Startup Genome Report Extra on Premature Scaling

A deep dive into why most high growth startups fail

This is an addition to the Startup Genome Report covering premature scaling based on data from 3200+ high growth technology startups. The Startup Genome Report is a 67 page analysis that was coauthored by researchers from UC Berkeley & Stanford. Other contributors include Steve Blank, the Sandbox Network, and 10 accelerators from around the globe. Your can download it at http://blog.startupcompass.co

The goal of this mini-report is to describe our insights about premature scaling, which we have identified as a major reason high growth technology startups fail.

If you are a startup and you would like to test whether your startup is scaling prematurely, you sign up for our online web application, the Startup Genome Compass, at http://startupcompass.co. It is specifically designed to help startups reduce their chances of failure by benchmarking them to analyze whether they are scaling prematurely.

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Benchmark	startupcompass.co
Blog	blog.startupcompass.co
Report #1	blog.startupcompass.co/pages/startup-genome-report-1
Report #2	blog.startupcompass.co/pages/startup-genome-report-extra-on-premature-scal
Methodology	www.systemmalfunction.com/2011/08/startup-genome-compass-behind-scenes.html
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A. The Startup Genome Project and its Role in an Approaching Societal Transformation

What makes startups succeed or fail? The Startup Genome Project is trying to answer this question. We believe increasing the success rate of startups has the potential to dramatically increase economic growth all around the world. On May 28th we released our first report at blog.startupcompass.co. On August 29th we released our first benchmark application - the Startup Genome Compass to help startups reduce premature scaling.

The role of technology startups in our global economy has never been more important. Startups may seem insignificant compared to large multinational companies that have trillions of dollars of wealth sloshing around in public markets, but a recent Kauffman Foundation study found that the majority of job growth in the United States is driven by technology startups.

The power of information technology has been steadily increasing for the last three decades and has recently reached a level of maturity that has started to trigger a reorganization of the global economy. It has never been easier or cheaper to create a startup thanks to infrastructure like open source software, software as a service, cloud hosting, globally ubiquitous payment processing, viral distribution channels, real-time collaboration, on demand logistic services and hyper-targeted advertising.
As a result, the pace of change is speeding up and the implications of this are immense. Billion dollar startups are emerging faster and faster. The quick ascent of startups like Google, LinkedIn, Facebook, Twitter, Zynga and Groupon are harbingers of a major structural economic change on the horizon. The service sector has dominated the global economy for the last few decades but its sun will set. Just as machinery replaced most manual labor, software will replace repetitive intellectual tasks. Turbo Tax eliminated many accountants, Amazon eliminated many retail jobs and E-Trade eliminated the majority of stockbrokers. In the near future jobs that are more complex yet still methodical will also be replaced by software. Creative Commons is reducing the need for lawyers, Khan Academy shows how one good teacher can replace many bad teachers and the profession of doctors will be disrupted by startups like Halcyon Molecular that turn healthcare from emergency care into a preventative self-care. Balancing out that massive decrease in jobs will be what Richard Florida calls the rise of the creative class.

As the waves of disruption come ever faster, the only way for a company to be competitive will be to behave like a startup. In the landmark book the Innovator's Dilemma, Clayton Christensen found large companies are excellent at sustaining innovation but by and large fail at disruptive innovation. Startups thrive on

creating disruptive innovations. Recently, thought leaders in entrepreneurship have come to the conclusion that in order for large companies to be effective at disruptive innovation they need to make structural changes that make them behave nearly identically to startups.

The increasing economic importance of startups, along with decreased barriers to entry has caused interest in entrepreneurship to explode around the globe. New startup ecosystems are being built up all over the world with the hopes of replicating the success of Silicon Valley. Spearheading this movement are startup accelerators like Seedcamp, Techstars, Opinno, Founders Institute, 500 Startups, and Sandbox, but they are accompanied by hundreds of others. On an individual level, the brightest people worldwide, are increasingly seeing entrepreneurship as the career path of choice. The release of The Social Network has captured the imagination of today's young people, and catapulted Mark Zuckerberg to the same status as Gordon Gekko in Wall Street almost 25 years ago.

But despite the increasing economic importance of scalable startups, we still don't understand the patterns of successful creation. More than 90% of startups fail, due primarily to self-destruction rather than competition. For the less than 10% of startups that do succeed, most encounter several near death experiences along the way. Simply put, we just are not very good at creating startups yet.

Eight months ago we launched the Startup Genome Project, with the goal of increasing the success rate of startups and accelerating the pace of innovation around the world by turning entrepreneurship into a science. If successful, it's hard to imagine the type of impact this could have.

Some of the world's biggest transformations occurred when arts were turned into sciences. The scientific revolution in the 16th century triggered the age of enlightenment. The development of scientific management, which peaked in the early 1910's, made large companies dramatically more efficient and arguably was one of the biggest causes of the explosion of wealth the world saw in the last century.

We believe the effects of cracking the code of innovation by turning entrepreneurship into a science will trigger a new era, that we are calling the Entrepreneurial Enlightenment. In the midst of the largest global depression in almost a century, a revolution in entrepreneurship could propel the world to a level of wealth never seen before by enabling scientific discoveries and technological breakthroughs to be integrated into the fabric of society faster than ever before. Offering hope that we may finally be able to master some of the most pressing challenges, including water, energy, food, health, security, poverty and education.

No revolution is triggered alone. In the quest to make entrepreneurship a science, we are standing on the shoulders of giants. In just the last 2-3 years the number of people extracting and codifying the informal learning of entrepreneurs has hit a point of critical mass. Steve Blank kicked off the move towards a science of entrepreneurship with his seminal book The Four Steps to the Epiphany. In the book, he introduced the concept of Customer Development. A few years later Eric Ries combined Customer Development with Agile Development and Lean Manufacturing principles to create the Lean Startup methodology. Interest in the Lean Startup has morphed into a global movement. Other major contributors to the science of entrepreneurship include Dave Mcclure on Metrics, Sean Ellis on Marketing, Alex Osterwalder on Business Models and Paul Graham with his essays.

Yet despite this huge knowledge base emerging about how startups work, startups have been able to absorb little more than the basic patterns of how to build a startup. Most founders don't know what they should be focusing on and consequently dilute their focus or run in the wrong direction. They are regularly bombarded with advice that seems contradictory, which is often paralyzing. And while startups are now gathering way more qualitative and quantitative feedback than they were just a few years ago, their ability to interpret this data and use it to make better product and business decisions is sorely lacking. The primary cause of these problems is that we lack the necessary structure to synthesize our accumulated knowledge on the nature of startups. We are missing a common language and framework to describe and measure entrepreneurship and innovation.

B. Summary of Startup Genome Report

This summary covers the sections of the Startup Genome Report on the different types and stages of startups. These are important foundational concepts for you to understand when you reach our section on Premature Scaling in part C. If you've already read the full Startup Genome Report you can skip straight to part C.

The goal of the Startup Genome report was to lay the foundation for a new framework for assessing startups more effectively by measuring the thresholds and milestones of development that Internet startups move through.

Through analyzing the results from our survey we found that Internet startups move through similar thresholds and milestones of development, which we segmented into stages. Startups that skipped these stages performed worse.

We also identified three major types of Internet startups with various sub types. They are segmented based on how they perform customer development and customer acquisition. Each type has varying behavior regarding factors like time, skill and money.

These 2 findings lay the foundation for us to begin organizing and structuring all of a startup's customer related data, which entrepreneurs can use to make better product and business decisions.

The three key ideas we set out to test were:

1. Startups evolve through discrete stages of development. Each stage can be measured with specific milestones and thresholds.
2. There are different types of startups. Each type evolves through the developmental stages differently.
3. Learning is a fundamental unit of progress for startups. More learning should increase chances of success.

I. The Startup Lifecycle

Our foundational structure of startup assessment is the startup lifecycle. Understanding where a startup is in their lifecycle allows us to assess their progress. The startup lifecycle is made of 6 stages of development, where each stage is made up of levels of substages. This creates a directed tree structure and allows for more granular assessment by being able to pinpoint the main drivers of progress at each stage. We call each of these stages the Marmer

Stages. However, in this report only the top level stages are discussed. Our first four top-level stages are based loosely on Steve Blank's 4 Steps to the Epiphany, but one key difference is that the Marmer Stages are product centric rather than company centric.

Our 6 stages are:

1) Discovery
2) Validation
3) Efficiency
4) Scale
5) Sustain not covered in this report
6) Conservation not covered in this report

Our assessment of the stages does not include traditional ways of assessment like funding, team size, user growth, etc. They are based on milestones and thresholds that vary based on the type of startup. An example for a milestone is building a minimum viable product. An example for a threshold is certain rate of retention.

We attempt to provide evidence for the existence of the Marmer Stages in two ways:

1) That the Marmer Stages correlate with traditional indicators of progress.
2) That startups that don't move through the stages in order show less progress.

II. Types of Internet Startups

We created our types by defining a spectrum of 100% marketing to 100% sales and created 3 points by selecting the two end points and the mid point. In the future, we plan to define a more fluid spectrum with more than 3 points, as we understand the underlying variables better and see where startups cluster. Our fourth type, Type 1N (The Social Transformer), is the same as Type 1 (The Automator) but the product has network effects.

Here are the four different types of startups we identified:

The Automator / Type 1
These startups are product centric with a self-service customer acquisition strategy, that focus on quick execution and often automate a manual process. The majority of them target consumers in existing markets.

Examples: Google, Dropbox, Eventbrite, Slideshare, Mint, Pandora, Kickstarter, Zynga, Playdom, Box.net, Basecamp, Kayak

The Social Transformer / Type 1N
These startups have a self-service customer acquisition strategy and often create new ways for people to interact. They are almost always confronted with the challenge of reaching critical mass. If they surpass this threshold they can often have runaway user growth in a winner-take-all market.

Examples: eBay, OkCupid, Skype, Airbnb, Craigslist, Etsy, IMVU, Flickr, LinkedIn, Yelp, Facebook, Twitter, Foursquare, YouTube, Mechanical Turk, PayPal, Quora

The Integrator / Type 2
These companies thrive on acquiring customers by generating leads with marketing and closing them with inside sales reps. They are product-centric and rely on early monetization typically through subscriptions in smaller markets. They often take innovations from Automator startups and rebuild it for smaller enterprises.

Examples: Intuit, Square, Adobe, PBworks, Uservoice, Mixpanel, Dimdim, HubSpot, Marketo, Xignite, Zendesk, GetSatisfaction, Flowtown

The Challenger / Type 3
These startups are focused on closing high paying customers in large but fragmented markets. They are highly dependent on a small number of deals being successful and usually operate in complex and rigid markets. To be successful they need to find a repeatable and scalable sales process.

Examples: Oracle, Salesforce, MySQL, Red Hat, Jive, Atlassian, Palantir, NetSuite, WorkDay, Zuora, Cloudera, SuccessFactor, Yammer

III. Key Findings

1. Founders that learn are more successful. Startups that have helpful mentors, track performance metrics effectively, and learn from startup thought leaders raise 7x more money and have 3.5x better user growth.
2. Startups that pivot once or twice raise 2.5x more money, have 3.6x better user growth, and are 52% less likely to scale prematurely than startups that pivot more than 2 times or not at all. A pivot is when a startup decides to change a major part of its business.
3. Premature scaling is the most common reason for startups to perform worse. They tend to lose the battle early on by getting ahead of themselves.
Startups can prematurely scale their team, their customer acquisition strategies or over build the product.
4. Many investors invest 2-3x more capital than necessary in startups in the discovery phase. They also over-invest in solo founders and founding teams

without technical cofounders despite indicators that show that these teams have a much lower probability of success.
5. Hands-on help from investors have little or no effect on the company's operational performance. But the right mentors significantly influence a company's performance and ability to raise money. However, this does not mean that investors don't have a significant effect on valuations and M&A.
6. Solo founders take 3.6x longer to reach scale stage compared to a founding team of 2 and they are 2.3x less likely to pivot.
7. Business-heavy founding teams are 6.2x more likely to successfully scale with sales-driven startups than with product-centric startups.
8. Technical-heavy founding teams are 3.3x more likely to successfully scale with product-centric startups without network effects than with product-centric startups with network effects.
9. Balanced teams with one technical founder and one business founder raise 30% more money, have 2.9x more user growth and are 19% less likely to scale prematurely than technical or business-heavy founding teams.
10. Founders that don't work full-time have 4x less user growth and end up raising 24x less money from investors.
11. Most successful founders are driven by impact rather than experience or money.
12. 72% of founders find out that their initial intellectual property is not a competitive advantage.
13. Startups need 2-3 times longer to validate their market than most founders expect. This underestimation creates the pressure to scale prematurely.
14. Startups that haven't raised money overestimate their market size by 100x and often misinterpret their market as new.
15. B2C vs. B2B is not a meaningful segmentation of Internet startups anymore because the Internet has changed the dynamics of customer interaction. We found 4 different major groups of startups that all have very different behavior regarding customer acquisition, time requirements, market risk and team composition.

C. Introduction to Premature Scaling

I. Introduction

For the last 6 months the Startup Genome Project has been researching what makes high growth technology startups successful and has gathered data on more than 3200 startups. In our research one reason for failure has shown up again and again: premature scaling.

We define startups as a developmental organism that evolves along 5 interdependent dimensions: Customer, Product, Team, Business Model and Financials. How progress is measured varies depending on the stage of the development.

If you find that definition too abstract, we have a less precise but more concrete definition, that comes from merging and modifying definitions of a startup from Steve Blank and Eric Ries:

Startups are temporary organizations designed to scale into large companies. Early stage startups are designed to search for product/market fit under conditions of extreme uncertainty. Late stage startups are designed to search for a repeatable and scalable business model and then scale into large companies designed to execute under conditions of high certainty.

A startup can maximize its speed of progress by keeping the 5 core dimensions of a startup Customer, Product, Team, Business Model and Financials in balance. The art of high growth entrepreneurship is to master the chaos of getting each of these 5 dimensions to move in time and concert with one another. Most startup failures can be explained by one or more of these dimensions falling out of tune with the others.

In our dataset we found that 70% of startups scaled prematurely along some dimension. While this number seemed high, this may go a long way towards explaining the 90% failure rate of startups.

How is premature scaling assessed?

The Startup Genome Team trained machine learning algorithms to assess both the behavioral and actual stage of a startup. If they are not identical the company has scaled some dimension of the company prematurely.

II. Definition of inconsistency

Consistent startups keep the customer dimension, the primary indicator of progress in a startup, in tune with product, team, financials and business model. This means that each dimension progresses evenly compared to the others. Inconsistent startups have one or more of these dimensions far ahead or far behind the customer dimension. Premature scaling is the predominant form of inconsistency, but its much rarer opposite, dysfunctional scaling is also possible, although it's not covered in this report. An example for dysfunctional scaling would be Friendster. (Read more here).

Dimension	Examples for inconsistency
Customer	• Spending too much on customer acquisition before product/market fit and a repeatable scalable business model • Overcompensating missing product/market fit with marketing and press
Product	• Building a product without problem/solution fit • Investing into scalability of the product before product/market fit • Adding "nice to have" features
Team	• Hiring too many people too early • Hiring specialists before they are critical: CFO's, Customer Service Reps, Database specialists, etc. • Hiring managers (VPs, product managers, etc.) instead of doers • Having more than 1 level of hierarch
Financials	• Raising too little money to get thru the valley of death • Raising too much money. It isn't necessarily bad, but usually makes entrepreneurs undisciplined and gives them the freedom to prematurely scale other dimensions. I.e. over-hiring and over-building. Raising too much is also more risky for investors than if they give startups how much they actually needed and waited to see how they progressed.
Business Model	• Business Model • Focusing too much on profit maximization too early • Over-planning, executing without regular feedback loop • Not adapting business model to a changing market • Failing to focus on the business model and finding out that you can't get costs lower than revenue at scale.

Quote about premature scaling by ...
Michael A. Jackson, serial entrepreneur and investor

“Having been both an entrepreneur and investor I've seen many entrepreneurs (myself included) try to scale blindly. No one takes venture money to stay a small business and scaling successfully is what separates eventual industry leaders from long-forgotten startups in the deadpool. Far too often though entrepreneurs start scaling before they know what is going to work.
Premature scaling is putting the cart before the proverbial horse, and in the case of startups this can potentially relate to both engineering and operations. As an entrepreneur there’s always the temptation to grow the sales team at the first sign of revenue traction, but there is always the danger that this early traction is coming from the subset of the market that are early adopters and not the actual market itself. Additionally, too often I’ve seen startups ramp up sales before they’ve figured out the most efficient way to achieve profitability. A vicious cycle ensues wherein the more a company grows, the more it farther away from profitability it becomes. Teams need to be obsessed with the metrics that drive their businesses’ growth, constantly testing and challenging their assumptions.
For the engineering team, there’s the often obsessed about notion of having a robust platform that can handle millions of users before the startup even gets to 10’s of thousands on there. The team starts to worry about all the technical issues that they’ll have to deal with when success comes, but they lose track of what is actually going to make them succeed. They can start to fixate on the Engineer’s "El Dorado" : the Perfect Product. It makes for a nice story that one can dream about, but it will always remain a fantasy…and the potential cause of opportunity lost.
Venture-backed startups have no option but to scale eventually. Investors have made their investment based on the fact that they believe the startup is a scalable business that can attack a large market. Getting venture money can be like putting a rocket engine on the back of a car. Scaling comes down to making sure the machine is ready to handle the speed before hitting the accelerator.”

Quote about premature scaling by ...
Amir Banifatemi, entrepreneur, product strategist, and investor

“Only when a startup objectively demonstrates that product-market fit is achieved and a pattern of revenue generation is clearly identified, it makes sense to scale the business model and grow.
A startup business model, even when established, needs to be flexible enough to evolve constantly with market conditions, competitive moves, alternative offerings, and customer maturity and evolution. This constant evolution creates inflection points that should be identified through a constant and data-driven monitoring of

the market responses and customer behavior. Failing to view those inflection points may not capture the favorable context for scaling and can be adversely impactful.
Scaling can be analyzed differently based on the context and the circumstances surrounding a startup and its market. In some instances, a startup can grow to a certain point and be acquired by a stronger player, thereby avoiding most premature scaling issues due to lack of resource or experience. However, not every startup can be quickly acquired, and premature scaling is one of the reasons startups fail even though they might have a great product, have received funding, or verified positive market feedback.
Successful scaling for a startup is one of the measures of sustained growth and its business model, and requires proper preparation and timing. Premature scaling can happen in situations such as:

- Hiring too many people or paying high salaries before a strong visibility on cash flow,
- Failing to hire sales oriented people and partners that are skilled, aligned, and trained to deliver according to the initial patterns of a proven revenue model,
- Confusion between users and customers. In case of consumer focused startups, when the attention is on scaling users that are not directly impacting profitability. Many believe that an increase in users or members would somehow translate into some forms of value.
- Focus on sustained marketing spending without established metrics,
- Early efforts to scale without a strong lock on the market. Market education is costly for startups beyond early adopters. In addition, other new entrants or more established companies can benefit from the market being opened by startups that may not be prepared enough to reap the benefit of their work.
- Startups and their boards need to have mechanisms in place to monitor product acceptance and market readiness so that they can change gears. Changing gears does not necessarily mean pivot, but rather being able to capture a larger portion of the market at a controlled cost/revenue ratio or margin.
- Chasing to increase revenue while decreasing profit. Many startups increase their costs as they capture additional customers due to lack of fulfillment abilities and products scaling, therefore putting their business model in jeopardy."

Quote about premature scaling by ...
Jim Pitkow, serial entrepreneur

"Premature scaling: growing in anticipation of demand instead of demand driven growth."

III. The anatomy of premature scaling

Startups are temporary organizations that are designed to evolve into large companies. They move through 6 stages of development throughout their lifecycle: Discovery, Validation, Efficiency, Scale, Sustain & Conservation. Early stage startups are designed to search for product/market fit under conditions of extreme uncertainty. Late stage startups are designed to search for a repeatable and scalable business model and then scale into large companies designed to execute under conditions of high certainty.

Every startup has an actual stage and a behavioral stage. Actual stage is measured by customer response to a product. We measure it by looking at metrics like numbers of users, user growth, activation rate, retention rate and revenue. The behavioral stage is made up 5 top level dimensions that the startup can control. The 5 dimensions are Customer, Product, Team, Financials and Business Model. Each dimension, both the actual and the 5 behavioral dimensions are always classified into one of the 6 developmental stages.

A startup is classified as inconsistent when any behavioral dimension is at a stage that is different than the actual stage. When a behavioral dimension is at a stage larger than the actual stage we call this premature scaling. Its lesser known sibling, dysfunctional scaling, occurs when the stage of a behavioral dimension is smaller than the actual stage.

A clear example of premature scaling would be a web startup that rapidly scales up its team to 30-40 people before it has any customers. In this example, the actual stage of the startup would be in Validation (Stage 2) but the behavioral stage of the team would be in Scale (Stage 4).

