014/The-Great-Distribution-of-Wealth-Across-iOS-and-Android-Apps*

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Average Revenue Per User

Mobile app developers are constantly finding ingenious ways to monetize their applications. These developers focus on the average revenue per user (ARPU) on a monthly or lifetime basis. Many game developers instrument their applications heavily themselves, since there isn't a dominant, open way to collect data from applications easily.

If you're making a game, you don't just care about revenue. You're walking a fine line between the compelling content and addictive gameplay that makes things fun and the in-game purchases that bring in money. Avoiding the "money grab" that turns players off is hard: you need to keep users coming back and inviting their friends while still extracting a pound of flesh each month (or at least a few dollars!). As a result, in addition to ARPU, some metrics relate to playability (ensuring the game is neither too hard nor too easy, and that players don't get stuck) and player engagement.

ARPU is simply the revenue you've made, divided by the number of active users or players you have. If you inflate the number of active players to make yourself look good, you'll reduce the ARPU, so this metric forces you to draw a realistic line in the sand about what "engaged" means. Typically, ARPU is calculated on a monthly period.

For mobile games, you can measure customer lifetime value (CLV) by calculating the averages of the money spent by every player post-churn. But because it will (hopefully!) take months or years for a player to leave you, it's easier to estimate the CLV in the way we did for a SaaS company.

Let's return to our example of a free mobile game that makes money from in-game purchases and ads. This month, it's had just over 12,300 downloads, and 96% of those people launch the app and connect to the company's servers. Of these, 30% become "engaged" players that use the application on three separate days.

Each engaged player generates, on average, $3.20 a month in revenue, from a mix of in-game purchases and advertising. This means that the current month's downloads will generate about $11,339 in revenue (though it may take time for the company to receive that revenue because of the app store's payment model).

Of the total players, 15% churn every month, which means the average player lifetime is 6.67 months (1/0.15). This in turn means that the company's monthly revenue is around $75,500. The player lifetime value is the ARPU multiplied by the player lifetime—in this case, $21.33. If the company knows the cost of acquiring an engaged player, it can also calculate the amount each player contributes to the bottom line, the return on investment in advertising efforts, and how long it takes to recover the

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investment made in acquiring an engaged user. Figure 10-1 shows how all these calculations are performed.

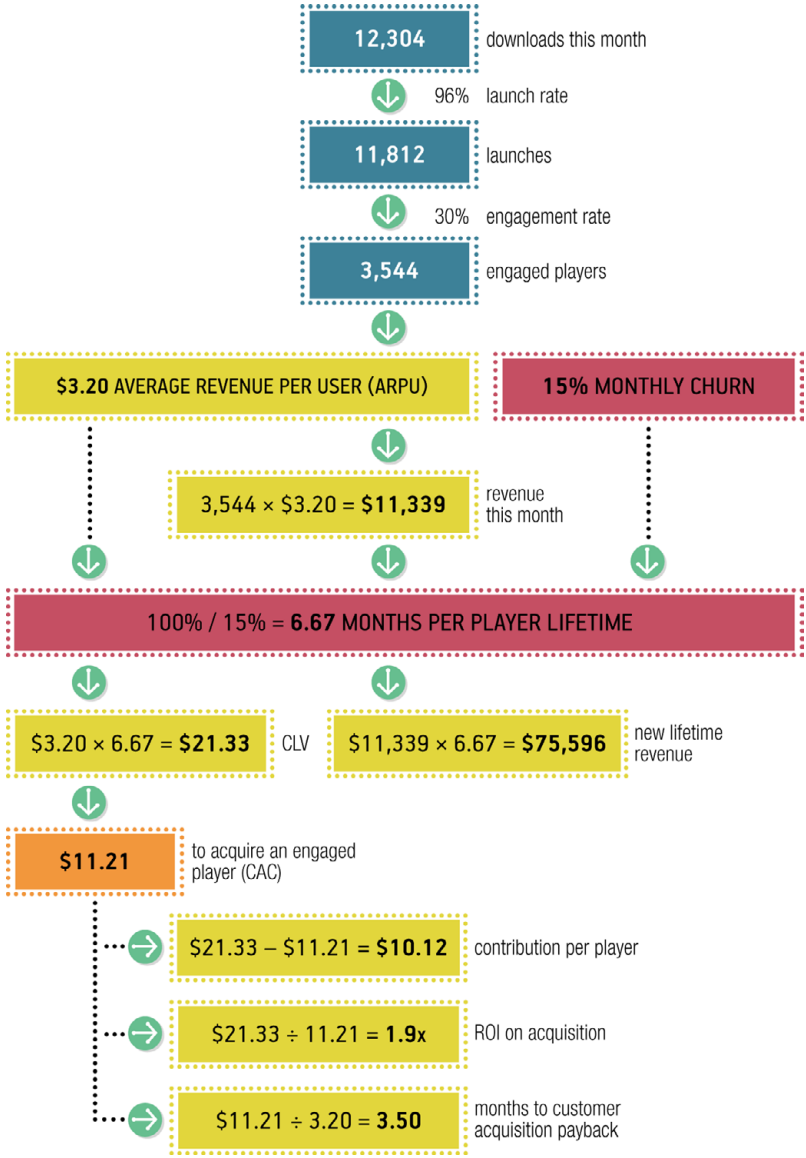

Figure 10-1. How to calculate all the essential metrics for a mobile app

The business model for the company hinges on these numbers. The company needs to increase download volumes, increase the engagement rate, maximize ARPU, minimize churn, and improve virality so customer acquisition costs go down. There's a natural tension between these goals—

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for example, making the game more enjoyable so people don't churn versus extracting money so ARPU is high—and this is where the art and finesse of game design comes in.

Percentage of Users Who Pay

There are some players who simply won't spend money in a game. And there are others (often referred to as "whales") who will spend literally *thousands* of dollars to gain the upper hand in a game they love. Knowing the difference between the two—and finding ways to make more users purchase things within the application—is the key to a successfully monetized free mobile application.

