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LEAN ANALYTICS

Use Data to Build a Better Startup Faster

Case Studies and Excerpts From The Book
Case Studies

An Excerpt from

Lean Analytics

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The Lean Startup movement is galvanizing a generation of entrepreneurs. It helps you identify the riskiest parts of your business plan, then finds ways to reduce those risks in a quick, iterative cycle of learning. Most of its insights boil down to one sentence: *Don’t sell what you can make; make what you can sell.* And that means figuring out what people want to buy.

In an early-stage company, it’s hard to know what people really want. You’re trying to introduce a new product to a new market—and many times, that market doesn’t know itself what it wants. When prospective customers tell you, it’s often what they think you want to hear. What’s worse, as a founder and entrepreneur, you have strong, almost overwhelming preconceptions about how other people think, and these color your decisions in subtle and insidious ways.

For more mature companies, there’s a different set of problems. Now, you know your product and your market—but you need to innovate, which means trying out new ideas. Unfortunately, the organization is trying to optimize for the existing product and market, rather than to discover new ones.

Many large Internet businesses are caught between these two situations. On the one hand, there’s a need to discover and experiment, particularly in new markets or where local conditions require changes to the business model. On the other hand, the solutions need to scale to avoid the balkanization
of offerings, because there must be economies of scale across all regions in the long run.

Whether you’re an early-stage company, an established corporation, or a fast-growing web business, analytics can help. Measuring something makes you accountable. You’re forced to confront inconvenient truths. And you don’t spend your life and your money building something nobody wants.

*Lean Startup* helps you structure your progress and identify the riskiest parts of your business, then learn about them quickly so you can adapt. *Lean Analytics* is used to measure that progress, helping you to ask the most important questions and get clear answers quickly.

Lean Analytics is the dashboard for every stage of your business, from validating whether a problem is real, to identifying your customers, to deciding what to build, to positioning yourself favorably with a potential acquirer. It can’t force you to act on data—but it can put that data front and center, making it harder for you to ignore, and preventing you from driving off the road entirely.

**The Building Blocks**

Lean Analytics doesn’t exist in a vacuum. We’re an extension of *Lean Startup*, heavily influenced by customer development and other concepts that have come before. It’s important to understand those building blocks before diving in.

**Customer Development**

*Customer development*—a term coined by entrepreneur and professor Steve Blank—took direct aim at the outdated, “build it and they will come” waterfall method of building products and companies. Customer development is focused on collecting continuous feedback that will have a material impact on the direction of a product and business, every step of the way.

Blank first defined customer development in his book *The Four Steps to the Epiphany* (Cafepress.com) and refined his ideas with Bob Dorf in *The Startup Owner’s Manual* (K & S Ranch).

**Lean Startup**

In 2008, Eric Ries wrote a seminal post on building startups through a process of continuous improvement and close customer development. He didn’t know it at the time, but this post would launch a movement
that galvanized founders everywhere, because it provided a structure for reducing risk and avoiding waste. The Lean Startup process combines ideas from customer development, Agile software development methodologies, and Lean manufacturing practices.

First applied to new companies, and initially seen as a tool that works only for startups, Eric’s work is now being used by organizations of all sizes to disrupt and innovate. General Electric, for example, has rolled it out across 400,000 employees. After all, Lean isn’t about being cheap or small, it’s about eliminating waste and moving quickly, which is good for organizations of any size.

One of Lean Startup’s core concepts is **build→measure→learn**—the process by which you do everything, from establishing a vision to building product features to developing channels and marketing strategies, as shown in the following figure. Within that cycle, **Lean Analytics** focuses on the **measure** stage. The faster your organization iterates through the cycle, the more quickly you’ll find the right product and market. If you measure better, you’re more likely to succeed.

![The Build→Measure→Learn Cycle](image)

The cycle isn’t just a way of improving your product. It’s also a good reality check. Building the minimum product necessary is part of what Eric calls **innovation accounting**, which helps you objectively measure how you’re doing. Lean Analytics is a way of quantifying your innovation, getting you
closer and closer to a continuous reality check—in other words, to reality itself.