Let's go through some more examples and stats for how each dimension can be scaled prematurely.

Customer

How to scale customer dimension prematurely
Spending too much on customer acquisition before product/ market fit
Overcompensating missing product/market fit with marketing and press
Spending money in poor performing acquisition channels.

Stats
Inconsistent startups are 2.3 times more likely to spend more than one standard deviation above the average on customer acquisition.

Examples of startups that prematurely scaled on the customer dimension
Color, Webvan, Pets.com

Product

How to scale product dimension prematurely
Building a product without having validated problem/solution fit, Investing into scalability of the product before product/market fit, Adding lots of “nice to have” features

Stats
Inconsistent startups write 3.4 times more lines of code in the discovery phase and 2.25 times more code in efficiency stage. Inconsistent startup outsource 4-5 times as much of their product development than consistent startups.
In discovery phase 60% of inconsistent startups focus on validating a product and 80% of consistent startups focus on discovering a problem space. In the validation phase, where startups should be testing demand for a functional product, inconsistent startups are 2.2 times more likely to be focused on streamlining the product and making their customer acquisition process more efficient than consistent startups. It's widely believed amongst startup thought leaders, that successful startups succeed because they are good searchers and failed startups achieve failure by efficiently executing the irrelevant.

Examples of startups that prematurely scaled the product dimension
Cuil, Webvan, Joost, Google Wave, Slide, 6Apart, most startups that don't find product market fit or "build something nobody wants".

Team:

How to scale team dimension prematurely
Hiring too many people too early, Hiring specialists before they are critical: CFO’s, Customer Service Reps, Specialized Network/System Adminstrators or Database specialists, etc., Adopting multilevel management hierarchy, hiring managers (VPs, product managers, etc.) instead of doers, Having more than 1 level of hierarchy,

Stats
The team size of startups that scale prematurely is 3 times bigger than the consistent startups at the same stage. However startups that scale properly end up having a team size that is 38% bigger at the initial scale stage than prematurely scaled startups, and almost surely continue to grow. Startups that scale properly take 76% longer to scale to their team size than startups that scale prematurely.

Examples of startups that prematurely scaled the the fundraising dimension
Webvan, Pets.com, VOX.com.

Financials:

How to scale fundraising dimension prematurely
Raising too much money, thereby making the startup undisciplined, giving lots of breathing room for other dimensions to scale prematurely, and eliminating exit optionality.

Stats
Before scaling, funded inconsistent startups are on average valued twice as much as consistent startup and raise about three times as much money.

Examples of startups that prematurely scaled the the fundraising dimension
Cuil, Webvan, Color.

Business Model:

How to scale business model prematurely
Focusing too much on profit maximization too early, Over-planning, executing without a regular feedback loop, Not adapting business model to a changing market, Failing to focus on the business model and finding out that you can't get costs lower than revenue at scale.

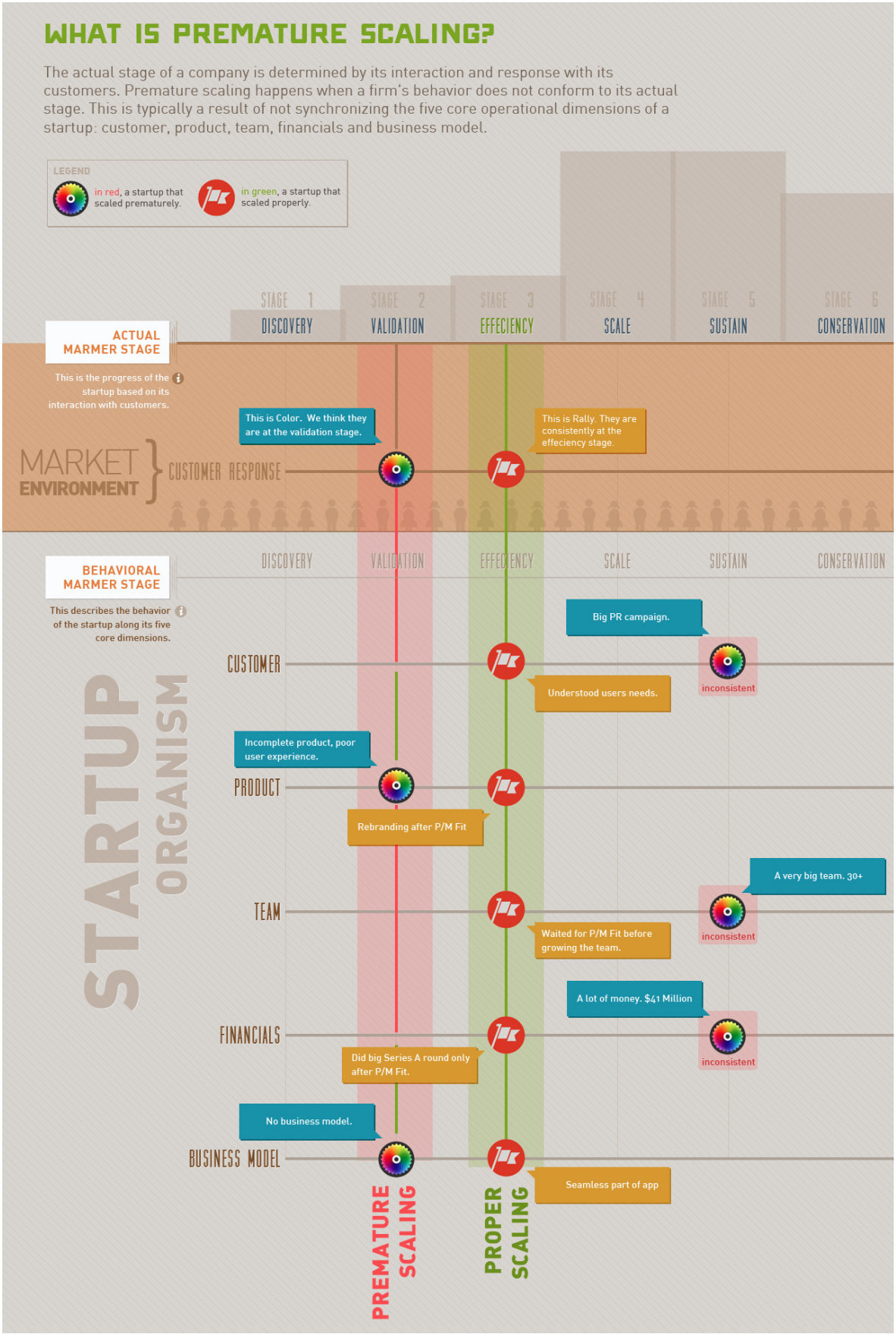
Stats
Inconsistent startups monetize 0.5 to 3 times as many of their customers early on.

Examples of startups that prematurely scaled the business model dimension
Myspace, Groupon (time shall tell), 6Apart, Lala.

The focus of this post is on premature scaling, but for context, here are a few example of dysfunctional scaling: Tokbox, Friendster, Orkut, Wesabe, Digg, SixApart, Myspace (on product), and ChatRoulette.

In our research we also found that the following attributes have no influence on whether a company is more likely to scale prematurely: market size, product release cycles, education levels, gender, time that cofounders knew each other, entrepreneurial experience, age, number of products, type of tools to track metrics and location.

Now to further illustrate how we describe startups let's look at an example mapped onto theStartup Lifecycle Canvas.
Below we have an infographic where we plot Color, today's most talked about inconsistent startup, against Rally, a startup we worked closely with while building out the model, that was consistently in the Efficiency stage 2 months ago when they made this announcement. Although now we're happy to say they're starting to scale.



Startups that scale prematurely are classified as inconsistent and startups that scale properly are classified as consistent

D. Findings on Premature Scaling

I. Summary of the findings

Based on our analysis of about 3200 high growth internet startups approximately 70% of the startups in our dataset scaled prematurely.

(inconsistent startup = show signs of premature scaling)

1. 74% of high growth internet startups fail due to premature scaling.

2. No startup that scaled prematurely passed the 100,000 user mark.

3. Startups that scale properly grow about 20 times faster than startups that scale prematurely.

4. 93% of startups that scale prematurely never break the $100k revenue per month threshold.

5. Before scaling, funded inconsistent startups are on average valued twice as much as consistent startup and raise about three times as much money.

6. The team size of startups that scale prematurely is 3 times bigger than the consistent startups at the same stage. However startups that scale properly end up having a team size that is 38% bigger at the initial scale stage than prematurely scaled startups, and almost surely continue to grow. Startups that scale properly take 76% longer to scale to their team size than startups that scale prematurely.

7. Inconsistent startups are 2.3 times more likely to spend more than one standard deviation above the average on customer acquisition.

8. Inconsistent startups write 3.4 times more lines of code in the discovery phase and 2.25 times more code in efficiency stage.

9. Inconsistent startup outsource 4-5 times as much of their product development than consistent startups.

10. In discovery phase 60% of inconsistent startups focus on validating a product and 80% of consistent startups focus on discovering a problem space. In the validation phase, where startups should be testing demand for a functional product, inconsistent startups are 2.2 times more likely to be focused on streamlining the product and making their customer acquisition process more efficient than consistent startups. It's widely believed amongst startup thought

leaders, that successful startups succeed because they are good searchers and failed startups achieve failure by efficiently executing the irrelevant.

11. Inconsistent startups monetize 0.5 to 3 times as many of their customers early on.

12. The following attributes have no influence on whether a company is more likely to scale prematurely: market size, product release cycles, education levels, gender, time that cofounders knew each other, entrepreneurial experience, age, number of products, type of tools to track metrics and location.

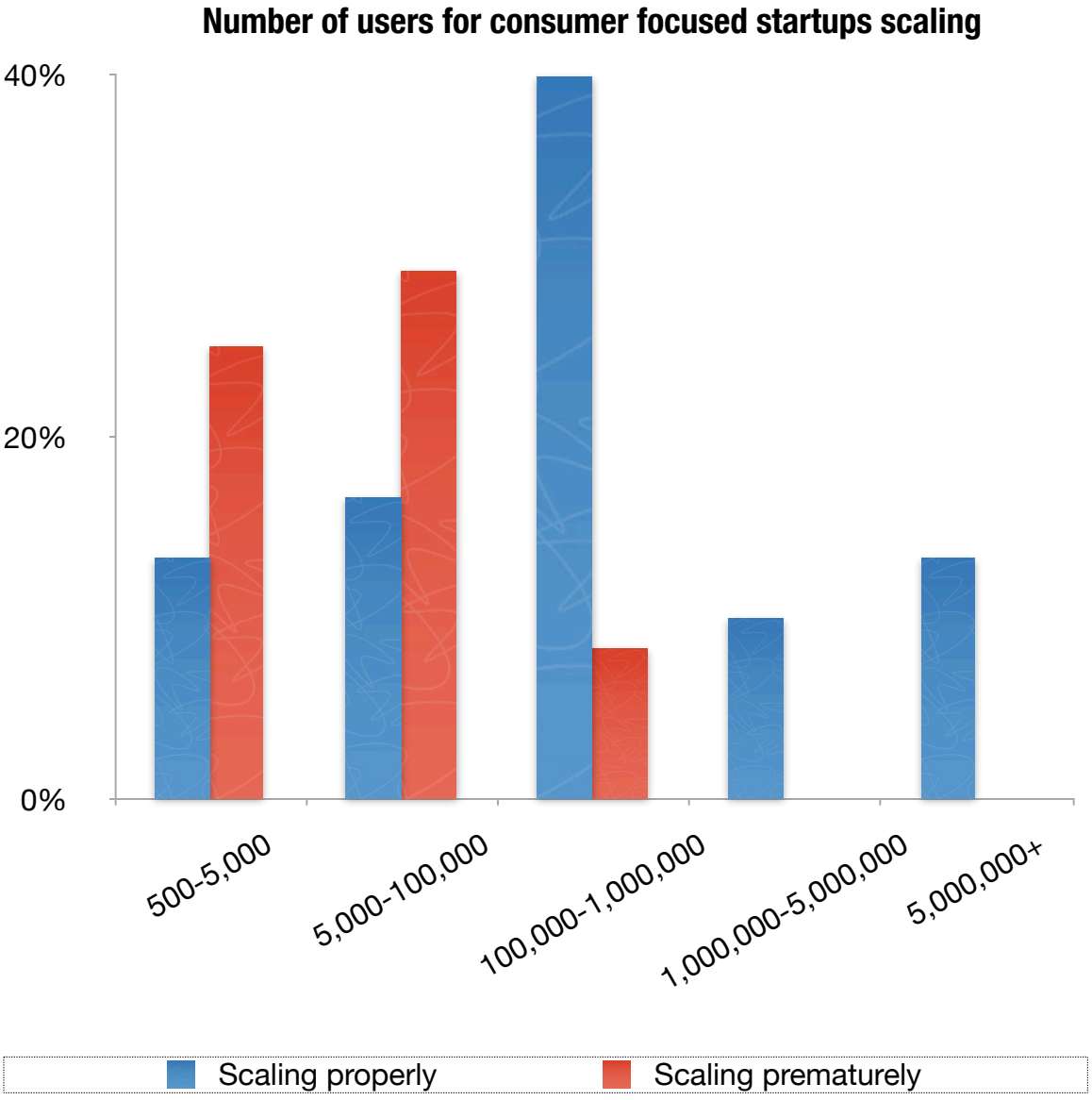
Quote about premature scaling by ...
Salim Ismail, serial entrepreneur, founding ED Singularity University

“Startups are by nature extremely fragile. I'd define premature scaling as expending money and resources in anticipation of major growth without necessary evidence.

The biggest dangers I've seen in premature scaling are the following areas:
• putting too many features into your product on day 1. At Brickhouse, we'd ask what are the two features that will have you succeed over everyone else; just build those. If they work, then add the others. If you have more than 6 major features in your product, strip it down.
• adding too much management overhead. Once there's a bit of success, it's easy to go hire the 'rockstar' team. It's critical that the founders keep selling non-stop and only hire because they can't handle the demand; too often they hire to create a pipeline rather than responding to existing demand.
• tracking the wrong metric. Often startups look purely at pageviews or unique visits without looking at the underlying drivers. Tracking metrics that don't fit the business model is a killer.
• living on the dream. Often, startups are so bought into their own hype they don't notice that no one is actually buying it. That's great for continued motivation, but it can lead to real problems. There's a balance between living the dream and the patience that it'll take time.”

II. How Consistent Startups Compare to Inconsistent Startup On Key Customer Related Performance Indicators

In the following section we analyze how the performance of inconsistent startups compares to consistent startups. ***Note that startups that scale prematurely are classified as inconsistent and startups that scale properly are classified as consistent.***



This graph shows …
how consistent and inconsistent consumer facing startups compare in absolute user numbers as they try to scale.

This could be interpreted ...
Startups that try to scale before they have reached product/market fit and streamlined their customer acquisition process don't do very well. In fact, no inconsistent startup in our dataset was able to get more than 100,000 users.

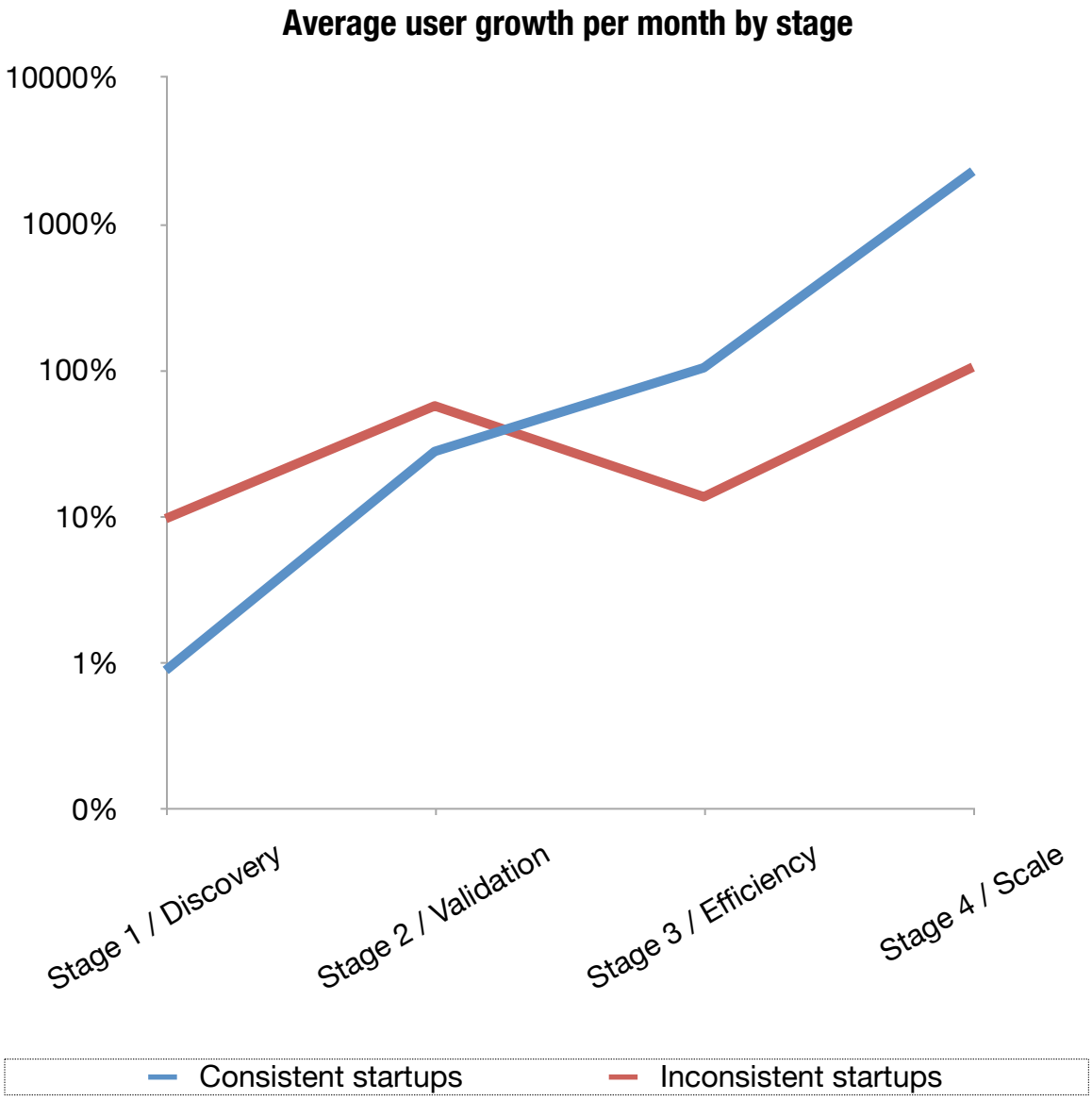
Quote about premature scaling by ...
Krzysztof Kowalczyk, investor and serial entrepreneur

"...Speaking about user base explosion - it is kind of a Holy Grail of the startup world but if it happens too early and the tsunami of new users attracted by the network effects will arrive just to find product below their expectations - their will not come back (eventually at much higher cost). It's better to carefully draft a product on a smaller, safer group of friendly users then to go after the general public too soon. The perfect example is Color, which executed PR perfectly, attracted many users and ... remains a ghost town, as users didn't hook to the product.

PR is important in the startup world so everyone dreams about being featured on TechCrunch and getting subsequent calls from VCs.
But again, if the product itself is in its infancy, if the usage patterns, virality, monetization strategy etc. is not thought through - then the media hype might become a serious distraction to the founders - as their number is usually limited to 2-4 and coping with hype takes them away from the product development. Look what happened to ChatRoulette - in the spring of 2010 it seemed to be a darling of the online community, founder got invitation from best VCs - and...few months later nothing came out of it (http://www.businessinsider.com/fred-wilson-chatroulette-founder-doesnt-know-what-he-wants-to-do-2010-6). As for me, the media hype scaled up much prematurely as for 17-years old to cope with."