The most basic metric here is the percentage of users who pay something. Beyond this basic metric, you want to do segmentation and cohort analysis. If, for example, you know that a particular ad campaign brought in users who were more likely to make in-game purchases, you should be running more campaigns like that. You also need to be sophisticated in terms of what you market to users in-game: whales are more likely to make bigger in-app purchases, whereas users who haven't bought anything yet should be offered something inexpensive to start.

Measuring your ARPU gives you a good idea of how much paying users are spending. Convincing an already-paying user to pay more may not have a significant impact on your ARPU because most users won't pay, but it could absolutely move the needle on revenue in a significant way. Treat your *paying* users as a separate customer base and track their behavior, churn, and revenue separately from your nonpaying ones.

Churn

We've looked at churn in detail in Chapter 9. It's also a critical metric for mobile applications. Keith Katz, co-founder of Execution Labs, a game development accelerator, and former Vice President of Monetization for OpenFeint, recommends looking at churn in specific time periods:

> Track churn at 1 day, 1 week, and 1 month, because users leave at different times for different reasons. After one day it could be you have a lousy tutorial or just aren't hooking users. After a week it could be that your game isn't "deep enough," and after a month it could be poor update planning.

Knowing when users churn gives you an indication of why they're churning and what you can try in order to keep them longer.

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Visualizing the Mobile App Business

Figure 10-2 represents a user's flow through a mobile app business, along with the key metrics at each stage.

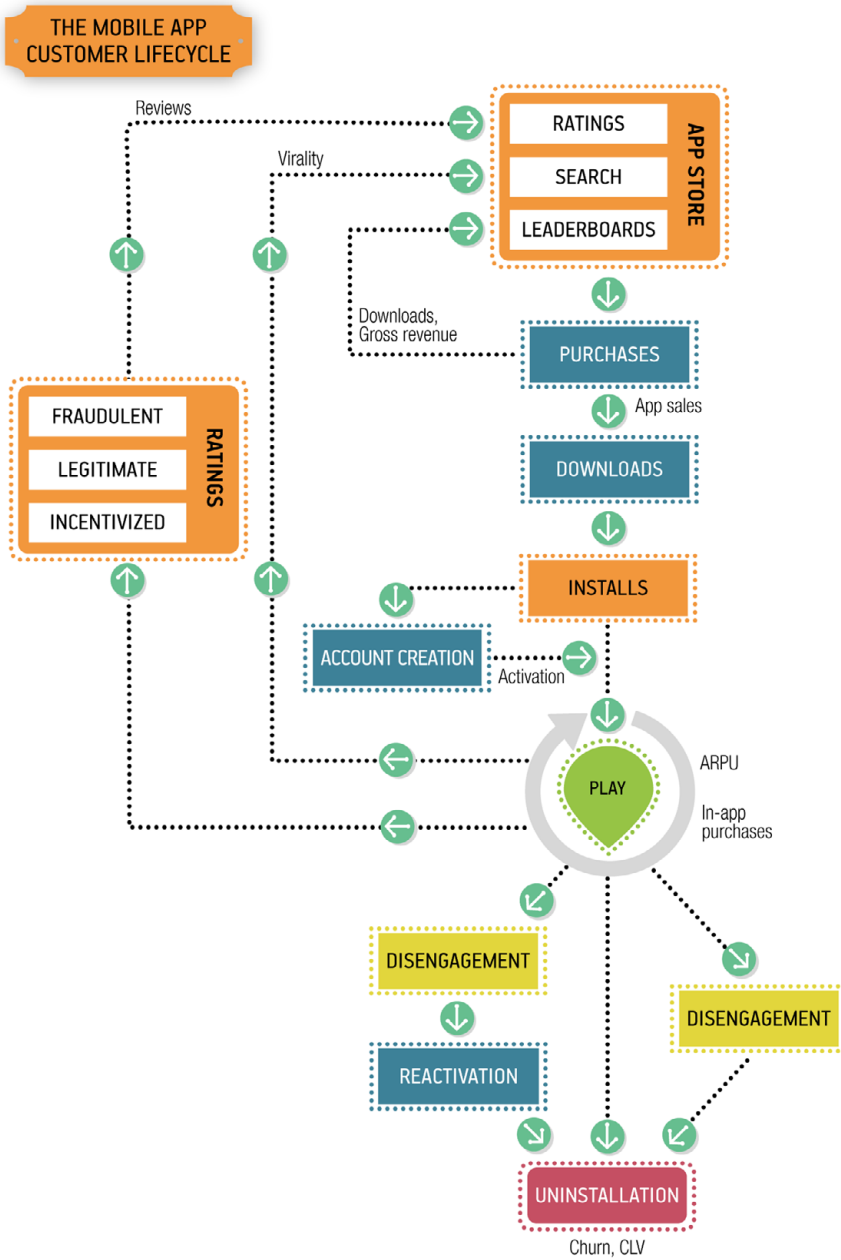

Figure 10-2. Everything in a mobile app feeds back to the app store

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German game developer Wooga is a master of metrics. The company is building a formula for successful social games that's completely driven by numbers. The company has over 32 million active monthly users from 231 countries, and over 7 million daily users. In a 2012 *Wired* article, founder Jens Begemann shared his company's approach.*

Wooga iterates constantly and releases updates on a weekly basis. It picks a key metric to focus on for an update—retention, for example—and identifies a number of tactics to try to improve it. When the update is released, it measures the changes rigorously and adapts from there. All told, Jens reviews 128 data points on a daily basis. If he sees something that doesn't make sense to him, he sends that to the product teams. It's up to the product people at that point to home in on the number in question and figure out what's going on, and how to make it better.

Wrinkles: In-App Monetization Versus Advertising

One of the factors that can complicate this model is the monetization approach. As we've seen, there are a wide variety of ways in which companies monetize their mobile applications. Some advertising consists of in-app videos; in other cases, it can be a "promoted download" where the user is encouraged to try out another app. When this happens, the user leaves the current application—which can increase churn, reduce engagement, and hamper the experience.