*Lean Analytics* is about measuring the right thing, in the right way, to produce the change the business needs the most at that point in time. With that in mind, here’s some background on metrics that matter.

**WHAT MAKES A GOOD METRIC?**

Here are some rules of thumb for what makes a good metric—a number that will drive the changes you’re looking for.

A **good metric is comparative.** Being able to compare a metric to other time periods, groups of users, or competitors helps you understand which way things are moving. “Increased conversion from last week” is more meaningful than “2% conversion”.

A **good metric is understandable.** If people can’t remember it and discuss it, it’s much harder to turn a change in the data into a change in the culture.

A **good metric is a ratio or a rate.** Accountants and financial analysts have several ratios they look at to understand, at a glance, the fundamental health of a company. You need some, too.

There are several reasons ratios tend to be the best metrics:

- Ratios are easier to act on. Think about driving a car. Distance travelled is informational. But speed—distance per hour—is something you can act on, because it tells you about your current state, and whether you need to go faster or slower to get to your destination on time.
- Ratios are inherently comparative. If you compare a daily metric to the same metric over a month, you’ll see whether you’re looking at a sudden spike or a long-term trend. In a car, speed is one metric, but speed right now over average speed this hour shows you a lot about whether you’re accelerating or slowing down.
- Ratios are also good for comparing factors that are somehow opposed, or for which there’s an inherent tension. In a car, this might be distance covered divided by traffic tickets. The faster you drive, the more distance you cover—but the more tickets you get. This ratio might suggest whether or not you should be breaking the speed limit.

A **good metric changes the way you behave.** This is by far the most important criterion for a metric: what will you do differently based on changes in the metric?

- “Accounting” metrics like daily sales revenue, when entered into your spreadsheet, need to make your predictions more accurate. These
metrics form the basis of Lean Startup’s innovation accounting, showing you how close you are to an ideal model and whether your actual results are converging on your business plan.

- “Experimental” metrics, like the results of a test, help you to optimize the product, pricing, or market. Changes in these metrics will significantly change your behavior. Agree on what that change will be before you collect the data: if the pink website generates more revenue than the alternative, you’re going pink; if more than half your respondents say they won’t pay for a feature, don’t build it; if your curated MVP doesn’t increase order size by 30%, try something else.

Drawing a line in the sand is a great way to enforce a disciplined approach. A good metric changes the way you behave precisely because it’s aligned to your goals of keeping users, encouraging word of mouth, acquiring customers efficiently, or generating revenue.

If you want to choose the right metrics, you need to keep five things in mind:

- **Qualitative versus quantitative metrics**
  Qualitative metrics are unstructured, anecdotal, revealing, and hard to aggregate; quantitative metrics involve numbers and statistics, and provide hard numbers but less insight.

- **Vanity versus actionable metrics**
  Vanity metrics might make you feel good, but they don’t change how you act. Actionable metrics change your behavior by helping you pick a course of action.

- **Exploratory versus reporting metrics**
  Exploratory metrics are speculative and try to find unknown insights to give you the upper hand, while reporting metrics keep you abreast of normal, managerial, day-to-day operations.

- **Leading versus lagging metrics**
  Leading metrics give you a predictive understanding of the future; lagging metrics explain the past. Leading metrics are better because you still have time to act on them—the horse hasn’t left the barn yet.
• Correlated versus causal metrics

If two metrics change together, they’re correlated, but if one metric causes another metric to change, they’re causal. If you find a causal relationship between something you want (like revenue) and something you can control (like which ad you show), then you can change the future.

Analysts look at specific metrics that drive the business, called **key performance indicators** (KPIs). Every industry has KPIs—if you’re a restaurant owner, it’s the number of covers (tables) in a night; if you’re an investor, it’s the return on an investment; if you’re a media website, it’s ad clicks; and so on.