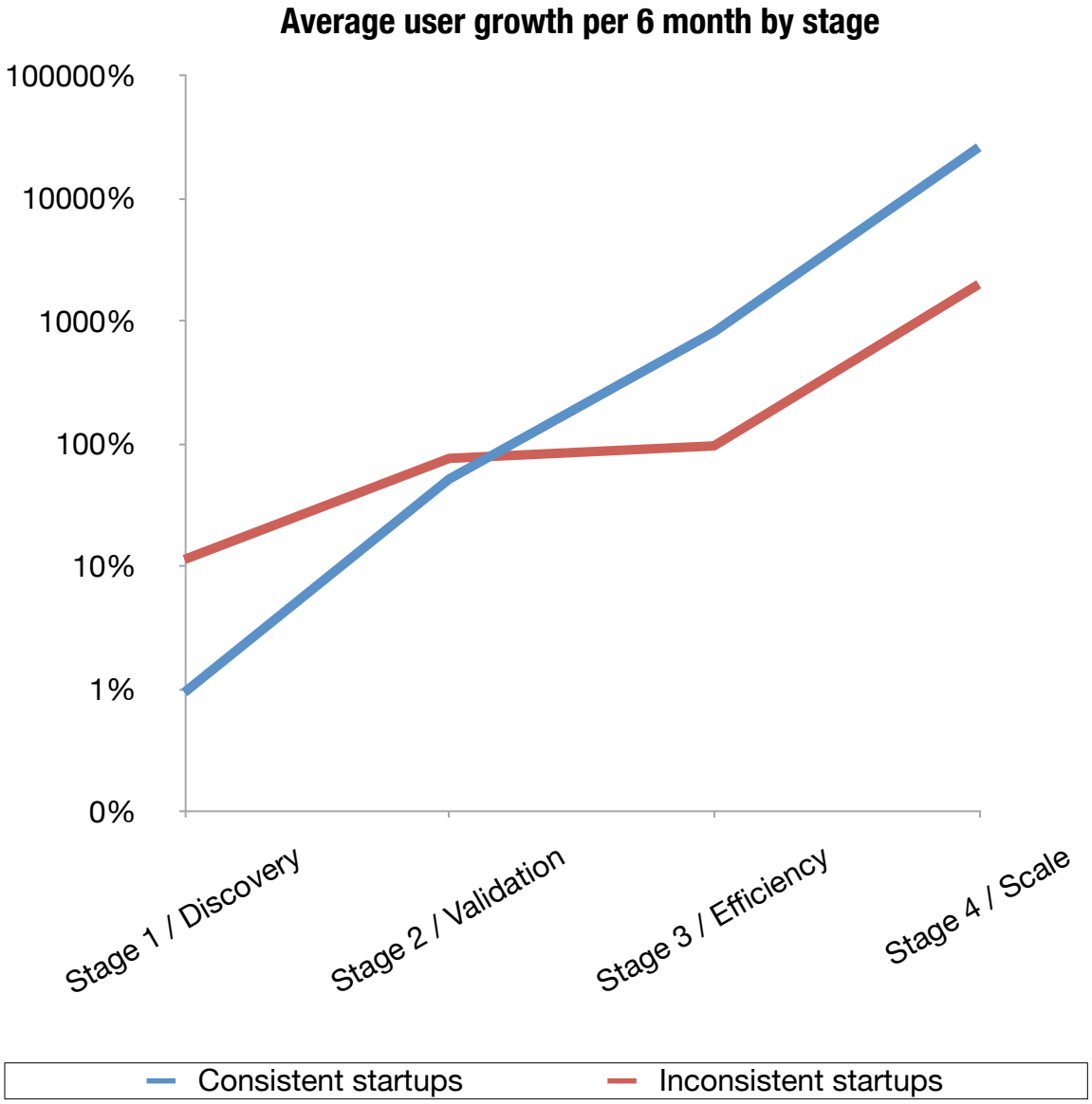
Quote about premature scaling by ...
Fred Destin, investor

Unprofitable Scaling / Absence of operating leverage
You may be able to sell more faster, but you might not be ready to scale profitably. The more customers you get, the more bugs, new requests and support issues start to bog your infrastructure down and ultimately come back to rest on the door of your sales guy. I have lived through one experience of a company that had not understood that it had a total quality problem on its hands and kept ploughing money into the front of the funnel, to no discernible end.



This graph shows ...
how the monthly user growth numbers varies for consistent startups vs inconsistent startups by stage in a logarithmic scale.

This could be interpreted ...
Inconsistent startups grow faster in the early stages, probably due to forcing or over-engineering growth, and then relatively flatline by the scale stage. Meanwhile consistent startups have slow growth in the beginning and take off in the scale stage in "hockey stick" fashion (a linear line on a log scale is a smooth exponential curve). By the scale stage consistent startups are growing more than 20 times faster than inconsistent startups per month.



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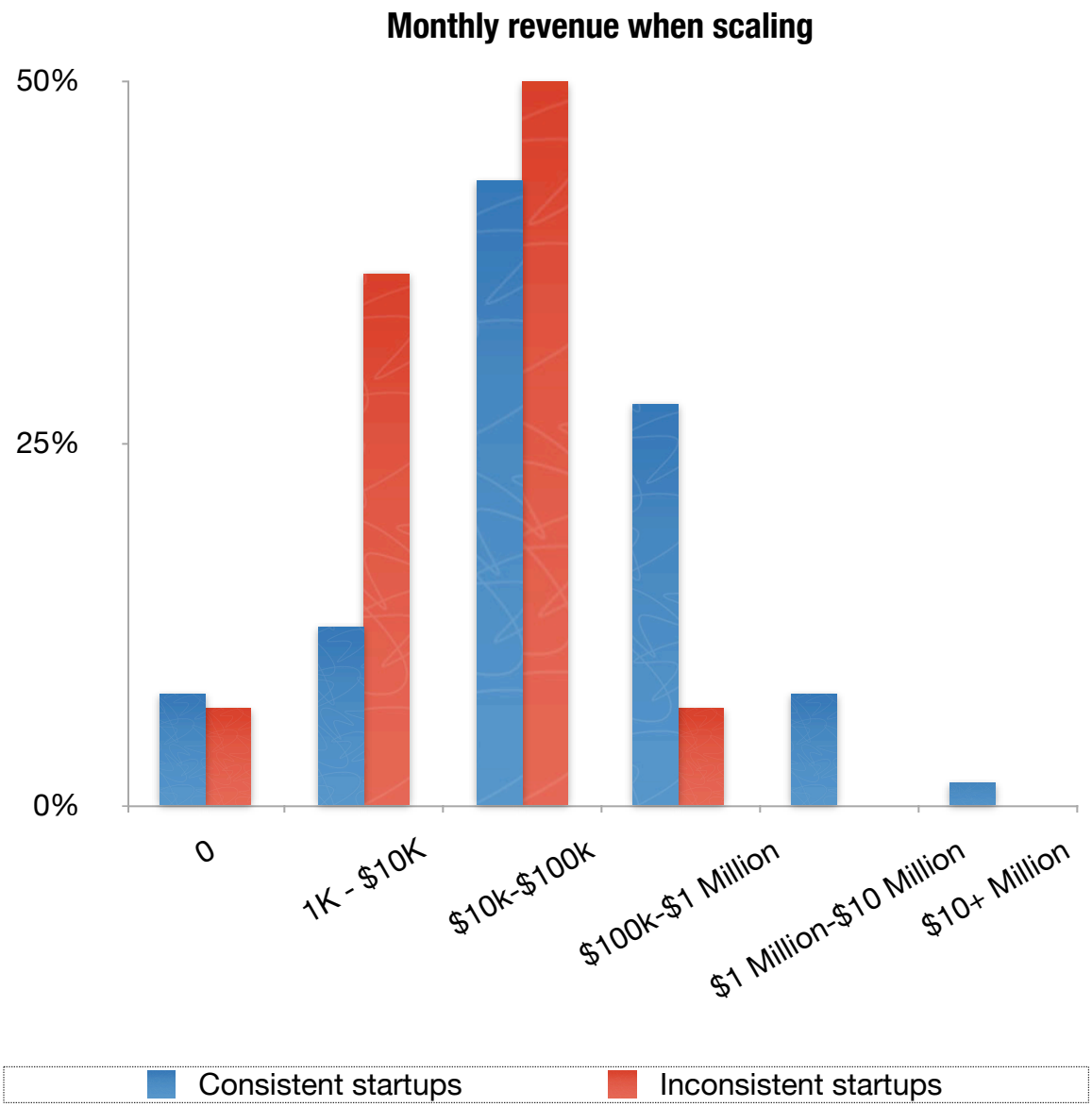
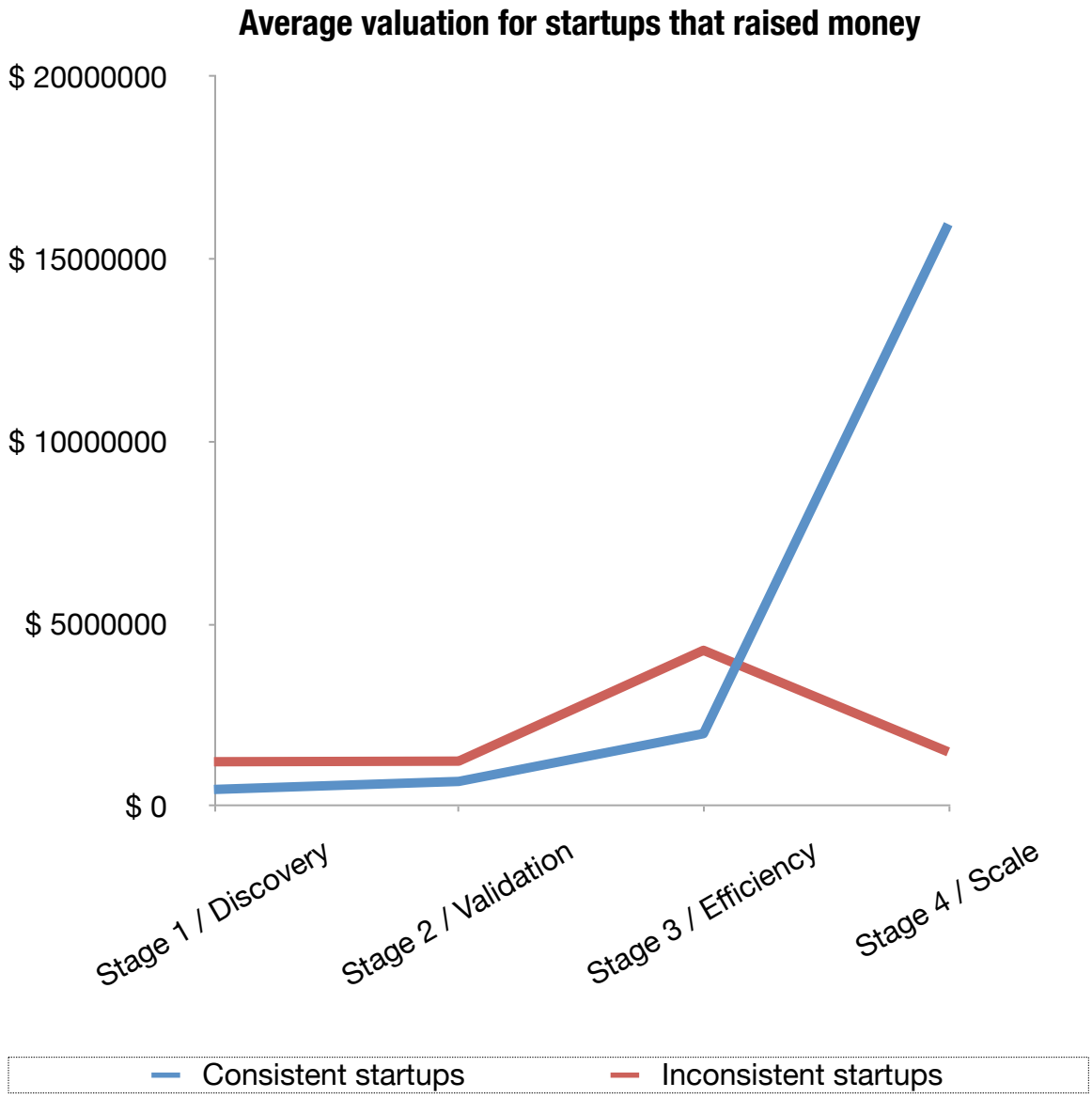


This graph shows ...
the distribution of monthly revenue across ranges for consistent vs. inconsistent startups that are trying to scale.
Only consistent startups had more than a $1 Million in revenue per month, no inconsistent startup reached that threshold. 93% of Inconsistent startups make less than 100k a month.

This could be interpreted ...
Inconsistent startups almost never reach a strong monthly run rate.

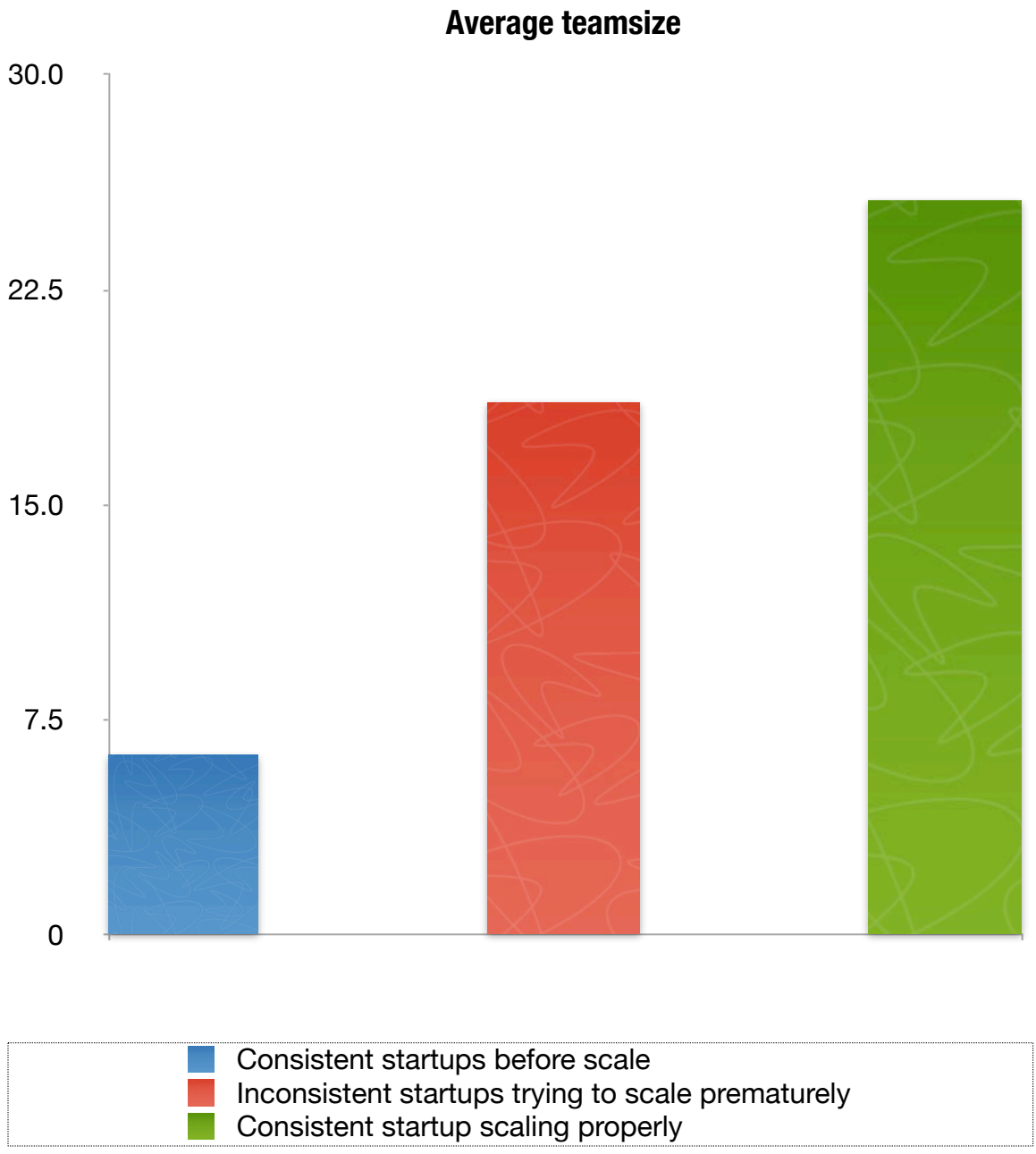


This graph shows ...
how the average valuation for funded consistent vs funded inconsistent startups varies by stage.

This could be interpreted ...
Startups that are inconsistent depict themselves as better than they are. The illusion holds up until the scale stage, when consistent startups have a valuation that skyrockets and inconsistent startups have a down round.

III. Behavior of inconsistent vs. consistent startups

In the following section we analyze how the behavior of inconsistent startups compares to consistent startups. Note that startups that scale prematurely are classified as inconsistent and startups that scale properly are classified as consistent.



This graph shows ...
The team size for startups in three different states. Startups that are consistent before scaling, startups that scale prematurely and startups that scale properly.

This could be interpreted ...
Startups that scale prematurely have teams that are significantly larger than the consistent startups that haven't scaled yet, but their team size also rarely gets as large as startups that do scale properly since they aren't able to sustain their growth. Scaling the team prematurely is a problem because it's very hard to align a large team if there are still frequent changes in direction of the company, as is usually the case in the early stages.

Quote about premature scaling by ...
Bill Liao, serial entrepreneur and investor

“Great little team with fast product turn around and nimble development that listens to customer data and does guerilla user testing and makes their product better and better while seemingly getting into all the best blogs, being loved by opinion leaders for what they do.
The company's compact team all share a visceral understanding about the product and hyper growth is not just possible it's expected. The team is two hard core developers, a designer a UI person who doubles as their tester and a visionary who has a nose for cheap PR.
They have no cash and no revenues and someone tells them to get a senior corporate sales guy on board to get some early revenues. He charms the team and manages to bring on board a few friends who he knows. They all kick in a bit of cash and start dialing for dollars.
Six months later the company is dead and no one understands why.
The premature scale fail here was not about cost blowouts or technical failures it happened because the concentrated pool of companies vision was diluted suddenly by 50 percent with "experience" and "sales feedback"
Scaling the team before the culture and product are really nailed is deadly and scaling with sales people cuts out the possibility that the product is developed to sell it's self and both are silent killers.”

Quote about premature scaling by ...
Brad Feld, investor and serial entrepreneur

"Hiring any substantive number of sales or marketing people before there is customer adoption is premature scaling. All the early hires should be technical or product focused. At least one of the co-founders though should be obsessed with sales / marketing from the beginning. Adding one sales person after the product is in the market and one marketing person is fine, but these should be "doers" not "VPs"."

Quote about premature scaling by ...
Krzysztof Kowalczyk, investor and serial entrepreneur

"...In terms of the infrastructure, both technical and HR, premature scaling is investing too much upfront in building up the capacity which might turn out to be unnecessary if product/market fit is not be found. It's very important to ensure that you WILL BE able to scale up quickly once needed, but no more. Look at classic Bubble1.0 example Webvan, which spent around $1B before understanding their customers and refining their business model. On the other hand Instagram, a wildly successful iPhone app, scaled up only when their user base started to grow rapidly. (http://mashable.com/2011/03/30/scaling-instagram/)."

Quote about premature scaling by ...
David Weekly, serial entrepreneur

Premature scaling can be Growth-Through-Hiring - thinking that a growing team means a successful company and eagerly hiring lots of people that seem smart before grasping the impact this will have on business speed and team dynamics. A deliberately small team like 37 Signals and Craigslist can outperform teams orders of magnitude larger.

Quote about premature scaling by ...
Saad Khan, investor

“One of my most productive engineering teams was also my smallest. Three engineers + the founder built and tested three different products over 6 months before they settled on one that both spoke to them and felt like it was “big”.

And it was. After an initial launch they built a platform that was a customer acquisition dream – it was all free PR and word of mouth. Nonetheless, we were very particular about the customers that we let onto the platform until we could convince ourselves about the ROI – everyone else went in to a long backlog that was to “stay tuned”. Only when we really started to see the platform delivering for our growing set of handpicked customers did we bring on our first jack-of-all trades sales contributor to get tactical. By this point, everyone assumed we were a big org but we were still a skeleton crew. Except now we had a huge backlog, evangelical customers, and big smiles. We opened the floodgates.