Game developers have to find ways to carefully integrate monetization, particularly when it doesn't fit the theme of the game, and must measure the impact of these revenue sources on their players' subsequent behavior.

Key Takeaways

- Mobile apps make their money in a variety of ways.
- Most of the money comes from a small number of users; these should be segmented and analyzed as a distinct group. The key metric is average revenue per user, but you may also track the average revenue per *paying* user, since these "whales" are so distinct.

Mobile businesses are a lot like SaaS businesses: both try to engage users, extract money from them repeatedly, and reduce churn. You can jump back to Chapter 9 to learn more about SaaS metrics, or you can skip to Chapter 14 to find out how the stage of your business drives the metrics that matter to you.

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* *http://www.wired.co.uk/magazine/archive/2012/01/features/test-test-test?page=all*

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CHAPTER 11

Model Four: Media Site

Advertising pays for the Internet. It's so easy to insert advertising into online content that for many companies, ad-based monetization is a fallback revenue source, which subsidizes a cheaply priced game or helps pay for the cost of operating a freemium product. Many websites rely on advertising to pay the bills, but few do it well. Those that do are generally content-focused, trying to attract repeat visitors who will spend a decent amount of time on the site and view many pages.

If your business model most closely resembles a media site, then your primary focus is sharing advertisers' messages with viewers, and getting paid for impressions, click-throughs, or sales. Google's search engine, CNET's home page, and CNN's website are all media sites.

Ad revenue comes in a variety of formats. Some sites make money when they display banners or have sponsorship agreements. Sometimes revenue is tied to the number of clicks on ads or to a kickback from affiliates. Sometimes it's simply display advertising shown each time there's an engagement with a visitor.

Media sites care most of all about click-through or display rates, because those are actual revenue, but they also need to maximize the time visitors spend on the site, the number of pages they see, and the number of unique visitors (versus repeat visitors who keep coming back), because this represents inventory—chances to show ads to visitors—and a growing reach of new people in whom advertisers might be interested.

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Imagine a sporting news site that makes money from all four revenue models (sponsorship, display advertising, click-based advertising, and affiliate). The site has 20,000 unique visitors who come to the site an average of 12 times a month, and each time they visit, they spend an average of 17 minutes on the site (see Table 11-1).

Traffic	Example	Notes
Unique visitors per month	20,000	
Sessions per month	12	
Pages per visit	11	
Time on site per visit (m)	17	
Monthly minutes on site	4,080,000	
Monthly page views (inventory)	2,640,000	

Table 11-1. Calculating monthly page inventory

The site has a partnership with a local sports team, and a standing contract to display banners for it on every page in return for $4,000 a month (see Table 11-2).

Sponsor revenue	Example	Notes
Monthly sponsorship rates	$4,000	From your signed contract
Number of sponsored banners	1	From your web layout
Total sponsorship contribution	$4,000	

Table 11-2. Calculating monthly sponsorship revenue

The site also has a display-ad contract that nets it $2 for every thousand times someone sees a banner (see Table 11-3).

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Display ad revenue	Example	Notes
Display ad rates (per thousand views)	$2	Whatever you negotiate
Banners per page	1	From your web layout
Total display ad contribution	$5,280	Page views × display rate / 1,000

Table 11-3. Calculating display ad revenue

So far, these are relatively simple revenue models. But the company also has pay-per-click revenue. A portion of its web layout is reserved for ads from a third-party advertising network, which inserts ads relevant to the visitor and the site content (see Table 11-4).

Click-through revenue	Example	Notes
Click-through ads per page	2	From your web layout
Total click-through ads shown	5,280,000	Page views × ads per page
Ad click percentage	0.80%	Depends on ad effectiveness
Total ad clicks	42,240	Ads shown × click-through rate
Average revenue per click	$0.37	From the auction rate for your ads
Total click-through contribution	$15,628.80	Ad clicks × revenue per click

Table 11-4. Calculating click-through revenue

The click-through revenue depends on what percentage of visitors click an ad and the amount paid for the click, which often depends on the value of a particular keyword. As a result, the site may write different kinds of content in order to attract more lucrative ad topics.

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Finally, the site sells sports books through an affiliate relationship with an online bookstore. It features a "book of the week" on every page; it doesn't make money when someone clicks the link to that book, but it does make money when someone *buys* the book (see Table 11-5).*

Affiliate revenue	Example	Notes
Affiliate ads per page	1	From your web layout
Affiliate ads shown	2,640,000	Ads per page × page views
Affiliate ad click percentage	1.20%	Depends on ad effectiveness
Total affiliate ad clicks	31,680	Ads shown × affiliate ad clicks
Affilate conversion rate	4.30%	Ability of the affiliate partner to sell stuff
Total affiliate conversions	1,362.24	Ad clicks × conversion rate
Average affiliate sale value	$43.50	Shopping cart size of the affiliate partner
Total affiliate sales	$59,257.44	Revenue the affiliate made
Affiliate percentage	10%	Percentage of affiliate revenue you get
Total affiliate contribution	$5,925.74	Affiliate sales × affiliate percentage

Table 11-5. Calculating affiliate revenue

The affiliate model is complex (and often, site operators won't know what the visitor's purchases were—they'll just get a check). It relies on several funnels: the one that brought the visitor to the site, the one that convinced the visitor to click, and the one that ended in a purchase on a third-party site.

Our sports site is taking advantage of four distinct media monetization models. To do this, it's had to set aside a considerable amount of its screen real estate to accommodate a sponsor, a display banner, two click-through ads, and an affiliate ad for a book. Of course, this undermines the site's quality and leaves less room for valuable content that will keep visitors

* Depending on the merchant, the affiliate may make money from the *entire* purchase, not just the item listed on the affiliate site. If you buy a book on Amazon, and also buy a computer, the affiliate that referred you via the book makes a percentage of the computer sale—which gives Amazon a strong advantage when competing for affiliate ad real estate.

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coming back. Striking a balance between commercial screen space and valuable content is tricky.

