The Lean Startup

How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses

By Eric Ries

Part One - Vision

Chapter 1 Start

- **Management and discipline** are not contrary to handling the chaos and **uncertainty** of startups must face.
- There is a **loss in manufacturing jobs** in the USA during the last two decades but in parallel, there is an **increase in manufacturing capacity**.
- Companies and startups' **failures are a colossal waste** of their people's time, passion, and skill.
- The Lean Startup takes its name from the **lean manufacturing** led by Toyota.
- The Lean Startup adapts the concepts of lean manufacturing in entrepreneurship.
- The goal of the Lean Startup is to show startups a new way to **measure productivity**, to figure out the **right thing to build**, what customers want and pay for, as quickly as possible.
- Drive your company like a car, not like a complex rocket ship.
- Complex plans and wrong assumptions, even if perfectly executed, may lead you to failure.
- **Constantly adjust** with a steering wheel called the **Build-Measure-Learn** feedback loop.
- Define your vision, the product will be the end result of this strategy.

Chapter 2 Define

- **Startup**: "a startup is a human **institution** designed to create a new **product or service** under conditions of **extreme uncertainty**."
- A startup is an **institution** with activities such as hiring, coordinating activities, and creating a company culture.
- A **product** can be a grocery store, an e-commerce website, or a consulting service that brings **value** to customers.
- Copying an existing business model is not innovation, the risk and uncertainty are understood.
- Startup projects can start within big companies such as Intuit when **management supports innovation**.
- Intuit built a system in which **testing ideas** is fast. Innovation is measured by the number of new customers and the percentage of revenue coming from these offerings.

Chapter 3 Learn

- What is the point to build a product on time and within budget if nobody wants it?
- **Failures** are costly and should not be used as an **excuse** by management.
- **Validated learning** is a method for demonstrating progress during extreme uncertainty.
- IMVU is an instant messaging company with a strong **network effect**.
- **Metcalfe's law**: "the value of a network as a whole is proportional to the square of the number of participants". The more people in the **network**, the more valuable the network.
- Because it is **difficult to change the network** for the users, IMVU built an add-on product in which the users can use the IMVU virtual goods and avatar without switching IM providers.

- The first months after the launch, the result was **disappointing** despite the efforts to make the product better.
- After interviewing users, IMVU discovered that customers didn't want an IM add-on but a stand-alone IM network. The **assumptions** they made were wrong.
- Could IMVU learn the lessons from this failure earlier?
- One of the lean manufacturing principles is to provide **value** to the customer and reduce **waste**.
- After learning **what the users really valued**, IMVU **pivoted** in its product development. IMVU was more suited to making new friends.
- Delaying launching the product is a temptation to keep dreaming of an overnight success.
- **Bad results** are cold water poured onto the dream of success.
- Every experiment should help to answer these two questions: "**Should this product be built?**" and "**Can we build a sustainable business around this set of products and services?**"

Chapter 4 Experiment

- The **scientific method** is if you cannot fail, you cannot learn.
- Begin with a **clear hypothesis** that makes **predictions** about what is supposed to happen, then **test it empirically**.
- **Start with small experiments**. The founder of Zappos sold the first shoes online by posting a few pictures online. He got direct **feedback** from customers **before building any product**.
- **The value hypothesis** tests whether a product or service really delivers value to customers.
- **The growth hypothesis** tests how new customers will **discover** a product or service.
- Fast negative results are **instructive** and can influence the strategy.
- Unlike market research, the experiments have already **solved real problems** and have **established customers**.
- Do consumers recognize that they have the problem you are trying to solve? If there was a solution, would they buy it? Would they buy it from you? Can we build a solution for that problem?
- "Success is not delivering a feature; success is learning how to solve the customer's problem."

Part Two - Steer

Chapter 5 Leap

- At the beginning of Facebook, **traction was already strong**, more than half of the users came back to the site every day, and three-quarters of Harvard's students were using it within one month. **The growth hypothesis was validated.**
- The strategy is based on **assumptions** that must be **tested** without losing the vision.
- **Analog**: when launching the iPod, Steve Jobs knew people would listen to music with earphones because people were already using Walkman.
- **Antilog**: people were downloading music for free on Napster. Will people pay for downloading music?
- Being at the right place and at the right time is not a guarantee of success. The ones who succeed are the ones who **adapt their strategy**.
- Genchi gembutsu, **go and see for yourself.** Yuji Yokoya was in charge of the development **o**f the new Sienna minivan for the North American market. He traveled in a Sienna minivan for 53,000 miles in the USA to experience and observe what customers wanted.
- **Get out of the building** and go ask customers is a good way to understand their problems.
- Designing the **customer archetype** and his problems will guide your product development.
- **Analysis paralysis** is endlessly refining the plan, it is dangerous it **lacks real feedback** from customers using the product.

Chapter 6 Test

- A **minimum viable product (MVP)** is designed to **test** the business hypotheses as fast as possible.
- **Early adopters** are a breed of customers willing to pay to use a new product first even if it is not perfect yet.