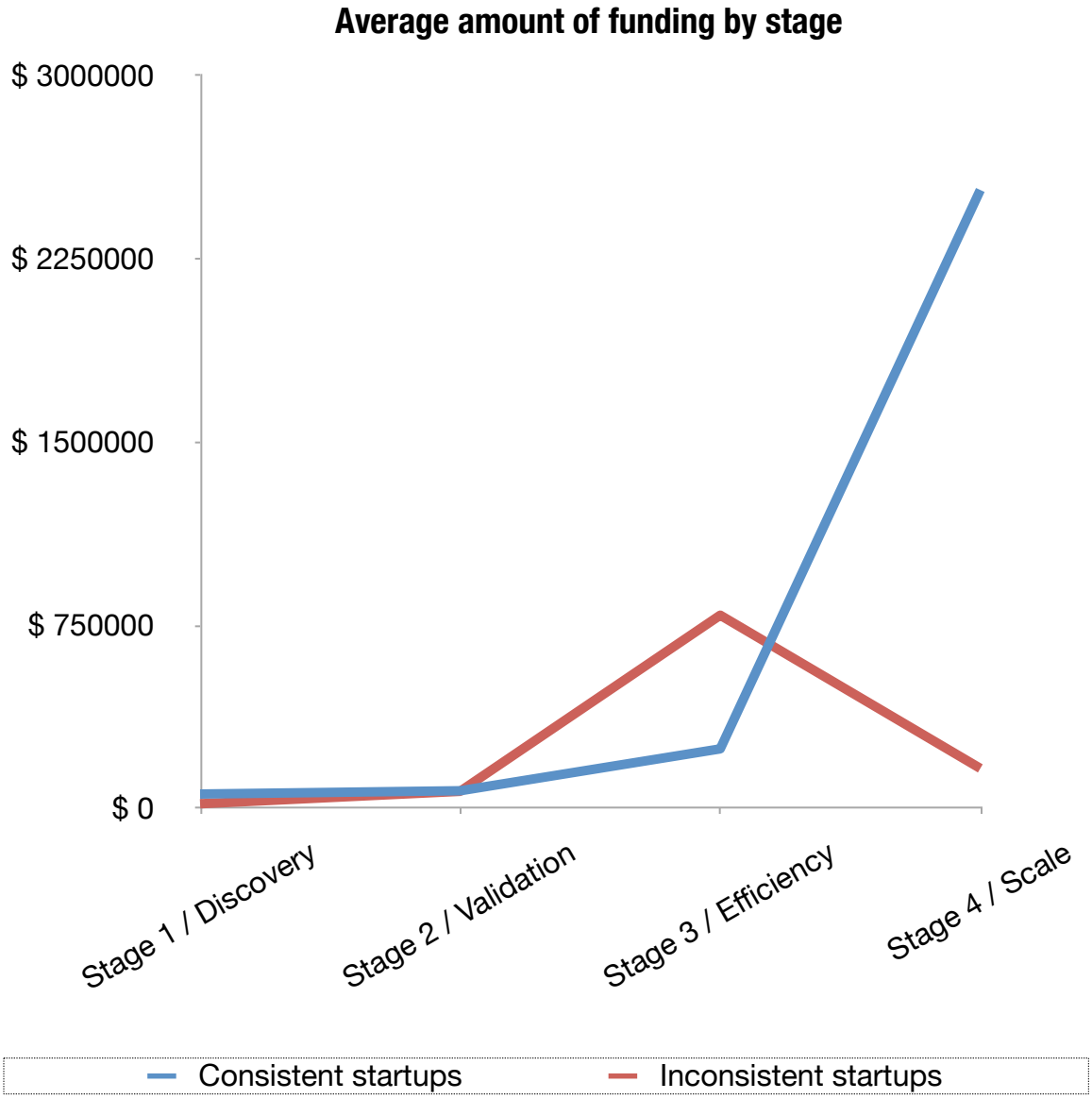
It’s been game on since. J”

Quote about premature scaling by ...
Patrick Paulisch, serial entrepreneur and investor

“Adapting one of my favorite entrepreneurial quotes from race car driver Mario Andretti: "If everything seems under control, you probably scaled prematurely". Premature scaling is one of the wrong sides of a fine line any entrepreneur walks on on a constant basis during the initial phases of a high-growth venture. Anyone not being on his first venture knows the accompanying signs: on the HR side it starts with things like spending more than one hour every day in meetings, continues with the endless discussion of job titles and ends with handing out the pink slips. Things that help, other than critically reflecting by asking yourself the right questions on a constant basis: this not being your venture, not buying into your own hype, having experience on the team and/or board…..or riding on a hockey stick”

Quote about premature scaling by …
Mike Maples, entrepreneur and investor at FLOODGATE

“A startup has only a tiny number of ergs of energy. It cannot afford a single minute or dollar of wasted motion. Pre-mature scaling happens when a startup wastes valuable ergs of energy on unproven programs and ideas prematurely, before the winning ideas that are worthy of precious energy are discovered. Startups should only scale when they know that applying extra energy will create the yields on the business that they expect. Or as Nathan Furr and Paul Ahlstrom say -- "nail it before you scale it.""



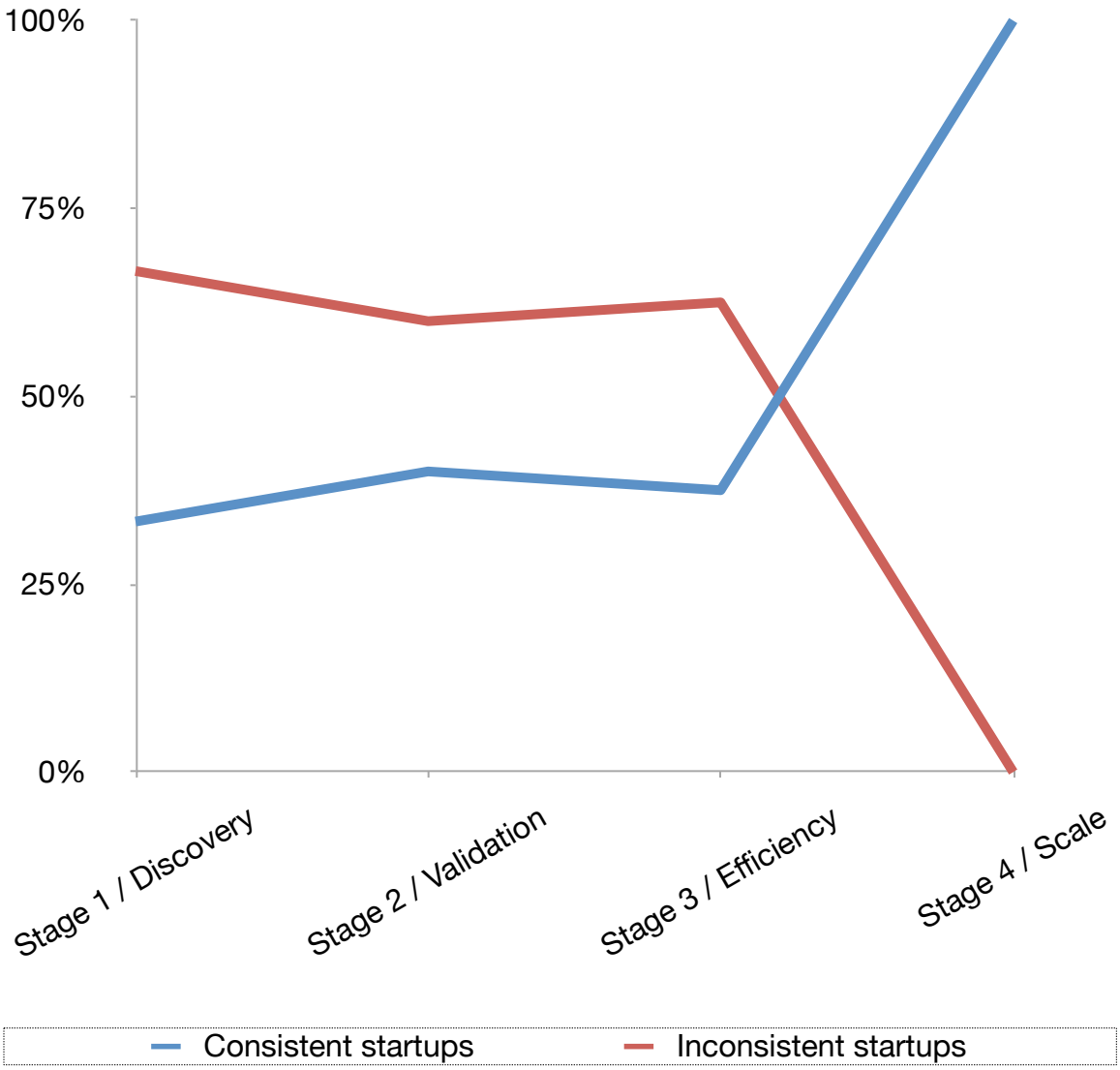
This graph shows ...

Inconsistent startup raise a lot of money before validating their market properly and optimizing their conversion funnels, etc. In stage 3 they raise on average $800k which is three times more money than consistent startups.

This could be interpreted ...

Raising too much money too early can be harmful for startups. It puts a company under pressure to scale even though they are not ready.

Startups that raise funding above average - inconsistent vs. consistent



This graph shows ...
How many startups in a stage raised >1 standard deviation of the stage average of funding based.

This could be interpreted...
If startups raise too much money before the scale stage they have a very high chance of being inconsistent. Founders may think they can be disciplined if they raise too much money, but the numbers show that by and large they aren't.

Quote about premature scaling by ...
Bernard Moon, investor and serial entrepreneur

"If you raise too much capital, especially for inexperienced entrepreneurs, you can become undisciplined and anxious from the pressure to succeed and grow big. You might hire too many people, hire too quickly without adequate checks, you might rush to launch when it might be better to launch late, or you might let inertia takeover. The last point I mean that you scale too quickly and this could prevent you from pivoting. Most successful startups change their business model mid-stream at least once, so premature scaling could blind an entrepreneur from the company's "real business model".
During my 2nd startup where we raised too much capital, $7 million for our first round, and proceed to burn through our money like it was doused in gasoline. We almost went through bankruptcy, by a miracle closed our 2nd round of $7.5 million during the bust of 2000, changed the business model (premature scaling at it's best), and then became a profitable company."

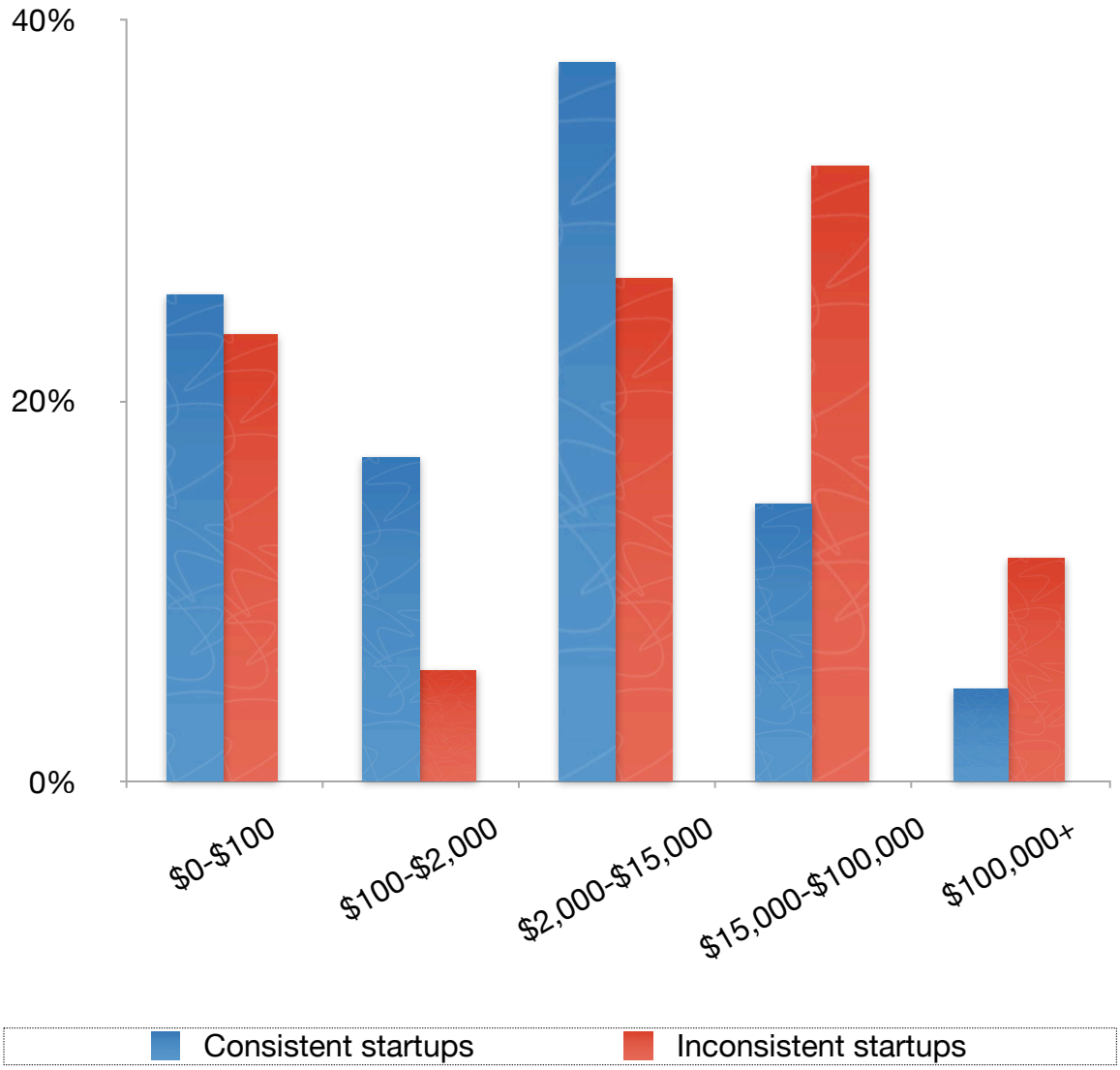
Quote about premature scaling by ...
Fred Destin, investor and serial entrepreneur

"The Tail Wagging the Dog (Board Pressure)
You've raised a fair bit of money on the back of an ambitious set of projections, and now you feel compelled to hit these numbers. Never mind that the market may change or that you may discover these new verticals aren't as easy to crack as you thought, it will be difficult to go back to the board and tell them you won't spend the new cash, or hit the numbers."

Quote about premature scaling by ...
Nathan Furr, author of "Nail it and scale it"

"Spending money beyond the essentials on growing the business (e.g., hiring sales personnel, expensive marketing, perfecting the product, leasing offices, etc.) before nailing the product/market fit."

Money spent on customer acquisition per month before funnels & costs optimization



This graph shows ...

How much money consistent vs inconsistent startups spend per month on customer acquisition before optimizing their conversion funnels and customer acquisition costs.

This could be interpreted...

Before a startup can cost effectively acquire customers they should not be spending a lot of money on customer acquisition. If you consider spending more than $15,000 on customer acquisition before you are ready to scale, then the data shows that Inconsistent startups are 2.3x times more likely to spend too much on customer acquisition.

When startups spend this much money on customer acquisition, they are trying to scale, the problem is it's not very effective and leads to inconsistency if startups haven't first built a product customers want and can efficiently acquire customers.

Quote about premature scaling by ...
Fred Destin, investor and serial entrepreneur

"*Illusions of product market fit or price discovery*
The classic mistake is to confuse a few early adopters with a market. This was perfectly documented by Geoffrey Moore and is still relevant today. Not being able to replicate early successes also occurs in consumer businesses, usually through the rapid degradation of customer acquisition and conversion economics. It's one thing to spend $50K a month through online marketing channels with high marketing efficiency, but quite another to spend 5 or 10 times that amount without shooting the economic contribution of each new user or consumer."

"*Confusing Founder Heroics with a Repeatable Model*
As Peter Lynch famously said, "go for businesses that any idiot could run, because some day one will". The parallel here is that it is an easy mistake to assume that hired salespeople or marketing people will be able to replicate the same rate of success as an incredibly motivated, tenacious and compelling founding team did in the early days. Of course that's rarely true. The commercial proposition needs to be baked enough and repeatable enough that possibly less talented and less determined sales organizations will be able to shift product efficiently enough."

Quote about premature scaling by ...
Daniel Zumino, investor

Premature scaling is indeed a frequent cause of failure for web-related start ups. I have witnessed it several times.

1) Definition
For me premature scaling refers to a situation where money is spent towards growing the business before a viable business model has been identified. Until that point has been reached, money should only be used to test a wide array of options to determine which model might work. Variations in product features, claimed benefits, distribution channels, customer targets, partnership arrangements, etc., result in a huge number of combinations, most of which do not constitute viable businesses. Unless many of these are tested, the initial model is likely to be way

under-optimized. Betting on growth first, and 'refining' the model along the way is exceedingly dangerous because the alternatives are often incompatible strategies, not just minor refinements. Having committed a lot of cash - and therefore reputation - to a course of action makes it very difficult to change course. By the time various operational adjustments have failed to resolve the problem, the company may run out of money and, most damning, credibility.

2) Example

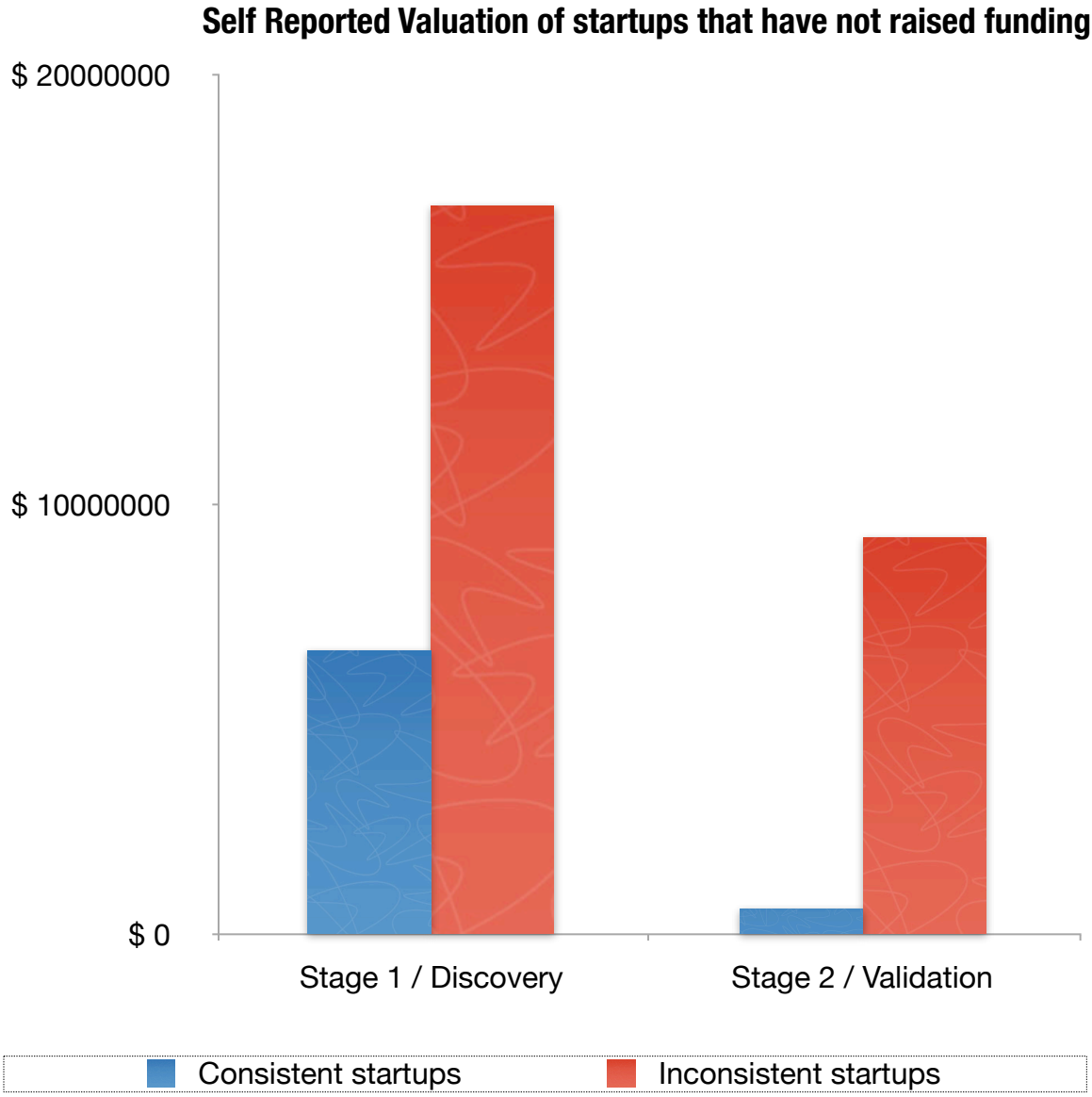
This french company introduced the first 100% on-line gift-cheque (as opposed to paper coupons, with a complex logistics attached). The business concept looks wonderful and eminently scalable: it consists of literally issuing money at zero variable cost; all the operating cost consists of running the web platform. The big issue is to reach scale to satisfy both vendors and users, and of course cover the fixed costs.

A 300k € seed round allowed to build the platform, garner a few vendors and start operations. The next step was to sign up a range of vendors to provide a wide enough choice of products, and to draw customers in large enough numbers to satisfy the vendors' expectations. A substantial additional round was completed to launch a full scale marketing campaign, mostly aimed at attracting individual customers to the site. Because a disproportionate share of the business takes place in the Xmas season, it took almost a year to ascertain that the direct approach to individual customers didn't work. For the following season, the focus shifted to partnering with existing communities of potential users, some of which already using paper gift-cheques. Another round was raised to bankroll the new strategy. The results were much better, but still not good enough to reach self-financing. By that time, the main investor had lost faith in the business and the team. The company was sold to one of the direct competitors.

This business doesn't easily lend itself to quick, low cost testing, but, with hindsight, I can see how we should have reversed the approach: first go for very narrowly defined deals (in partnership, with focused targets), and based on the learning, move gradually to larger segments and a more autonomous model. This could have been done with a much reduced team, and a ratio of revenue/marketing cost that would have justified sustained investing until break-even.