Pricing for sponsorships and display advertising is often negotiated directly, and depends on the reputation of the site, since it's a subtle form of endorsement and the advertiser is hoping for credibility. Ad networks set pricing for affiliate and pay-per-click advertising based on bidding by ad buyers.

Media sites involve a lot of math; sometimes they feel like they're being designed by spreadsheets rather than editors. Many of the vanity metrics we've warned you about earlier are actually relevant to media sites, since those sites make money from popularity.

Ultimately, then, media sites care about:

Audience and churn

How many people visit the site and how loyal they are.

Ad inventory

The number of impressions that can be monetized.

Ad rates

Sometimes measured in *cost per engagement*—essentially how much a site can make from those impressions based on the content it covers and the people who visit.

Click-through rates

How many of the impressions actually turn into money.

Content/advertising balance

The balance of ad inventory rates and content that maximizes overall performance.

Audience and Churn

The most obvious metric for a media site is audience size. If we assume that an ad will get industry-standard click-through rates, then the more people who visit your site, the more money you'll make.

Tracking the growth in audience size—usually measured as the number of unique visitors a month—is essential. But measuring unique visitors can lead us astray if we focus on it too much; as we've noted earlier, engagement is much more important than traffic, so knowing how many visitors you're losing, as well as adding, is critical.

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You can calculate audience churn on a media site by looking at the change in unique visitors in a specific month and the number of new visitors that month (see Table 11-6).

	Jan	Feb	Mar	Apr	May	June	July
Unique visitors	3,000	4,000	5,000	7,000	6,000	7,000	8,000
Change from last month	N/A	1,000	1,000	2,000	(1,000)	1,000	1,000
New (first-time) visitors	3,000	1,200	1,400	3,000	1,000	1,200	1,100
Churn	N/A	200	400	1,000	2,000	200	100

Table 11-6. Calculating audience churn

In this example, a website launches in January, and gets 3,000 unique visitors that month. Each month, it adds a certain number of unique first-time visitors to the site, but it also loses some visitors. You can calculate the churn by subtracting the number of unique first-time visitors from the change over the previous month—the new visitors are "making up" the last month's loss.

Note that sometimes an effective campaign can mask a churn problem. In this example, even though the site grew by 2,000 unique visitors in April, it managed to lose 1,000 visitors as well.

If you have the ability to test different layouts—one with fewer ads, for example—across visitor segments, you can determine the level of "churn tax" you're paying for having commercial content on the page. Then you can balance this against the revenue you're earning from advertising.

Inventory

Tracking unique visitors is a good start, but you need to measure ad inventory as well. This is the total number of unique page views in a given period of time, since each page view is a chance to show a visitor an ad. You can estimate inventory from visitors and pages per visit, but most analytics packages show the number automatically (see Table 11-7).

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	Jan	Feb	Mar	Apr	May	June	July
Unique visitors	3,000	4,000	5,000	7,000	6,000	7,000	8,000
Pages per visit	11	14	16	10	8	11	13
Page inventory	33,000	56,000	80,000	0,000	48,000	77,000	104,000

Table 11-7. Calculating page inventory

The actual inventory depends on page layout and how many advertising elements are on each page.

PATTERN

Performance and the Sessions-to-Clicks Ratio

One other factor to consider is the sessions-to-clicks ratio. Every website loses a certain number of visitors before they ever come to the site. For every 100 web searches that link to you and get clicked, roughly 95 will actually land on your site. Basically, this says that five of those people hit the back button, or decide your site is taking too long to load, or change their mind about visiting.

The ratio of sessions (on your site) to clicks (from search links or referring links) is an indicator of web performance and reliability. Shopzilla's Jody Mulkey and Phillip Dixon did a detailed analysis of the impact of performance improvement on the sessions-to-clicks ratio when the company rebuilt its site to make it load quickly and reliably.* Ultimately, the makeover landed the site 3–4% more visitors. But within a short while, the site slowed down again as a result of ongoing changes, and the ratio worsened once more. Keeping a site fast is a constant battle.

* Phillip Dixon presented the results of Shopzilla's makeover, as well as its initial baseline, at Velocity Santa Clara in 2009. The full video is available at *http://www.youtube.com/watch?v=nKsxy8QJtds*.

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Ad Rates

The rate advertising networks will pay you for an ad depends on your content and the going rate for a particular search term or keyword. For a straight-up media site, the ad rate is driven by the topic of your site and the content you publish. For a social network, the demographics of your audience drive ad rates. Visitor demographics will become increasingly important as social platforms like Facebook introduce third-party-placed advertising based on demographic segments—you'll get paid based on *who* your visitors are rather than *what* your site contains.

Content/Advertising Trade-off

The big decision any media site makes is how to pay the bills without selling out. This manifests itself in two ways. First, ad space: too many ads leads to lousy content and reduced visitor loyalty. Second, content: if your content is written to attract lucrative ad keywords, it'll feel forced and seem like a paid promotion.

Layout design and copywriting style are aesthetic issues, but those aesthetic decisions are grist for the analytical mill. If you're serious about content, you need to test different layouts for revenue-versus-churn, and different copy for content-versus-ad-value.

There are commercial tools to help with this. Parse.ly, for example, tries to analyze which content is getting the most traction. You might also segment key metrics like revenue or percentage of visitors who exit on a particular page by author, topic, or layout.

Visualizing the Media Business

Figure 11-1 represents a user's flow through a media business, along with the key metrics at each stage.