**ABOUT THIS E-BOOK**

Since its publication, *Lean Analytics* has helped guide thousands of founders, accelerators, intrapreneurs and investors worldwide towards better, more sustainable business models. In this short collection of case studies, we showcase some examples of analytical thinking in action, drawing from some of the companies with whom we spoke as we wrote the book. In all, we interviewed over 130 startups, both successful and failed, to find the common patterns in how they measured and grew their business.
Airbnb Photography—Growth Within Growth

Airbnb is an incredible success story. In just a few years, the company has become a powerhouse in the travel industry, providing travelers with an alternative to hotels, and providing individuals who have rooms, apartments, or homes to rent with a new source of income. In 2012, travelers booked over 5 million nights with Airbnb’s service. But it started small, and its founders—adherents to the Lean Startup mindset—took a very methodical approach to their success.

At SXSW 2012, Joe Zadeh, Product Lead at Airbnb, shared part of the company’s amazing story. He focused on one aspect of its business: professional photography.

It started with a hypothesis: “Hosts with professional photography will get more business. And hosts will sign up for professional photography as a service.” This is where the founders’ gut instincts came in: they had a sense that professional photography would help their business. But rather than implementing it outright, they built a Concierge Minimum Viable Product (MVP) to quickly test their hypothesis.
What Is a Concierge MVP?

The Minimum Viable Product is the smallest thing you can build that will create the value you’ve promised to your market. But nowhere in that definition does it say how much of that offering has to be real. If you’re considering building a ride-sharing service, for example, you can try to connect drivers and passengers the old-fashioned way: by hand.

This is a concierge approach. It recognizes that sometimes, building a product—even a minimal one—isn’t worth the investment. The risk you’re investigating is, “Will people accept rides from others?” It’s emphatically not, “Can I build software to match drivers and passengers?” A Concierge MVP won’t scale, but it’s fast and easy in the short term.

Now that it’s cheap, even free, to launch a startup, the really scarce resource is attention. A concierge approach in which you run things behind the scenes for the first few customers lets you check whether the need is real; it also helps you understand which things people really use and refine your process before writing a line of code or hiring a single employee.

Initial tests of Airbnb’s MVP showed that professionally photographed listings got two to three times more bookings than the market average. This validated the founders’ first hypothesis. And it turned out that hosts were wildly enthusiastic about receiving an offer from Airbnb to take those photographs for them.

In mid-to-late 2011, Airbnb had 20 photographers in the field taking pictures for hosts—roughly the same time period where we see the proverbial “hockey stick” of growth in terms of nights booked, shown in Figure 1-1.
Airbnb experimented further. It watermarked photos to add authenticity. It got customer service to offer professional photography as a service when renters or potential renters called in. It increased the requirements on photo quality. Each step of the way, the company measured the results and adjusted as necessary. The key metric Airbnb tracked was shoots per month, because it had already proven with its Concierge MVP that more professional photographs meant more bookings.

By February 2012, Airbnb was doing nearly 5,000 shoots per month and continuing to accelerate the growth of the professional photography program.

Summary

- Airbnb’s team had a hunch that better photos would increase rentals.
- They tested the idea with a Concierge MVP, putting the least effort possible into a test that would give them valid results.
- When the experiment showed good results, they built the necessary components and rolled it out to all customers.
Analytics Lessons Learned

Sometimes, growth comes from an aspect of your business you don’t expect. When you think you’ve found a worthwhile idea, decide how to test it quickly, with minimal investment. Define what success looks like beforehand, and know what you’re going to do if your hunch is right.

Lean is a great way to build businesses. And analytics ensures that you’ll collect and analyze data. Both fundamentally transform how you think about starting and growing a company. Both are more than processes—they’re mindsets. Lean, analytical thinking is about asking the right questions, and focusing on the one key metric that will produce the change you’re after.