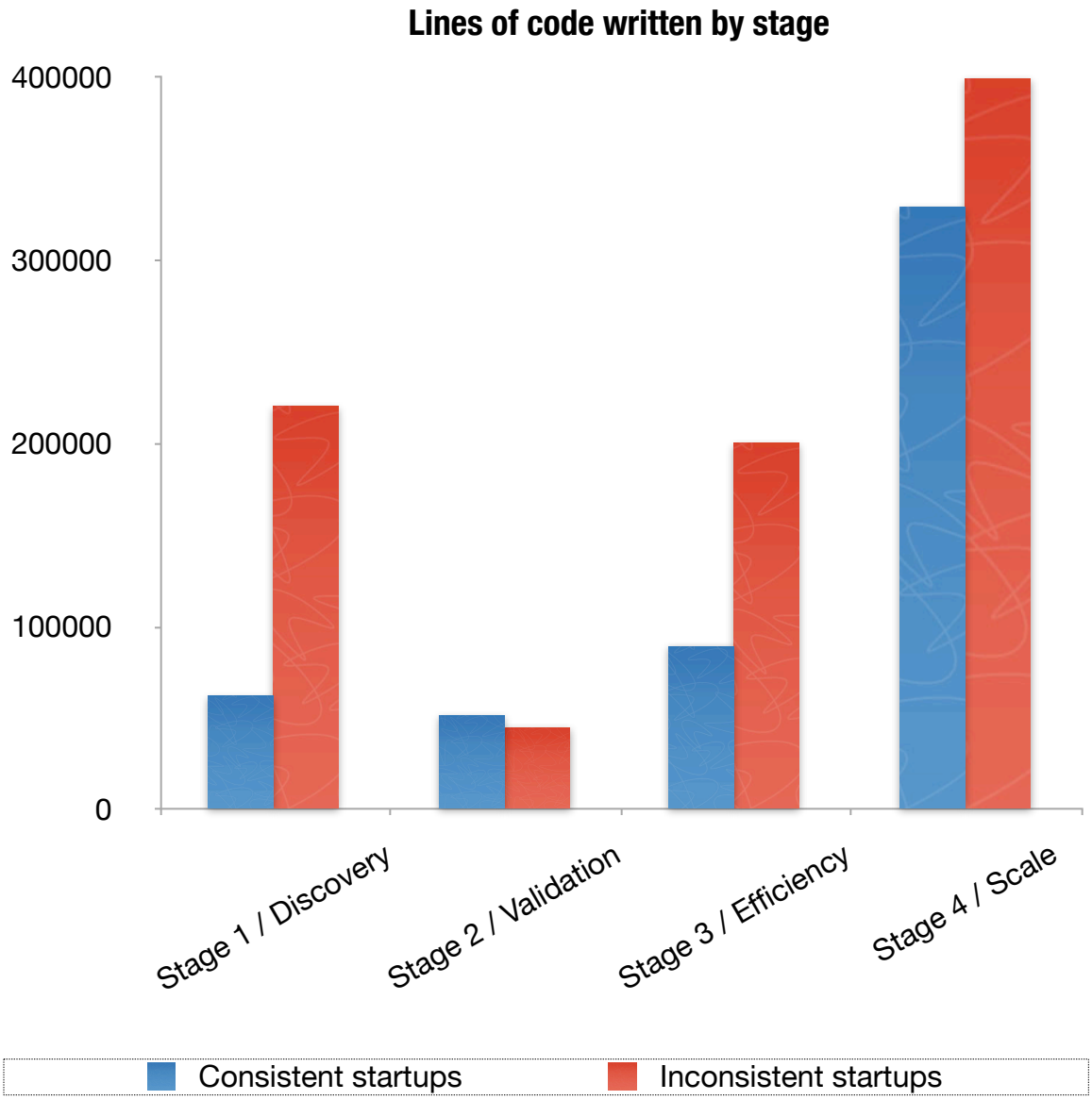
Quote about premature scaling by ...
Enrique Allen, Founding Designer at 500 Startups

“Premature scaling is when a baby tries to run before it knows how to walk. In other words, spending excessive amounts of resources to expand upon activities that are fundamentally flawed. However, at some point entrepreneurs need to attempt to scale to learn. Therefore, premature scaling may mean lack of intention around systematic scaling experiments to validate assumptions.”



This graph shows ...
Startups that have not raised money set their own valuation in stage 1 and stage 2. In stage 1 inconsistent startup set their valuation about 2.5 times higher than consistent startups. In stage 2 inconsistent startup value themselves 15 times higher than consistent startups.

This could be interpreted...
All startups overestimate their valuation in discovery and then it drops once they actually start validating their product. Inconsistent companies have rose-colored glasses that are significantly darker.



This graph shows ...
Inconsistent startups that scale prematurely write 3.4 times more lines of code in the discovery stage and 2.25 times more lines of code in the efficiency stage compared to consistent startups.

This could be interpreted ...
Inconsistent startups over-engineer their products and spend too much time on building out features that are not absolutely necessary. We often see engineers that are entirely convinced that their product can only work if it has the same product complexity of a mature product such as Facebook or twitter. Most of the time this complexity leads to lower market adoption and eventually failure for the startup.

Quote about premature scaling by ...
Alex Barrera, Serial Entrepreneur

"Premature scaling is trying to fix a problem you haven't encountered yet. It tends to happen mainly to tech founders where their desire to build cool technology gets in front of the real problem solving. You can detect it in long release cycles, constant failure to deliver and unused capabilities and/or product features. Premature scaling is probably the main reason why most startups end up spending all their cash (and dying). One of my own startups incurred that and was fatal, but I know much bigger startups that raised millions just to spend them hiring hardcore backend engineers, building a robust and super scalable backend just cause their founders user goals were X. What happen? Well, they spent all their cash, wasted 1 year and got 0 users."

Quote about premature scaling by ...
David Weekly, Serial Entrepreneur

“1) Premature optimization - selecting tools or technology platforms that are slower to develop on / not as-familiar to the team but theoretically higher-performance in anticipation of potentially-large demand but in reality prevent there from being large demand since the feature set of the product is so slow/hard to work on.

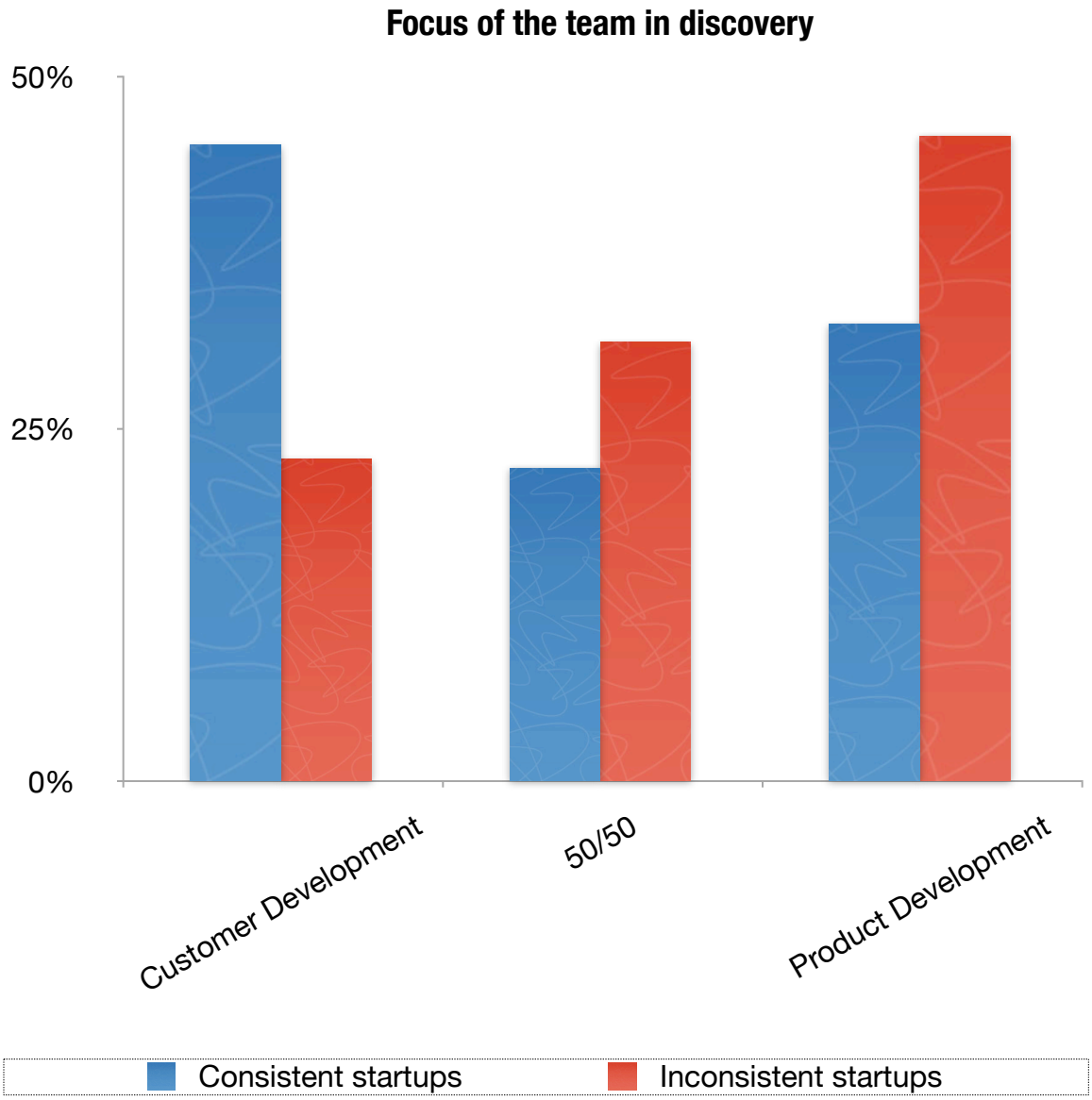
2) Platformization - building a platform to allow anyone to do anything in any way at any time so that the whole world will be using your system, before you have a single user. Utterly failing to make a compelling case for how this is useful to any specific person because the team is afraid of getting confined to a niche. As a result, nobody understands what the product does and nobody uses it beyond a very small group of bright early adopters.”

Quote about premature scaling by ...
Ivan Farneti, Investor

We have seen our fair share of premature scaling over the years.
Some in our own portfolio, some in companies we were looking at and (luckily) decided to pass on.
If I look at these last 10 years, the one regular occurrence of the “cart before the horses” syndrome was in the wrong estimate or market demand timing. As some folks have already written, demand is not so easy to estimate when you are there. After the fact, it does look simple, but it is not. The problem with premature scaling was exacerbated by fixed nature of the technology costs (culprit #1). Before AWS you could only buy technology with a step function cost structure. Some tech-led

companies with too much money (culprit #2) decided to install the latest Unix servers to test beta customers. Other companies were mistaking a handful of early adopter clients in a new country as the compulsory call to build a new full infrastructure there. Then, at the first macroeconomic shake up (and we have one every 2 years it seems) the new territory still has less than 10 clients, and more than 10 staff. Unwinding a prematurely scaled organization may be more expensive than building it in the first place. Back when Jeffrey Moore gospel was new, a few companies (and VCs) misread the whole Gorilla theory. Get big first, get the biggest market share and as the market leader reap the big benefits. The serious fallacy in that argument was its assumption that market demand is there now. And it assumes that demand will be there tomorrow.

I actually think that cloud computing and open source software and an ever decreasing cost of bandwidth are contributing to help start ups from premature scaling, at least on the area of fixed technology costs. The ability to tune down the power, to test and pivot twice or more on the same seed funding dollar can multiply the chances of success.

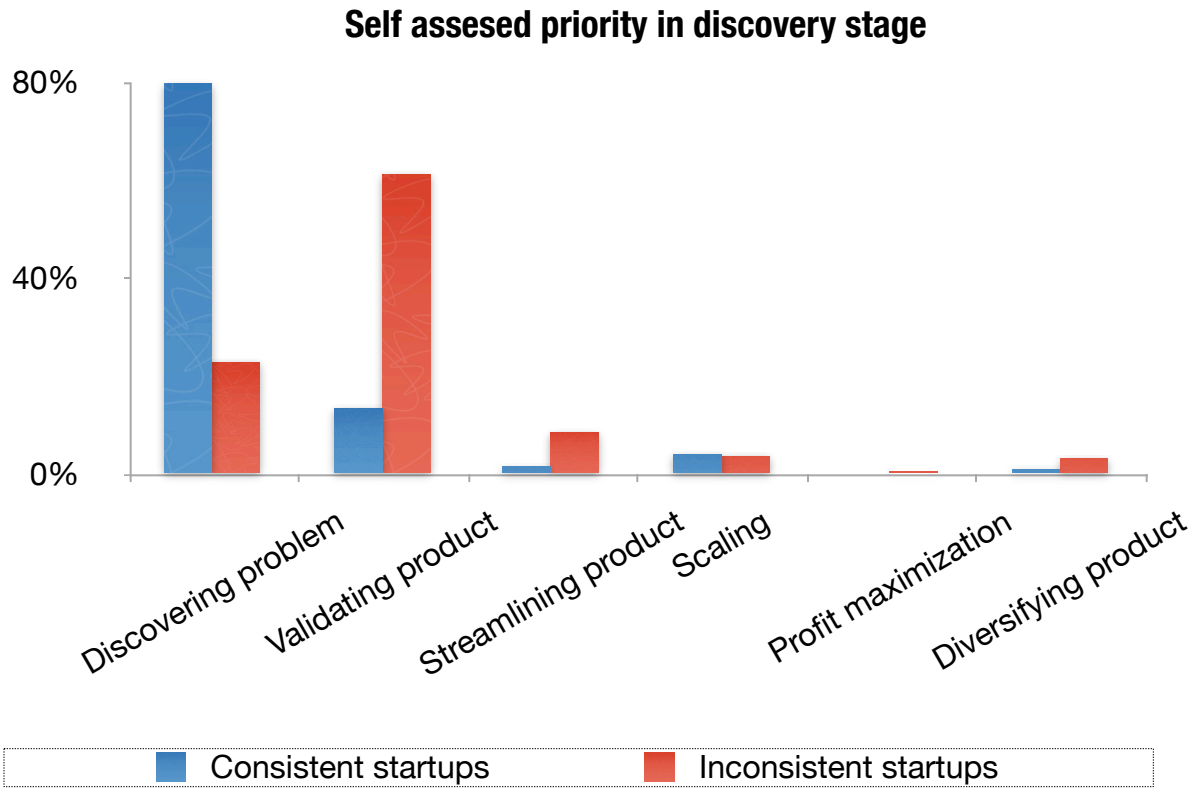


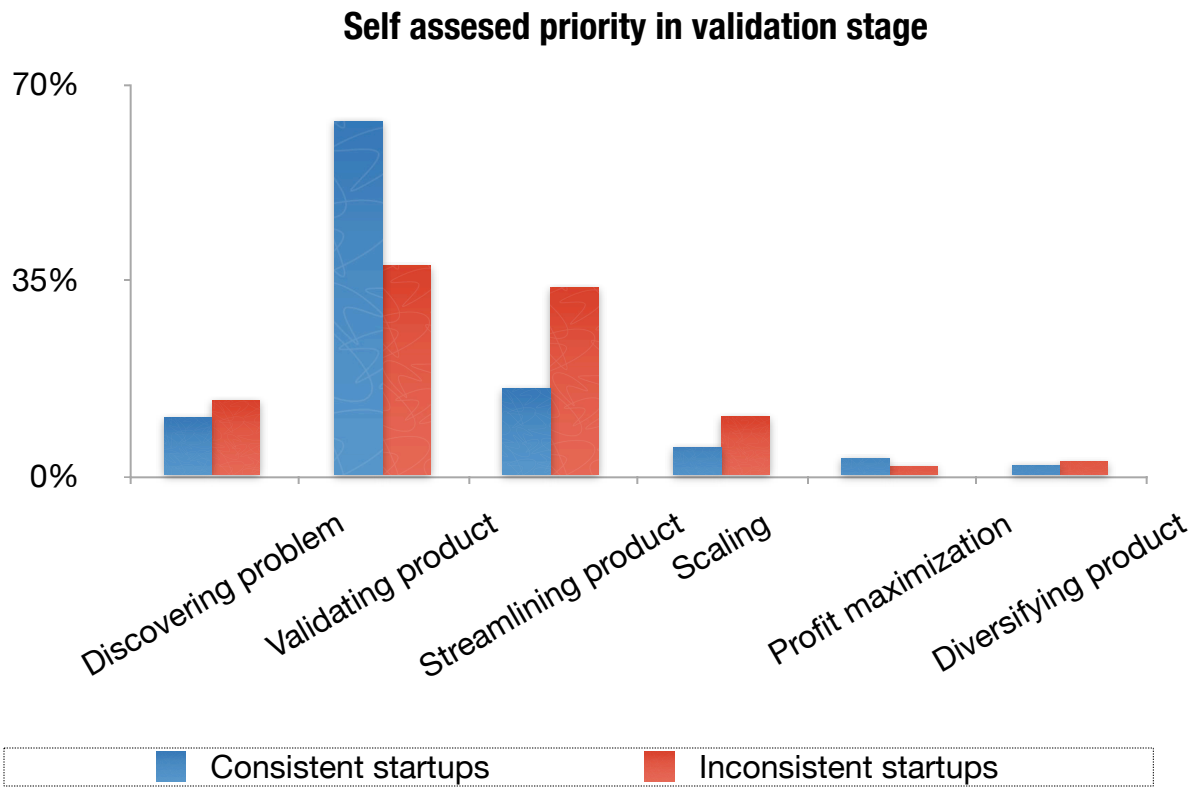
This graph shows ...

Almost 80% of inconsistent startups focus on product and 45% of consistent startups focus on customer development before they reached product/market fit.

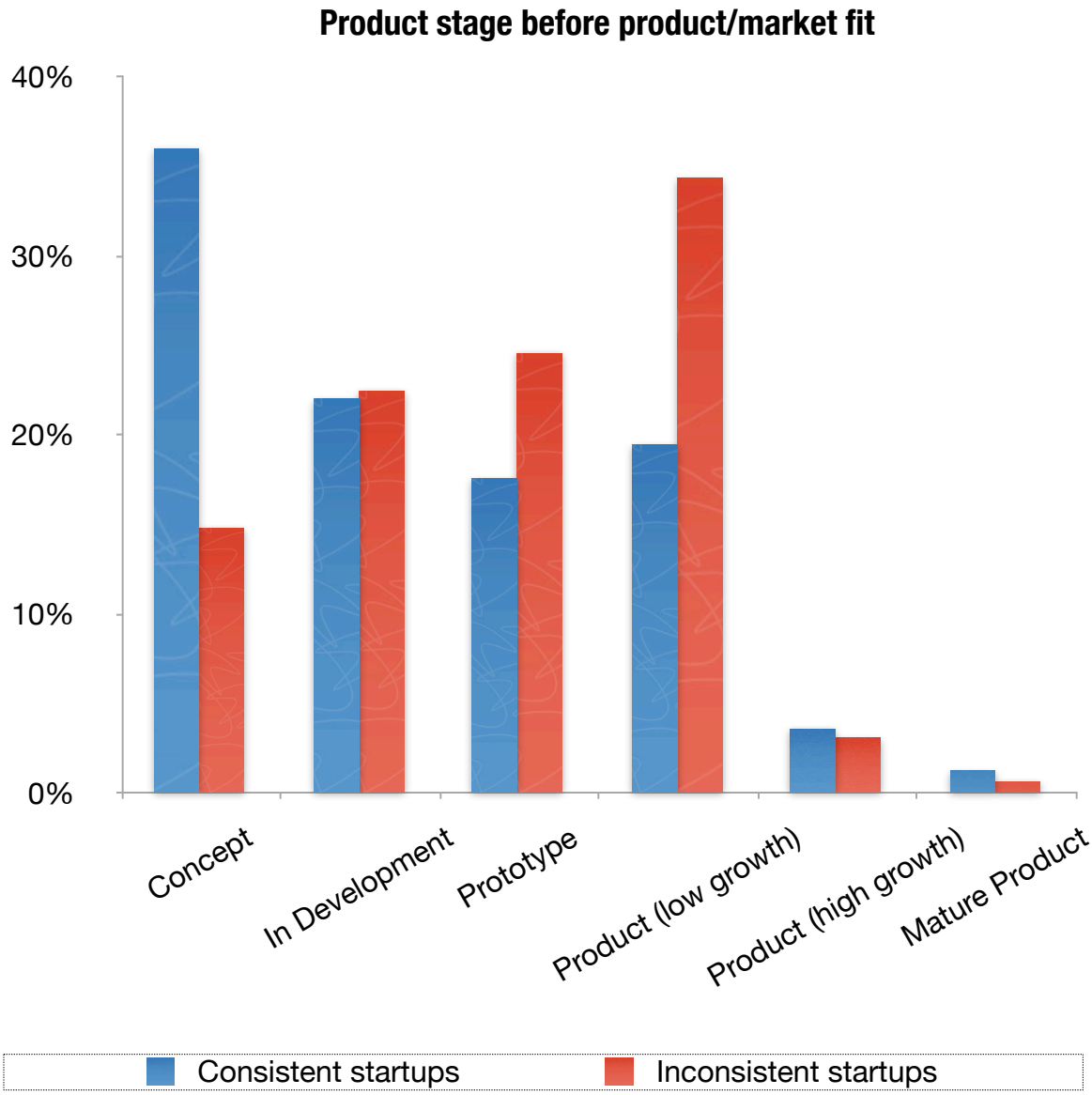
This could be interpreted ...