- Extra features beyond the minimum to start testing and learning is a waste.
- **Dropbox** showed a demonstration in a video to early adopters while the product was not built yet.
- At Food on the Table, the CEO provided a **concierge MVP**. He served the client face to face. It was very inefficient and not scalable, but he learned about real-life problems the client had and developed features that were really needed.
- Making **quality** products is the foundation of lean manufacturing. But for a startup, we don't know for sure who the customer is and what he **perceives as worthwhile**.
- Build your MVP and let the customer decides if it is what they want or not.
- The **probability** that competitors **steal the idea** of your MVP is **very low**. They already have many projects.
- The only way to **stay ahead** of the competition is to l**earn faster** through the Build-Measure-Learn feedback loop.

Chapter 7 Measure

- How to be certain that the product is becoming better? The improvement in the numbers is maybe not the direct result of the changes in the product.
- The rate of **growth** depends on the **profitability** of each customer, the cost of **acquiring** new customers, and the **repeat purchase** rate of existing customers.
- Another business model is eBay which relies on the **retention** of new buyers and sellers.
- If the strategy is **flawed**, the company can **pivot**.
- Use the MVP to **test your assumptions**. A MVP can be as simple as some marketing materials. Do the customers want to sign up or preorder the product?
- Then, fine-tune the engine to improve one of the drivers of its growth model.
- Test and measure **one hypothesis at a time**, you will know if you are moving in the right direction.
- A **cohort analysis** is similar to a funnel analysis in sales.
- Poor quantitative results force to do more qualitative research with new hypotheses.
- **Optimization** improves the product's performance. However, incremental efforts to build the wrong product in a startup will not yield results.
- When there is **no result**, managers blame the engineers for not working hard enough while working on the **wrong features**.
- **Vanity metrics** prove that the company's growth engine is working, but presented in a cohort style, you cannot confirm whether you are building a **sustainable business**.
- **Agile is a methodology** in product development. The sprints deliver new features, they change direction quickly according to the feedback.
- **Using A/B testing and cohort-based metrics** helps distinguish what features impact **customer behavior** and what they want and don't want.
- Developing features that have **no impact** on customer behavior is a **big waste**.
- The **kanban diagram** is a tool to **prioritize** and monitor feature development. Feature development is split into four stages: backlog, in progress, built, validated.
- **Three A's of metrics**: actionable, accessible, and auditable.
- An **actionable** metric is when cause and effect are clearly defined.
- **Accessible** means the data is easily understood by everyone.
- Data must be **auditable**, managers should be able to test the data by talking with customers.

Chapter 8 Pivot (or Persevere)

- There is not a **scientific** formula to tell when to persevere or pivot.
- Being stuck in the **land of the living dead** is when the MVP is improving but the data are still mediocre. Should the startup pivot or persevere?
- The **zoom-in pivot** is focusing the product on one feature.
- The **customer segment pivot** is keeping the product but switching the audience who will pay.
- The **platform pivot** is a self-serve platform where anyone can become a customer with a credit card such as Adwords.
- A startup can keep learning and pivot as long as the company has remaining cash in the bank.
- When **cash is low**, either they **cut the costs** or **raise additional funds**.

- Pivoting requires **courage**: admitting the fear of failure, refusing to look at the vanity metrics, and knowing exactly the criteria of failure.
- Only looking at the **vanity metrics** during growth is a **trap**.
- Reaching the **mainstream customers** is the next challenge after **converting** the **early adopters**.
- Mainstream customers have **different expectations** and pivoting might be necessary to **sustain the growth**.
- **Pivot** is a kind of change designed to **test a new fundamental hypothesis**.
- **Zoom-in Pivot**: a previous single feature becomes the whole product.
- **Zoom-out Pivot**: the whole product becomes one feature of a larger product.
- **Customer Segment Pivot**: the product solves a problem but not the original customers planned to serve.
- **Customer Need Pivot**: Because of customer intimacy, a bigger problem is discovered that needs to be solved.
- **Platform Pivot**: Switching from an application to a platform or vice versa.
- **Business Architecture Pivot**: Switching from the high margin, low volume to low margin, high volume, and vice versa.
- **Value Capture Pivo**t: Monetization or revenue models.
- **Engine of Growth Pivot**: viral, sticky, and paid growth.
- **Channel Pivot**: A channel is a mechanism by which a company delivers its product to customers.
- **Technology Pivot**: the company discovers a new technology to solve the problem more efficiently.