With this book, we hope to provide you with the guidance, tools, and evidence to embrace data as a core component of your startup’s success. Ultimately, we want to show you how to use data to build a better startup faster.

HighScore House Defines an “Active User”

HighScore House started as a simple application that allowed parents to list chores and challenges for their children with point values. Kids could complete the tasks, collect points, and redeem the points for rewards they wanted.

When HighScore House launched its MVP, the company had several hundred families ready to test it. The founders drew a line in the sand: in order for the MVP to be considered successful, parents and kids would have to each use the application four times per week. These families would be considered “active.” It was a high, but good, bar.

After a month or so, the percentage of active families was lower than this line in the sand. The founders were disappointed but determined to keep experimenting in an effort to improve engagement:

• They modified the sign-up flow (making it clearer and more educational to increase quality signups and to improve onboarding).

• They sent email notifications as daily reminders to parents.

• They sent transactional emails to parents based on actions their kids took in the system.

There was an incremental improvement each time, but nothing that moved the needle significantly enough to say that the MVP was a success.
Then co-founder and CEO Kyle Seaman did something critical: he picked up the phone. Kyle spoke with dozens of parents. He started calling parents who had signed up, but who weren’t active. First he reached out to those that had abandoned HighScore House completely (“churned out”). For many of them, the application wasn’t solving a big enough pain point. That’s fine. The founders never assumed the market was “all parents”—that’s just too broad a definition, particularly for a first version of a product. Kyle was looking for a smaller subset of families where HighScore House would resonate, to narrow the market segment and focus.

Kyle then called those families who were using HighScore House, but not using it enough to be defined as active. Many of these families responded positively: “We’re using HighScore House. It’s great. The kids are making their beds consistently for the first time ever!”

The response from parents was a surprise. Many of them were using HighScore House only once or twice a week, but they were getting value out of the product. From this, Kyle learned about segmentation and which types of families were more or less interested in what the company was offering. He began to understand that the initial baseline of usage the team had set wasn’t consistent with how engaged customers were using the product.

That doesn’t mean the team shouldn't have taken a guess. Without that initial line in the sand, they would have had no benchmark for learning, and Kyle might not have picked up the phone. But now he really understood his customers. The combination of quantitative and qualitative data was key.

As a result of this learning, the team redefined the “active user” threshold to more accurately reflect existing users’ behavior. It was okay for them to adjust a key metric because they truly understood why they were doing it and could justify the change.

**Summary**

- HighScore House drew an early, audacious line in the sand—which it couldn’t hit.
- The team experimented quickly to improve the number of active users but couldn’t move the needle enough.
- They picked up the phone and spoke to customers, realizing that they were creating value for a segment of users with lower usage metrics.
Analytics Lessons Learned

First, know your customer. There’s no substitute for engaging with customers and users directly. All the numbers in the world can’t explain why something is happening. Pick up the phone right now and call a customer, even one who’s disengaged.

Second, make early assumptions and set targets for what you think success looks like, but don’t experiment yourself into oblivion. Lower the bar if necessary, but not for the sake of getting over it: that’s just cheating. Use qualitative data to understand what value you’re creating and adjust only if the new line in the sand reflects how customers (in specific segments) are using your product.

WineExpress Increases Revenue by 41% Per Visitor

WineExpress.com is the exclusive wine shop partner of the Wine Enthusiast catalog and website, which have been providing quality wine accessories and storage for over 30 years. The company actively A/B tests and runs different experiments to improve sales conversions.

It decided to tackle one of the most highly trafficked pages on its site—the “Wine of the Day” page—which features a single wine option that ships for just 99 cents. The company drives traffic to the page through an opt-in email list and site navigation. The page’s central focus, aside from the featured product, is a virtual wine-tasting video with the company’s highly regarded wine director.

The “Wine of the Day” page already converted well, but WineExpress.com felt there was an opportunity to improve it. However, the team was well aware of the challenge which is faced by all e-commerce sites: striking a balance between optimizing sales transactions and optimizing overall revenues. Focusing too much on sales conversions may negatively impact the bottom line if the average order size drops in the process.