In the beginning startups can get easily lost in building a product without validating the actual demand for it. Based on interviews most inconsistent startups are under the impression that they are an exception to the rule. They believe they have found a special insight for a disruptive startup that no one else has. Unfortunately most of these startups fail.





Startups that scale prematurely are classified as inconsistent and startups that scale properly are classified as consistent



This graph shows ...
Consistent startups in the discovery phase have a product that is primarily in the concept phase. Inconsistent startups primarily are building prototypes or have already built a product.

This could be interpreted ...
Consistent startups spend more time discovering who their customers are, whereas inconsistent startups are focused on validating that customers want their product. Consistent startups are searching. Inconsistent startups are executing.
It's widely believed amongst startup thought leaders, that successful startups succeed because they are good searchers and failed startups achieve failure by efficiently executing the irrelevant.

Quote about premature scaling by ...
Mick Liubinskas, serial entrepreneur and co-founder of Pollenizer

“Scaling at the right time is tough. Too early and you waste money and get distracted. Too late and you miss the market or run out of runway.

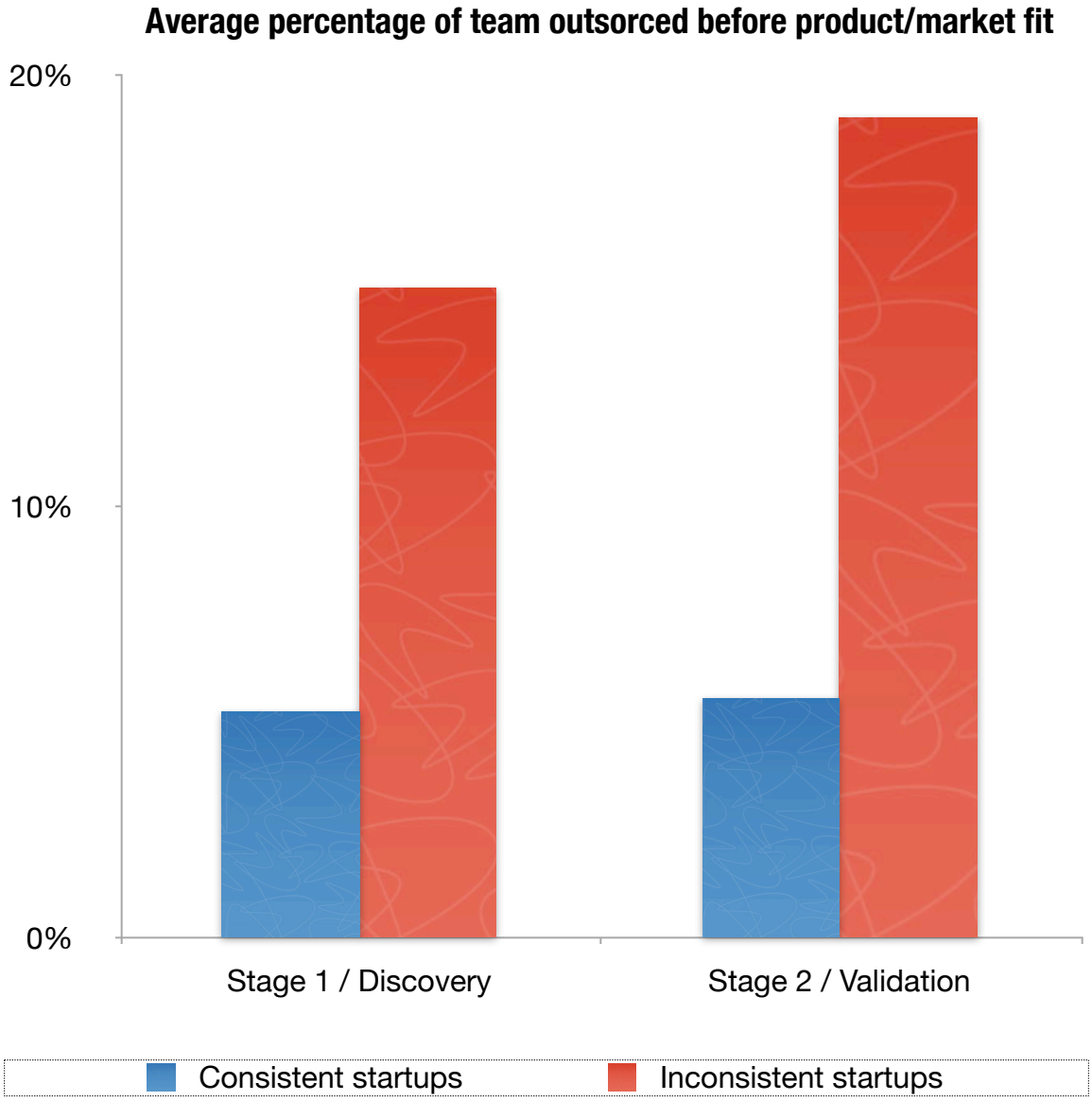
It's not scientific but the number we talk about at Pollenizer is 60%. If you've got your business model working to 60% of your projections then go for it. It means you're past half way there but there is still plenty of room for optimization. We're after confidence without perfection.

Don't think about scaling as purely about more customers. One of the most dangerous ways you can scale is through new features. Every feature you add is something else you need to maintain, manage, measure, market, understand and support. The same applies to markets. Too many segments and you're juggling too many needs with too few resources and hours in the day.

The main thing is for you and your team to choose the right time. Don't be under pressure from investors, media or even customers. Right or wrong, you need to trust your instincts.”

Quote about premature scaling by ...
Alexander Galitsky, serial entrepreneur and investor

“Founders often forget that approximately >200k early adopters exist around the globe. Their goal is to try every new product - but not to use or pay for it. Therefore 200K free users mean very little. Instead of scaling your user base prematurely good startups are focusing on small defined user groups. Their goal is to understand how their product/service offering fit well with this defined user group, to estimate the size of this group, to discover the key triggers that turn the members of this group into real customer, to learn what features need to be added to the product/service keeping on mind to win the hearts of customer segments beyond their original user group.
(…)
In modern time, you can't cultivate your start up in a very predicted "agriculture" order. Market condition and requirements are changing so often that you need to live the " jungle" culture. You need to react and balance your strategy more dynamically. Since not the best and strong trees are surviving in the jungle, but more flexible and adoptive.”



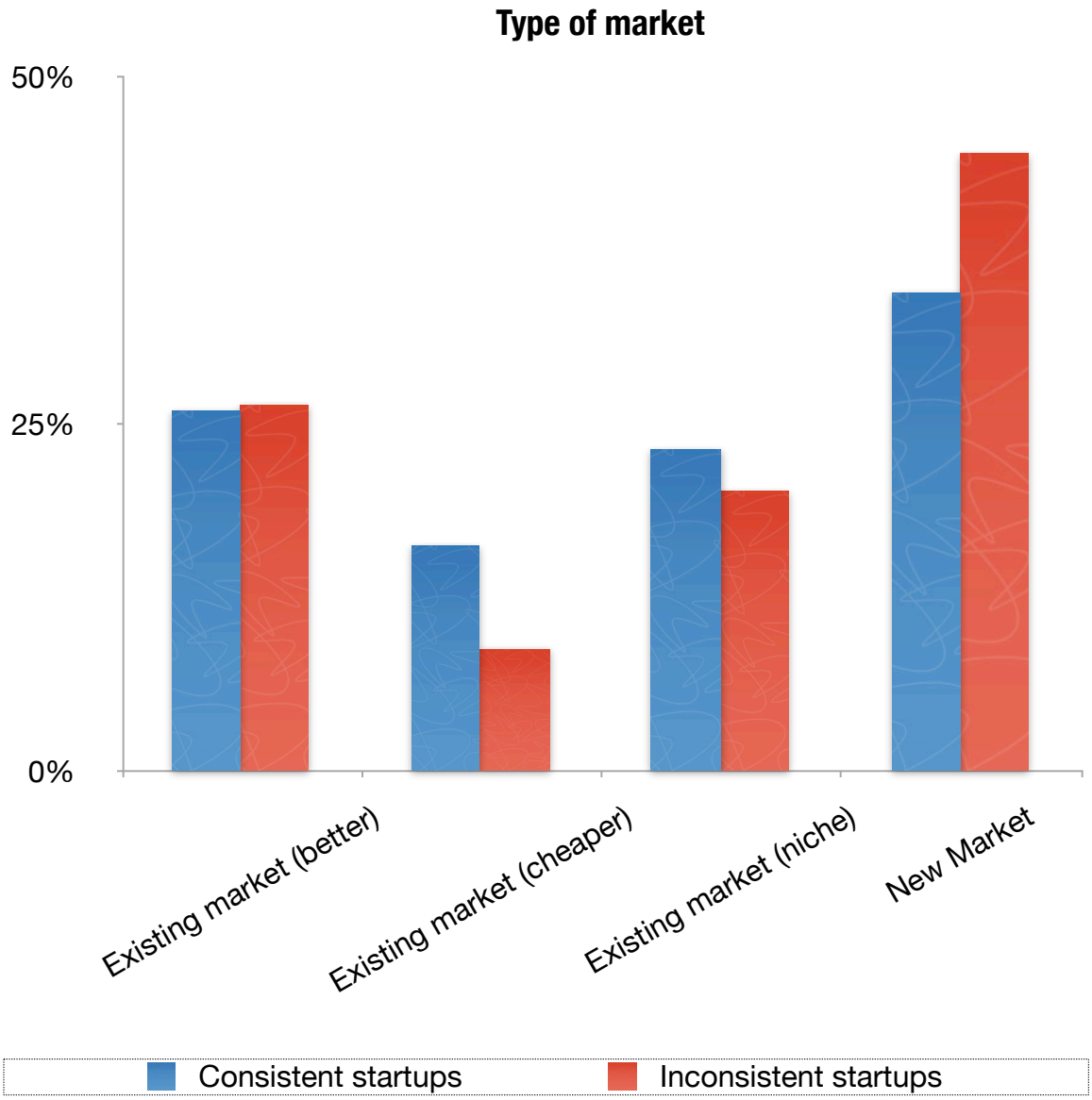
This graph shows ...

On average startups that scale prematurely have 15% and 19% of their product development outsourced in discovery and validation - compared to consistent startups that on average have only 3-4% outsourced.

This could be interpreted ...

Especially in an early stage it is dangerous to outsource the product development. All dimensions: product, customers, business model, financials and team are typically changing at a high rate. If product development is not done in house startups will have a hard time keeping up with the daily or even hourly feedback loop a startups have at this stage.

Startups that scale prematurely are classified as inconsistent and startups that scale properly are classified as consistent

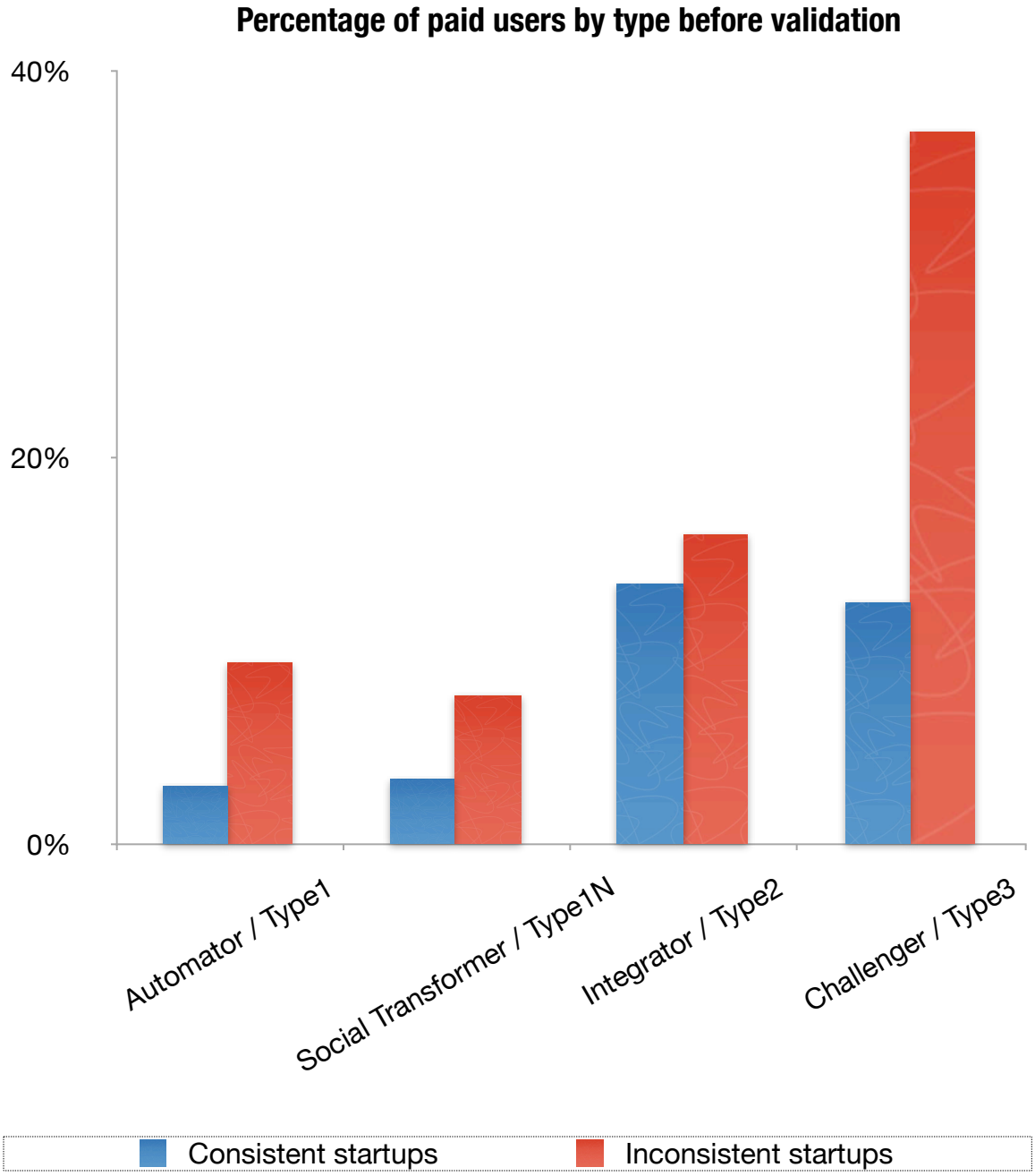


This graph shows ...

Consistent and inconsistent startups have an almost equal distribution in existing markets where they differentiate their product by being better or niche. Significant differences in distribution can be seen with new markets and existing markets with cheaper products.

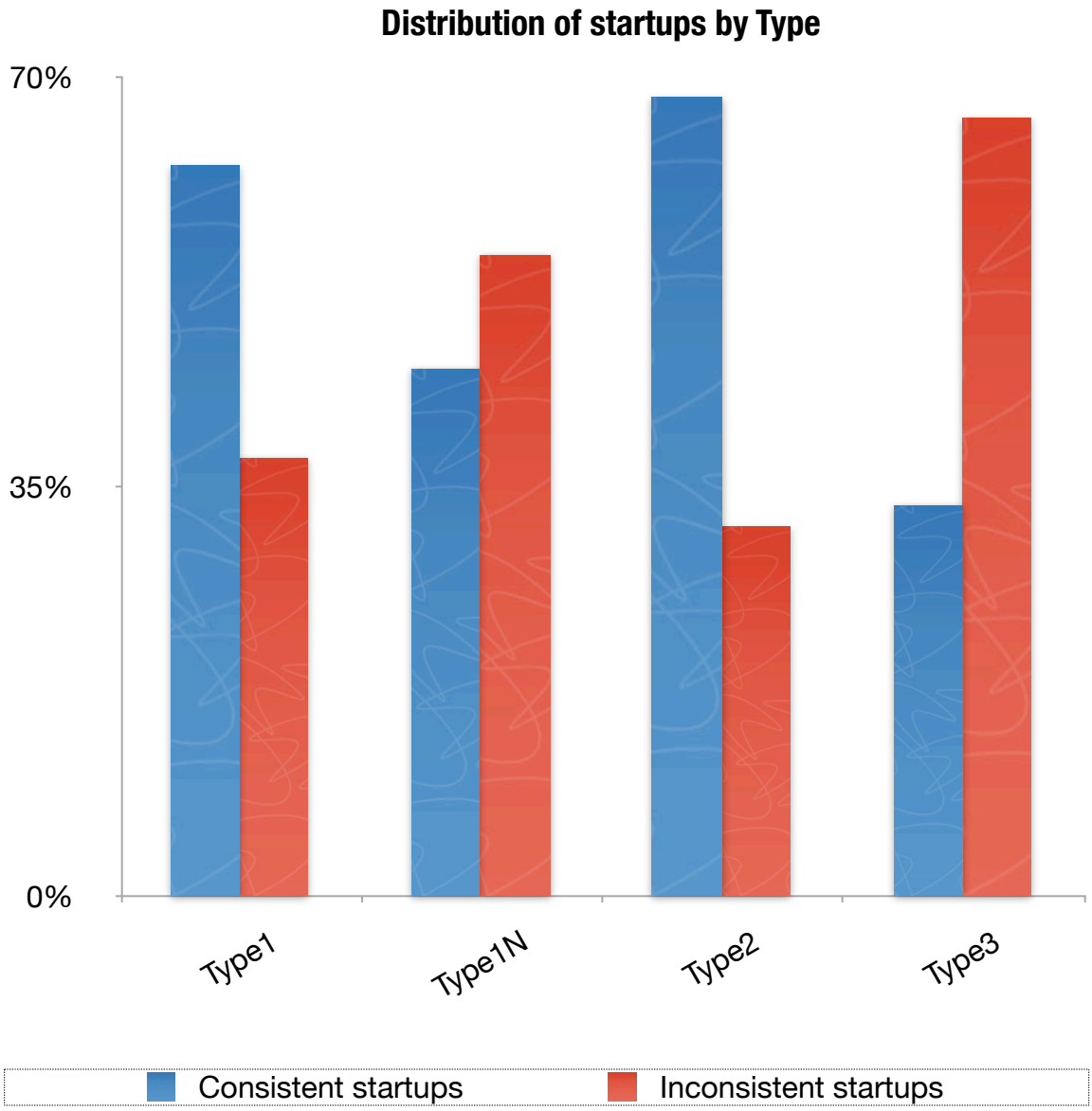
This could be interpreted ...

Startups that are tackling new markets are more likely to be inconsistent because they have more uncertainty than existing markets. Tackling an existing market where the product is differentiated by being cheaper has the highest certainty because people almost always prefer the same value at a lower price, whereas differentiation by better or niche rely on more subjective qualities.



This graph shows ...
Inconsistent companies of all types try to monetize their user base more heavily before product market fit.

This could be interpreted ...
Trying too hard to monetize leads to inconsistency. While money can be an important validation indicator, stressing it too heavily will lead startups to ignore opportunities and drift towards non-scalable opportunities that are likely to turn into small business or custom consultant shops.



This graph shows ...