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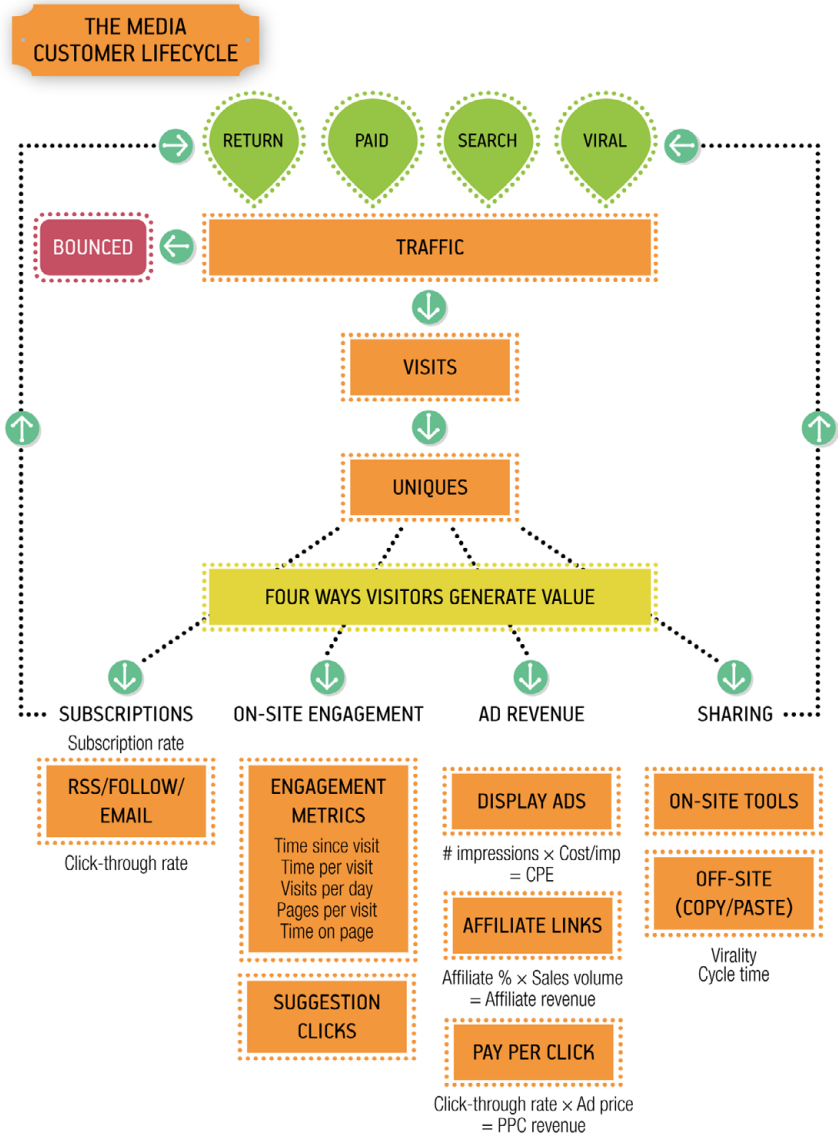

Figure 11-1. Calculating the value of media site customers is complicated

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Wrinkles: Hidden Affiliates, Background Noise, Ad Blockers, and Paywalls

The variety of business relationships in online media can make finding the right key performance indicator (KPI) complex. Here are four examples of the kinds of complexity you need to watch out for.

Hidden affiliate models

Pinterest, an online pinboard of images, used to rewrite URLs for pictures of products its users had uploaded using a tool called Skimlinks. But as the site grew, its affiliate revenue quickly outstripped that of other big networks,* and it was called out for the practice.†

Pinterest was able to monetize traffic quickly with this strategy, and cared not only about how many people contributed content (a user-generated content, or UGC, metric), but also about the likelihood that someone would click on a picture and in turn make a purchase. Affiliate rewriting is a good way to monetize user-generated content without ads—effectively turning everything that's posted into an ad—but complicates business modeling, and can backfire.

Background noise

In one test, blank ads bearing no information had a click-through rate of roughly 0.08%—comparable to that of some paid campaigns.‡ The ads invited those who'd clicked to explain why they did so; respondents were evenly divided between simple curiosity and accidental clicking. If your ads are getting revenues that are hardly better than the background noise a blank ad would get, you need to find out why.

Ad blockers

Technical users sometimes install ad-blocking software in their browsers that blocks ads from known ad-serving companies. This reduces your inventory, and can mess with your analytics. Reddit actually runs some ads containing funny content, mini-games, or messages thanking visitors for not blocking ads.

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* *http://www.digitaltrends.com/social-media/pinterest-drives-more-traffic-to-sites-than-100-million-google-users/*

† *http://llsocial.com/2012/02/pinterest-modifying-user-submitted-pins/*

‡ A June 2012 study by the Advertising Research Foundation conducted across a half-million ad impressions showed these rates; the rate varied by type of site. See *http://adage.com/article/digital/incredible-click-rate/236233/*.

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Paywalls

Unsatisfied with the revenues from online advertising, some media sites run paywalls that charge users to access content. The paywall model runs the spectrum from voluntary donations (usually in the form of a pop up when the visitor first arrives) to fully paid sites where content is accessible only for a recurring fee.

Some media sites adopt a middle ground where visitors can access a quota of articles each month, as shown in Figure 11-2, but must pay to see more than this limit. Such sites are trying to strike a balance between "referred" content (e.g., an article mentioned on Twitter, which might generate ad revenue) and "subscribed" content (where the site is a user's primary daily news source).

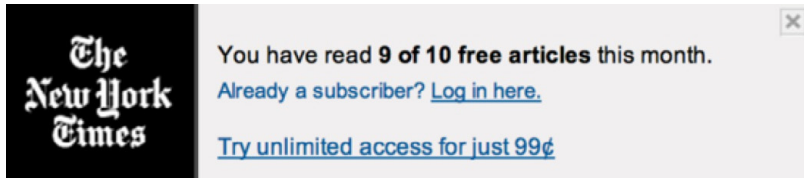

Figure 11-2. The inexorable rise of the paywall

The paywall model complicates analytics because there's a trade-off between ad and subscription revenue, and because there's a new e-commerce funnel to measure: trying to convert casual referred visitors into recurring-revenue subscribers.

Key Takeaways

- For media sites, ad revenue is everything—but advertising may include displays, pay-per-view, pay-per-click, and affiliate models, so tracking revenues is complex.
- Media sites need inventory (in the form of visitor eyeballs) and desirability, which comes from content that attracts a demographic advertisers want.
- It's hard to strike a balance between having good content and enough ads to pay the bills.