WineExpress.com engaged conversion optimization agency WiderFunnel Marketing to develop and execute a strategy for the “Wine of the Day” page. WiderFunnel developed and tested three design variations, aiming mostly at testing different layout approaches. Figure 1-2 shows the original layout.

In the end, one of the variations was a clear winner, leading to a 41% increase in revenue per visitor. “Conversion also went up,” says Chris
Goward, CEO of WiderFunnel, “but the key here is that revenue per visitor went up substantially. A lot of e-commerce vendors focus too much on conversion. For WineExpress.com the success is that people bought substantially more product.”

Figure 1-2. The original WineExpress “Wine of the Day” page

The winning layout and design is shown in Figure 1-3.
Figure 1-3. How would 41% more revenue per visitor change your business?

“We found that placing the video above the fold was a key element in the success of the new page,” says Chris. “The eyeball of the new layout also improved clarity, with fewer distracting elements that could draw you away from purchasing.”
Summary

- WineExpress.com used A/B testing to find a better-converting page.
- While conversion went up, the real gain was a 41% increase in revenue per visitor.

Analytics Lessons Learned

Page optimization is important. But be sure you’re optimizing the right metric. You don’t just want a high conversion rate—though that’s good. You want high revenue per visitor, or high customer lifetime value (CLV), because that’s what’s really driving your business model.

Socialight Discovers the Underlying Metrics of Pricing

Socialight was founded in 2005 by Dan Melinger and Michael Sharon, and sold to Group Commerce in 2011. The idea came from work Dan was doing in 2004 with a team at NYU focused on how digital media was changing how people communicated.

This was in the early days of social networking: Friendster was the dominant social platform. Socialight’s first incarnation was as a destination social network for Java-enabled mobile phones, which were considered the pinnacle of mobile app technology at the time. People could place “sticky notes” around the world, and then collaborate, organize, and share them with friends or the community as a whole.

Back then, Dan wasn’t focused on pricing, but shortly after launching Socialight, the founders realized that power users were looking for different feature sets based on how they were using the product. “The mobile software market was starting to mature, along with location-based services and devices like iPhones,” said Dan. “We also started getting approached by companies that wanted to pay for us to build and host mobile and social apps for them.”

This started the company’s pivot from B2C to B2B. It built an API to let others build their own applications, and then built a more advanced mobile app-maker product. This achieved good traction, with over 1,000 communities built atop it.
As Socialight moved into the B2B space, it launched a three-tiered freemium business model. The two paying tiers were called Premium and Pro, and cost $250 and $1,000–$5,500 per month, respectively. The main difference between the Premium and Pro offerings was the amount of involvement Socialight had with those customers—at $1,000–$5,500 per month, Socialight was very involved with lots of hours invested per month to work with customers.

Four months into its freemium launch, the company realized there was a problem. While the Pro customers were great for top-line revenue, they were costing Socialight a lot of money. “We realized that the margins we were getting from Pro customers were nowhere near as good as those from Premium, even though the revenue from Pro customers was great. Moreover, Pro customers took a lot longer to close, which is not something we understood well enough early on,” says Dan.

This is where a greater understanding and sophistication around price-related metrics becomes so important. Tracking revenue by pricing tier, which Socialight did from the outset, is a good place to start. But the other fundamental business metrics are perhaps even more important. For example, Socialight could have focused on customer acquisition cost versus customer lifetime value to identify its revenue and cost problems. Or it could have focused on margins earlier in the process, which would have helped identify its revenue issues. Eventually, the company increased the Pro tier to $5,500/month exclusively, a reflection of the increased support required by customers.

Socialight never got around to experimenting with different pricing strategies (it was acquired, after all!), but Dan would have liked to. “I think we could have reduced the Pro feature set a small amount and reduced its pricing significantly,” he says.