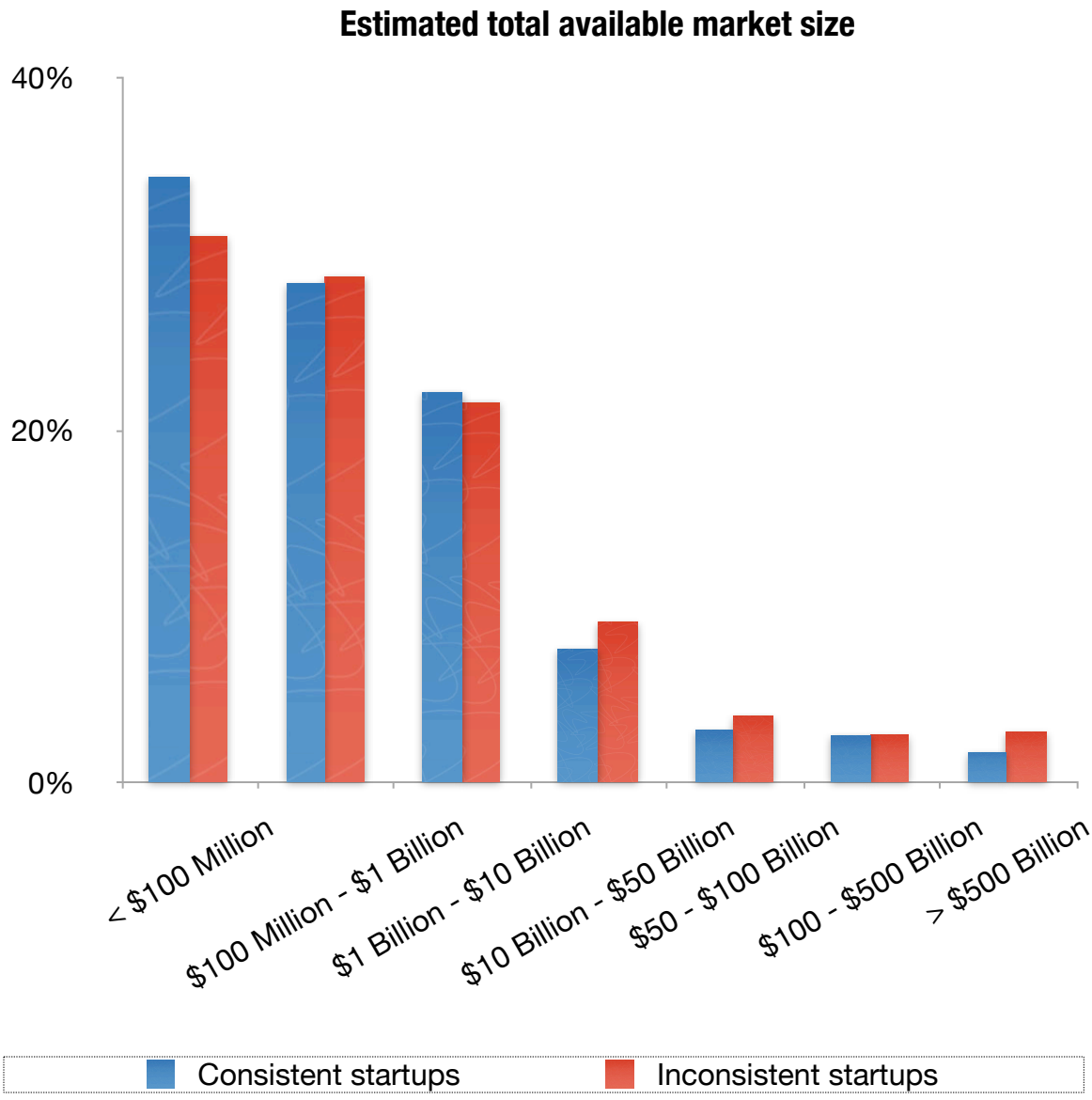
What percentage of startups of a particular type are consistent vs. inconsistent.

This could be interpreted ...

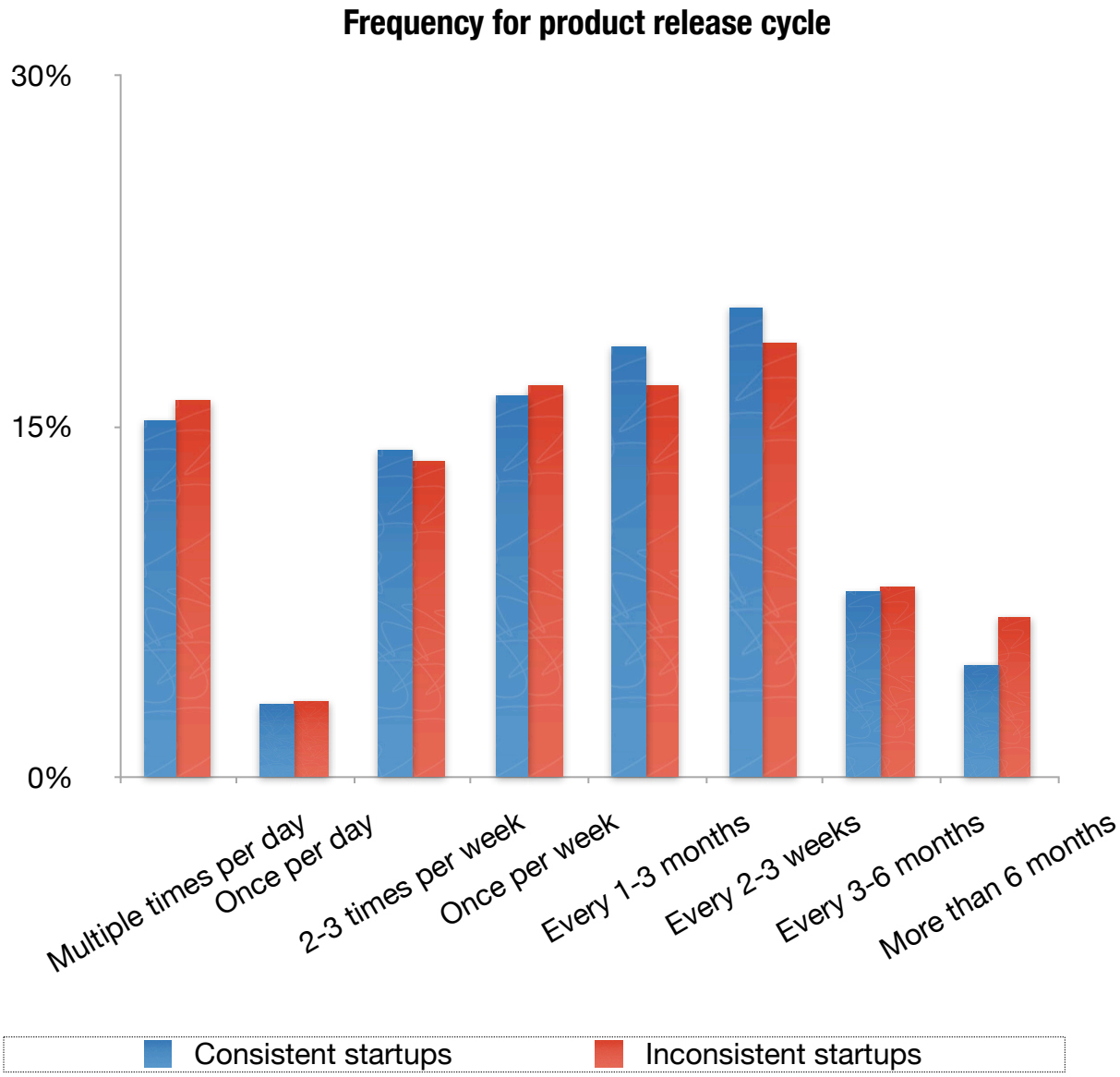
Level of ‘difficulty’ or ‘uncertainty’ for the different types of startups is in the following order: Type 2, Type 1, Type 1N, Type 3.

IV. Similarities of inconsistent vs. consistent startups

The last section contained lots of data on how consistent companies behave differently from inconsistent companies. This sections contains data to show the many ways that they are very similar to each other, which highlights the importance of the conclusions in the previous sections.

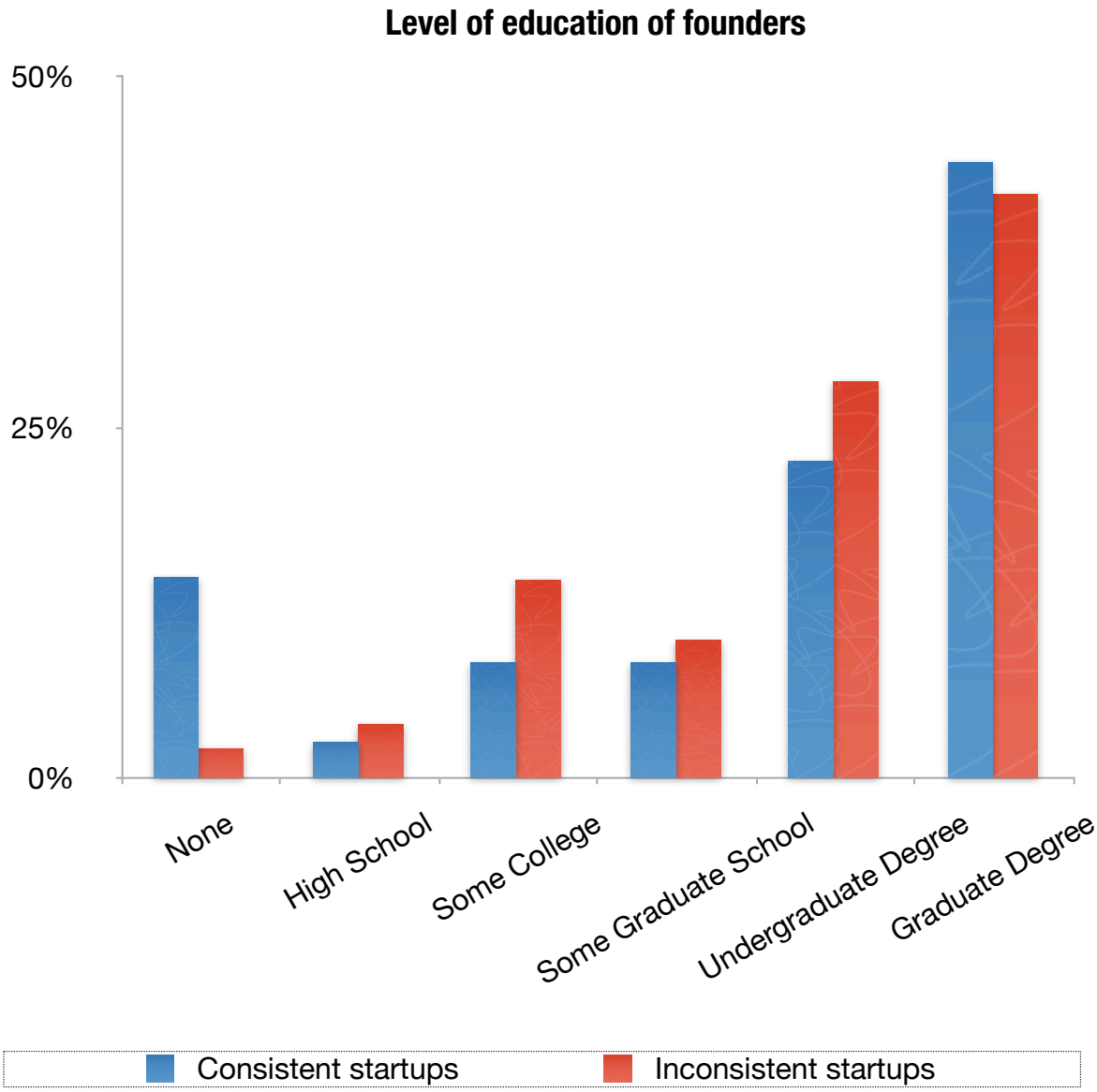


This graph shows ...
That consistency does not vary by estimated market size. There is an equal distribution of consistent and inconsistent startups across all the different market sizes.



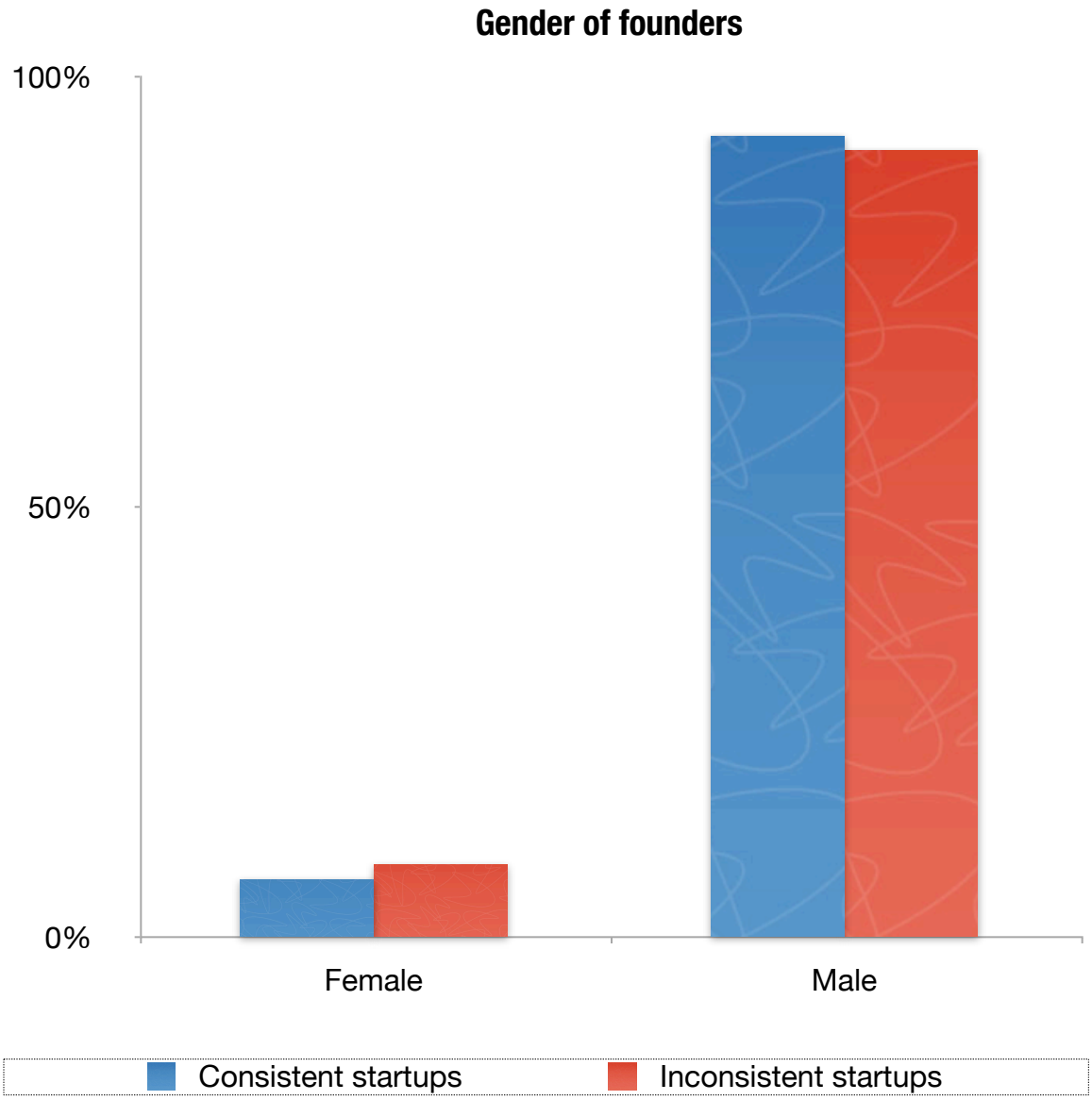
This graph shows ...
How frequently startups push code into production or release a new version of their product.

This could be interpreted ...
The frequency of your product release cycle has no effect on consistency.



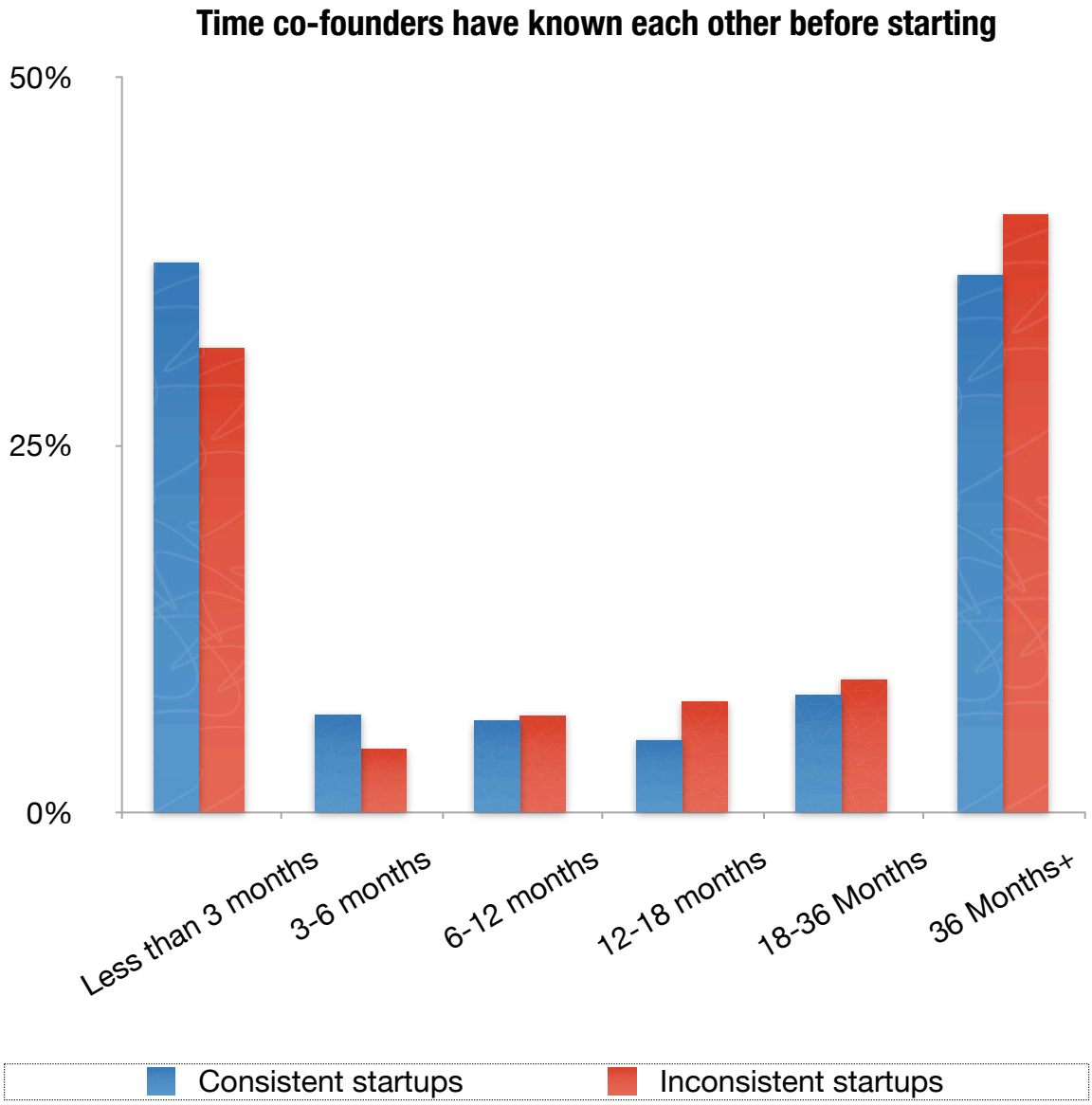
This graph shows ...
How consistency varies by the level of education of the founders.

This could be interpreted ...
The education of the founder has no impact on whether a startup is consistent or inconsistent.



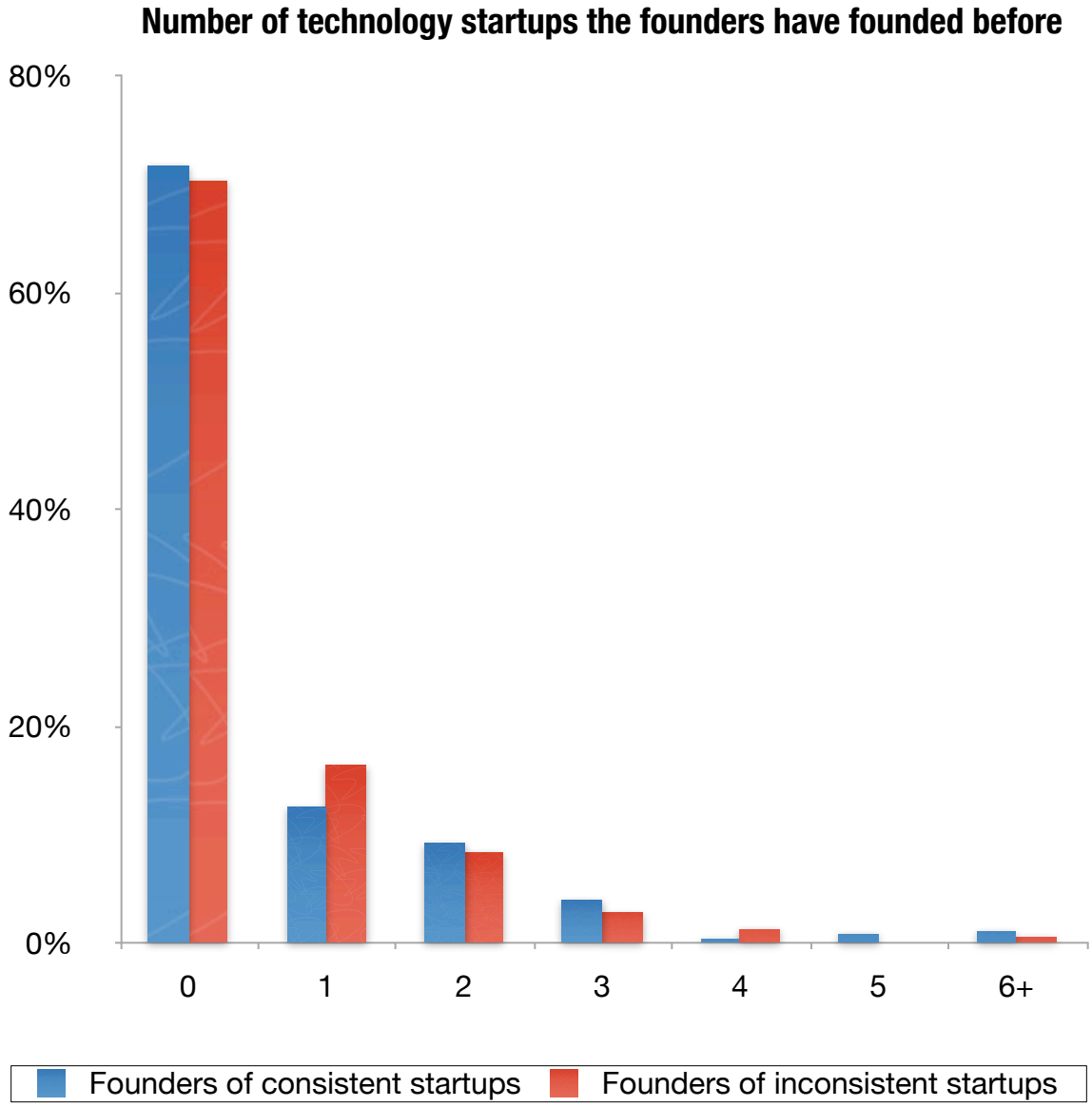
This graph shows ...
How consistency varies by the gender of the founders.