Media sites traditionally generate their own content, in the form of blogging, videos, and reported articles. But more and more of today's online content is from users themselves. If you want to learn more about the user-generated content business model and the metrics it tracks, continue to Chapter 12. If, on the other hand, you want to get right to the stages of a startup and how they affect your media business, jump to Chapter 14.

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CHAPTER 12

Model Five: User-Generated Content

You might think that Facebook, reddit, and Twitter are media sites, and you'd be right: they make their money from advertising. But their primary goal is rallying an engaged community that creates content. Similarly focused sites like Wikipedia make their money from other sources, such as donations.

We call these businesses *user-generated content* (UGC) sites. They deserve their own business model because their primary concern is the growth of an engaged community that creates content; without user activity, the sites stop functioning entirely. If you've decided that you're in the UGC business, then this chapter explains what metrics you'll need to track.

In this model, you're focused on the creation of good content, which means not only posts and uploads but also votes, comments, spam flagging, and other valuable activity. UGC is about the amount of good content versus bad, and the percentage of users who are lurkers versus creators. This is an *engagement funnel*,* similar to the traditional conversion funnels of an e-commerce model—only instead of moving prospects toward buying, you're constantly trying to move your user population to higher and higher levels of engagement, turning lurkers into voters, voters into commenters, and so on.

* Altimeter Group's Charlene Li refers to this as an *engagement pyramid.*

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Wikipedia is an example of a UGC site—good, reliable, well-referenced content helps the site; flame wars or frequent edits between two battling contributors are bad for it. Just as an e-commerce site creates a funnel out of the steps through which a buyer must proceed, a UGC site measures the percentage of users who behave in certain ways. Revenue often comes from advertising or donations, but it's incidental to the core business of engaging users.

Consider a social network focused on link sharing, such as reddit. Anyone can read content and share it using social buttons on the site. Once a user has an account, she can vote content up or down, comment on content, or post content of her own. She can create her own group discussion around a topic. And she can use her account to message other users privately.

The tiers of engagement create a natural funnel, from the completely disengaged, fly-by visitors who come just once, to the hardcore. One of the core functions of the site is to acquire one-time visitors and turn them into users with accounts, and ultimately, into collaborators. Figure 12-1 shows an example engagement funnel, and lists what reddit, Facebook, and YouTube call *tiers*. Note that not every UGC site has all of these tiers.

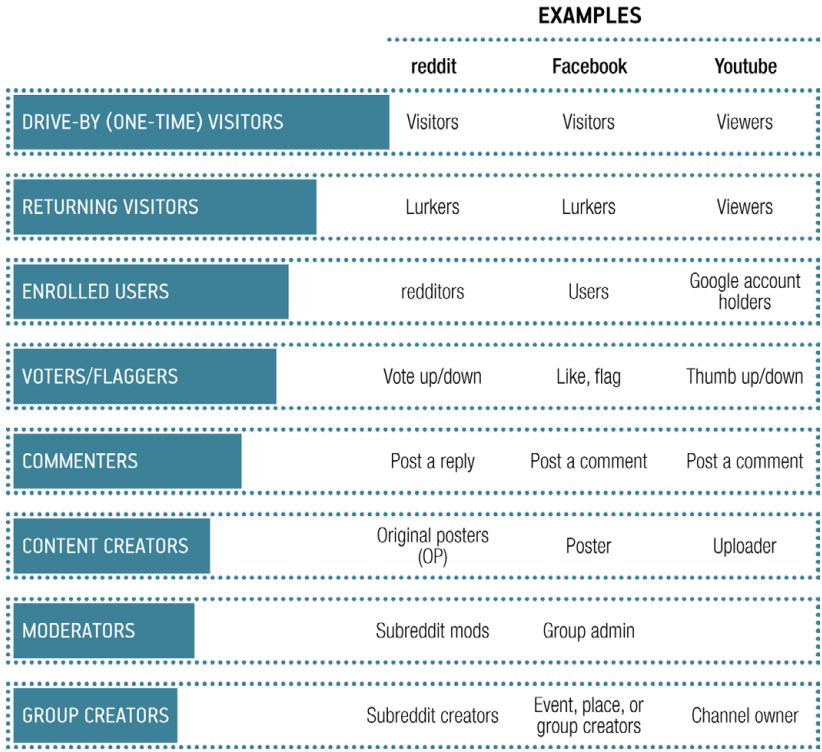

Figure 12-1. Every social network in the world just wants you to love it

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This pattern of gradually increasing engagement isn't true only of websites—it's an archetype that happens time and again online. Twitter is similar to reddit: people use it to chat, to share links, and to comment on links. Instead of up-voting, there's a retweet button; instead of down-voting, there's blocking. Flickr, Facebook, LinkedIn, and YouTube all have roughly similar engagement tiers.

A UGC company cares about several metrics in addition to those we've seen in the media model in Figure 12-1:

Number of engaged visitors

How often people come back, and how long they stick around.

Content creation

The percentage of visitors who interact with content in some way, from creating it to voting on it.

Engagement funnel changes

How well the site moves people to more engaged levels of content over time.

Value of created content

The business benefit of content, from donations to media clicks.

Content sharing and virality

How content gets shared, and how this drives growth.

Notification effectiveness

The percentage of users who, when told something by push, email, or another means, act on it.

Visitor Engagement

A UGC site is successful when its visitors become regulars. As we've seen with SaaS churn, we look at recency to understand this—that is, when was the last time someone came back to the site? One quick way to measure this is the day-to-week ratio: how many of today's visitors were here earlier in the week? It's an indicator of whether people are returning on a regular basis, even if users don't create an account.

Another metric is the average days since last visit, although you need to exclude users who are beyond some cutoff limit (such as 30 days) from this calculation; otherwise, churned users will skew your numbers. For users who have accounts and take actions, you can measure engagement in other ways: days since last post, number of votes per day, and so on.