Part Three - Accelerate

Chapter 9 Batch

- Doing one at a time (**single-piece flow**) than in a large batch is faster and more efficient.
- **Large batch** has **waste** such as sorting, moving, and stacking.
- Producing in **small-batch** helps to detect quality problems sooner and avoid rework.
- After WWII, Japanese carmakers were unable to compete with American factories in the **mass production** of large batches. Innovators such as Taiichi Ohno and Shigeo Shingo found a way to succeed by using small batches.
- The Lean Startup goal is not to produce widgets more efficiently but to learn how to build a **sustainable business as quickly as possible**.
- **Continuous deployment**: when a defect is detected, it is removed immediately, the team in charge is notified, and no more introduction of further changes prevents the problem from **compounding** until the root cause of the problem is found and fixed.
- This small-batch development works also in hardware, design, and 3D prototyping for example.
- Traditional education is designed on mass production and large batches. Some startups are building educational systems around the small bath concept.
- In design, large batches increase the risk of wasting time doing rework when designers pass a defect to engineering. Drawing must be redone and engineers may become idle.
- **The large-batch death spiral**: the management is afraid to launch the product because the more they worked on the project with many features higher the **expectation**. The big product comes with **more bugs** that need to be fixed.
- Incomplete designs, not-yet-validated assumptions, and business plans are **work-in-progress**.
- Using the **Pull method** instead of the **Push method** reduces WIP. Same as on a shop floor, WIP piles up.
- With the Pull system, you produce the product needed by the customer in the **quantity required**.
- In the Lean Startup model, as customers don't what they want, the idea is to produce experiments that need to be run.
- **Define the hypothesis** about the customer that needs to be tested then launch the Build-Measure-Learn loop as quickly as possible.

Chapter 10 Grow

- **Sustainable growth**: new customers come from the actions of past customers.
- Growth comes from word of mouth, as a side effect of product usage, through funded advertising, and through repeat purchases or use. There are **3 engines of growth**.
- **Sticky engine of growth:** the product attract and retain customers for the long term.
- Customer acquisition exceeds the churn rate.
- **Churn rate**: fraction of customers in any period who fail to remain engaged with the product.
- Customers should have a compelling reason to have a repeat usage of the product and not switch to a competitor.
- **Viral engine of growth**: similar to a virus, awareness of the product spread rapidly. Each customer brings with him more than one other customer, the **viral coefficient is greater than 1.0**.
- Companies that have a viral growth strategy focus on increasing the viral coefficient by **eliminating frictions**.
- **Paid engine of growth**: increase its rate of growth by increasing the revenue from each customer or driving down the cost of acquiring a new customer.
- The **lifetime value** is the total revenue that each customer will bring to the company.
- If the lifetime value of a customer is **superior to his cost of acquisition**, the product will grow.
- It is technically possible to have **more than one engine of growth at the same time** but specializing in one engine reduces **confusion**.
- **Product/market fit**: the startup finds a widespread set of customers that resonate with its product.
- **Pivoting is not a failure event**, and a product that has achieved product/market fit may still need to pivot.
- The growth engine will eventually **run out**, and the set of customers will be **exhausted**.
- If the startup is relying on its growth engine for growth without improving its product, the company will face a crisis when the growth engine is exhausted.

Chapter 11 Adapt

- **Adaptive organization**: automatically adjust its process and performance to current conditions.
- **Speed** is crucial in learning how to build a sustainable business but **destructive** if it is not regulated.
- At Toyota, the **andon cord** will stop the line of production when a **defect is detected** to surface the problem and solve it once and for all.
- Defects will slow you down later and cause **rework** and **customer complaints**.
- There is a **paradox** between shipping the MVP with bugs to learn and building a quality product.
- Asking **Five Why** helps to discover the **root cause** of the problems.
- Technical problems are often a **human error**.
- Invest time and money **proportionally** to the problem to be solved.
- **Training** is an investment to reduce problems down the road.
- **Five Blames**: when a problem occurs, teammates may start pointing fingers at each other.
- Solve the problem at a **system level** and avoid blaming people.
- During the analysis of the root cause, anyone who is concerned should be invited. Whoever is left out of the discussion ends up being the target for the blame.
- **Build the culture** by being tolerant of the mistakes the first time. Blame the system, not the people.
- Start with a **small and specific problem** to practice.

Chapter 12 Innovate

- The **3 prerequisites for innovation** are scarce but secure resources, independent authority to develop their business and a personal stake in the outcome.
- Capital in a startup must be secure. A sudden reduction of 10% of its cash on hand can be a fatal blow.

- Approvals slow down the Build-Measure-Learn feedback loop and **inhibit learning and accountability**.
- A **personal stake** in the outcome can be a financial incentive or reputation.
- Innovation can be inhibited by **fear** when there is a lot to lose in case of a mistake.
- **Hiding the innovation** from the parent company doesn't build sustainable innovative culture and trust.
- **Contain the impact** of the innovation without constraining the methods by giving the **boundaries** and rules.
- **Entrepreneur should be a job title**, entrepreneurship should be considered a viable career path for innovators inside large organizations.
- How do we know that the problem is due to a special cause versus a systemic cause?
- When adopting the Lean Startup methodology, it is tempting to blame the new system for the problems.

Epilogue: Waste Not

- Frederick Taylor puts the system above the people but lean manufacturing proves that factory workers can also bring value.
- The problem today is not to know how to produce more but if the product should be built.
- Producing efficiently the wrong thing is a big waste.