This underscores the tricky balance in a freemium or tiered pricing model: how do you make sure that the features/services being offered fit into the right packages at the right price? Instead of looking at pricing, Dan was able to experiment with other metrics. He looked for ways to encourage customers using the free service to convert to the Premium tier (and focused a lot less on the Pro tier). The focus on conversion (from free to paid) helped Socialight grow its business and get the bulk of its paid users into the profitable tier.

**Summary**

- Socialight switched from a consumer to business market, which required a change in pricing.
• The founders analyzed not only revenue, but also the cost of service delivery, and realized that high-revenue customers weren’t as profitable.

• They intentionally priced one of their tiers unreasonably high to discourage customers from buying it while still being able to claim it publicly.

Analytics Lessons Learned

Consider the impact that pricing has on customer behavior, both in terms of attracting and discouraging them. Price is an important tool for getting your customers to do what you want, and it should always be compared not only to cost of sales, but also to cost of goods sold and marginal cost.

Doritos Chooses a Flavor

If you’re a big company, it’s hard to incorporate customer feedback in real time. Typically, you rely on focus groups and product testing before spending big money on a new product launch. Frito-Lay found a way to mitigate this, and in the process took customer development to new heights. It also generated interesting advertising campaigns.

In 2009, Dachis Group helped Doritos introduce an unnamed flavor, then asked customers to name it.* In later years, the company asked customers to choose which flavor it should add to its product line, literally labeling two new flavors A and B, and then testing them.† It also asked customers to help write the end of a TV ad that would be broadcast during the Superbowl, giving them access to creative teams at its advertising agency.‡

This work required changes to distribution channels, from retail shelf space to the inclusion of temporary inventory. But the campaign worked—the company dominated social media. It had 1.5M visitors to its YouTube channel, and over 500,000 votes were cast by customers. It also found a way to iterate at scale, and do market development alongside brand building.

* http://www.dachisgroup.com/case-studies/become-the-doritos-guru/
† http://www.packagingdigest.com/article/517188-Doritos_black_and_white_bags_invite_consumers_to_vote_for_new_flavor.php
‡ http://thenextweb.com/ca/2011/02/05/online-campaign-asks-canadians-to-write-the-end-of-a-commercial/

DORITOS CHOOSES A FLAVOR
Summary

- An established distribution system in the consumer packaged-goods industry might seem like a boat anchor that makes it hard to innovate, but Frito-Lay found a way to do so.

- Leveraging social media and the prominence of in-store displays, the company turned its YouTube channel into a giant focus group and increased engagement with its customers.

Analytics Lessons Learned

Another way to revitalize a product is to use a disruptive technology—in this case, ubiquitous social media and two-way interaction—to reconsider how product testing is done in the first place.
We hope you’ve learned from this quick look at how data-driven approaches can improve your organization’s chances of success. There’s plenty more to explore, both in the book and online. Here are some links you may find relevant.

Lean Analytics

- Lean Analytics on Slideshare (http://www.slideshare.net/Leananalytics)
- Lean Analytics workshop for Google Ventures (https://www.youtube.com/watch?v=uIG1H_EQ6WQ)

Related blogs

- Occam’s Razor, Avinash Kaushik’s blog on analytics (http://www.kaushik.net/avinash/)
- Practice Trumps Theory, Ash Maurya’s blog (http://practicetumpsteory.com/blog/)
• Startup Lessons Learned, Eric Ries’ blog (http://www.startuplessonslearned.com/)

• Startup Marketing, Sean Ellis’ blog on growth hacking (http://www.startup-marketing.com/)

Alistair and Ben’s writing

• Instigatorblog, Ben’s blog on entrepreneurship (http://www.instigatorblog.com/)

• Solve For Interesting, Alistair’s blog (http://solveforinteresting.com/category/startup-marketing/)

• Tilt the Windmill, Alistair’s project on innovation in large organizations (http://tiltthewindmill.com/)

• Alistair’s articles on Radar (http://radar.oreilly.com/alistairc)