This could be interpreted ...
The gender of the founder has no impact on whether a startup is consistent or inconsistent.



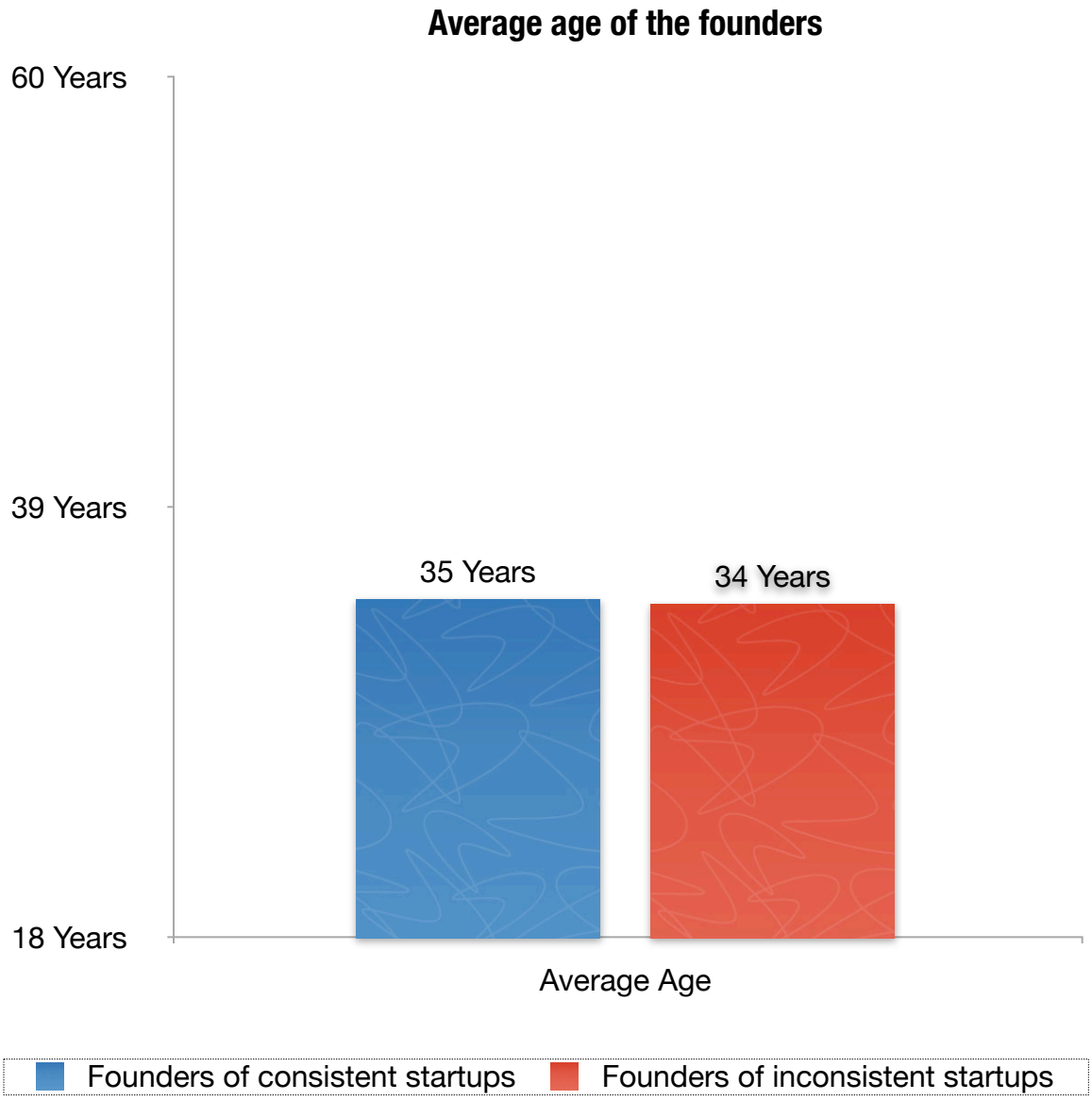
This graph shows ...
How consistency varies by how long the founders have known each other before starting the company.

This could be interpreted ...
The time the founders have known each other has no impact or little impact on whether a startup is consistent or inconsistent.

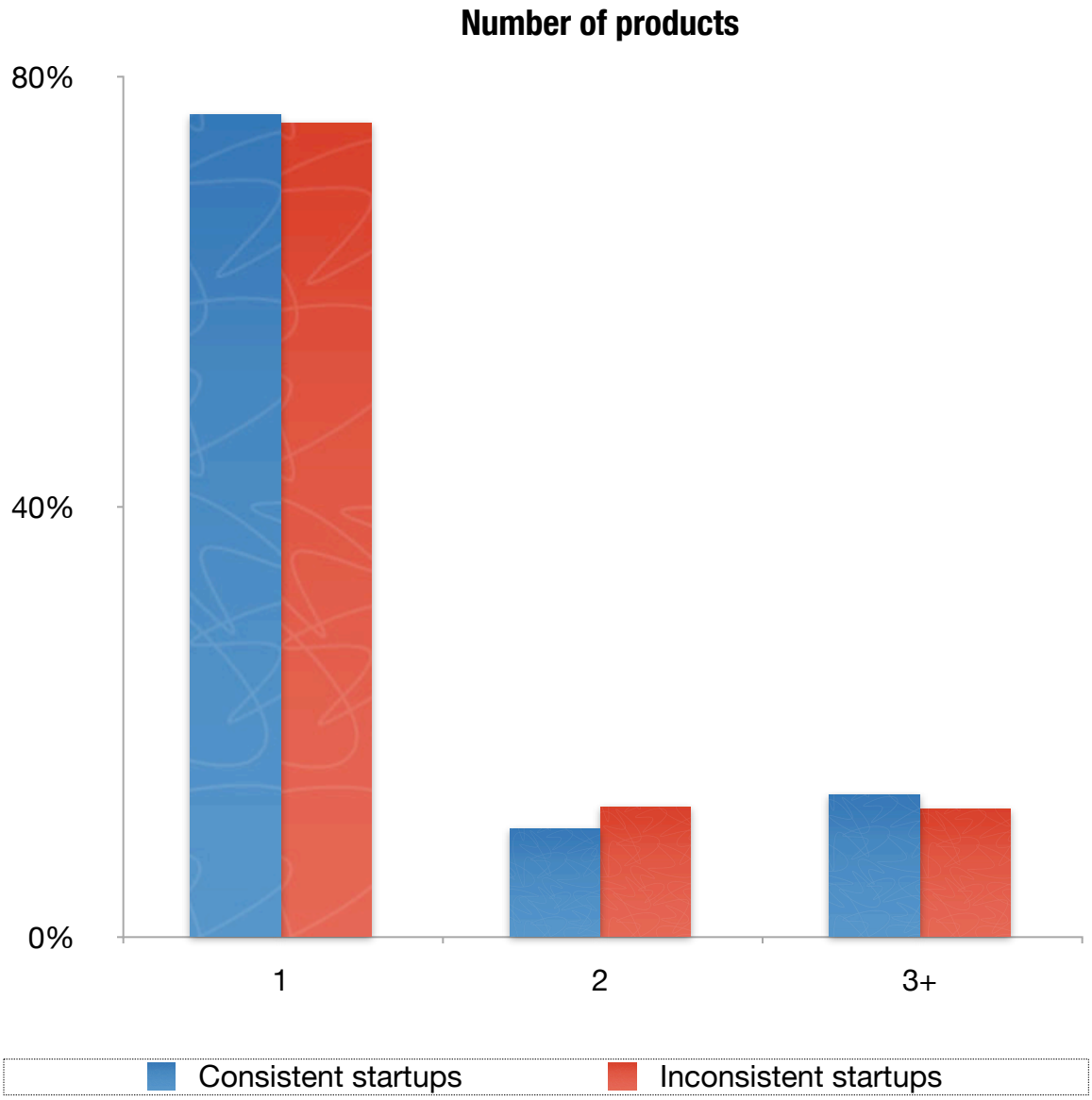


This graph shows ...
How consistency varies by the number of startups the founder has been a part of where they were either the founder or one of the first 5 employees.

This could be interpreted ...
Experience has no impact on whether an entrepreneur will be more consistent.

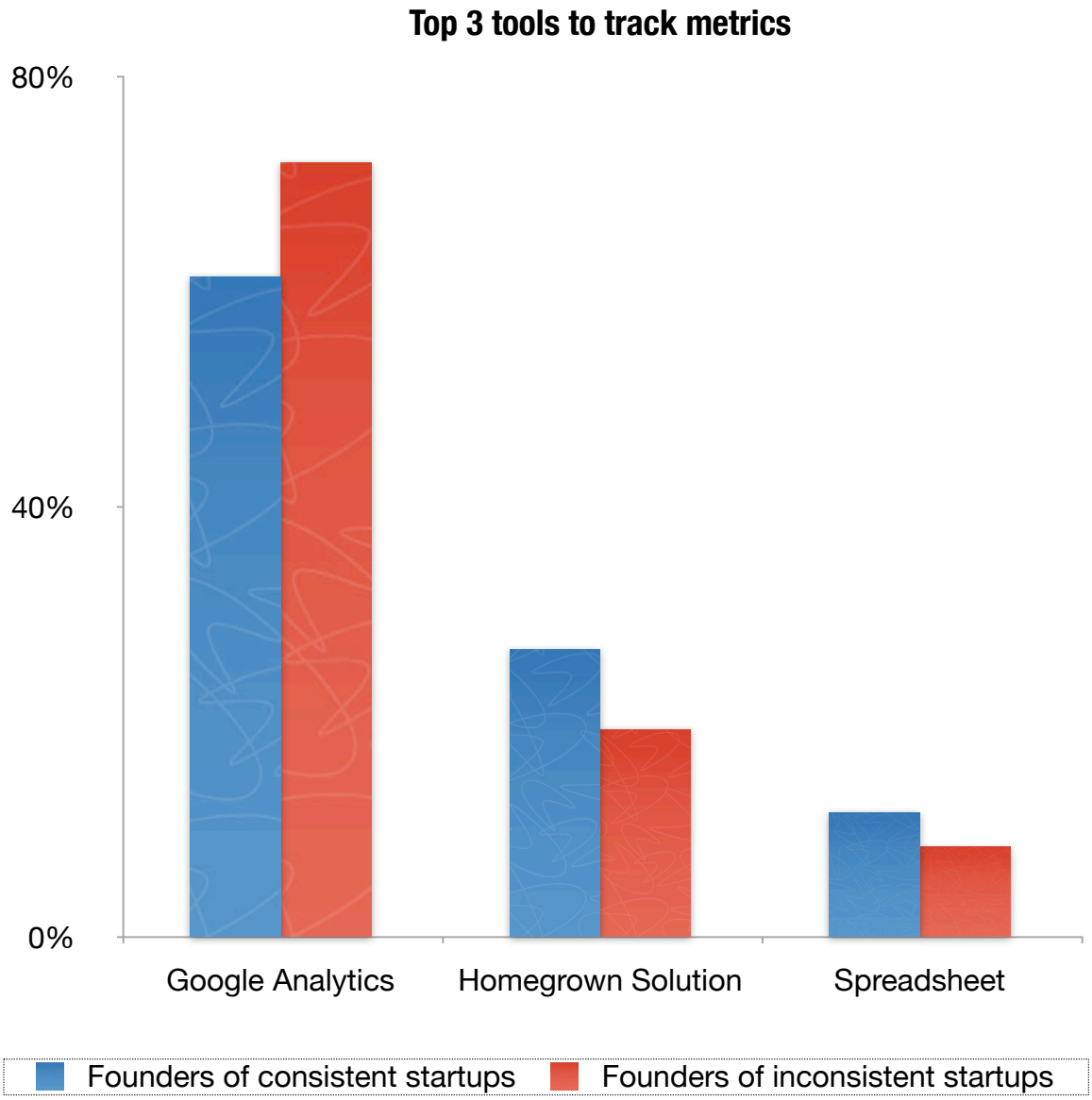


This graph shows ...
the average of consistent companies vs the average age of inconsistent companies
This could be interpreted ...
Age has no impact on whether you are consistent.



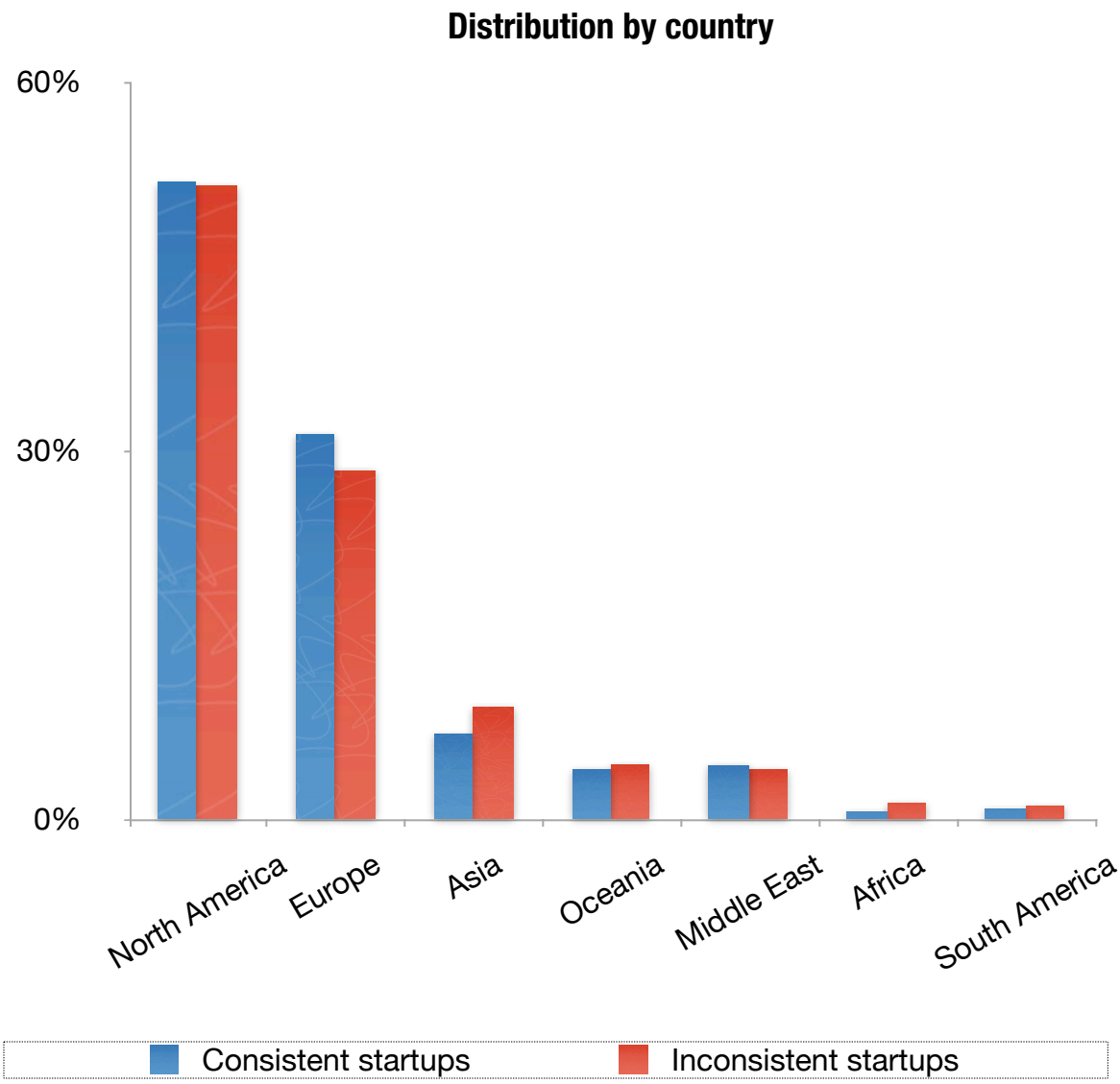
This graph shows ...
We divided the distribution into three buckets. One product, two products and three or more products. The distribution across these three buckets is almost identical for consistent and inconsistent companies.

This could be interpreted ...
The amount of products a company is handling therefore does not influence the performance



This graph shows ...
Google Analytics, homegrown solutions and spreadsheets are the top 3 three tools that are used by more than 90% of all startups to track their metrics and make decisions.

This could be interpreted ...
There are slight differences between consistent and inconsistent companies but we didn't interpret it as significant.



This graph shows ...
How consistency varies by geographical region.

This could be interpreted ...
Geography has no impact on whether you are consistent.

V. Conclusion

Concluding we can say that we were surprised with the clarity of the results. Since our last report we have grown our dataset to more than 3200 firms and completely overhauled our classification methodology with machine learning algorithms.

Our algorithms classify each firm into a behavioral stage and an actual stage according to the Marmer stages model. Using this classification, we are able to recognize firms whose behavioral stage does not match the actual stage. These firms are called inconsistent, and their main problem is that they scale their operations prematurely.

Premature scaling is a result of firms focusing on one dimension in their operation and advancing it out of sync with the rest of their operation. Our data indicates that inconsistent firms tend to overspend early on customer acquisition, hire too many employees, designate executive management too early, and focus too much on engineering at the expense of customer development.

The issue with firms that scale prematurely is that they perform significantly worse than firms that scale properly. Inconsistent firms have lower user growth, raise less money in later stages and make less revenue per month.

A notable finding in our research is that so many firms were prone to premature scaling. Specifically, 70% of the firms in our dataset exhibited such behavior. We are able to show that many commonly quoted causes for failure are probably not the causes of premature scaling. The age of entrepreneurs, their location, their experience nor their education affect their chances of scaling prematurely.

The work is far from complete. Two future research topics currently seem promising:
Improving our machine learning algorithms to classify and analyze data more accurately, and make use of new firm data being collected.
Longitudinal data of firms and its analysis will allow firms to extrapolate individual recommendations on how to operate in different environments.

In order to aid firms in avoiding the pitfalls of early scaling, we developed the Startup Genome Compass. The Compass uses firm data to generate a comprehensive report for each individual firm. The report contains benchmarks and analyses that can be used by entrepreneurs to ascertain their startup Type and Stage. We hope these insights will help firms identify issues that require their attention when advancing through the Startup Lifecycle.

D. Acknowledgments & Sources

Authors:
Max Marmer, Bjoern Lasse Herrmann, Ron Berman, Ertan Dogrultan

Supporters:
Chuck Eesley, Steve Blank, Aleksandra Markova

Methodology:
In order to not bias the startups taking the survey we will not publish the thresholds and milestones we use for the stage assessment. More info can be found here http://www.systemmalfunction.com.

Underlying Assumptions:
- We assume that a company is tackling a large market from the get go or navigates towards a large market as they evolve
- We assume that the company is able to place themselves in an ecosystem where talent and money is accessible
- This view makes sense predominantly for companies with high market risk. We assume a startup is able to surmount their technology risk. Companies with large technology risk may fail for additional reasons.

Caveats / Current Problems We Are Working on Solving:
- We don't yet have longitudinal data.
- We don't assess much about the market and can't assess where in the lifecycle adoption curve a startup is.
- We don't assess each dimension of the startup independently. This makes the behavioral stage an aggregate score that express the startup's "the center of gravity" across the five dimensions (Customer, Product, Team, Business Model, Financials).

Sample sizes:
- Total number of startups: 3200
- Startups that were consistent with the Marmer stages: 30%
- Startups that raised $50k+ funding (with specific amount disclosed): 316
- Startups that had funding but not disclose the amount: 392
- All startups were high growth technology startups

Inspiration:
Steve Blank, Dave McClure, Sean Ellis, Eric Ries, Paul Graham, Joel York