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Content Creation and Interaction

User participation varies wildly by UGC site. On Facebook, every user logs in to do more than view a profile because it's a "walled garden" for content. Reddit is more open, but still has a high percentage of users who log in, because being logged in is required to up-vote posts.* On the other hand, sites like Wikipedia or YouTube, where the vast majority of users are simply consuming content, must rely on passive signals such as clickstreams or time on page, which serve as a proxy for ratings.

Interaction also varies significantly depending on what you're asking users to do. A few years ago, Rubicon Consulting published a study of online community participation rates. It looked at how often respondents performed certain actions online. As Figure 12-2 shows, there's significant variance in levels of engagement.

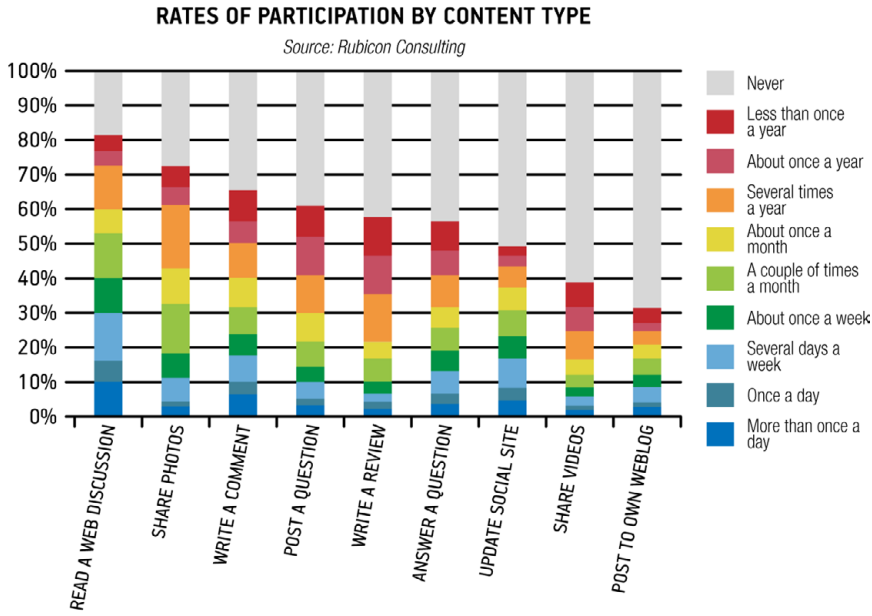

Figure 12-2. So much for a community to do, so little time

Early on, UGC sites need to solve a chicken-and-egg problem. They need content to draw in users, and users to create content. Sometimes, this content can be seeded from elsewhere: Wikimedia was originally going to be a site written by experts, but eventually pivoted to a community-edited

* It may also be because the login process doesn't demand an email confirmation—meaning users can be anonymous.

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model—it overcame the chicken-and-egg issue by having content in place at the start.

The rate of content creation and the rate of enrollment matter a lot at the outset. Later, the question becomes whether good content is rising to the top, and whether people are commenting on it—signs that your user base cares about the discussion and is building a community.

Engagement Funnel Changes

On reddit, there are several tiers of engagement: lurking, voting, commenting, subscribing to a subreddit, submitting links, and creating subreddits. Each tier represents a degree of involvement and content generation by a user, and each type of user represents a different business value to the company. Every UGC site has a similar funnel, though the steps may be different.

The steps in the funnel aren't mutually exclusive—someone can comment without voting, for example—but these steps should be arranged in an order of increasing value to your business model as a user moves down the funnel. In other words, if someone who posts content is "better" for you than someone who simply shares a story, she's in a later tier of the funnel. The key is to move as many users into the more lucrative tiers as possible (making more content and better selection of content that will be popular).

One way to visualize this is by comparing the tiers of engagement over time. This is very similar to the SaaS upselling model: for a given cohort of users, how long does it take them to move to a more valuable stage in the engagement funnel? To see this, lay out the funnel by time period (for example, per month) or by cohort (see Table 12-1).

Totals	Jan	Feb	Mar	Apr
Unique visitors	13,201	21,621	26,557	38,922
Returning visitors	7,453	14,232	16,743	20,035
Active user accounts	5,639	8,473	9,822	11,682
Active voters	4,921	5,521	6,001	7,462
New subscribers/members	4,390	5,017	5,601	6,453
Active commenters	3,177	4,211	4,982	5,801
Active posters	904	1,302	1,750	2,107
Active group creators	32	31	49	54

Table 12-1. Visitor funnel by monthly cohort

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If we assume that each tier of the engagement funnel does all the "previous" actions—for example, commenters vote, posters comment, and so on—we can display the change over time as a stacked graph (see Figure 12-3).

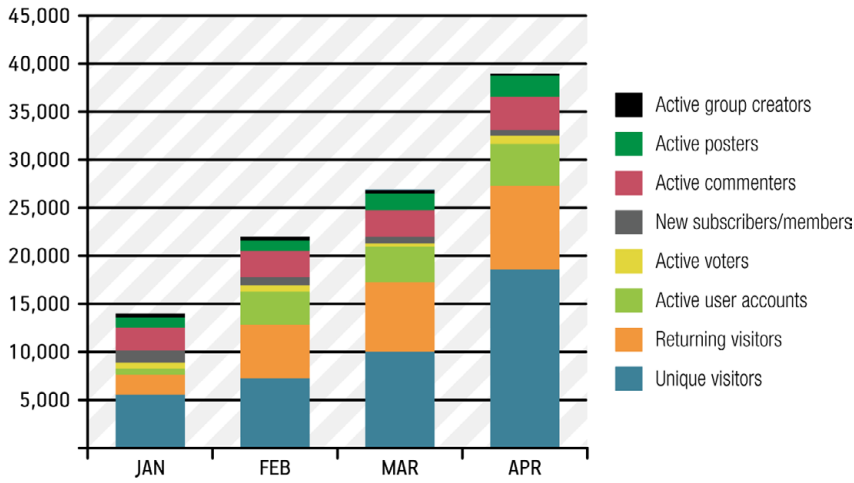

Figure 12-3. Can you split your users into distinct groups based on behavior?

This gives us an idea of growth for each segment, but it doesn't really show us what parts of the engagement process are getting better or worse. For this, we need to first calculate the conversion rates of the engagement funnel for each month (see Table 12-2).

Change from past period	Jan	Feb	Mar	Apr
Unique visitors	N/A	163.8%	122.8%	146.6%
Returning visitors	N/A	191.0%	117.6%	119.7%
Active user accounts	N/A	150.3%	115.9%	118.9%
Active voters	N/A	112.2%	108.7%	124.3%
New subscribers/members	N/A	114.3%	111.6%	115.2%
Active commenters	N/A	132.5%	118.3%	116.4%
Active posters	N/A	144.0%	134.4%	120.4%
Active group creators	N/A	96.9%	158.1%	110.2%

Table 12-2. Conversion rates of the engagement funnel by month

Once we know the conversion rates for each step, we can look at relative changes in rates from month to month (see Table 12-3).

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Change in funnel	Jan	Feb	Mar	Apr
Unique visitors	N/A	N/A	N/A	N/A
Returning visitors	N/A	↑ 116.6%	→ 95.8%	↓ 81.6%
Active user accounts	N/A	↓ 78.7%	→ 98.5%	→ 99.4%
Active voters	N/A	↓ 74.7%	↓ 93.8%	↑ 104.5%
New subscribers/ members	N/A	↑ 101.9%	↑ 102.7%	↓ 92.7%
Active commenters	N/A	↑ 118.1%	↑ 108.8%	↓ 93.6%
Active posters	N/A	↑ 108.7%	↑ 113.6%	↑ 103.4%
Active group creators	N/A	↓ 67.3%	↑ 117.6%	↓ 91.5%

Table 12-3. Relative changes in conversion rates by month

With this data, we can see which things got better or worse based on changes we've made, or the different experience a particular cohort had on the site. For example, a smaller percentage of first-time visitors returned to the site in March, but a greater percentage of people commented and created posts that month. This lets us make changes and keep score.

Eventually, you'll hit a "normal" engagement funnel where a stable percentage of people are participating in each stage. This is OK; UGC sites have a power curve of content creation, where a small number of people create the vast majority of content. We'll give you some examples of ideal conversion rates for engagement funnels in Chapter 27.

Value of Created Content

The content your users create has a value. That might be the number of unique visitors who see it (in the case of a site like Wikipedia), the number of page views that represent ad inventory (Facebook), or a more complicated measurement like affiliate revenues generated by clicks on content users post (as in the Pinterest affiliate model).*

Regardless of how you value content, you'll want to measure it by cohort or traffic segment. If you're trying to decide where to invest in visitor acquisition, you'll want to know which referring sites bring valuable users. Perhaps you're looking for a particular demographic (as Mike Greenfield

* Earlier we warned that the number of unique visitors was a vanity metric, but that's when it's applied to site growth. As a measure of the value of an individual piece of content, it's a useful rating.

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did when he compared engagement and value across user segments on Circle of Friends and launched Circle of Moms as a result).*

Content Sharing and Virality

A UGC site thrives on its visitors' behavior, and key among those behaviors is sharing. YouTube monetizes user content, relying on popular videos with virality to drive traffic and ad inventory. If your site is an unwalled garden—that is, users can share freely with the rest of the world—then tracking how content is shared is critical. It's less important for walled-garden sites like Facebook, whose goal is to keep users within the application.

While tweeting and liking content is useful, remember that a lot of sharing happens through other systems—RSS feeds and email, in particular. In fact Tynt, which makes tools for publishers to tag sharing when a link is copied and pasted, estimates that as much as 80% of sharing happens through email.†

You want to track how content is shared for several reasons:

- You need to know if you're achieving a level of virality that will sustain your business.
- You want to understand how content is shared and with whom. If every reader sends a URL to someone else, and that person then returns, you need to know that the visit was the result of a share, because the value of the content wasn't just the ad inventory it presented, but also the additional visit it generated.
- It will help you understand whether you should consider a paywall-style monetization strategy.

Notification Effectiveness

We used to design exclusively for the Web. In recent years, designers rallied around portable devices with cries of "design for mobile" or "mobile first." But there's good reason to think that the future of applications isn't mobility—it's notification.

Today's mobile device is a prosthetic brain. We rely on it to remind us of meetings, tell us when others are thinking of us, and find our way home. Smart agent technologies like Siri and Google Now will only reinforce this.

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* See "Case Study: Circle of Moms Explores Its Way to Success" in Chapter 2.

† *http://www.mediapost.com/publications/article/181944/quick-whats-the-largest-digital-social-media-pla.html*

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Already, our mobile devices' notification systems are a battleground, with applications fighting for our attention.

In a UGC model, the ability to keep pulling users back in through notifications is an essential part of sustaining engagement.

Fred Wilson calls mobile notification a game changer:*

> Notifications become the primary way I use the phone and the apps. I rarely open Twitter directly. I see that I have "10 new @mentions" and I click on the notification and go to [the] Twitter @mention tab. I see that I have "20 new checkins" and I click on the notification and go to the Foursquare friends tab.

He cites three main reasons why this is such a significant shift:

> First, it allows me to use a lot more engagement apps on my phone. I don't need them all on the main page. As long as I am getting notifications when there are new engagements, I don't really care where they are on the phone.
>
> Second, I can have as many communications apps as I want. I've currently got SMS, Kik, Skype, Beluga, and GroupMe on my phone. I could have plenty more. I don't need to be loyal to any one communication system, I just need to be loyal to my notification inbox.
>
> And finally, the notification screen is the new home screen. When I pull out my phone, it is the first thing I do.

You measure notification effectiveness in much the same way as you measure email delivery rates: you're sending out a certain number of messages, and some of those messages produce the outcome you're hoping for. This is true whether those messages are sent by email, SMS, or mobile application.

Visualizing a UCG Business

Figure 12-4 represents a user's flow through a UGC business, along with the key metrics at each stage.

* *http://www.avc.com/a_vc/2011/03/mobile-notifications.html*

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